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The Development and Evaluation of a Rural Environmental Planning Strategy for the Selkirk and District Planning Area

By

David T. Jopling

A Practicum Submitted to the Faculty of Graduate Studies in Partial Fulfillment of the Requirements for the Degree of

MASTER OF CITY PLANNING

Department of City Planning
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THE DEVELOPMENT AND EVALUATION OF A RURAL ENVIRONMENTAL
PLANNING STRATEGY FOR THE SELKIRK AND DISTRICT
PLANNING AREA

BY

DAVID T. JOPLING

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of

MASTER OF CITY PLANNING

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written permission.
ABSTRACT: The Development and Evaluation of a Rural Environmental Planning Strategy for the Selkirk and District Planning Area

This study has been conducted in response to the ineffectiveness of certain rural planning processes in the urban-rural fringe area of the Winnipeg region. Specifically, the research has sought to develop and evaluate an alternative planning strategy that is "practical and implementable" in addressing the local problems experienced in the recent Selkirk District development plan process. In the summer of 1996, the Manitoba Municipal Board instructed the Selkirk and District Planning Area Board (SDPAB) to conduct further study and evaluation of their proposed development plan to better address the specific rural environmental issues in the district. In particular, this practicum seeks to identify and evaluate alternative rural environmental planning approaches, related decision-making structures, and plan implementation mechanisms that are available to a rural planning district, such as the SDPAB—that responds to both the variety of development interests present in the District, and the limits of the natural environment.

This practicum recommends two main response strategies, established from the number of available combinations of approaches and tools reviewed, that would appear to best address the current and anticipated issues in the Selkirk District. The first strategy developed is intended to be applied immediately. This strategy reflects an explicit basic rural environmental framework that incorporates public participation throughout the process, is rural-oriented, environmentally-based, and is practical—because of its attention to current time frames and fiscal limits. The second strategy entails the development of an alternative and more progressive framework, over the next five years, to eventually replace the first strategy. It involves the application of an ecologically-based approach which uses rural design-oriented plan implementation tools to achieve a desirable land use pattern that would have significantly less impact on the environment than present and short-term strategy approaches.
ACKNOWLEDGMENT

I dedicate this document to all those who have assisted me in the process of completing my practicum. First and foremost, I would like to thank my parents: my mother and father who have supported me throughout the whole process of completing my Masters degree. To Lori and Trevor, who are my inspiration. And to all my family and friends who were there when I needed them.

I would like to thank Ian Wight for his guidance and patience in the role of practicum committee advisor. Special thanks, must also go out to my practicum committee members: Ian Skelton, Elizabeth Fleming, and Curwood Ateah, for taking the time out of their busy schedules to review and make comments on my work.
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CHAPTER ONE: GENERAL INTRODUCTION

1.1 The Study Rationale

What planning approaches, tools and decision-making structures are available to a rural planning district to realize an acceptable development plan—one that responds to both the variety of development interests present, and the limits of the natural environment? This question defines the research problem investigated in the present study. It is a question that also captures the practical problem context at the heart of this practicum—namely, strategising a way out of the current impasse facing the Selkirk and District Planning Board—as it strives to recover from a failed development plan-making effort.

In the spring of 1996, after approximately four years in preparation and expenditure of a significant amount of money, the Selkirk and District Planning Area Board (SDPAB) completed its draft development plan and presented it to the Manitoba Municipal Board (MMB) for final approval. On July 4, 1996, the MMB released its ruling stating that the proposed development plan, By-law No. 120 of the Selkirk District, would not be approved for a number of reasons. The draft development plan provoked concerns over the amount of rural residential development proposed, the capacity of the underground aquifer to support the increased development (through the use of private wells), the potential pollution hazard from future (and existing) septic systems, and the use of spot re-zoning practices (MMB 1996).

The Minister of Rural Development concurred with the MMB and asked the SDPAB to reflect the concerns of the MMB in a revised draft development plan before proceeding to seek final approval. The recommendations made by the MMB were sufficiently significant that the development plan would have to be redone in order to reflect the changes required. The issues raised were fundamental to the rural component of the
development plan, and the SDPAB did not have the option of simply making minor changes.

The Selkirk and District Planning Area (or Selkirk District) is comprised of the Town of Selkirk and the Rural Municipalities of St. Andrews, St. Clements and West St. Paul—all generally bordering the City of Winnipeg to the Northeast (See Map 1). Despite the extensive public hearing process used throughout the Selkirk District prior to the MMB hearing, it was not successful in gaining an acceptable consensus. The Selkirk District draft development plan process had encountered some opposition, as do many plans, but a particular significant presence was the opposition from the Town of Selkirk, an integral member of the SDPAB. The town administration questioned the ability of the underground aquifer to sustain the additional lots proposed in the rural component of the district plan. There were also other concerns (in opposition) raised by a number of other parties including various provincial government departments (Rural Development, Highways and Transportation, Environment, and Natural Resources), the Provincial Council of Women, and numerous individual concerns. While there was general support for much of the development plan, in overall terms, it is apparent—in retrospect—that the process was not effective in addressing the specific concerns of many people, government agencies and other groups.

During the development plan process, the SDPAB did not focus on many of the issues that—in hindsight—should have been better addressed. Instead, the SDPAB concentrated on addressing the procedural criteria and conditional requirements of the Planning Act, with comparatively little action on designing strategies to address specific problems in the Selkirk District. Also, the predominating issues seemed to revolve around who was or who should be responsible for information, or monitoring, regarding
Map 1: The Selkirk and District Planning Area
(In the Context of the Capital Region)

Map 1. The Selkirk and District Planning Area is outlined in bold, and is shown in the context of the Capital Region boundary. This map depicts each of the component Selkirk District municipalities in relation to each other, their relative sizes, and the relative location of the District to the City of Winnipeg.

Source: Adapted from Klos, Douchant and Jopling 1996, Appendix.
the impact(s) of the development provided in the draft plan. There was never any indication or recognition at the time that perhaps the problem lay, for example, in the type or amount of development proposed.

The SDPAB was of the opinion that it had done what was expected of them, as outlined by provincial legislation. The SDPAB believed it had met the criteria in the Planning Act for the planning process, and the site criteria of the Environment Act for septic field systems (Arnold 1996). The problem, here, seemed to be the limits set by the legislation. For example, despite the fact that the soil in the district is poor for supporting private septic systems, the criteria outlined in the Environment Act is not sufficient to prevent pollution in some instances. When development on poor soil is relatively more dense and when houses are larger, more water is utilized and pollution can and does occur through failure or over-taxing of septic systems. The SDPAB believes that the province has no right to prevent it from accepting increased development if proposed subdivisions meet the legislated criteria. The SDPAB has since asked the Department of Environment to indicate more clearly the criteria for future septic systems and the nature of development that it could support (See Appendix 1: Correspondence between the SDPAB and the Department of Environment, July 12, 1996).

The focus of discussion and debate has deviated from the important questions that the community needs to address. The district has to determine how development in the district can occur in a manner that: does not negatively harm the supply and quality of the groundwater (and other natural resources); prevents development that would pollute the natural environment; maintains the rural qualities of the local district; and, at the same time, ensures economic growth in the district. Also, the SDPAB has to determine how to develop in a way that does not negatively impact existing development or the natural environment.
An initial reaction to the MMB ruling by some members of the SDPAB was to hire consulting engineers to conduct studies to determine the capacity and condition of the aquifer to support future development as proposed. They felt such studies would help to determine the amount of development that the water resource could support (without depletion of the supply), in order for development to continue as anticipated. The SDPAB may be heading for another controversial debate with the same individuals who opposed the plan in the first place, because of the difficulty in determining the ability of the land and water supply to adequately support certain levels of unserviced rural residential development, especially for a district of this size (Schneider, Godschalk and Axler 1978). Also, the cost would be high for a study of this magnitude. Fundamental to this viewpoint is the continued belief that science and technology will permit or provide the means to continue on the path of development that has been occurring for decades. Those in support of development cannot continue to rely on this belief because there are definite limitations to what nature can sustain and technology or science cannot change that. The real problems are "human" problems, and they have to be addressed as that.

How many rural residential dwellings can be accommodated on a parcel of land before the demands on the groundwater supply exceed its capacity to sustain itself, or before failing septic systems pollute the environment (potentially affecting the groundwater quality)? This is a question that the SDPAB is facing at this point, and it reflects a belief in the concept of land having a certain carrying capacity. There are a number of difficulties in determining the carrying capacity of a parcel of land, which will be reviewed later. The most useful aspect that can be taken from the carrying capacity philosophy is, namely, that the environment is limited in its ability to support a certain amount of growth. Examining the concept, "suggests that development should respect the functioning of the natural processes of the environment ... [and] it shows that natural
processes and man-made systems are closely related, and that alterations in either can have positive or negative effects on both" (Schneider, Godschalk and Axler. 10). Therefore, human values must enter into the process, preferably before decisions are made on purely technical grounds. The human value-sets of local interests should, ideally, dictate the desired goal—prior to conducting studies to support these goals (as opposed to conducting the studies first, and establishing the value-based goals later).

The present action of the SDPAB still does not focus on the immediate impact that any proposed development may have on the environment, nor on ability of future generations to sustain themselves. The SDPAB is not taking a proactive approach that incorporates the interests and concerns raised during the process, and in the final MMB report and recommendation. The planning process has consumed a significant amount of valuable time, delaying some potentially beneficial development, and, if the hold-up continues, it could adversely affect growth in the Selkirk District. A number of local elected officials are running out of patience because of the poor progress with respect to the development plan, and there is the threat of some members pulling out of the planning district (Selkirk District Board and Council Meeting October 2. 1996: Delaurier 1996).

The challenge remains: what planning approaches, planning tools, and/or decision-making structures are available that could help this district attain a development plan that responds to both the variety of development interests and the limits of the natural environment, and which might thus meet with approval? The SDPAB now must rethink its approach, and pursue a new strategy that might deliver an approved plan. The SDPAB will have to incorporate the concerns raised in the latter part of the draft development plan process, that it clearly failed to adequately address in the initial plan-making effort.
1.2 The Purpose of the Study

This study is about the ineffectiveness of certain planning processes in rural areas and the identification and evaluation of alternative approaches that may better suit the Selkirk District. Sargent et al (1991) state that the opportunity and challenge for rural areas in the twenty-first century is to achieve:

"communities that foster diversity, not large concentrations of sameness; that have a continuity with the past as opposed to trashing it; that go beyond the suburbs in blending development with nature; and which provide choices, quality, and an aesthetic...that is meaningful to people" (29).

Natural resources should not be consumed as if they are unlimited and the impact of development should be examined in relation to how it will affect future generations. Ideally, there should be education and awareness instilled through planning processes that help people understand the implications of their decisions on land use and development patterns. In addition, rural-oriented planning tools are needed to help identify and respond to the appropriate questions to be asked, and problems established. Instead of attempting to rely solely upon technology and science to solve the problems of the community, there needs to be a broad and inclusive forum to discuss the issues and problems that the District is experiencing. It is the human values and interests of those involved that are at the source of many of these problems, and it must be the people who live in the community (and in neighbouring areas) who should effectively address their solution as a collective.

The purpose of this practicum is to identify and evaluate a number of rural environmental planning and development approaches that have the potential to address the problems faced by the Selkirk and District Planning Area Board in its attempt to create an acceptable development plan. Strict attention is paid to ensuring that the proposed approaches reflect the applicable provincial legislation and policies. Additional planning implementation tools and decision-making structures are identified that may help or
complement the various approaches, in hopes of comprehensively addressing the issues, and attaining a generally desired outcome for the Selkirk District.

The study determines the feasibility of the proposed approaches and plan implementation tools in terms of their implementability and practicality. This is determined by ensuring that the time-frame the process would require is reasonable, that the cost of implementation is minimal, and that the amount of complexity it would entail is easily comprehended and managed when addressing the issues in the Selkirk District. The intention of the study is to identify an approach that can help produce the desired results quickly and affordably, while reflecting the goals of a variety of interests in the local community (with little or no opposition), satisfying the policies of the provincial government, protecting the natural environment (i.e. the aquifer), and, at the same time, achieving economic feasibility (in a fiscal responsibility context).

1.3 The Study Methodology

The issues and problems of the Selkirk District were first identified through reviewing the files of the MMB hearing, a literature review (including local newspaper articles), and interviews with individuals who were (and still are) involved in the process. The researcher relied on his prior personal experience of the development plan process to identify shortcomings of the process as legislated by the Manitoba government and carried out by municipalities. The experience gained while participating in the development plan process conducted in the R.M. of East St. Paul. from 1993 to 1995, proved to be invaluable for this analysis.

The legislative framework of planning in Manitoba is reviewed to identify the shortcomings in the legislative process. This also has helped to ensure that any alternative approaches and tools identified are consistent with provincial policy.
Because there were many issues to be addressed in the Selkirk District context, it was recognized that the application of an alternative approach would not be sufficient to address all of the concerns: additional plan implementation techniques would be required to complement the proposed approaches. A literature review of alternative "environmentally-focused" planning approaches — designed for rural areas — was conducted, targeting relevance for, and the potential to address, the particular problems experienced in the Selkirk District development plan process. Complementary plan implementation tools were then identified to address the remaining issues in the District.

The evaluation involves the cross referencing of the specific issues in the District with each of the planning approaches and planning tools, through the use of matrix charts. The strengths and weaknesses of the approaches are determined in light of the problems, local characteristics, and political commitment (i.e. to determine if they are practical or implementable). The potential effectiveness of one approach, a variation of one, or a combination of many, is established. In conclusion, some short-term recommendations are made, along with recommended longer-term objectives, in the context of an appropriate strategy.

1.4 The Organization of the Study

This practicum is organized into seven chapters (See Figure 1 for a summary). The introductory chapter provides the rationale for the study, and outlines the purpose and methodology. Chapter 2 reviews the legislative frameworks, planning mechanisms, administrative agencies and policies that currently guide land use planning in Manitoba. It reviews some characteristics of the Selkirk District and summarizes the Manitoba Municipal Board ruling on Selkirk District By-law No. 120, representing the District's recent attempt to produce an updated development plan. The issues identified in chapter 2 form the main practical problem setting of this study and are grouped into two separate
INTRODUCTION:
STUDY RATIONALE, PURPOSE, AND METHODOLOGY

THE SETTING:
MANITOBA LAND USE PLANNING FRAMEWORKS, TOOLS, AGENCIES AND POLICIES
SELKIRK DISTRICT
LAND USE PLANNING ISSUES

ENVIRONMENTAL PLANNING AND RURAL DEVELOPMENT:
THEORIES AND PRECEDENTS

IDENTIFYING ALTERNATIVE PLANNING FRAMEWORKS:
THREE RURAL ENVIRONMENTAL PLANNING APPROACHES AND FIVE PLAN IMPLEMENTATION TOOLS

EVALUATION OF THE APPROACHES:
EXAMINING HOW EACH OF THE APPROACHES ADDRESS THE SPECIFIC PROBLEMS IN THE SELKIRK DISTRICT AND DEVELOPMENT PLAN PROCESS

EVALUATION OF THE TOOLS:
EXAMINING HOW EACH OF THE TOOLS ADDRESS THE SPECIFIC PROBLEMS IN THE SELKIRK DISTRICT

RECOMMENDED STRATEGY FRAMEWORK:
DEVELOPMENT OF A STRATEGY THAT WILL LEAD THE SDPAB TO SECURE A SUCCESSFUL DEVELOPMENT PLAN IMMEDIATELY AND IN THE LONG-TERM

SHORT-TERM STRATEGY
A

LONG-TERM STRATEGY
B
categories that require differing methods to address them. There is the need firstly, for an alternative plan-making approach, and secondly, for the application of alternative plan implementation tools. (that would ideally complement one another), to address the identified problems in the District.

The third chapter comprises a literature review of planning for rural environments. It surveys various environmental aspects, such as ecological and sustainable development perspectives, and reviews selected rural planning and development endeavors across Canada. Particular consideration is given to urban-rural fringe planning contexts to isolate the main elements necessary for an effective rural environmental planning strategy.

Chapter 4 reviews the theoretical basis, decision-making structures and the process stages of three proposed rural environment planning approaches: the Rural Environmental Planning approach (REP): the Ecological Approach to Landscape Planning (ECO-P): and, the Limits of Acceptable Change approach (LAC). This is followed by consideration of five rural plan implementation mechanisms, namely: cluster development (CD): transfer of development rights (TDR): ecological footprint analysis (EFA): land evaluation and site assessment (LESA): and, the McHarg suitability analysis (MSA).

In the fifth chapter, the three proposed rural environmental planning approaches are evaluated by assessing how they might address the problematic issues identified in the Selkirk District development plan process. The approach with the seeming potential to be most effective, given the current conditions and immediate needs, is identified: i.e. the Rural Environmental Planning approach developed by Sargent et al (1991). Although all three approaches have some very positive qualities, the REP is favoured due to its
simplicity in application and in its responsiveness to practical concerns such as the limited time frame and budget to realize a revised draft plan.

The five proposed plan implementation mechanisms are evaluated in chapter 6. The tools are evaluated by assessing how they might potentially address the particular problems and circumstances in the Selkirk District. The TDR, CD and EFA plan implementation tools seem to address individual issues in the Selkirk District, while the MSA and LESA have some overlapping qualities.

The final chapter deals with a recommended response strategy framework, rooted in a consideration of various combinations of approaches and tools. The seemingly most appropriate strategies—on a short-term and long-term basis—are identified for consideration in sequence by the SDPAB. The recommended short-term strategy, to be applied immediately, reflects a rural environmental planning (REP) framework which incorporates public participation throughout the process, is rural-oriented and environmentally-based, and which is practical because it is sensitive to pressing time frames and cost limitations. The LESA technique, supplemented by some EFA awareness-raising, is favoured as an immediate response, in conjunction with the REP approach. The recommended long-term strategy involves a more progressive framework, to be implemented over the next five years, with the intention of ultimately replacing the short-term strategy. It requires the application of an ecologically-based approach (ECO-P), and several of the plan implementation tools. Recommendations for further research and strategy development are also presented.
2.1 Introduction
The land use planning legislative framework and agencies in Manitoba are reviewed to provide a basic understanding of the land use planning process and related policies. Planning tools or mechanisms that are commonly used to promote planning, to help guide local decision-making and to ensure sustainable development in the province, are examined. Physical and demographic characteristics of the Selkirk District component municipalities are identified to provide a brief background on the area. The issues that were raised during the Selkirk District development plan process, are reviewed, in particular those issues identified in the Manitoba Municipal Board hearing. Each issue is elaborated and examined individually to attempt to fully appreciate the problems experienced, with the intention of eventually addressing these issues through an effective strategy.

2.2 Land Use Planning in Manitoba: Legislative Frameworks and Planning Tools
The Municipal Act and the Planning Act provide the legislative frameworks guiding planning in Manitoba. Within the Planning Act, are a number of mechanisms and plan implementation tools designed to guide land use planning in the province, including planning districts, development plans, zoning by-laws, subdivision controls, building regulations, development agreements, land acquisition, and planning advisory committees. The proposed Sustainable Development Act is also examined briefly.

2.2.1 The Municipal Act
The Manitoba Municipal Act is the governing legislation for urban and rural municipalities in Manitoba (with the exception of the City of Winnipeg) and is
administered by the Department of Rural Development. Section 318 of the Municipal Act states that land use planning should occur as described under the Planning Act.

2.2.2 The Planning Act

The Manitoba Planning Act was first adopted in 1975 and is the legislative framework for land use planning at the municipal level. The Planning Act outlines the powers and responsibilities given to representatives of municipal areas, both rural and urban, for the purpose of land use planning (with the exception of land within the jurisdiction of the City of Winnipeg). Land use planning is concerned primarily with the physical growth of communities, controlled through local development plans (or planning schemes). The Manitoba Planning Act consists of several sub-sections including: district planning, development plans, land use controls (zoning by-laws), and subdivision control, among others. The Manitoba Department of Rural Development is responsible for the administration of the Planning Act.

2.2.2.1 The Planning District

The Planning Act provides for the creation of planning districts to help resolve land use issues that cross municipal boundaries, both urban and rural, through coordinated planning (Selkirk and District Planning Area Board, 1995). Planning districts must consist of two or more municipalities, in whole or in part. The main responsibility of the planning district is to adopt a development plan and zoning by-laws for the district. The planning district is governed by a board that consists of council representatives from each municipality and has a support staff that typically includes a secretary-treasurer and a development officer.
2.2.2.2 The Development Plan

Under the Manitoba Planning Act, a municipality or planning district must prepare and adopt a development plan (or basic planning statement) for the community. Development plans serve as a framework to guide local policy and decision-making in the municipality and must be updated every five years. Development plans identify crucial social, economic and environmental threats and opportunities from or for land development; help determine the various consequences or potential impacts that may occur from land development; identify the appropriate actions required to address a problem; and identify concerns that relate to the governing of land development or resource use. Development plans must conform to the Provincial Land Use Policies under the Planning Act (See Section 2.3.3).

Development plans contain a statement of aims, policies to guide development, objectives, map(s) and the means to help implement policies. Development plans must be adopted by the local municipality or planning district as a by-law, and follow a certain legislative process (See Appendix 2: The Adoption and Amendment Procedure for Development Plans and Basic Planning Statements).

2.2.2.3 The Zoning By-Law

Once a development plan is completed and approved, zoning of various land uses of property, identified in the plan, can take place. A zoning adoption and amendment procedure outlined in the Planning Act is soon initiated. Zoning ensures the use of land is controlled in order to prevent conflicting uses in near proximity; maintains the efficient servicing (health and safety) of the land in relation to other land holdings; and protects the character and land values of private land owners. A zoning by-law commonly contains information in the form of maps to depict the areas that are designated to a particular use, permitted and conditional uses of land use in each zone, as well as other
provisions, fees and procedures. Zoning by-laws can also include a range of other detail from lot sizes to the permitted hours of use. Zoning amendments or variations must conform to the development plan policies, be compatible with existing or future land uses, and must follow the amendment procedure.

2.2.2.4 Subdivision Control

The Planning Act allows a local council or district board the power to approve or refuse applications for subdivision. This ensures development is in accordance with the development plan and guards against potential land use conflicts or unexpected servicing costs. No development can occur without a building permit and the approval of the council or planning board.

2.2.2.5 Building Regulations

Building code by-laws and regulations help create a minimum standard of quality for the construction and maintenance of all development, to protect the health and safety of the public. Building permits and inspections are conducted by qualified local officials, to ensure that standards are met: "The standards required in these by-laws and regulations also affect the physical appearance and environmental quality of development" (SDPAB 1995, 76).

2.2.2.6 Development Agreement

The Planning Act allows development agreements to be arranged between a local council or planning district board and land developers to determine the particular provisions in relation to a proposed development. Conditions or arrangements, such as ensuring proper infrastructure or agreed facilities, are examples of what can be dealt with in a development agreement.
2.2.2.7 Land Acquisition

A local council or district may purchase land to gain control over the use of that parcel, and so secure their interest as stated in a development plan. Land acquisition is a planning tool used to implement goals stated in the development plan.

2.2.2.8 Planning Advisory Committee

Section 90(1) of the Planning Act establishes the power of a district board or local council to create a planning advisory committee "to advise and assist in the formation of planning matters." for the purpose of preparing a development plan or a zoning by-law, for example.

2.2.3 The Proposed Sustainable Development Act

In 1994, the Manitoba Round Table on Environment and Economy (MRTEE) initiated the development of a Sustainable Development Act, to establish a legal and institutional basis for approving future development that would incorporate the principles and guidelines of sustainable development. The provincial government recently solicited comments and suggestions on the draft act (White Paper) and has since decided to replace the proposed legislation with a more scaled-back approach, because of a number of serious concerns that were raised (Samyn 1997). The provincial government is now proceeding with a bill that will give a statutory basis to the MRTEE. The bill will set out guiding principles for sustainable development, that require sustainable development strategies to be created and adhered to by all provincial government departments and crown corporations. The overall intent of the proposed act is to ensure that the growth of the economy is in balance with the protection of the environment and natural resources for future generations.
2.2.4 Critique of the Current Land Use Planning Framework and Plan Implementation Tools in Manitoba

The current land use planning framework in the province (outside of the City of Winnipeg) attempts to address problems that are experienced in both urban and rural municipalities, through identical planning mechanisms. The Planning Act does not establish specific tools designed to address issues present in rural areas or in urban areas (with the exception of agricultural zoning). The application of these tools in a planning district such as the Selkirk District, assumes that it is a homogenous area capable of supporting development on demand. Distinctive tools designed specifically for the differing nature and pressures experienced in the two types of municipality are needed.

There is also the need for an alternative land use planning process which better encompasses and integrates the recent sustainable development movement with the current development plan process, in the province. The alternative approach should identify appropriate decision-making structures and plan implementation tools that can be used to better reflect the philosophies underlying the sustainable development perspective, to ensure decisions and actions respect sustainability principles.

2.3 Land Use Planning in Manitoba: Administrative Agencies and Policies.

In this section, municipal and provincial government agencies responsible for land use planning are identified and related policies examined. In particular, the goal, and related objectives, of sustainable development in Manitoba is reviewed.

2.3.1 Municipal Council

The local government or municipal council is made up of one head, usually a mayor or reeve, and a number of council representatives. The main functions of the local government are to provide public goods and services and to regulate and guide development to ensure the health of the local economy (Tindal and Tindal 1990). The
municipal council is responsible for the executive and legislative activities of the jurisdiction: "All municipalities in Canada are corporate bodies and as such exercise. and are limited to, the powers granted by their creators, the provincial governments" (Ibid., 183).

Land use planning in Manitoba is the responsibility of the local municipality or planning district. Municipalities plan for a number of reasons, including, to adequately provide services to constituents, to ensure orderly development, to ensure that residents have a good quality of life, and to use municipal resources sensibly and efficiently. In general, municipalities plan to avoid land use conflicts, to protect property values, and to conserve natural resources. Municipalities generally meet these responsibilities through plan-making, by setting goals and determining ways to meet them over a certain time period.

2.3.2 The Provincial Government Committees and Land Use Planning Related Departments

Provincial responsibilities relating to land use planning and policies are divided amongst various departments, including the Departments of Rural Development, Environment, and Natural Resources. There are also two particular provincial interdepartmental land use planning committees.

2.3.2.1 The Provincial Land Use Committee of Cabinet and the Interdepartmental Planning Board

The Provincial Land Use Committee of Cabinet (PLUCC) and the Interdepartmental Planning Board (IPB) are provincial government committees designed to assist in coordinating land use related issues that cross provincial departmental jurisdictions, such as the Departments of Rural Development, Natural Resources and Agriculture. The PLUCC consists of Ministers from the pertinent departments. The primary responsibilities of the PLUCC are to make amendments to the Provincial Land Use Policies, to approve local development plans (or planning statements), to review land use
projects and or programs. and to resolve land use conflicts that agencies may encounter. The responsibilities of the IPB include the circulation of all submissions made to the PLUCC through all relevant departments. the resolution of issues or concerns that municipalities or government departments may have before they are forwarded to PLUCC. and the coordination of government projects relating to land use. The IPB consists of deputy ministers and civil servants from the various departments that have interests in land use and from related agencies.

2.3.2.2 The Department of Rural Development

The mission of the Department of Rural Development is "to improve the economic. social. and environmental well-being of rural Manitobans...in all its endeavors. the Department is committed to providing quality services to help rural Manitobans help themselves" (Manitoba Department of Rural Development 1996. 7). The Department of Rural Development is responsible for land use planning and development through the Corporate Planning and Business Development Branch. The Corporate Planning and Business Development Branch administers the Planning Act and is responsible for reviewing local development plans. amendments. and other subdivision applications. and either supports proposed changes. recommends alternatives or formally opposes certain proposed changes.

2.3.2.3 The Department of Environment

The Department of Environment is responsible for administering the Environment Act. The Department of Environment has a division that is "responsible for minimizing the environmental impacts of land use development proposals" (Manitoba Department of Environment 1996. 37). This division reviews land use planning proposals by assessing whether development complies with environmental legislation and criteria. This division coordinates Department input. makes recommendations for approval. liaises with
government officials regarding land use concerns, and is responsible for the environmental assessment process and licensing of proposals. Other roles include periodic monitoring of the environment, developing guidelines and objectives for dealing with environmentally sensitive problems, environmental management (including water quality management), and enforcing various policies and legislation. Manitoba Regulation 95/88R under the Environment Act outlines the specifications for private sewage disposal systems.1

2.3.2.4 The Department of Natural Resources

The mission of the Manitoba Department of Natural Resources, Water Resources Branch (1997) is "to manage the province's surface water and groundwater resources to provide for the social, cultural and economic well being and the health and safety of present and future generations of Manitoba" (1). Among its many roles, the Water Resources Branch is to ensure environmental quality, help sustain the resource base, ensure the optimum development and use of water resources, ensure regulatory controls are applied, ensure development is planned appropriately to prevent damage to water quality, property and the environment, as well as, to "monitor the condition, use, and development of water resources, and maintain comprehensive and easily accessible water management data bases" (Ibid.). In particular, the Water Resources Branch is responsible for administering the Groundwater Act.

2.3.3 Provincial Land Use Policies

Although land use planning is primarily a municipal process, the broader provincial interest must be included in the decision-making. The Provincial Land Use Policies (PLUPs) were first designed in the late 1970s, to ensure that the provincial interest in

1 A private sewage disposal system is a treatment system or holding system or disposal system for sewage or any part thereof.
land development was safeguarded. Provincial land use planning in Manitoba is guided generally through the PLUPs. until the local municipality develops a detailed plan. The PLUPs are used in the review process of land subdivision applications where there is no development plan in place. "The Policies have been designed to further the overall intent of the Planning Act as a process of local planning and decision making guided by provincial policy" (Manitoba 1980. 3). The PLUPs must be reflected in all local development plans when they are made. and then the PLUPs are replaced by the development plan when it is complete (and receives provincial approval). Also. the PLUPs are consulted when the development plan is reviewed and or updated.

In 1994. the PLUPs were updated to include the general principles and guidelines of sustainable development. The policies have not changed significantly. except that they have become more supportive of development. i.e. more "educative and less regulatory in character" towards development (Manitoba Department of Rural Development. n.d.). The section entitled "subdivision policies" in the 1994 PLUPs outlines some important land use planning policies worth mentioning in the context of this study. These are as follows:

-Developers may be required to show that there is sufficient demand to justify subdivision.

-Subdivision shall be planned so that the number and size of lots. their density and dimensions. and their servicing requirements minimize wasteful use of the land and protect the environment.

-Rural residential lots shall be planned to accommodate environmentally-sound sewage disposal that protects aquifers and surface water and prevents soil salinization. nuisance and health problems...A minimum lot size of two (2) acres shall generally be maintained to assist in achieving effective on-site disposal and to help retain rural characteristics.

-Subdivisions shall be planned so that an adequate supply of potable water may be ensured (Manitoba. September 1994. 40).
2.3.4 The Manitoba Round Table on Environment and Economy: Sustainable Development

The Manitoba Round Table on Environment and Economy (MRTEE) was established in 1988. The MRTEE was inspired by the National Task Force on the Environment and Economy of Canada. The mission of the MRTEE is "to promote environmentally sound and sustainable economic development in Manitoba by facilitating policies, programs and action plans that integrate environmental concerns with economic decisions" (MRTEE, no date). The MRTEE is a forum designed to help reach consensus to attain environmentally sound and sustainable economic development.

The MRTEE has an organizational structure in place, chaired by the Premier of Manitoba, and composed of 21 members including Cabinet ministers from the provincial government, and representatives from corporations, environmental groups, labour, education, and special interest groups. The MRTEE has an executive committee and subcommittees that deal with a number of topics. The committees meet regularly "to review ongoing initiatives and discuss future strategies pertaining to sustainable development" (Manitoba 1994, 5). Within this context, the MRTEE developed sustainable development principles and guidelines to be used as the framework for developing a Sustainable Development Strategy for Manitobans.

2.3.5 Manitoba's Sustainable Development Strategy

Sustainable development, as defined by the provincial government (and the World Commission on Environment and Development, 1987), is the utilization of resources and the environment in a manner that does not damage future generations' supply of resources or negatively affect their ability to maintain their standard of living (Manitoba 1994). "Sustainable development is a process of changing the character of society. It involves fundamental changes in the way business is done, what is taught to our children, how we as individuals live and conduct our lives and how government and society's public
institutions address the essential problems affecting our life" (Ibid., 6). Sustainable development is linked to the first law of ecology that recognizes that everything is connected to everything else.

Manitoba’s Sustainable Development Strategy provides a world, national and provincial perspective on sustainable development. The ten principles and six guidelines that have been adopted, along with sixteen component strategies to guide future actions and decisions, are listed in Figure 2. The ten principles are: integration of environmental and economic decisions, stewardship, shared responsibility, prevention, conservation, waste minimization, enhancement, rehabilitation and reclamation, scientific and technological innovation, and global responsibility. The six guideline headings are: the efficient use of resources, public participation, understanding and respect, access to adequate information, integrated decision-making and planning, and substitution. The principles and guidelines of sustainable development are endorsed by the provincial government and are used as the framework for all environmental and economic decision-making. With the proclamation of the Sustainable Development Act, the principles and guidelines will become provincial regulations.

2.3.6 Manitoba’s Water Policies

The development and management of water policies were the subject of the first of many sub-strategies of the overall Sustainable Development Strategy. The booklet "Applying Manitoba Water Policies" was completed in 1994: "The Manitoba Water Policies have been prepared to ensure that future water management practices support the goal of sustainable development in the province" (Manitoba 1994, 2). The strategy emphasizes that responsibility for the application of the water policies is to be shared among all stakeholders and interests who use or are affected by the use of water. The water policies
Principles of Sustainable Development

1. Integration of Environmental and Economic Decisions
   This principle requires that we ensure economic decisions adequately reflect environmental impacts including human health. Environmental initiatives shall adequately take into account economic consequences.

2. Stewardship
   This principle requires that we manage the environment and economy for the benefit of present and future generations. Stewardship requires the recognition that we are caretakers of the environment and economy for the benefit of present and future generations of Manitobans. A balance must be struck between today's decisions and tomorrow's impacts.

3. Shared Responsibility
   This principle requires that all Manitobans acknowledge responsibility for sustaining the environment and economy, with each being accountable for decisions and actions, in a spirit of partnership and open cooperation.

4. Prevention
   This principle requires that we anticipate, prevent or mitigate significant adverse environmental (including human health) and economic impacts of policy, programs, and decisions.

5. Conservation
   This principle requires that we maintain essential ecological processes, biological diversity and life-support systems of our environment; harvest renewable resources on a sustained yield basis; and make wise and efficient use of our renewable and non-renewable resources.

6. Waste Minimization
   This principle requires that we endeavour to reduce, reuse, recycle and recover the products of our society.

7. Enhancement
   This principle requires that we enhance the long-term productive capability, quality and capacity of our natural ecosystems.

8. Rehabilitation and Reclamation
   This principle requires that we endeavour to restore our damaged or degraded environments to beneficial uses. Rehabilitation and reclamation require ameliorating damage caused in the past. Future policies, programs and development should take into consideration the need for rehabilitation and reclamation.

9. Scientific and Technological Innovation
   This principle requires that we research, develop, test and implement technologies essential to further environmental quality including human health and economic growth.

10. Global Responsibility
    This principle requires that we think globally when we act locally. Global responsibility requires that we recognize there are no boundaries to our environment, and that there is ecological interdependence among provinces and nations. There is a need to work cooperatively within Canada, and internationally, to accelerate the merger of environment and economics in decision-making and to develop comprehensive and equitable solutions to problems.

Guidelines for Sustainable Development

1. Efficient Use of Resources
   We shall encourage and support development and application of systems for proper resource pricing, demand management, and resource allocation together with incentives and disincentives to encourage efficient use of resources and full environmental costing of decisions and developments.

2. Public Participation
   We shall establish appropriate forums which encourage and provide opportunity for consultation and meaningful participation in decision-making processes by all Manitobans.

3. Understanding and Respect
   We shall be aware that we share a common physical, social and economic environment in Manitoba. Understanding and respect for differing social and economic views, values, traditions and aspirations is necessary for equitable management of these common resources. Consideration must be given to the aspirations, needs, and views of various regions and groups in Manitoba.

4. Access to Adequate Information
   We shall encourage and support the improvement and refinement of our environmental and economic information base and promotion of the opportunity for equal and timely access to information by all Manitobans.

5. Integrated Decision-Making and Planning
   We shall encourage and support decision-making and planning processes that are open, cross-sectoral, incorporate time horizons relevant to long-term implications and are efficient and timely.

6. Substitution
   We shall encourage and promote the development and use of substitutes for scarce resources where they are both environmentally sound and economically viable.

Source: Manitoba (Province of), March 1996, 3.
encompass issues relating to water quality, conservation, use and allocation, water supply, flooding, drainage, and education.

2.3.7 The Capital Region Strategy and Policies

The Capital Region Strategy is another component strategy of the Sustainable Development Strategy for Manitoba. The Capital Region is distinguished from the two other regions in the province, Rural Manitoba and Northern Manitoba (See Map 1). In May 1996, the policy document "Applying Manitoba's Capital Region Policies" was released. The Capital Region Strategy core policy areas are: partnerships, settlement, environment, resources (human and natural), economy, and cooperation within the City of Winnipeg region (MRTEE 1995).

The Capital Region Committee is a closed door forum that addresses issues and policies relevant to the Capital region. The Capital Region Committee (CRC) is co-chaired by the Minister of Rural Development and the Minister of Urban Affairs. The Committee membership consists of the Minister of Environment, the mayors of the City of Winnipeg, the Town of Selkirk, and the Town of Stonewall, and the reeves of the surrounding rural municipalities of Cartier, Ritchot, St. Clements, East St. Paul, Rockwood, St. Francois Xavier, Headingley, Rosser, Springfield, Macdonald, St. Andrews, Tache and West St. Paul (See Map 1). A joint committee, made up from members of the CRC and the MRTEE steered the process of developing the Capital Region Strategy.

2.3.8 Critique of the Current Administrative Policies and Agencies

There are many provincial policies related to land use planning in Manitoba which are the responsibility of a number of different provincial departments. These departments typically have an advisory role, responding to a plan that a municipal government or
planning district submits. More proactive advisory involvement by provincial departments in local development plan efforts may prove to be helpful to local areas, to better incorporate the sometimes unclear policy direction the province would like to achieve. Better coordination between the various levels and numbers of land use planning related agencies is needed at a local level, to ensure that the desired policies are being implemented in a consistent manner.

The PLUPs have been an effective tool in the past to address some of the negative impacts that can occur from development in rural areas. Most of the policies still seem to have good direction qualities, other than the minimum two-acre lot size policy. The minimum two-acre lot size policy requirement fosters the consumption of a large amount of rural land for residential development, while significantly reducing the land supply available for agricultural operations. Some may define this as a wasteful use of land, which contradicts the very PLUPs that permits it to occur. The purpose of the reference to a minimum lot size of two acres is to ensure effective operation for private waste disposal systems safeguards, and to retain rural character. Perhaps with the special attention to specific locational physiographic characteristics (soil qualities, etc.) along with other new planning tools, the lot size can be reduced—and still effectively address the concerns around private waste disposal systems and the retention of rural character. Planning tools that municipalities could use to help determine these sites could be beneficial, rather than simplistically resorting to a general size (a minimum two acres) for a rural residential subdivision.

The incorporation of the sustainable development principles and guidelines into the PLUPs in 1994 seems to have resulted in no significant change to the application of the policies. The sustainable development movement still seems to be occurring "outside" the land use planning process. There is very little in the form of implementation tools.
that reflect sustainable development aspirations. that can be applied in the current
development plan context. The gap between the land use planning process and
sustainable development needs to be addressed, possibly through new approaches and
tools.

2.4 The Selkirk and District Planning Area

The Selkirk and District Planning Area (or Selkirk District), is a local government
planning district and includes the Town of Selkirk, and the Rural Municipalities of St.
Andrews, St. Clements, and West St. Paul (See Map 1). The Selkirk District was first
established in 1977 and was expanded to include West St. Paul in 1989. Land use
planning activities in the Selkirk District are the responsibility of the Selkirk and District
Planning Area Board (SDPAB), which is composed of elected official representatives
from each municipality. The Selkirk District structure allows for the possibility of
development being planned on a larger, inter-municipal scale.

2.4.1 Geography, Settlement Pattern, and Natural Resources

The Selkirk District is located in southern Manitoba and borders the City of Winnipeg on
the South, extends northeast into the Interlake area, and flanks the southern shores of
Lake Winnipeg. The Town of Selkirk is the only relatively large urban agglomeration
within the district but there are a number of smaller "settlement centres" including
Beaconia, Clandeboye, East Selkirk, Grand Marais, Libau, Lockport, and Petersfield (See
Map 2). Settlement centres are small urban communities established to serve the
surrounding rural areas. Although the settlement centres are distinct from rural areas in
that they have lot sizes similar to urban areas, they do not have the infrastructure of well-
established urban areas, such as public sewer systems (Selkirk and District Planning Area
Board 1995). Much of the commercial activity for the District is located in the settlement
centres and in the Town of Selkirk.
Source:
Adapted from Manitoba Surveys and Mapping Branch 1982.
The remaining land in the District is composed of scattered agricultural activities (large and small operations), non-farm rural residential development (single family dwellings), scattered industrial uses, recreational resources (cottages, etc.), mineral resources (aggregate and quarry minerals), renewable resources (woodlands, marshes, creeks, other vegetation), transportation routes (provincial trunk highways, municipal roads), historical resources (Lower Fort Garry, churches, other significant sites), and airports (Selkirk, St. Andrews).

2.4.2 Physical and Demographic Characteristics of Municipalities in the Selkirk District

The physical and demographic characteristics of each municipality in the Selkirk District are examined separately beginning with the Town of Selkirk, followed by the Rural Municipalities of St. Andrews, St. Clements, and West St. Paul.

2.4.2.1 The Town of Selkirk

The Town of Selkirk is located 29 kilometers north of the City of Winnipeg, adjacent to the west bank of the Red River. The Town of Selkirk is the largest urban agglomeration in the District, home to 9,815 people (in 1991), and acts as the hub of commercial and industrial activity for the surrounding area. The Town is fully serviced and capable of handling urban land uses efficiently through a centralized sewer system and piped water system, which draws water via three main wells from the local underground aquifer. Although the Town of Selkirk is the hub of the district, it experienced the lowest population growth rate of all the rural municipalities within the Selkirk District between 1971 and 1991 (See Chart 1, Graphs A to C and Chart 2, Graphs D to F).
Chart 1 - Demographic Characteristics of Some Winnipeg Capital Region Municipalities (1991)

<table>
<thead>
<tr>
<th></th>
<th>CAP. REGION</th>
<th>WINNIPEG</th>
<th>SELKIRK</th>
<th>ST. ANDREWS</th>
<th>ST. CLEMENTS</th>
<th>WEST ST. PAUL</th>
<th>SELK. DIST</th>
<th>AVG</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Population Growth 1971-91</td>
<td>65%</td>
<td>15%</td>
<td>5%</td>
<td>61%</td>
<td>56%</td>
<td>51%</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>B Average Dwelling Value</td>
<td>$117,000</td>
<td>$94,000</td>
<td>$79,160</td>
<td>$114,546</td>
<td>$100,570</td>
<td>$152,881</td>
<td>$111,789</td>
<td></td>
</tr>
<tr>
<td>C Median Household Income</td>
<td>$46,000</td>
<td>$35,500</td>
<td>$33,311</td>
<td>$47,143</td>
<td>$42,884</td>
<td>$57,328</td>
<td>$45,167</td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Canada, 1991
Chart 2: Characteristics of the Selkirk District Rural Municipalities (1991)

<table>
<thead>
<tr>
<th></th>
<th>St. Andrews</th>
<th>St. Clements</th>
<th>West St. Paul</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Total Land Area (Acres)</td>
<td>189,030</td>
<td>185,357</td>
</tr>
<tr>
<td>E</td>
<td>% of Area in Prime Agricultural</td>
<td>85%</td>
<td>68%</td>
</tr>
<tr>
<td>F</td>
<td>Total Population (1991)</td>
<td>9,461</td>
<td>7,870</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, 1991
2.4.2.2 The Rural Municipality of St. Andrews

The R.M. of St. Andrews borders the Red River and features some of the most picturesque properties on the banks of the river. It is the largest rural municipality in the Selkirk District in terms of land area. There are 189,030 acres (or 705 square kilometers) of land, of which 85% is prime agricultural land (Manitoba Department of Urban Affairs 1992). The population of St. Andrews increased by 61% (or 3,600 residents), between 1971 and 1991 to reach a total population of 9,461. St. Andrews has had a 97% increase in the number of households versus the Winnipeg regional average of 51% since 1971 (Ibid.). The water and sewer services are the responsibility of the individual landowners. Therefore, water is provided through private wells (drawing on the underground aquifer) and the disposal of the liquid wastes is through septic systems (or holding tanks).

2.4.2.3 The Rural Municipality of St. Clements

The R.M. of St. Clements is the most northern rural municipality in the District and is home to many vacation dwellings in the vicinity of Lake Winnipeg. Between 1971 and 1991 the population of St. Clements grew by 56% to reach a total of 7,870 people in 1991. St. Clements has experienced a consistent rise in the number of households, which increased by 92% between 1971 and 1991 (Manitoba Department of Urban Affairs 1992). The R.M. of St. Clements is comprised of 185,357 acres (or 729 square kilometers), of which 68% is prime agricultural land. Water and sewer services are provided by private systems through wells and septic fields and or holding tanks.

2.4.2.4 The Rural Municipality of West St. Paul

The R.M. of West St. Paul is located between two urban areas, the City of Winnipeg to the South and the Town of Selkirk to the North. The area of West St. Paul lying
immediately to the North of the City of Winnipeg is serviced by municipal sewer services with individual wells. This area of the municipality is considered suburban in nature. The remaining area is unserviced and relies on private water and sewer systems. The population of West St. Paul increased by 51% between 1971 and 1991 to reach a total population of 3,658 in 1991. There is 20,834 acres (or 84 square kilometers) of land in the R.M. of West St. Paul, of which 78.5% is prime agricultural land (Manitoba Department of Urban Affairs 1992). There was a 92% increase in the number of households created in the 20 years spanning 1971 to 1991. The average dwelling value in 1991 was $152,881 compared to the Winnipeg region average of $117,000.

2.4.3 Review of Rural and Urban Growth Rates in and around the Selkirk District

The population growth rates of rural municipalities in the Selkirk District have been much higher than the population growth rates of the urban municipalities of Selkirk and Winnipeg, over the last two decades. Between 1971-1991 the population of Selkirk grew by 5% and Winnipeg by 15%, while the R.M. of St. Andrews grew by 61%, St. Clements by 56%, and West St. Paul by 51% (See Chart 1, Graph A). Statistics Canada has recently released the population growth figures spanning 1991 to 1996. St. Clement's population increased by 8.9%, St. Andrew's by 7.1%, West St. Paul's by 1.7%, the Town of Selkirk's by 0.7%, and the City of Winnipeg's by 0.5% (Statistics Canada 1996). The rural municipalities in the Selkirk District continue to have significantly higher population growth rates than their neighbouring urban centres.

The growth in the fringe area of the City of Winnipeg (which would include the Selkirk District) is occurring because of a more general shift in population from purely urban areas to nearby rural, ex-urban, areas (Carter 1996). There are two main forces at work: the push from unattractive conditions in urban areas (i.e. perception of crime, congestion, high taxes) and the pull from attractive conditions in rural areas (lower taxes, more space.
ease of accessibility, etc.). Overall, the rural municipalities in the Selkirk District are a growing attraction for urban families in search of rural-based single-family homes.

2.5 A Discussion of Land Use Planning Issues Raised in the Selkirk District Development Plan Process

The planning issues raised during the Selkirk District development plan process will be reviewed by summarizing the Manitoba Municipal Board ruling. The land use planning issues identified are examined individually, as well as other problems with the process that seem relevant, but which were not addressed in the MMB ruling. These issues represent the practical problem setting for the study and have driven the research into strategies to address the situation, with a view to informing a new development planning initiative.

2.5.1 The Manitoba Municipal Board Ruling on By-Law No. 120

The Selkirk and District Planning Area Board (SDPAB) is responsible for updating the development plan for the Selkirk District (By-law No. 120). The current development plan evolved out of the Basic Planning Statement for the district dating from 1979, followed by the adoption of the Selkirk and District Plan in 1981 (following the creation of the PLUPs). Despite some 32 amendments between 1981 and 1989, another major review was completed in 1989 (Selkirk and District Planning Area Board 1995).2 Approximately three years of work was conducted on the SDPAB's latest draft development plan which was brought before the MMB for final review in 1996. During the latest development plan process some concerns were raised in opposition to the draft plan from a number of parties, including the Town of Selkirk, provincial government departments (Rural Development, Highways and Transportation, Environment, and Natural Resources), the Provincial Council of Women, and a number of individuals.

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2 West St. Paul Community Plan was adopted by the City of Winnipeg in 1981 and was amended on occasion, before the R.M. joined the Selkirk District in 1989 (SDPAB 1995).
At the same time, a number of individuals were in favor of the development plan. With hindsight, it is now apparent that the process was not altogether effective in addressing the concerns raised by numerous private interests, government agencies and other groups. The MMB ruled that there should be more study and evaluation done before consideration of final approval. The MMB ruling may be summarized as follows:

"The Board is convinced:

(a) that adequate data concerning the aquifer is not available to the P.A.B.: 
(b) that adequate controls over private sewage disposal systems do not exist:
(c) that an expansion in the number of building sites has not been justified at this time:
(d) that an expansion of the number of building sites should not occur until an effective system of control over, or prohibition of, private sewage disposal systems in an area of clay subsoil is in place; and
(e) that spot zoning should be discouraged" (MMB 1996, 9).

The MMB instructed the SDPAB to address these concerns. The Minister of Rural Development supported the MMB ruling and stated in a letter to the SDPAB "that further information, study and evaluation are required to address the fundamental issues raised" (See Appendix 3 for the letter to the SDPAB from the Minister of Rural Development and the full Report and Recommendations of the Manitoba Municipal Board hearing respecting By-law No. 120 of the Selkirk District, July 1996).

2.6 Identifying the Shortcomings of the Development Plan Process in Relation to Addressing the Specific Issues in the Selkirk District

The specific concerns and issues raised by the agencies or individuals who opposed the plan are identified and discussed in the following sections. The shortcomings of the Manitoba development plan process, in terms of effectively addressing issues in rural
areas, are identified and examined. These issues must be addressed within an overall strategy to enhance the prospects for a successful revised plan.

2.6.1 Lack of a Unified Position by Selkirk Board Members

The most significant opposition to the proposed development plan came from a member of the SDPAB, the Town of Selkirk. At the MMB hearing, representatives from the Town of Selkirk made a formal presentation in opposition to the proposed development plan, a plan that the Town had a part in creating: "The Town of Selkirk within its submission is not objecting to the creation of additional lots within the Planning Area. Rather its objection is to the lack of protection, within By-law No. 120, over the expanded use and future protection of the Selkirk Groundwater Management Area" (MMB 1996, 8). In other words, the Town of Selkirk did not object to the number of lots being proposed as long as the groundwater resource was sustained for future use, and providing there was adequate treatment of wastes from private systems (new and existing). The development plan process must incorporate the necessary steps or components to help address. The precise conditions and qualifications associated with the Town's position.

2.6.2 Inability of the Development Plan Process to Address a Variety of Issues

The main objectors cited in the MMB ruling included: the Provincial Planning Coordinator, Department of Rural Development; the Selkirk Regional Supervisor, Department of Environment; the head of the Groundwater Management Section, Water Resources Branch, and; the Provincial Council of Women. Each interest brought forth an issue or concern that was important enough to merit summarizing in the MMB final report and recommendations. The question that must be asked is: why were such issues not addressed earlier in the process, by the SDPAB? This represents a shortcoming of the
process to effectively address conflicting needs and expectations, or to determine acceptable alternatives.

The current land use planning process does not deal effectively with conflicting needs or expectations. Public involvement in the plan development process allows interests to present their concerns and, in particular, reactions to early drafts of a plan developed by the SDPAB and administration. The public meetings allow individuals and organizations to present their case, but they do not necessarily provide the means to reconcile all the opposing viewpoints in one plan acceptable to all or most interests. The process certainly allows for everyone who wishes to voice their views, but it does not provide the means or methods to address the issues once they have been raised. When people are left to react to a plan that seems to have been created by someone else, it tends to elicit more defensive and negative attitudes. Although some amendments were made to the draft plan, before it went to the MMB. These were not significant enough to address the controversial issues comprehensively. As well, when there have been no alternatives provided for the public to choose between, there is little feeling of involvement in the process at all. Through such hindsight, we can see the true costs of the approach taken.

2.6.3 Lack of Responsiveness to Rural Character Retention and Agricultural Resource Preservation

In the Selkirk District development plan process, it was the rural component of the plan that was the focus of opposition, leaving the urban section exempt from any necessary changes. It is therefore important that a rural perspective be taken when attempting to address the remaining problems in the District, but the planning framework legislated by the province does not differentiate between rural and urban areas. This can pose a significant problem in trying to retain rural characteristics in the area, as it continues to grow. In the current ex-urban development form trend, the open space qualities that make the rural areas attractive soon disappear. An approach that recognizes the distinct
values of rural areas, and natural resource protection, is required to build upon the rural character, rather than eliminate or overwhelm it.

In addition to a rural planning approach, specific plan implementation tools must be adopted to help retain the rural characteristics. The challenge of finding an alternative approach includes the need to understand the desire for and popularity of rural residential development. For example, according to Russwurm and McLennan, "in Canada and Manitoba, rural residential development is viewed as a legitimate land use that accommodates the 'freedom of choice' for people to live where they want" (Manitoba Department of Urban Affairs 1990). The respective councils of the rural municipalities in the Selkirk District openly welcome non-farm rural residential development because it represents growth in their municipalities and an increase in their assessment base (Winnipeg Region Committee, June 1990). Rural residential development represents an increase in economic activity, fees, licenses, and uses up surplus capacity of existing services in the area (Manitoba Department of Urban Affairs 1990). Outright prevention of rural residential development is not a desirable approach to take.

The intention of an alternative approach should not be to eliminate rural residential development, but rather, to determine how to effectively address the negative impacts of this form of development, while still recognizing that this form of development is catering to a certain segment of the population. Because, as Fabos (1985) has recognized, "land-use planners who have trouble accepting this land-use shift will likely spend their time fighting it in place of planning for it" (188). The ex-urban development land use "shift" reflects the changing values of some people, and planning must respond and adapt. But it will also require a change in some habits and development patterns. Simply reducing the number of lots developed each year will not address the problems; rather, it will only delay them from occurring sooner.
It is the activities that are associated with growth that local councils must also understand, address, and plan for. The future difficulty municipalities must face because of increased growth include the need for new or expanded local services and facilities: increasing capital and operating costs to the municipality: changing the community's character through the influx of new residents and economic activities: and generating undesirable spin-off impacts (e.g., increased vehicular traffic, loss of agricultural land, and increased waste discharge). There will also be affects on school divisions, nearby urban centres and the associated costs with such development and the MMB feels that this has not been addressed properly within the current development patterns (MMB 1996).

Both the province and the SDPAB feel that non-farm residential development is a permissible land use if properly planned, but there is no reference to the amount or rates that should be permitted, or that are acceptable, nor is there any indication of subdivision styles that might help preserve some of the rural character. Rural-oriented planning tools are required to help address the rural nature of the problem—borrowing tools from urban areas will not effectively address these problems, and can impair the rural characteristics of the District which is in demand from a growing number of people. Planning tools to help raise awareness of the relationship between rural residential development and degradation of the natural environment would be beneficial.

In the case of the Selkirk District, despite the use of agricultural zoning, which designates a minimum 40 to 80 acre lot size restriction to prevent further land subdivision, there is no safeguard in place to protect agricultural land holdings from adjacent rural residential land use market pressures. This drives up agricultural land values (which subsequently results in the desire of agricultural operators to sell or subdivide). As well, with the application of minimum 2 acre lot sizes, the amount of land consumed is negatively
impacting the goal of agricultural production retention in the area. There seems to be an assumption that there is plenty of land in the District to accommodate rural residential development practically on demand.

Jim Fenske (1996), the Town of Selkirk Manager, argues that the pressure for development in the District originates from family members of former farmers who do not want to continue farming. These individuals see a higher value attached to land that is designated 'rural residential', as opposed to 'agriculture'. The value of land within commuting distance of the urban centre is being inflated, in comparison to the agricultural value of the land, by the trend of non-farm development in the municipality. The profits for the land owner accruing from a potential subdivision out-weigh any continued venture in agriculture. In addition, for those with small-to-medium holdings, farming is no longer cost-efficient and many are forced to sell or expand. In this context, land is no longer seen as a resource for food production and is seen instead as a commodity that can attract a fair price in the residential market-place. This is the dilemma for agricultural operations located within the vicinity of urban areas.

In a report completed for the Province of Manitoba in 1990, entitled "Rural Residential Development in the Winnipeg Region," concern was raised over the growing popularity of non-farm rural residential development and the impact it may have on the future ability to service the rural areas in the Winnipeg city region (and the subsequent impact it may have on adjacent urban areas). Similar concerns have been apparent since the 1970s in the City of Winnipeg region. The focus then was on the impact that rural residential development might have on the resource base, specifically on agriculture activities (Manitoba Department of Municipal Affairs 1975; Winnipeg Region Committee. June 1990; Bell and Keleher 1977).
The Selkirk District lies within the Red River valley, and is known for its abundance of prime agricultural land. A planning tool that would help local officials identify areas that are less appropriate for agricultural operations, in order to possibly help situate more intensive rural residential development, would be beneficial. Planning tools that respect the landscape and retain open space for everyone to enjoy is required. Although the Selkirk District board is supportive of both rural residential development and agricultural operations, the protection of agricultural operations seems to be losing-out to the market forces contributing to growing rural residential development pressures. A planning tool which preserves agricultural activity by eliminating the market pressures from rural residential development could be practically useful.

The main questions that needs to be addressed is, at what point is agricultural activity negatively impacted by the growing popularity of rural residential development? What is an acceptable amount of rural residential development? What alternative designs are available, in contrast to the current sprawling pattern? Is there an alternative development procedure available which can still accommodate rural residential development, while reducing the consumption of prime agricultural land?

2.6.4 The Groundwater Resource and the Responsibility for Protection of the Underground Aquifer

A very large high yield carbonate aquifer is located beneath the Selkirk District. It stretches beyond the District's borders into south-central Manitoba, extending north between Lake Winnipeg and Lake Manitoba (See Map 3). The potential groundwater supply in the aquifer is rated as good to excellent (Manitoba 1994). The Manitoba Water Policies (1994) document identifies some relevant and important facts and characteristics about groundwater resources, and in particular, aquifers in Southern Manitoba:

- Groundwater is the main source of water supplies for much of rural Manitoba.
As with surface water, our groundwater is not always located where it is the most needed.

The carbonate aquifer is the largest source of fresh groundwater in Southern Manitoba. It is estimated that the annual sustainable yield is almost 800 million cubic metres.

Deeper aquifers generally contain brines and are not suitable for consumption.

Groundwater quantity and quality are influenced by surface water management and land use.

Because of the confined nature and slow movement of water in aquifers, groundwater pollution is costly and difficult to clean up (4).

Map 3:
The Carbonate Aquifer and the Selkirk District

Manitoba's two largest high yield aquifers are the Carbonate Aquifer and the Assiniboine Delta Aquifer. Groundwater potential in these two aquifers is good to excellent. The groundwater potential in other areas of the province is variable, while in some areas groundwater potential is poor to nil due to quality and quantity limitations. The Selkirk District lies over the Carbonate Aquifer.

Source:
Adapted from Manitoba (Province of) 1994, 5.
To date, there seems to be an adequate supply of fresh potable groundwater in the rural areas of the Selkirk District but there is a lack of information on the exact quantity of water that is being consumed. Management of groundwater resources is poor. Water drawn from private wells is not metered (registered and or licensed) and the amount is uncontrolled and virtually unlimited (Winnipeg Region Committee, January 30 1991; Urban Centres Peripheral Development Group (UCPDG) 1996: Groundwater Revisited 1994). It was estimated that the rate of water withdrawal from the aquifer in the Selkirk-Winnipeg corridor is approximately 275 to 350 litres/person/day or between 1.9 million and 2.45 million litres/day (UCPDG 1996). Although this example makes no reference to the quantity of water flowing through the aquifer, the UCPDG representatives feel that the general figure indicates a substantial amount and should be accurately tracked if the province is committed to sustaining the resource.

The proposed Selkirk District development plan recognizes the need to protect the groundwater supply from the proposed increase in development, but the onus was put on the provincial government to be the party to address the issue. "As aquifers which serve the Selkirk District are believed to lie within and outside District boundaries, groundwater use is not completely able to be controlled by the Selkirk and District Planning Area Board. The Province of Manitoba, through Manitoba Natural Resources is responsible for aquifer management, as groundwater is recognized as a provincial resource" (SDPAB 1995, 22). In response to this view, Lock Gray of Manitoba Natural Resources (Hydrology Department) testifying at the MMB hearing, stated that while there are no comprehensive hydrological studies completed for the area, and although such studies would be desirable, the "capacity of the department to do an overall study isn't there" (Delaurier 1996, 6). When he was asked to indicate whether the water level of the aquifer had dropped in the area, he responded by saying "that a general statement really can't be made because each area in the district is different" (Ibid.). It seems that the
origin of this issue lies with the Town of Selkirk, which is concerned about rural residential development surrounding the Town. The rural residential development occurring at a significant density, draws on the same water source as the Town, causing increased uncertainty over the future sustainable capacity of the aquifer (due in part to the unregulated use of water by rural residents).

The issue of responsibility for the protection of the aquifer, and responsibility for assuring the adequate and safe treatment of septic system effluent, was also debated. The province felt that the responsibility should be shared between the provincial, local and private interests in "partnership." Meanwhile, the SDPAB felt that the term 'partnership' was another word for downloading of responsibilities from the senior level of government to the municipality. Bud Oliver, Chair of the SDPAB and Mayor of Selkirk stated that "we want to get answers...but the last thing we want is to take on more provincial responsibilities" (Groundwater Revisited 1994, 12). The high cost of hydrological studies, both in time and money, generates an additional challenge, since each level of government has been making cutbacks.

The arguments regarding groundwater supply and demand have revolved around the findings of two studies that seem to indicate two very different evaluations of the groundwater capacity. First, a 1978 study conducted by the provincial Water Resources Branch concluded that there was a significant supply to support development into the next century (Gleeson 1995). The second, more recent report, conducted by UMA Engineering Ltd., suggested that the aquifer is stressed to capacity around the Town of Selkirk. Lock Gray, head of the provincial hydrology section, stated in a newspaper article, that "both studies have been taken out of context. The UMA study, he said. dealt strictly with the Town of Selkirk, where the water supply is under stress because of the population density, while the 1978 report was merely a general statement and was not
meant to be applied to the district as a whole" (Ibid.). The differences may indicate that there are significant locational factors related to the level of withdrawal that is sustainable. Therefore, locational criteria which are sensitive to the availability and demand of water should be incorporated when deciding where future development is to be situated. Land use patterns and smaller lot sizes which can help in the reduction of water usage would also be beneficial.

2.6.5 Liquid Waste Disposal and the Criterion for the Prevention of Environmental Pollution from Private Waste Disposal Systems

The majority of the rural residential developments in the Selkirk District use private septic systems (or holding tanks) for discharging household liquid wastes. The criteria for septic system design compliance are restricted to: registration, types of construction materials used, capacity of the system, and distances for siting a disposal field from property lines, dwellings, wells, or surface water (Manitoba Regulation 95/88R). In 1992, the Department of Environment amended the regulations to increase the minimum distance that a field could be situated from any property boundary, from 26 feet to 50 feet. In a typical residential septic system, the sewage effluent is distributed through pipes from a holding tank, that extends over approximately 1400 square feet of area (for up to a three bedroom home), covered with soil suitable for vegetation, and relying on absorption and evaporation for final liquid disposal.

Due to the soil type in some areas of the Selkirk District (heavy clay-based soils) in combination with the increase in the rate of development, and larger dwellings, the effluent from private systems is pooling at the surface and not being absorbed by the soils. Within the Winnipeg-Selkirk corridor, the UCPDG (1996) states that about 300 septic failures have occurred (with no reference to a time period that they have occurred). Subsequently, there is concern that diseases may thrive and there is the potential that the underground aquifer could be polluted, further escalating the problem. The high rate of
failures has also been blamed on poor regulations developed in the 1970s. Those regulations did not reflect the increasing popularity of household appliances that used high volumes of water (dishwashers, hot tubs, etc.), the growing popularity of rural residential development, and the need for attention to the differences in soil types (Winnipeg Region Committee. February 1993).

There are no provincial provisions or criteria in land use planning practices to address the possibility of poor soils, poor drainage or uncontrolled use of water. Household water management and conservation are encouraged, but there is no way to enforce or ensure such management and conservation practices (or to regulate the wasteful use of the resource). Although a septic system may satisfy provincial criteria, there is still the possibility of failure: "In an area such as this Planning District, with predominant clay subsoil, certain types of private systems may not be desirable and in some areas probably should be prohibited" (MMB 1996, 6). Also, the poor drainage in the District further complicates the situation (Ibid.).

It is the responsibility of the provincial government to determine safe criteria to address liquid waste disposal, and the SDPAB insists that it is not receiving up-to-date direction because the new criteria have not been developed. In the view of the SDPAB, the province tells it what not to do, but does not indicate the appropriate septic system criteria for the area. Representatives from the Department of Environment are concerned over the number of private septic system failures that have occurred in the Selkirk District. The Department is currently preparing new regulations to address this problem, and takes the position that no development should be permitted without appropriate consideration of this problem. At the MMB hearing, representatives from the Department of Environment felt that studies should be conducted to determine the requirements necessary to improve sewage disposal in existing subdivisions, and to determine sewage
disposal site controls that could be imposed in areas of poor drainage, clay subsoil, and where there is uncontrolled use of water.

Currently, the SDPAB is suggesting that the province take a lead role in developing and informing municipalities of what is required or needed to produce a septic system design that would prevent further septic system failures. The SDPAB has followed the criteria that are outlined by the provincial Environment Act, but is still being restricted from continuing development. The SDPAB has since approached the Department of Environment and arranged meetings to determine appropriate criteria and to try to answer related questions regarding further development (See Appendix 1). The new regulation that was developed, and which is in the process of attaining provincial approval, establishes the option for the Department of Environment to have the developer conduct a percolation test on a proposed site (Berard 1998). The percolation test will have a maximum and minimum allowable level of absorption rates which will establish whether the site is safe to install a septic system.

Although the development of a percolation test is a positive step toward addressing the potential pollution hazard of private septic systems, the municipalities will now be responsible for identifying potential sites that will be acceptable for the new regulation. An additional planning tool which can help to identify areas that would be more suitable for supporting private sewage disposal systems is therefore in order.

2.6.6 Supply of and Demand for Rural Residential Development in the Selkirk District

There are large tracts of land designated rural residential\(^3\) that have not been built upon in the Selkirk District. In fact, it was reported that the R.M. of St. Andrews has the potential

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\(^{3}\) Rural residential development is defined generally as unserviced non-farm residential housing located within commuting distance of a large urban agglomeration (Manitoba Department of Urban Affairs 1990). The sizes of the lots can vary in size from less than one acre to as large as 20 acres.
of creating 3,334 lots (from 10,000 acres of existing land designated rural residential), St. Clements 4,334 lots (from 13,000 acres), and West St. Paul 925 lots (from 2,777 acres) (Manitoba 1990). Those in opposition to the proposed Selkirk District development plan at the MMB hearing estimated that there could potentially be approximately 3,000 new non-farm rural residential lots created, which would result in a sufficient supply for the next 35 to 40 years. The SDPAB argued that there was the potential for approximately 1,432 lots to be created. Even so, the MMB felt the amount would still represent a 10 year supply at the present rates of development, and the calculation did not include the number of existing building sites. The supply of rural residential lots that could be produced is, evidently, much higher than the demand.

Bell and Keleher (1977) reported that prior to 1977 in Manitoba (preceding the existing Planning Act), there was no control over the subdivision of land and subsequent development. At that time, John Whiting, from Municipal Affairs, stated that "50% of the parcels of land created around Winnipeg were created without knowledge or consent of the municipalities in the area" (Ibid., 50). Growth occurred sporadically and without any planning-related goals during this period. Although, a large number of lots were established many decades ago, they still remain undeveloped. It seems many of those lots do not have the same market demand characteristics that the rural lots developed today have. Ed Arnold, the Selkirk Board Secretary-Treasurer, has observed that there are a number of lots located in areas that are less attractive, and do not, or will not, attract the same price as lots that are being subdivided near more scenic areas (e.g., adjacent to the river). There is very little demand for certain lots, depending upon their location and distinctive features. As well, Mayor David Oster of the R.M. of West St. Paul has stated that many lots that have already been subdivided, or designated rural residential, are not available for purchase, and there still remains a demand for new building sites (Groundwater Revisited 1994).
The accumulated amount of undeveloped subdivided lots is causing some concern over the potential number of lots that could be developed presently, and in the future. Because of these high numbers, local officials have been pressured to reduce the rate of new subdivision, and allow the existing lots to be developed first. But, the lots that have been subdivided in earlier years attract little demand for development in comparison to the newer lots proposed, which are in more attractive areas. When municipal officials are restricted from creating more lots, or when subdivision does not result in houses built, the municipal tax system is strained. The accumulation of undeveloped lots represents a fiscal drag for the municipality: expected tax gains do not accrue if a dwelling is not built on the lots, and the ability of the SDPAB to plan effectively is adversely impacted. Additionally, it reduces the effectiveness of planning accordingly.

At present, there is a need for a planning tool that addresses the inherent rural residential development pressures in the Selkirk District as these pressures impact on agricultural operations. A technique is needed that can address the large over-supply of undeveloped lots, reduce the pressures placed on agricultural activities near urban centres, and designate development in areas that are to the benefit of the whole District, rather than the single landholder who wants to subdivide for immediate profit. A planning tool that can eliminate the large supply of current subdivided lots could prove to be useful for municipalities attempting to plan more effectively in the future, by concentrating more on designing developments that are more reflective of rural characteristics and more respectful of rural environmental concerns.

2.6.7 The Need for Continuity in Provincial Policy Application in Municipal Affairs Across the Province

Perhaps past actions (or in-actions), on the part of the provincial government, have played a role in the failure of the recent development plan for the Selkirk District. In the recent
development plan processes for the R.M.s of East St. Paul and Headingley (both in the Winnipeg region), the province was less strict with land use issues that did not comply with the PLUPs. Perhaps the SDPAB felt that a certain level of rural residential development might be overlooked by the province. Patterson (1996) stated that during the East St. Paul and Headingley development plan processes, "it appears that provincial land use guidelines [were] being increasingly ignored by the provincial government" (19). The East St. Paul development plan was approved despite concerns raised by various provincial departments. Some provincial department representatives had identified various legitimate planning concerns that did not adequately reflect the PLUPs but the local government officials never complied with or addressed the concerns in full (Fleming 1994). No further action was taken because the provincial department representatives did not attend the respective MMB hearings to testify and voice their concerns on behalf of the provincial interest. The province must evaluate and follow through with concerns regarding all development plans and subdivision applications to ensure equal and consistent application of the PLUPs.

The SDPAB has expressed concern that they are a victim of political forces while other municipalities are continuing to develop with little provincial intervention. The SDPAB takes the position that it has been given different treatment regarding their development plan process, in comparison to other municipalities in the Winnipeg region who have recently completed a development plan. Although the type of development proposed in the Selkirk District is very similar to that in the other municipalities, there was no (or little) concerted effort on behalf of the province to prevent it in those other municipalities. Opposition has only been mounted by the province since the Selkirk District development plan was proposed (Arnold 1996). The lack of continuity and consistency in enforcing provincial legislation has angered both the elected representatives and the administration of the SDPAB.
The province has a record of supporting development in rural areas. The past events identified below have occurred during the time the Progressive Conservative government was in power (Russell 1998): the elimination of the additional zone; its replacement with a "weaker" Capital Region Committee; the higher percentage of votes for the PCs are in rural Manitoba versus urban areas; the secession of Headingley from the City of Winnipeg to establish a separate rural municipality; the accommodation of the BFI landfill in a rural location despite many concerns; and the recent desire to connect rural municipalities west of Winnipeg to water infrastructure (and sewer in Headingley). Despite disregard for the negative planning implications associated with all of these events, the province has gone against its grain somewhat, and opposed further rural development in the Selkirk District. It is possible that the province may have felt compelled to oppose the development plan since the Town of Selkirk (a member municipality in the Selkirk District) was opposing the document. However, the presence of the above-mentioned events has caused the problem to become political and has swayed the focus of efforts away from addressing the real problems (such as the issues raised by the MMB in the hearing).

A new association has recently been established, called the Urban Centres Peripheral Development Group (UCPDG), which has identified the provincial policy problems in rural areas that surround urban centres. Elected representatives and senior staff of eleven urban municipalities \(^4\) have been meeting to discuss their increasing concerns relating to peripheral development around urban centres, and to try to determine what role the province is playing. The ultimate goals of the UCPDG are to "lend support to the province to establish equity between rural and urban municipalities in issues of

\(^4\) Including Winnipeg, Brandon, Portage la Prairie, Dauphin, Virden, Steinbach, Selkirk, Thompson, Flin Flon, Stonewall, and The Pas.
residential and industrial development within municipal boundaries" (UCPDG 1996). A primary objective would be to establish a "level playing field" between urban and rural municipalities regarding development at the edge of urban centres. Within the draft discussion paper there is reference to "how there have been inconsistent application of provincial policies, particularly Provincial Land Use Policies, and examples of how the province has not followed its goal of understanding all of the costs and all of the benefits involved in its decisions" (Ibid.). An approach that helps ensure the province applies its policies fairly and consistently, in municipal affairs all across the province, is required.

2.6.8 Spot Zoning

The final issue that the MMB cited in its list of recommendations was the discouragement of further "spot planning". Spot planning or spot zoning is an amendment to an original zoning ordinance. It is a practice that according to Leung (1989) "violates the fundamental justifications for zoning as law: predetermination, fairness and consistency." The re-zoned use differs from the original use determined in the existing development plan/zoning by-law. Spot zoning differs from a zoning variation. A zoning variation allows for some minor modification within an existing designated zone for changes, such as building shape or size. Typically, the variance reflects no more than a ten percent deviation from the original criteria (Ibid.). Spot zoning can potentially change the designated use for a piece of property, e.g., from residential to commercial. Negative implications of spot zoning can include long-term planning problems, due to the lack of infrastructure provisions or siting requirements for the land use, or issues that cause neighbouring property owners undue concern for their property value, when the land use is changed.
2.7 Grouping the Issues in the Selkirk District

The issues present in the Selkirk District can be divided into two separate groups: those that can be addressed through a modified approach to the development plan process, and those issues that require the development and application of specific tools designed to help implement the necessary changes required.

The group of issues that would require an alternative planning approach in order to effectively address them, would include:

- the need to respond to a variety of interests through enhanced public participation methods
- the need for a rural-oriented perspective
- the need for an environmentally-based approach

The approach should reflect these qualities if it is to effectively realize an acceptable development plan for the Selkirk District context.

Also needed is the identification and application of plan implementation tools, that would function in the Selkirk District context as well as within the above approach. The plan implementation tool(s) would help to address the following group of issues:

- the need for a balanced supply and demand of rural residential lots (and the need to address the subdivision market pressures on agricultural land)
- the groundwater capacity problems and the liquid waste disposal limitations
- further spot zoning
- the need to protect the agricultural land resource, and
- the need to address the land use pattern issue to better reflect the rural character of the area.

Once an approach is identified, and a plan implementation tool or tool-set selected, then they can be combined in a strategy to comprehensively address the issues in the Selkirk District.
2.8 Concluding Remarks

It can now be appreciated that the broad question that needs to be addressed is: what planning approach and plan implementation tools are available that could help the Selkirk District attain a development plan that responds to the variety and number of issues raised, and which might therefore meet with more general approval? Furthermore, what constitutes properly planned rural residential development? Rural residential development is occurring at a rate that may degrade the natural resources, and the rural quality of life so desired by many in the district. At what point will the area lose its appeal, and fail to satisfy the residents seduced by the bases for such appeal?

Although a high rate of rural residential development was being proposed, the Selkirk District draft development plan also included a number of policies that were designed to protect many of the District's natural resources. For example, one objective of the SDPAB draft development plan values protecting and promoting the development of the agricultural industry. However, more agricultural land is being converted into large-lot rural residential development. What is actually being done to protect the agricultural industry in the District? What is the acceptable balance between development, agricultural activities and natural areas? All these questions have not been addressed adequately in the plan. The issues of rural residential development today are very similar to those present in the past, despite past efforts to address them. How could these issues be addressed differently, to achieve greater effectiveness in dealing with the problems in a lasting manner?

The current land use planning framework lacks the ability to address local issues caused by the growth pressures in rural areas near urban centres. In particular, the planning system applies to the Selkirk District as if it were a homogenous urban district, using the same tools for both urban and rural areas. The process has failed to address a variety of
concerns, especially around environmental issues (groundwater supply and septic system failures) and rural character retention. There is a need for a planning approach, and plan implementation tools, that examine and address the problems from a rural environmental planning perspective. Chapter 3 reviews environmental planning theory and rural development planning history with the intention of establishing the importance of developing an overall strategy that responds to the current identified deficiencies.
CHAPTER THREE: PLANNING FOR RURAL ENVIRONMENTS

3.1 Introduction
Since the predominant issues facing the Selkirk District are rural and environmentally-based, it is only logical to explore a planning an approach that recognizes the interrelationships between land use development and rural environmental impacts. What is a rural environmental planning approach and how can it help address the problems in the Selkirk District?

The history and values of the environmental movement and the role it plays in rural planning are reviewed. The ecological perspective and the concept of sustainable development are examined briefly, followed by a discussion of the difference between development and growth. The definition of "rural" is examined, and early rural planning and development endeavors are reviewed, pointing out some weaknesses in past and existing approaches. The growing phenomenon of ex-urban development is examined because it creates some new and challenging pressures in urban-rural fringe areas. The inability of existing planning approaches to satisfactorily address problems in an overlapping rural-urban area is recognized, and the need for a focused "rural environmental" approach is identified.

3.2 The Environmental Movement
The beliefs and values of the environmental movement, and how the environment approach may be applied to the Selkirk District context, are examined. This is followed by a brief review of the historic evolution of rural development planning initiatives in Canada, and the resulting challenges and opportunities for the Selkirk District are identified.
3.2.1 The Environmental Perspective

The environmental perspective is a set of beliefs or values that reflect the main concern for the survival of life on planet Earth (Coleman 1976). The environmental perspective recognizes that land and natural resources are finite and are vulnerable to abuse, and it recognizes the need to prevent encroachment of destructive forces on land and natural resources (Lang and Armour 1980). Worldwide environmental problems that threaten the future of life on earth include acid rain, global warming and deterioration of the ozone layer. Environmental degradation, the loss of prime agricultural land to development, the non-point pollution of water affecting its quality, and the loss of aesthetic quality of the landscape are just a few examples which have occurred at the local scale.

3.2.2 Environmental Planning

Environmental planning is a philosophy of how people view, understand and address the complex relationships and impacts that growth and development have on natural systems. Lang and Armour (1980) state:

Environmental planning is based upon the belief that the environment is undervalued in planning processes and should be protected because the health of the natural environment is necessary for the continuation of life on earth...a planned approach to land/space use is necessary to resolve land use conflicts. Consequently, there is a need to alter the traditional land/space use planning process in order to give a broader environmental perspective oriented toward the protection of environmental values. This broader environmental approach to land planning is referred to as Environmental Planning (ii).

Coleman (1976) defined environmental planning in a similar manner:

Environmental planning conserves resources and displays a strong element of cautious insurance, over and above providing for contingencies that can already be foreseen from the restricted viewpoint of today. It acknowledges a duty to future unborn generations as well as to the needs of the present, and it aims to promote healthy environments that will be capable of self-sustained continuity and stable adaptation (11).
Incorporating an environmental perspective in the Selkirk District context can help to address the problems experienced in a manner that reflects the inherent resource capability of the land for agriculture, helps situate development in areas that are more suitable in terms of reducing negative impacts, and recognizes that continuous development in the current form and pattern is associated with a bleak future.

3.2.3 Past Environmental Planning Initiatives

Theoretical concepts and values of environmental planning have grown out of the Garden City movement initiated by Ebenezer Howard and advanced by a number of others at the turn of the twentieth century. The Garden City movement "was based on a concept of how best to organize the territory around large cities, i.e., to concentrate populations and provide open space between towns rather than let cities sprawl" (Hodge 1991, 276). See Figure 3 for a diagram of the Garden City concept.

The Garden City movement was developed in response to the physical and moral decay of urban areas and the economic depression that was occurring in nearby rural/agricultural areas in the early 1900s. The Garden City model was a utopian concept that not only attempted to focus on physical development in planning but relied on economic realities and social (cultural) values to achieve a well-balanced environment (Sargent et al 1991). It attempted to combine the better qualities of urban life with the desired qualities of country life, in a new form of settlement. Within the Garden City model there was the recognition that urban areas could not continue to "survive" if the adjacent rural areas were continually debilitated, and if massive urbanization was allowed to standardize culture. This model embodies parallels in the context of the Selkirk District, which needs to achieve an alternative settlement pattern that retains the rural character, preserves agricultural resources, addresses sprawl, and is economically feasible.
Figure 3. Ebenezer Howard's Concept of the Metropolitan Region. Howard's 1898 diagrammatic concept for satellite Garden Cities has been far-reaching. A greenbelt of farms and forests would separate all communities, but they would be interconnected by major transport routes.


The Regional Planning Association of America (RPAA) was organized in the early 1920s and advanced the concept of environmental planning. Regional planning is environmentally focused, as Sargent et al (1991) note, using the words of one of the founders of the RPAA, Benton MacKaye:

Cultural man needs land and developed natural resources as the tangible source of bodily existence: he needs the flow of commodities to make that source effective; but first of all he needs a harmonious and related environment as the source of his true living. These three needs of cultured man make three corresponding problems: a) the conservation of natural resources, b) the control of commodity flow, c) the development of
environment. The visualization of the potential workings of these three processes constitutes the new exploration-and regional planning (22).

The Tennessee Valley Authority (TVA) regional river-basin planning initiative was a well-documented example of an early environmental planning initiative. Hodge (1991) identified two basic principles that the TVA employed: firstly the notion of a comprehensive approach to regional problems and the interconnectedness between actions or events; and secondly, the need to plan and coordinate in conjunction with the neighbouring areas. "As regionalism took shape in America, planners grew more interested in environmental quality, public involvement, and equity" (Sargent et al 1991. 21).

The Selkirk District has a regional, or at least inter-municipal, structure of local planning in place, yet it lacks a framework that addresses the district's problems in a cohesive manner. The Selkirk District process needs to recognize the primary importance of improving (or at least maintaining) the rural quality in the District, involving more of the public in decision-making, and becoming more environmentally responsible.

3.2.4 Environmental Issues
Global phenomena occurring today, such as global warming, depletion of the ozone layer, and environmental pollution, are caused by the collective impact of people in local areas on the environment and ecological systems. Settlement patterns, which reflect the outcome of behavior in an earlier era, are at the source of these global problems. "The larger question about how to avoid ruining our planet's ecosystem with our development practices...has become urgent," and there is a need "for land-use decision makers to recognize the not-so-obvious links between municipal land-use decisions and deterioration of the environment" (Fowler 1991. 26). Local governments or regional agencies will have to be the source of the strategies that ultimately address these
problems. The relationships between the cause and effect of the global phenomena are very complex, and there will be resistance from those many individuals who have wholeheartedly accepted the idea of the post-war urban sprawl form. But, if we are going to achieve an ecologically-sensible rural form, "we will have to become aware of how our attitudes and habits of behavior toward each other and toward the environment are influenced by that environment" (Ibid.). The psychological, social and political dimensions of ecologically sound development processes and forms must be understood.

3.3 The Ecological Perspective

Some environmental perspectives incorporate ecological processes and systems within their methodological approach. Ecology is the study of the mutual relationships or balance between all living things in relation to their surrounding environments (and to each other). Natural systems or ecosystems, are sets of interacting and interrelated elements:

At the largest scale the earth can be seen as a single ecological system (ecosystem): a spatially defined community of living (biotic) things interacting with each other and with the non-living (abiotic) things such as energy, air, water and soil that support them. Humans are a part of this system. Basic to an ecosystem are flows of energy and nutrients in...cycles (Lang and Armour 1980, 107).

Lang and Armour (1980) go on to note that "the ecosystem concept, though often difficult to operationalize in environmental planning and management, helps us to understand and analyze the natural environment in relation to human activity" (109). In the process of understanding the ecological approach one must realize that everything is related to everything else (interconnected), that nature is inherently self-regulatory and is somewhat resilient to negative interactions. but most importantly, that there are limitations to what the environment can support (yet these limitations are not always clear).
3.3.1 Development Versus Growth

Within the ecological context, it is important to distinguish between the definition of the terms "development" and "growth". Development, as stated by Wackernagel and Rees (1996), is the realization of a "fuller and greater potential." while growth would be purely an increase in the physical size or material expansion of something. Douglas (1989) makes a similar distinction by defining development as "either a) a positive structural shift in the community's economy (e.g., a significant diversification of the base) and/or b) the putting in place of significant new capacity for positive change (e.g., new investment resources, expanded labour force training)" (29). Development supports the increase in the capacity of an area to expand its options while reducing its vulnerability. Although this form of development is desired, "it may or may not lead to an increase in (for example) employment" (Ibid.). Growth, on the other hand can occur through the increase in size of a local commercial or industrial business without having any contribution to the development of the area. Growth in the absence of development lacks the "complex interactions, the services, the support structures and other features that we recognize in a place that really feels and works like a community" (Lang 1986, 83).

The term "development" is also commonly used to describe the built environment, for example, buildings and infrastructure. In fact, the Manitoba Planning Act defines development as:

a) the carrying out of construction, erection, or placing of any building or excavation or other operation on, over or under land, or
b) the making of any change in the use or intensity of use of any land or buildings or premises" (1987, c. P80).

This definition simply values development in terms of a product, such as a subdivision or an industrial park. Development, in an ecological context, describes a process rather than a product. Like a young child who develops into a mature adult, the term suggests that there is an evolution, and more complex states occurring over time. "Development is a
process of learning, adaptation and purposeful change capable of releasing new potentials. More than that, development is a capacity, defined by what individuals and collectives can do with what they have to improve the quality of their lives and enhance their capability for adaptive learning" (Lang 1986, 83).

The development that has occurred over the past century has been production-centred and oriented toward the exploitation of resources, in the process of producing standard goods and services that cater to a "massified consumer society." This concept of development is based on a value-set which holds humans dominant over nature and natural resources. Lang (1986), however, argues for a perspective which moves toward a "people-centred development" consisting of differing value-sets. People-centred development is "based on harmony between humans and nature, treating natural resources as finite but regarding information and creative initiative as inexhaustible, and defining the dominant goal in terms of greater realization of human potentials" (Ibid., 84). The challenge for the Selkirk District is to achieve a process which is "people-centred" which values the environment as a priority within the process. In this way development can be seen as more of a process than a product.

3.3.2 Sustainable Development
Sustainable development evolved from the limited view that natural environments can be exploited for unlimited ends without consequence. The principle of sustainable development was at the core of the report "Our Common Future" which was released in 1987 by the World Commission on Environment and Development. The Commission defined sustainable development as development that would "meet the needs of the present, without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development 1987, 8). The key issue that sustainable development addresses is "the need to reconcile economic growth with
conservation of the resources upon which growth depends, and in general with safeguarding the entire natural environment which sustains us both physically and spiritually" (Richardson 1989, 4). Economic prosperity cannot be maintained if we do not ensure the world’s resources are not depleted and the environment is protected. The SDPAB must re-think its approach to encompass a broader sustainable development framework in order to truly and effectively address the issues today and in the future.

3.4 The Rural Environment

Rural. as defined by Statistics Canada. is a sparsely populated area lying outside of an urban area. An urban area. on the other hand. is an area containing a concentration of population of 400 people per square kilometer, which has attained a minimum population of 1,000 people. Rural. as defined by the New Webster's Dictionary. is relating to, or having the characteristic of the country or of people living in the country. According to the Ontario Ministry of Housing (1976). "under the term 'rural'. however. almost everything can take place ranging from farms to mineral extraction to holding zones for urban expansion. This has caused considerable confusion in identifying an effective strategy for the planning of these non-urban spaces" (13).

Cloke (1985). referenced by Troughton (1988) and Dykeman (1989). states that there are three variations of the definition of the term rural. First. rural is determined by everything that is not urban in nature (negative definition); secondly, rural is distinguished by identifying elements or characteristics of rural areas, such as land use or settlement conditions (positive definition); and thirdly, there is the perceptual definition where a person's values or way of life determines what they feel is rural (perceived definition). The rural perspective that the federal government and the province of Manitoba reflect is the negative definition of rural, or the urban-biased definition. When governments utilize the negative definition of rurality, it causes an inherent problem for
planning in rural areas because it results in a loss of identity in these areas. Also, urban-oriented planning tools are commonly used to address rural problems, which prove to be ineffective. As Lassey (1977) states, "this situation is further aggravated by the tendency to divide the rural environment into sectors—such as agriculture, forest, water, parks, etc.—with very little provision for an adequate overview of how the total rural ecological system functions as part of an interrelated whole" (9).

3.4.1 Early Canadian Rural Planning and Development Endeavors
Reviewing the record of Canadian rural planning and development endeavors and their relevant perspectives, the themes of agriculture, resource management, conservation, economic development and regional planning are most prevalent—but in somewhat of a sporadic pattern. These perspectives dominated much of the rural planning and development activities/literature from the early 1900s to the 1970s (See Figure 4 for a summary). As well, the initiatives listed in Figure 4 were predominantly federally-operated and some were provincially-administered.

In Canada, the rural planning movement was fueled by the creation of the Commission of Conservation (1909-1921) which was concerned with the conservation of natural resources such as agricultural land, forests, minerals, fisheries, game, and water. It was the beginning of the link between community planning and the resource sector. The Commission of Conservation supported the creation of planning-enabling legislation for provincial governments, which was needed to control the chaotic development and subdivision of land in suburban areas (Hodge 1991). By 1935, rural development reflected "special interest intervention" through the Prairie Farm Rehabilitation Act (PFRA). The PFRA targeted agricultural resource management for prairie provinces and attempted "to secure the extremely variable water supply in Western Canada" (Cummings 1989, 10).
Figure 4: Canadian Rural Planning History

<table>
<thead>
<tr>
<th>ACTION</th>
<th>DATE</th>
<th>PERSPECTIVE / APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Commission on Conservation</td>
<td>1909-21</td>
<td>Garden City Idealism</td>
</tr>
<tr>
<td>Prairie Farm Rehabilitation Act</td>
<td>1930s</td>
<td>Agricultural Resources Management</td>
</tr>
<tr>
<td>National Housing Act</td>
<td>1944</td>
<td>Housing Reconstruction/Re-establishment</td>
</tr>
<tr>
<td>Central Mortgage and Housing Corp.</td>
<td>1946</td>
<td>Urban Issue Focused (Suburbs, Transportation, etc.)</td>
</tr>
<tr>
<td>Regional Planning Commissions (Alberta)</td>
<td>1951</td>
<td>Importance of Rural Interests Identified</td>
</tr>
<tr>
<td>Resources for Tomorrow Conference</td>
<td>1961</td>
<td>Resources Management, Conservation and Regional Planning</td>
</tr>
<tr>
<td>Agriculture Rehabilitation Act (ARDA)</td>
<td>1963</td>
<td></td>
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<tr>
<td>Canada Land Inventory</td>
<td>1963</td>
<td></td>
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<tr>
<td>Agriculture Rehabilitation Act (Re-casting)</td>
<td>1965</td>
<td>Agricultural/Biophysical Resources Management</td>
</tr>
<tr>
<td>Ontario Regional Development Conference,</td>
<td>1965</td>
<td>Regional/Resources/Urban Reactive Approach to Rural</td>
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<tr>
<td>and Regional Districts in British Columbia</td>
<td></td>
<td>Environments and Communities</td>
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<tr>
<td>Design for Development Program (Ontario)</td>
<td>1966</td>
<td></td>
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<td>British Columbia Land Commission</td>
<td>1973, 77</td>
<td>Agriculture Resurfaced as Primary Issue</td>
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<td>Quebec Planning Legislation</td>
<td>1978</td>
<td>Agriculture and Land Use Planning Legislation</td>
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<td>Ontario Foodland Guidelines</td>
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<td>Agriculture Resource</td>
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<td>Environment Council of Alta., Land Use Forum</td>
<td>1973-76</td>
<td>Comprehensive/Integrated Appreciation</td>
</tr>
<tr>
<td>Fund for Rural Economic Development (FRED)</td>
<td>1970s</td>
<td>Demonstrated Need for Planned, Community Responsive, Integrated Approach</td>
</tr>
<tr>
<td>Canadian Council on Rural Development</td>
<td>1960-70s</td>
<td>Understanding of Rurality and Need for Specific Rural Policies and Processes</td>
</tr>
<tr>
<td>Countryside Planning (Report)</td>
<td>1976</td>
<td>Recognition of Need for a Planning Process Designed for Rural Areas</td>
</tr>
<tr>
<td>Rural Development Outreach Program (RDOP)</td>
<td>1976</td>
<td>Rural Development Process Via Community-Based Research and Planning</td>
</tr>
<tr>
<td>CIP National Conference</td>
<td>1980</td>
<td>Appreciation of the Needs for Appropriate Planning for Rural Contexts</td>
</tr>
</tbody>
</table>

Source: Adapted from Plan Canada 29, 2 (March 1989); Note from the Guest Editor, David Douglas, 3-7.
The Agricultural and Rural Development Act (ARDA) created in 1960 dealt more specifically with social and economic problems of family farms. ARDA addressed rural planning and development issues through biophysical resource management (agriculture) and regional planning perspectives. The Fund for Rural Economic Development (FRED), initiated in 1966, was an integrated approach because it addressed rural problems from more than one perspective (social and economic). FRED included training of individuals, and provided capital infrastructure and financial incentives for private entrepreneurs (Cummings 1989). From the mid 1960s to the early 1980s, a trend could be seen from less emphasis on integrated social and economic programs to more emphasis on capital investment, physical infrastructure and financial incentives with the advent of the Department of Regional Economic Expansion (DREE). At the same time, the federal government was passing on more administrative responsibilities, including the management of the environment, to provincial and municipal governments, through the process of down-sizing.

It was in the 1960s that the environmental movement gathered momentum at the municipal level, and when the need for specific local development policies and processes became apparent (Dykeman 1989). In the 1970s, municipal planning strategies placed a strong emphasis on land use planning and regulations, because provincial planning acts legislated rural communities to produce a development plan or a basic planning statement (Ibid.). The main goal for land use planning was to relate human activities to the physical environment in order to reduce the level of stress to as few members of society as possible. While there was an understanding of the impact of physical development on rural areas, there were still limitations in terms of the scope of land use planning to address the needs of rural areas. In any event, there was an increased desire and
appreciation of the need for community-based research and planning approaches to
address the specific characteristics of rural environments.

To summarize the efforts at rural development and planning in Canada in an
environmental context. Hils and FitzGibbon (1989) state:

"(n)either rural planning nor rural development as usually practiced in Canada, 
have dealt easily with environmental issues. Rural planning has been 
primarily given over to coordinating development rather than conserving the 
environment, and rural development is usually directly oriented to job creation 
or income generation, treating the rural environment as an exploitable 
resource" (19).

The SDPAB must recognize that an environmental approach will place as much emphasis 
on conserving the environment as it will on identifying areas for development.
Differences in land features and qualities will have to be examined to determine the best 
land to support various uses, such as agricultural operations. Viewing land as an 
important resource (versus an exploitable commodity) will need to become a reality.
New tools and processes designed around protecting environmental resources will need to 
be examined and applied.

3.4.2 The Rural-Urban Fringe

Rural land, in the vicinity of an urban area, experiences different physical, social, and 
economic pressures than rural areas which are more isolated. Spatial models have been 
created to help display the diversity of Canada's settlement system, and the popularity of 
rural residential (suburban style) development within rural Canada. Bryant and 
Coppack's (1991) model identifies component parts of a city's "countryside." The model 
depicts characteristics of rural areas near an urban area which include: the rural-urban 
fringe, the urban shadow and the rural hinterland (See Figure 5).
Figure 5. The Selkirk District experiences all of the component zones in this diagram. The built-up area would be the Town of Selkirk, while the three rural municipalities would stretch across the rural-urban fringe zone, the urban shadow, and extend into the rural hinterland area. The location of the City of Winnipeg to the Selkirk District creates a rural-urban atmosphere for most of West St. Paul, since it is experiencing urban pressures from both the southerly and northerly directions. The northern edge of St. Clements and St. Andrews would consist of the rural hinterland with nodes of country residences. Much of the area in-between would represent the urban shadow zone, with dispersed settlement centres and scattered rural residences.

Source: Bryant and Coppack 1991, 220.
Adjacent to the concentrated built-up urban component lies the rural-urban fringe. The rural-urban fringe is an area that is characterized by an existing degree of rurality which is commonly associated with agriculture and small communities, a social and economic landscape markedly different from the city. On the other hand, it is a zone of urban encroachment and influence, where the city extends itself into the countryside through isolated, block, and tentacular invasions. The nature of the fringe is change, rurality under varying degrees of urban-centred pressures (Beesley 1994, 4).

Beyond the rural-urban fringe is the urban shadow, where urban influence and development is less evident and more subtle. People who live in this area sometimes work in, and commute daily to, the nearby urban area. The third zone identified is the rural hinterland, which is typically home to scattered country residential developments used for recreation and seasonal activities. There are various towns, villages and hamlets scattered throughout the urban shadow and rural hinterland.

Rural municipalities in the vicinity of large urban areas attract an increasing number of people fleeing from urban areas because of the desire to live the "lifestyle" that is present in rural areas. Numerous sources have documented the growing popularity of ex-urban areas (Barber and Hathout 1977; Loreth 1993; Lyon 1983; Manitoba Department of Urban Affairs 1990; Manitoba Department of Municipal Affairs 1974; Patterson 1993). Most of those who move to the rural-urban fringe areas feel that these areas can provide a "better" quality of life compared to the adjacent urban area. The attraction of ex-urban-living includes the presence of more space, peace and quiet, less crime, lack of pollution (air and noise), no crowding, and the general "values" that are associated with small town living. Other reasons may include the attraction of lower property taxes and cheaper land prices (Lyon 1983; Davis 1994). Nelson and Dueker (1990) state that the main forces of ex-urban living are behavioral orientations which have stimulated ex-urban sprawl to the
degree it is observed in urban regions today. Although ex-urban growth is occurring in rural areas, there is little understanding of how to effectively plan for the particular problems that arise in these areas (Nelson and Dueker 1990).

Rural land in ex-urban areas is typically viewed as future urban land which is free to be exploited, a traditional political-economic ideology that has evolved from the industrial revolution era. There is little consideration given to the existing character of the land and little understanding that a rural area evokes values of its own (Coleman 1976). Troughton (1986) states:

There had been a remarkable consistency and a narrowness in the manner in which policy to rural areas in Canada has developed and been applied, and, unfortunately, it reflects an equally narrow view of the nature and value of rural systems held by the population at large...although policies have become more overt, they have rarely shown any awareness of rurality, while the majority urban population defines the rural system(s) in almost totally negative terms (15).

This seems to be true in the Selkirk District. More consideration for the existing character of the land is needed to accentuate the rural qualities.

Urban planning methods, designed to address problems in urban areas, have been exported from the urban context and applied to rural areas as if there would be no difference in their application (Ontario 1976; Hilts and FitzGibbon 1989). In fact, the rural planning tools in Manitoba are the same for both the urban and rural municipalities. There are a number of unique qualities and values that have been ignored in the attempt to address rural problems with urban planning tools. In fact,

"most official plans for rural areas have been prepared as if they were large urban areas, using the same methodology, the same research orientation and the same land use classification. Land use policies of these plans tend to concentrate more on issues of urban development than on utilization of rural resources" (Ontario 1976, 6).

The rural-urban fringe cannot be defined as an urban area, due mainly to the lack of density, nor can it be called rural either. Therefore, strategies used to address problems in
this area must take into consideration these ambiguous qualities. Rural issues such as resource management and regional development have not been priorities in traditional land use planning (Ibid.) but need to be accorded greater attention.

3.5 The Need for a Rural Environmental Planning Approach
There is a recognition that the existing land use planning process is very limited in its scope and is not responsive to the changing needs and values of the local areas where it is applied. A need exists for a rural planning approach in the Selkirk District that would better reflect local rural values, be economically feasible, and, at the same time, respect the integrity of natural eco-systems.

3.5.1 Shortcomings of Development Plans and a Critique of the Community Planning Process
The planning process that exists in rural municipalities across Canada has had a limited ability to address many of the problems that are experienced at the local level. Municipal planning strategies have placed a strong emphasis on land use planning and regulations because provincial planning acts legislate rural communities to produce a development plan or a basic planning statement (Dykeman 1989). Development plans are commonly considered a product-oriented activity, i.e. the goal is to produce a "plan". Dykeman (1989) argues that these plans are usually intended for use in zoning matters, and respond to existing concerns or conflict, rather than to future needs or impacts. As well, Dykeman argues, land use planning does very little to assist the local jurisdiction to address future and sometimes threatening issues that evolve. In Manitoba, the same holds true. when the development plan process is complete and the final plan established, there is no mechanism which addresses new problems as they arise. The development plan implementation process is very static for the five year period it represents; it would be beneficial to include a monitoring system to ensure objectives are being adequately addressed and stated goals are being achieved.
Arendt et al (1994) argues that when comprehensive plans are adopted they tend to be purely advisory, infrequently updated, and fail to address how rural areas can develop in a manner that is consistent with its traditional rural (small town) character, or enhance the sense of place. Commonly, "cookie cutter" subdivisions are developed on available farmland without connection to the area's heritage, natural features or unique character (Ibid.). Sargent et al (1991) state that local authorities assume that conventional planning is responsive only to growth, viewing it as desirable (and inevitable) because growth helps to increase the tax base of the jurisdiction. The two-acre minimum lot zoning policy accentuates the "cookie cutter" subdivision pattern. The resulting pattern pays no attention to the natural features of the land, while consuming large amounts of potential agricultural land. Alternative forms of development need to be considered.

Tomalty, Gibson, Alexander and Fisher (1994) state:

Land-use planning in many Canadian jurisdictions seems to be in a state of crisis. The existing planning processes are denounced by their critics as too fragmented, too expensive and time-consuming, and too slow, reactive and arbitrary. Moreover, there is increasing public and professional recognition that the existing processes are insufficiently sensitive to environmental and social factors, and typically leave us with ugly, unsustainable settlement patterns (1).

Environmental planning approaches must, in addition to addressing the problems of settlement patterns, create a process that is reflective of practical concerns such as the cost of the process and the time period it requires.

In Manitoba, a 1990 government report entitled "Rural Residential Development in the Winnipeg Region" suggested that there was "an increasing concern that the present planning processes in the region may be inadequate to address the challenges arising from this form of development" (Manitoba Department of Urban Affairs 1990, 1). In particular, the supply of rural residential lots is much greater than the demand in the
Winnipeg region and this can negatively affect the future management of resources and services. In the same report, alternative planning approaches are recommended to ensure orderly and efficient development of rural residential lots. The need for a new planning approach and implementation tools must be addressed.

A theoretical review of conventional land use planning identifies a number of inherent characteristics that impede the ability of planning practice to address often complex and difficult problems. Land use planning is based in the realm of rational comprehensive planning, which is most often conducted through the medium of scientific/technical rationality. It is a paradigm that dominates planning practice but it has been the subject of much scrutiny since the mid 1950's (Hudson 1979; Alexander 1984). The rational comprehensive approach assumes that problems can be solved through reductionist means, it separates facts from values, stresses objectivity, and utilizes quantifiable data (Lang 1986). It systematically examines alternative means in light of desired ends that are to be accomplished. Critics of the rational comprehensive planning theory have recognized that when planning goals are developed, they are value-laden (rather than fact-laden), very subject to who designs them, and they can change over time. But, in defense of the comprehensive planning theory, planning must incorporate at least some elements of scientific processes and various forms of rationality if it is to continue to be recognized as a public "good." An approach that reflects the values of the stakeholders in the District is essential, with science not so much the source of the guiding principles, but supporting ones.

3.5.2 Carrying Capacity in Land Use Planning

The current direction the Selkirk District is following since the rejection of the recent development plan, involves establishing the carrying capacity of land to support the level and pattern of development originally proposed.
The notion of the carrying capacity of land is that "there are limits to the amount of growth certain areas can withstand without serious impairment to public health and safety or to the natural environment" (Schneider, Godschalk and Axler 1978, 1). It is defined as "the maximum population density for a given species in an environment which could be supported without degradation of that environment...[and] as the term is used by planners, may be defined as the ability of a natural or man-made system to absorb population growth or physical development without significant degradation or breakdown" (Ibid.).

Schneider, Godschalk and Axler (1978) indicate three reasons why estimating the amount of growth that a piece of land can absorb, i.e. its carrying capacity, is a difficult task:

- land differs in quality or type across areas;
- development will have differing impacts on different pieces of land, and;
- the financial and technical requirements to conduct such studies are major drawbacks.

The authors further state that there is no concrete method available to determine the carrying capacity of the land or the environment, and the process can be politically controversial. The carrying capacity of land in relation to its use is usually reduced to the choices of the local officials, or the technicians administering the tests, and how they define what would be safe or unsafe: "Successful application of carrying capacity has been limited largely because of difficulty of establishing a predictable linkage between use level and impact. In some environmental settings, even low use levels can produce substantial impacts on vegetation and soils; in other locations, such resources are very resilient" (Wight 1994, 4). The question of "how much is too much?" is not effectively addressed in a carrying capacity framework.

The focus should be placed on the suitability of the land to support development versus notions of the land's carrying capacity. The use-suitability of the land reflects the value-
sets of local people in the process, and ensures that proposed development attempts to meets their needs and desires. The problems experienced are human-induced and they should be addressed through social processes.

3.5.3 Process-Oriented Land Use Planning and the Challenge to Adopt a New Planning Approach

More recent planning approaches are described as innovative, process-oriented planning which serve a number of differing objectives, from providing conflict resolution services to creating socio-economic and biophysical data bases (Dykeman 1989, 102). Planning processes can be designed to constructively and productively address the specific economic, physical and social issues exercising a community, as well as environmental concerns.

Many people do not associate how their everyday lifestyle and behavior relate to the global well-being of our planet. In order to survive,

"we need to rethink our relationships with each other and with the rest of nature...The first step toward reducing our ecological impact is to recognize that the 'environmental crisis' is less an environmental and technical problem than it is a behavioral and social one. It can therefore be resolved only with the help of behavioral and social solutions" (Wackernagel and Rees 1996, xi).

The local planning process is a means available to address the relationships between the environment and development, and to plan appropriately.

3.6 Conclusion

The framework needed to address the problems in the Selkirk District will have to meet a certain number of criteria if it is to be effective. The framework developed must be explicitly rural-oriented, because the past Selkirk District development plan did not adequately meet the needs of the rural areas. It should reflect environmental processes due to the nature of many of the problems experienced in the District. The framework should be process-oriented and should incorporate public participation methods that can
help create a consensus on future strategies. And finally, it should be practical in terms of implementability, i.e. economically-feasible and time sensitive. The challenge is very real. How can it be met?

The following chapter begins the elaboration of possible elements of a framework, consisting of options for consideration. Three alternative planning approaches, and five plan implementation tools, that may be of assistance to the SDPAB to attain a successful plan are reviewed. The proposed approaches and tools were identified because of their potential to address some of the particular issues in the Selkirk District. But before the approaches and tools are examined in the context of the Selkirk District, they will each be examined separately.
CHAPTER FOUR: ALTERNATIVE RURAL ENVIRONMENTAL PLANNING APPROACHES AND PLAN IMPLEMENTATION TOOLS

4.1 Introduction

To this point, the question that needs to be addressed is: what environmental planning approaches (i.e. planning process and decision-making support systems) and planning tools are available, which would help create a plan that is acceptable to the various municipal, provincial and individual interests in the Selkirk District?

More specifically: how can the rural portion of a predominantly blended urban-rural planning district develop in a manner that respects environmental issues, does not deplete resources for future generations (i.e. is sustainable), while continuing to benefit economically from development, yet, all the time preserving the integrity of the social fabric of the rural community? It is evident that an alternative planning approach, new decision-making structures, and innovative plan implementation tools are needed to address the issues that are present in the Selkirk District.

In this chapter, three alternative planning approaches and five plan implementation tools are introduced and reviewed, in anticipation that a variation/combination of one or more of the approaches and tools, could help to address the specific issues now exercising the Selkirk District. The approaches and plan implementation tools were identified through the review of related literature on processes that have addressed similar issues in other municipal jurisdictions. The three alternative rural-oriented environmental planning approaches that are examined include: the Rural Environmental Planning (REP) approach, the Ecological Approach to Landscape Planning (ECO-P), and the Limits of Acceptable Change (LAC) approach. The theoretical constructs and decision-making structures associated with each approach are reviewed, and their component steps and procedures identified. The five plan implementation tools that are examined include:
cluster development (CD), transfer of development rights (TDR), land evaluation and site assessment (LESA), ecological footprint analysis (EFA), and the McHarg suitability analysis (MSA) method. Specific application of the proposed approaches and planning tools to the Selkirk District context will be conducted in chapters 5 and 6 in order to address overlapping characteristics of each approach and planning tool.

4.2 The Rural Environmental Planning (REP) Approach

The Rural Environmental Planning (REP) approach is based on the belief that economic development and environmental protection should be in balance (and in harmony) with the carrying capacity of the land (Sargent et al 1991). The REP framework is an innovative process, designed for rural areas and small towns, to help them plan their own future, as developed by Sargent et al (1991).

4.2.1 Theoretical Basis and Beliefs of the REP Approach

The main concern of the REP approach is the well-being and sustainable use of rural land. In particular, the approach helps to protect land allocated for the purposes of agriculture, wetlands, wildlife, recreation, water and soil conservation, and any other natural area designation that may be applicable in the jurisdiction. In a REP land use map, for example, different shades and patterns would be used to differentiate the various types of open space in a jurisdiction, and land that is left over would be designated for possible intensive uses (Carlson, Lassey and Lassey 1980). Sargent et al (1991) argue that open space is commonly the last use that is incorporated into plans, or as they state, "land left over is coloured green and labeled open space" (6). The REP approach conducts the designation of land use in the opposite order—land designated for open space is first determined, then the remaining land is designated for other uses. The application of this approach stresses the importance of rural environmental protection while accommodating an acceptable level of growth.
The REP approach is a partnership that is composed of three main participants: the client (the local community or local council), the planner, and the technical team. The client represents the interests of the particular geographical area, and is either a resident of the local area or a local government official. It must be the client who identifies the need for change. The planner is the agent of change who encourages, guides and assists the client in achieving their goals. The technical team is the support group that ensures all decisions are well-informed, and that government policy is reflected in the process. A critical component of the REP process is the addition of human resources from the local community (such as representatives from universities, provincial agencies, regional agencies, not-for-profit organizations, local agencies, and federal agencies), who are involved in the decision-making throughout the whole process. Each participant brings their expertise (data, analysis, recommendations, etc.) to the process to assist in the various stages of issue identification, inventory, planning and the implementation of goals and actions.

Citizen participation is inherent to the process that helps attain community self-reliance. Self-reliance occurs when citizens have some control over the development of the natural, human and cultural resources in their area. Self-reliance cannot be achieved in a framework of top-down or centralized planning, where professionals and/or politicians produce the plan: "For a community to achieve and maintain self-reliance, it must itself develop the fundamental tools of planning. In REP these tools are communication, inventorying resources, goal development, evaluation, and decision-making" (Sargent et al 1991, 27).

There are four main values and/or assumptions inherent in the REP approach listed below:
1. Rural people place a high value on self-reliance and self-determination. They have experience with techniques for culture and economic survival. They can make decisions regarding their long-term interests, design and carry out programs, evaluate the results of their work, and make necessary adjustments.

2. Rural people value cooperation as a guide to problem-solving. This attitude has evolved from generations of experience in rural living, where cooperation is a major tool of survival and community maintenance.

3. Long-term sustainability of a rural environment is achieved when citizens guide economic development according to the "physical carrying capacities" of the ecosystem. Land ownership is valued not just for its market value but also for sustaining a way of life. Consideration of the ecosystem's physical carrying capacity assumes that, although efficiency of use can vary, physical and natural resources are finite and can bear only so much use.

4. Increasing the self-reliance of citizens in rural communities can be the basis for sustainability. A self-reliant community possesses the knowledge, skills, resources, and vision to identify changing conditions, locate appropriate technical assistance, and initiate actions in a manner that conserves the rural environment and distributes benefits in an equitable manner. (Sargent et al 1991, 5)

4.2.2 Stages and Decision-Making Structure of the REP Approach
The REP approach, developed by Sargent et al (1991), is broken down into three main stages composed of a number of steps that can be followed to achieve desired results. The three stages are: start-up, creating the plan, and adoption and implementation (See Figure 6). In the first stage, start-up, the initiation of the approach comes first. It begins with issue(s) or idea(s) that members of the community choose to address through collective action, whether it be in response to something that is occurring in the jurisdiction or is sparked by what other areas are doing. As well, the vision of a better community must be connected to the political process: otherwise it will not be effective nor have any chance of being initiated.

Next, discussion is necessary to work through the potential acceptance of the idea with the public and private interests in the whole area, and hopefully attract more interest (or learn if many oppose certain ideas). A REP planner facilitates the process. A citizen
PART I: START-UP

1. *Initiation*: recognition of problem, need, or opportunity.
2. *Discussion*: informal exchange of ideas, options.
3. *Organization*: ad hoc citizens committee formed; REP process studied.

PART II: CREATING THE PLAN

1. *Hold an information meeting* with elected board, planning commission, rural environmental planner, citizens.
   a. Discuss objectives, procedures, assistance available, costs, schedule.
   b. Exchange letters of agreement.
2. *Appoint Rural Environmental Planning Committee*.
   a. Form subcommittees around inventory subjects.
   b. Include representatives of all groups with an interest in the Plan.
3. *Discover public goals*.
   a. Draft and deliver goals questionnaires; collect questionnaires.
   b. Tabulate results of goals survey and distribute.
4. *Inventory natural, cultural, human resources*.
   a. Describe resources.
   b. Obtain data, guidance, recommendations from technical team.
   c. Conduct field trips for direct assessment.
   d. Present and discuss inventory reports at public meetings. Incorporate recommendations.
   a. Assemble draft of findings, goals, recommendations, priorities, implementation methods.
   b. Organize in chapters, based on inventory subjects (or goals, or geographic areas).
   c. Distribute to all households.

PART III: ADOPTION AND IMPLEMENTATION

Hold public hearings, adjust, then adopt Final Plan with implementation strategies.

*Action 1*: Pursue implementing strategies, identify funding sources, parties responsible for actions.

*Action 2*: Enact ordinances, bylaws, adopt official map, capital budget.

*Action 3*: Establish responsibility to monitor progress and implement the plan.

Source: Sargent, Lusk, Rivera and Varela 1991, 46.
committee. an ad hoc committee or a special commission (or an existing committee) is created from the group of interested individuals that have come forward earlier. This committee would report to the local district planning committee, much as a private consultant might. Because the efforts of the special committee must coincide with the efforts of the local government, a strategy must be designed to address concerns that the local council may have. As well, in order to be successful, the committee must have committed leadership, connections to community organizations, and volunteers to help develop the plan.

The second stage involves creating the plan. The REP process begins by the holding of a public meeting with the local council, the planning commission, the REP planner and local citizens. All issues and concerns are raised. The planner explains the objectives and procedures of the REP process, a draft budget is prepared, and then technical representatives are approached.

In the next stage, the main committee establishes subcommittees to represent either the corresponding chapters of a plan, or are organized with relation to the inventories that need to be made (identified from the set of issues raised by the community). The subcommittees should be composed of interests that represent the issue or concept proposed. If, for example, the issue or goal is to protect farm land from being developed, then interests such as farmers and agricultural operators would be the main part of the committee. The roles of the committees are outlined and the committees receive assistance from the planner and technical team periodically. Committee members will have to "visit and observe their subject area, review literature, get help from the REP planner and technical team, study results of a public goals survey, discuss findings, options, and recommendations, then summarize the results as a draft chapter for the plan" (Ibid., 34).
Discovering public goals is conducted through a survey of the local community which asks people their opinions on issues and goals raised earlier, and additional goals or issues they feel a need to address. Once collected, the majority response would then represent the primary goals and other responses would represent issues for further study. The survey represents the opinions of the people in the area at one point in time, and is not the final word. It is an invaluable step "that far surpasses a few elected officials making a decision in isolation" (Ibid., 55).

A focused inventory of the natural, cultural and human resource assets of the community is conducted to understand the local heritage, character and the potential of the area. It provides the opportunity to make proposals that will suit the characteristics of the area and address the issues raised. Information can be found from various sources such as government departments, provincial libraries, university libraries, other specialty technical centres, and information field visits and surveys. The information collected by the residents and the experts in the field, will be compiled together. The data will be classified accordingly, analyzed and used to guide recommendations which will be brought before the public for their input. A draft plan will then be assembled and published and distributed to as many as possible, as a proposed plan.

The third stage begins by adopting implementation procedures which should be included within the plan. For example, one approach is to include in each chapter of the plan, resources that are available and the entity that will be responsible for implementation. Alternative ways to enact bylaws should be adopted which do not simply borrow tools from urban areas, because traditional land-use planning tools or techniques used in urban areas may not be as effective or enforceable in rural areas. For example, when detailed zoning occurs in rural areas, Sargent et al (1991) argue that it commonly leads to many
zoning change applications and there evolves a common pattern of granting exceptions on request (spot zoning). "This can destroy confidence in the planning process and in the notion of equitable administration" (Ibid., 44). Minimizing the number of variances or spot zoning applications that are granted is important in maintaining consistency with the overall goals.

Finally, a long-term capital program should be designed to anticipate large expenditures that may be required, and a short-term budget should be developed for more urgent projects. This will help prevent the unexpected or haphazard spending on goals that have not been identified in the process. The implementation methods and progress are evaluated to ensure problems and issues are being addressed effectively.

4.3 Ecological Approach to Landscape Planning (ECO-P)

The Ecological Approach to Landscape Planning (ECO-P) uses biophysical and sociocultural systems information to recommend opportunities and constraints for decision-making about the use of the landscape, and to determine where specific land uses (and their designs) may best be practiced. It is an approach developed and presented by Steiner (1991). The ECO-P approach helps in the recognition of how people are affected by the intricate relationships of nature and human processes, and proposes options to address them for the well-being of future generations.

4.3.1 Theoretical Basis and Beliefs of the ECO-P Approach

The ECO-P approach encompasses landscape architecture ideals and combines these with the values of ecology and comprehensive planning theory. The ECO-P approach incorporates social and environmental concerns within existing political and economic structures, which represents much more scope than a typical development plan. It uses physical design as an important component of the process, exploring the relationships
between the built environment and the natural landscape. It emphasizes "the establishment of goals, implementation, administration, and public participation, yet does so in an ecological manner" (Steiner 1991. 10).

Planning involves dealing with a variety of land use issues and natural resources and there is a need for an approach that reflects this diversity. Because there are a number of differing issues and concerns within local areas across the country (such as the Selkirk District), it is only logical to use an approach that best applies to the specific situation.

4.3.2 Stages and Decision-Making Structures of the ECO-P Approach
The Ecological Planning approach utilizes eleven interacting steps that begin with an issue or group of issues (See Figure 7 for a diagram of the various steps and interactions of the ECO-P model). Each step may not be suitable for all situations and may be re-arranged or omitted depending on the specific issues relevant to the area of application.

Central to the ECO-P approach is the participation of citizens throughout the planning process. This can be done through a number of different participatory techniques such as special task forces, citizen advisory committees, or public workshops. The plan will encounter less opposition, and will more likely be implemented with public support.

The first step of the ECO-P approach is to identify a problem or an opportunity within the area. Since people must live on land, interaction naturally occurs between the surrounding environment and the social processes that may sometimes cause problems or may lead to opportunities. Issues are soon raised around the problems experienced, and a necessity to deal with them evolves.
When a planning board or commission observes a problem, they initiate a study to further examine the situation. A citizen involvement technique is used to determine, first, if the problem is a concern to the community and second, to formulate some goals that the community can focus on and address. The establishment of a goal provides the basis of the planning process and is "a statement of purpose that gives direction for accomplishing the aspirations of the community" (Steiner 1991, 176). Goals are a commitment, determined by representatives of the area, to address the problems that have been identified. It is important for those who live in the community to participate in the goal
formation step in order for the goal choices to accurately reflect the values of the socio-political environment. The goals should also reflect the provincial policies that the government has committed to, but these policies should not dominate the process. The goals of the process should not be confused with the objectives, which are defined as "a statement of the measurable and desired ends that a community will achieve to accomplish its aspirations" (Ibid., 176).

The next step is to inventory, synthesize and analyze the biophysical environment at a regional level, commonly a watershed or drainage basin (or by political boundaries). Inventory elements include regional climate, geology, physiography, hydrology, microclimate, vegetation, and wildlife. Because the ecological theory recognizes that everything is related to everything else, appropriate connections and relationships must be determined between each inventoried element prior to any attempts at changing the existing state. This will help determine the potential environmental implications of the decision. The information is synthesized through the use of matrix charts or bivariate relationships: "By reviewing bivariate relationships in such a manner, linkages between different elements of the landscape can be made more explicit. One can also start to view each element as it relates to other elements. This perspective should be helpful when contemplating options in the use of resources" (Steiner 1991, 80).

Step four examines and analyzes more specific processes at a local level, composed primarily of the human elements of the system. When collecting information, it is advised to locate as much existing information as possible, to save time and energy, rather than having to conduct new studies and surveys. There must be an understanding of the local economy. Trends, as well as other current or future characteristics of the community are examined. This process differs from conventional approaches in that it relates the social characteristics of an area to the physical landscape, rather than...
correlating only social and economic processes: "Ecological frameworks for analysis include identifying landscape patterns, social interactions, and relationships between people and nature. The inventory and analysis should lead to an assessment of community needs" (Steiner 1991, 96-97). The biophysical information is then combined with social data to identify patterns that are occurring on the landscape, based on which the interactions and relationships can be identified.

Step five attempts to study the alternative arrangements that are possible for a piece of land and identify what would be a suitable use for it. The suitability of the land measures its health (appropriateness of a use) with respect to a range of alternative uses. In this sense, it records the values or desires of those who use the land in the district. Determining the suitability of the land must not be confused with the capability of the land. Capability analysis determines the ability or strength of a piece of land to support a particular use. Suitability analysis models help bridge the gap between the inventory/analysis stage and the issue/goals stage identified earlier. The carrying capacity concept has been identified as a means to achieve levels of thresholds of land use to safely maintain its quality or character, especially for environmental concerns versus the conventional incremental approach that typically recognizes the problem when it is too late. Impacts from incremental action are often less noticeable because the change is less evident in the short term; meanwhile, the cumulative impact can be very high.

Planning options and choices are determined in step six to address the next question: "What use should be encouraged?" Options are presented to local citizens in the form of concepts or scenarios: "These concepts are based on a logical and imaginative combination of the information gathered through the inventory and analysis steps. The conceptual model shows allocations of uses and actions" (Steiner 1991, 17). The
presence of options helps citizens determine the possible alternatives that can be achieved that are based on the values and desires of the individuals of the local community. The choices are brought before the people in the community for their input, similar to how the goals for the area were determined.

The development of a "landscape" plan is next (and is really only one of many products that will result from the process). There must be the recognition that a plan will be adopted which will incorporate and respond to the previous steps of the process as well as the required steps of local planning legislation. The landscape plan should meet and surpass the requirements of the development plan, which are typically "policy" plans. Landscape plans reflect policy decisions while incorporating management strategies to recognize the integrated, overlapping, and physical ordering of space.

Detailed designs are produced to give spatial form to the elements discussed earlier in the process. The ideas are then produced visually for all to see what the new form will look like and the subsequent consequences and impacts. The visual media could be in the form of artist impressions, computer renditions, conceptual sketches or through demonstration projects. "During the design step, the short-term benefits for the land user or individual citizen have to be combined with the long-term economic and ecological goals for the whole area" (Steiner 1991, 207).

Finally, there is the administering of the planning programs which includes the monitoring and evaluation of the plan. Citizen committees or special planning commissions (with technical assistance from professional staff) can be designed to serve this purpose and respond to any changes in the community that may affect the original plan. Alternative budget techniques are available to help programs and planning.
The Limits of Acceptable Change Approach (LAC)

The Limits of Acceptable Change (LAC) approach is a planning process that was originally developed to address the potential problems associated with the growth in the number of visits to wilderness management areas. The LAC approach has been identified as a process which has the potential to address the challenging land use issues in the Selkirk District. The LAC approach was a response to the popularity of tourism, as the demand for recreational experiences in national parks and wilderness management areas increased. Although the benefits of increased activity were numerous, there was concern for maintaining the quality of the visitors' experiences and the natural resources. Although the LAC approach was not developed specifically for rural development planning processes, there are some relevant theoretical constructs and steps that can be adapted and applied to the rural Manitoba context.

4.4.1 Theoretical Basis and Beliefs of the LAC Approach

There is a popular belief in the field of wilderness management that a natural area can realistically sustain only a certain number of visits before the experience deteriorates or the natural environment suffers—but the LAC approach departs slightly from this belief. The LAC approach "does not focus on the amount of visitation and activity, but rather on the change to the environment we are prepared to tolerate as the custodian of that environment" (Wight 1994, 1). There must be an understanding and discussion of public desires and values. In the Selkirk District context, a similar question needs to be asked. What is the limits of acceptable change that the local population will tolerate to the natural environment (regarding water quality, septic failure, water quantity) from the impacts created from rural residential development.

The LAC approach was developed in part in response to dissatisfaction with the carrying capacity framework. A central component of the LAC approach is understanding the
definition of carrying capacity, which was borrowed from wildlife ecology and ecosystem management (Wight 1994; Williams and Gill 1991). In the original context, carrying capacity "was defined as the maximum population density for a given species in an environment which could be supported without degradation of that environment" (Schneider, Godschalk and Axler 1978, 1). In land use planning and growth management realms, carrying capacity was defined as "the ability of a natural or manmade systems to absorb population growth or physical development without significant degradation or breakdown" (Ibid., 1). While the carrying capacity concept is a useful framework by which general issues could be examined, it had some shortcomings when applied to specific situations (Stankey and McCool 1992).

The carrying capacity approach is fueled by the predominant assumption that science is the route to a potential cure-all for any situation, and that there is an "inherent capacity figure" for every environment (Stankey and McCool 1992). Expensive technical studies are often conducted in an attempt to determine the carrying capacity of a particular use on a piece of land, to establish a numerical figure of what the land can withstand: "While it is possible to specify the conditions under which a numerically-based carrying capacity can be established, the conceptual and practical requirements are severe and it is unlikely they can be met in most situations" (Ibid., 11). In addition, the practicality of implementing some of the technical solutions is limited because they are typically beyond the capability of the organization in terms of the high cost of the studies and lack of monetary and human resources available. The carrying capacity approach often led managers into a particular line of intervention, often dealing with situations that did not resolve problems, and tending to divert managers and planners from addressing important value questions that need to be pursued. McCool and Stankey (1993) argue that technical studies are commonly not effective because they tend to project the values of those who are doing the study. This is not to say that the technical studies are not seen to be
valuable, rather, they should not be considered the sole answer to the problem. and the studies should be conducted only in certain circumstances, responding to the values of the people in the local area. The LAC approach recognizes that science can provide information on various impacts or relationships, but this information alone could never address what the appropriate or acceptable conditions are. Science, also, does not indicate what actions are necessary to maintain or change the condition of an environment (Stankey and McCool 1992). The partial failure of the carrying capacity approach led to the creation of the LAC framework.

The LAC approach is a social or community values-driven approach (as opposed to the purely technical science-driven carrying capacity), which changes the emphasis from use limits to desired outcomes. It encompasses sustainable development characteristics and issue-specific indicators to help address very challenging problems with alternatives that are within acceptable limits of change to those concerned. The LAC approach is most effective in cases where there are conflicting goals, and in the process helps to determine the optimum balance between differing interests versus the goal of maximizing one interest (Cole, no date).

4.4.2 Steps and Decision-Making Structures of the LAC Approach

"The Limits of Acceptable Change approach focuses on defining the desired conditions for an area and developing management strategies to achieve those goals" (Williams and Gill 1991, 11). What are the goals of the district and how can they be achieved in the presence of limited natural resources? Value judgments of members of the community, not science, should dictate the process, while using technical information that is available to attain goals. The LAC approach incorporates a multi-step process to help identify the desired conditions as well as actions that are necessary to attain those conditions (See
Figure 8). McCool and Stankey (1993) argue that the LAC process results in a more defensible decision that has a greater chance of being implemented.

Figure 8: Steps of the Limits of Acceptable Change (LAC) Approach

1. **Define Issues and Concerns**
   - economic
   - social
   - environmental
   - political/institutional constraints

2. **Define and Describe Opportunity Classes**
   - resource
   - social
   - managerial

3. **Select Indicators of Resource and Social Conditions**
   - economic
   - social
   - environmental
   - political

4. **Inventory Existing Resource and Social Conditions**
   - current status of indicators
   - standards database

5. **Specify Opportunity Class Standards**
   - acceptable, observable, measureable limits

6. **Identify Alternative Opportunity Class Allocations**
   - type of use
   - location
   - timing

7. **Identify Management Actions**
   - direct
   - indirect

8. **Evaluate and Select Alternative Management Actions**
   - costs vs. benefits
   - consensus building
   - management capability

9. **Implement and Monitor**
   - compare against standards
   - adjust management strategies accordingly

The LAC planning process can be divided into nine individual steps. The first set of steps identifies the existing resources and social conditions of the area. Because the LAC approach is an issue-driven process, the first step is to identify issues or problems within a certain area or district. The second step requires the area to be subdivided into zones or classes for different social, resource, or managerial conditions. Divisions are established through bio-physical characteristics and social conditions, to respond to the variations within an area, rather than assuming homogeneity throughout. In step two, "the process proceeds from general statements of goals to specific quantifiable standards that identify the limits of human-induced changes permitted in the area."—called opportunity classes (Stankey and McCool 1992, 13).

The second set of steps (steps three and four) compares the existing conditions with desired conditions. The third step involves choosing a few indicators, such as social-oriented or resource-based factors, that would help determine the existing and ongoing health of the area. Developing the indicators can be a difficult task, as can be the determination of how or where they should be applied. In addition, it must be determined whether one indicator should have the same meaning in all areas of a district. In the fourth step, an inventory database is established for each indicator topic and a map of the subsequent area it will represent (which has been established in the prior step). This will reduce the amount of data collection and give focus to areas of greater need: "The result of this step is geographical and tabular data showing where and by how much current conditions may violate standards" (Stankey and McCool 1992, 13).

The third section, consisting of steps five, six and seven, identifies actions required to achieve desired conditions. In the fifth step, realistic standards are developed for resource conditions, and for social conditions that indicate the limit of acceptable change that would be permitted. These standards would not be objectives; rather, they would be
the maximum amount of change that would be accepted in a specific area for that database. Step six would identify the difference in character between areas of land, and the variations in types of other characteristics of each sub-area: "Using information from step 1 (area issues and concerns), and step 4 (inventory of existing conditions). managers and citizens can begin to jointly explore how well different opportunity class allocations meet the various contending interests, concerns, and values" (Stankey and McCool 1992, 20). Step seven is the identification of alternative management actions that would be necessary to achieve the desired conditions. A part of this step would be to assess the costs of each alternative to help determine which is more attractive.

The final section, composed of steps eight and nine, involves evaluating and monitoring the actions that have been taken for certain alternatives identified. Step eight would determine which alternative is preferred. Management would proceed to solicit public input to help in the selection of the best alternative, and the issues and weights associated with each alternative would be available for review. The final step would be to implement the chosen alternative and to develop a monitoring program.

The LAC approach relies on the input of both technical experts and the local public throughout the process. The local public can contribute by providing valuable knowledge of the area, help identify what the important issues are in the area, and determine what would be best the best alternative. Understanding what is acceptable or unacceptable to people affected by the decision, must be included within the criteria to determine future action. The technical experts then respond to the issues and concerns that have been raised by the local public.
4.5 Rural Plan Implementation Tools

Planning implementation tools help translate plans into actions. Zoning and subdivision regulations are examples of implementation techniques which are mandated by Manitoba planning law. Some planning implementation techniques are regulatory. Some require financial expenditures (such as for land acquisition), and others may intersect with local government taxation arrangements. Another option may include voluntary land protection measures.

A variety of alternative planning tools and techniques are examined, which include:

1. Cluster Development (CD)
2. Transfer of Development Rights (TDR)
3. Land Evaluation and Site Assessment (LESA)
4. Ecological Footprint Analysis (EFA)
5. McHarg Suitability Analysis (MSA)

The plan implementation techniques were chosen for review because the author felt that they had the potential to be applied to the Selkirk District context, within the context of a rural-environmental planning process. These techniques seemed to be applicable to the issues that the proposed approaches do not address, but this will be determined in chapter 6.

4.5.1 Cluster Development (CD)

Cluster development is the process where development is grouped into nodes rather than allowed to sprawl across viable farm land. Clustering helps to guide development in more dense forms without actually increasing the overall density of a parcel, due to the preservation of open space (Figure 9). The CD technique serves three main purposes in relation to conventional zoning: limitation of encroachment in areas that are environmentally sensitive; preservation of open space land consisting of open farmland, woodlands and other open space; and, utilization of existing transportation infrastructure and utility lines required by development, reducing the costs of housing and servicing (Mantell, Harper and Propst 1990).
Figure 9: Cluster Development

Figure 9. Clustering Development to Preserve Farmland. The site drawing, left, depicts a conventional approach to development where infrastructure encroaches on and breaks up agricultural land. The other drawing shows how clustering can guide development so that density is achieved with minimal intrusion into surrounding farmland and greenbelt spaces.


The CD technique is more effective when it is combined with other functional site criteria such as soil suitability for on-site sewage disposal, slope of the site, or flood-threatened areas (Sargent et al 1991). For example, developing a piece of land which has soil that is suited for on-site sewage disposal may permit the density to increase without having adverse affects on the environment (such as might otherwise occur through septic failures). Less land would be needed for residential purposes, and more land could continue to be used for agricultural purposes.
In the local zoning by-law, provisions indicating the permitted number of buildings per acre, and provisions allowing certain percentages of parcels of rural land to be designated for development, should be incorporated. Depending upon the suitability of the land for development, the same number of lots may be permitted as would be allowed in a conventional subdivision (but using a smaller piece of land). For example, if a developer wanted to subdivide a parcel of land, he or she would only be permitted to develop a minimum number of acres, perhaps between 10% to 25% of the total acreage, but the development must be situated in an area on the piece of land where site criteria would indicate is the best location: "The land not built upon could thereby remain in agriculture or be kept open without having to be a burden to other taxpayers. The seller, meanwhile, would still receive full value for the land" (Sargent et al. 1991). Some communities that have applied the cluster development requirements include Arundel and South Berwick, Maine; Amherst and West Tisbury, Massachusetts; Cromwell, Connecticut; Easthampton, New York; and Readington Township, New Jersey (Arendt et al. 1994).

4.5.2 Transfer of Development Rights (TDR)
Transfer of development rights (TDR) is a legal concept which divides the ownership rights of land into a bundle of individual rights (Rose 1975). In particular, the technique separates the development right or the use of the land from the physical entity of the land. This development right can be sold or transferred to someone else while the land remains the property of the original owner in its natural state or historical use. It is a land use regulation technique that attempts to manage growth primarily in urban fringe areas, and has no direct cost to the local government (unlike land banking). The TDR approach has helped in cases where local land use controls have been less effective in addressing issues related to urban sprawl.
Development proposals in the district must accumulate a certain number of development rights from "donor" areas in order to begin construction of any development, which will be designated in certain "receiving" areas. The extra development rights that would be required by a developer, may be purchased from a farmer in the area who has no desire to develop but would like to reap the profits of the increase in the exchange value of the land. The municipality may then be successful in retaining land as agricultural (or scenic or historical significance), and landowners can receive the monetary benefits of increased development pressures on their land.

The TDR approach reduces the shifts in value and economic inequalities that are experienced from restrictive zoning. When zoning designations change from agricultural to residential, for example, the property owner of the newly zoned land benefits but a nearby neighbour does not reap the same benefits: "The transfer of development rights attempts to distribute economic gains created by development from all property owners in an area, not just those who receive a windfall from a favorable zoning decision" (Steiner 1991, 261). There are variations in the methods that can be used in calculating the number of development rights an owner would be entitled to, as well as in the methods used to distribute the rights. There are a number of different types of TDR mechanisms used in many local counties in the United States, such as Montgomery County and Calvert County, Maryland (Arendt et al 1994). These two examples have both been successful, with the Montgomery case protecting 15,000 acres of farmland over a ten year period (Ibid.).

---

5 The municipality would have to establish an administration system to record the separation of the parcel of land from the development rights.
4.5.3 **Ecological Footprint Analysis (EFA)**

The ecological footprint analysis (EFA) has been identified as an aid in gaining public appreciation of the impact that development has on the environment and future generations. The EFA is an accounting tool that measures the existing dependency of humans on nature, and can inform testing alternative methods for achieving the goal of securing the resources required to sustain life on earth. This tool helps determine the estimated "resource consumption and waste assimilation requirements of a defined human population or economy in terms of a corresponding productive land area."—the ecological footprint (Wackernagel and Rees 1996. 9). It can be used as a public awareness-raising tool for people to better understand the global implications that certain forms of local development may have on the natural environment and the future quality of life on earth. It can also be effective in assisting in the decision-making process in planning contexts by weighing the ecological footprint of alternative land development proposals that may be identified, towards the end of selecting the one that seems most sustainable.

Measuring the impact of development on the natural environment is commonly attempted by conducting many technical tests and research on the carrying capacity of the land to sustain proposed development. EFA recognizes "that trying to measure human carrying capacity in terms of maximum supportable regional population is a futile exercise (because) local populations are so influenced by culture, trade and technological factors that any relationship to local biophysical limits is obscured" (Wackernagel and Rees 1996, 52). EFA reflects the values of the individuals and their technology in local areas to determine the true impact of development. Achieving a certain population density is not the sole consideration in achieving ecological harmony.
The EFA concept is based on the idea that for every item of material produced or energy consumed, there is a certain amount of land needed to produce the goods and absorb the wastes generated. The approach is considerably simplified in most applications and certain general/conservative assumptions are made in order to limit intricate calculations and data-processing problems. See Figure 10 for a diagram depicting the relationship between different forms of consumption in land area terms, which add up to the ecological footprint for a certain population. The average person's annual consumption of

Figure 10: The Ecological Footprint Analysis Variables

![Diagram of ecological footprint analysis variables](image)

Figure 10. Converting Consumption into Land Area. The production and use of any good and service depends on various types of ecological productivity. These ecological productivities can be converted to land-area equivalents. Summing the land requirements for all significant categories of consumption and waste, estimates the EF for the reference population.

such items as energy and food are determined, then the land area necessary for production of each major consumption item is estimated on a per capita basis. The total per capita ecological footprint is computed by adding all the ecosystem areas then multiplying that value by the population size. The data can be found in national statistical reports (production, trade, imports, etc.), reference handbooks, government reports, or research papers.

The EFA is a new and innovative method that could build awareness within a community planning process, of the long term impact of certain types of development. It is an approach which reflects sustainability, i.e. that nature's resources should not be used at a rate that nature cannot be replenished. And to begin to become sustainable, people must be informed of the impacts of development and they must choose a path that is more ecologically sustainable.

4.5.4 Land Evaluation and Site Assessment (LESA)

Land evaluation is a process used by planners and resource managers to rate soil with present and future agricultural value (Sargent et al 1991). The land evaluation (LE) component of the LESA system helps to determine the best and least suited land that can be used for certain agriculture activities, by applying several soil rating systems. The four main systems are: land capability classification, soil productivity, soil potential, and important farmland classification systems (Steiner 1991) (See Appendix 4 for a more detailed description of the four soil systems). A rating scale or numeric value is attached to each classification which provides a relative scale to determine the uses that would be most suitable for a piece of land (See Figure 11). The results are most effective when grouped with site assessment (SA) values.
Figure 11: Agricultural Land Evaluation (LE) Worksheet

<table>
<thead>
<tr>
<th>Agricultural Group</th>
<th>Land Capability</th>
<th>Important Farmland Determination</th>
<th>Potential or Productivity</th>
<th>Percentage of Total Area</th>
<th>Acres</th>
<th>Relative Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Prime</td>
<td>95-100</td>
<td>18.8</td>
<td>76,270</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>IIw</td>
<td>Prime</td>
<td>95-100</td>
<td>31.3</td>
<td>127,470</td>
<td>94</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>Prime</td>
<td>94</td>
<td>5.4</td>
<td>21,975</td>
<td>88</td>
</tr>
<tr>
<td>4</td>
<td>II</td>
<td>Prime</td>
<td>90-94</td>
<td>9.6</td>
<td>39,365</td>
<td>84</td>
</tr>
<tr>
<td>5</td>
<td>II</td>
<td>Prime</td>
<td>80-89</td>
<td>21.0</td>
<td>85,635</td>
<td>81</td>
</tr>
<tr>
<td>6</td>
<td>II</td>
<td>Prime</td>
<td>70-79</td>
<td>3.5</td>
<td>14,570</td>
<td>75</td>
</tr>
<tr>
<td>7</td>
<td>II</td>
<td>Prime</td>
<td>69</td>
<td>7.1</td>
<td>28,695</td>
<td>44</td>
</tr>
<tr>
<td>8</td>
<td>II</td>
<td>Statewide</td>
<td>All</td>
<td>2.1</td>
<td>8,275</td>
<td>31</td>
</tr>
<tr>
<td>9</td>
<td>IIIrIVV</td>
<td>Statewide</td>
<td>All</td>
<td>0.9</td>
<td>3,410</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>Others</td>
<td>All</td>
<td>All</td>
<td>0.3</td>
<td>1,375</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 11. The LE worksheet shows criteria for delineating the ten basic groups of soil.


Site assessment values help to measure the impacts of other site attributes of land that are not included in the land evaluation process: attributes such as location of land to a market, adjacent land uses, agriculture viability factors (size of farm, agriculture support system, etc.), location of existing infrastructure, and environmental factors, to name a few (Steiner 1991): "Each factor is awarded points that are then converted according to a weighting scheme: the result is a factor score. Site assessment points serve as one more piece of information for planning and zoning commissioners to use in deciding whether a specific site should be approved for non-farmland development" (Sargent et al 1991, 101).
The LE and the SA values are more effective when combined. Various weighting schemes can be devised to determine the total scores. Parcels of land below a determined value would be used for non-farm use and those above the value indicate the land should remain in agriculture (See Figure 12).

Figure 12: Hypothetical Example Demonstrating a Possible Use of the Combined LE and SA Systems

Proposed land use: single-family residential development

Site 1: 23 acres of Palouse silt loam, 7–25% slope with LE of 87
37 acres of Anders silt loam, 3–15% slope with LE of 48

Site 2: 32 acres of Cheney silt loam, 0–7% slope with LE of 80
23 acres of Staley silt loam, 7–25% slope with LE of 63

Land evaluation:

\[
\begin{align*}
\text{Site 1} & : & 23 \times 87 = 2,001 & \text{Site 2} & : & 32 \times 80 = 2,560 \\
& & 37 \times 48 = 1,776 & & 23 \times 63 = 1,449 \\
& & 3,777 & & 4,009
\end{align*}
\]

Average LE rating = \( \frac{3,777}{23 + 37} = 63 \)
Average LE rating = \( \frac{4,009}{32 + 23} = 73 \)

<table>
<thead>
<tr>
<th>Site Assessment Factors</th>
<th>Max. Pts.</th>
<th>Site 1</th>
<th>Site 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Percentage of area in agriculture within 1 mile</td>
<td>20</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2. Land use adjacent to site</td>
<td>20</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>3. Wasting agricultural land</td>
<td>20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>4. Availability of non-agricultural land for proposal</td>
<td>20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>5. Compatibility with comprehensive plan and zoning</td>
<td>20</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>6. Availability of public services</td>
<td>20</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>7. Compatibility of proposed use with surrounding use</td>
<td>20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>8. Environmental factors</td>
<td>20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>9. Open-space taxation</td>
<td>20</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>10. Other factors unique to the site</td>
<td>20</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

Total site assessment points: 200
Average land evaluation rating: 100
Total points (total of previous two lines): 300

Choice for development: Site 2

Source: Steiner 1991, 139.
4.5.5 The McHarg Suitability Analysis (MSA)

The McHarg Suitability Analysis (MSA) is explained best by McHarg (1969):

In essence, the method consists of identifying the area of concern as consisting of certain processes, in land, water, air—which represent values. These can be ranked—the most valuable land and the least, the most valuable water resources and the least, the most and least productive agricultural land, the richest wildlife habitats and those of no value, the areas of great or little scenic beauty, historic buildings and their absence, and so on (34).

See Appendix 5 for a summary of the steps of the MSA method and the use of matrices which depict the relationships between various relevant factors. Once these factors are identified, they are given a numeric value and ranked in importance. Constraints between potential land uses and biophysical processes are also identified. Maps and overlays are developed to visualize the relationships, as shown in Figure 13. The use of computer-

Figure 13: The McHarg Suitability Analysis (MSA) Example

**STEP 1**
MAP DATA FACTORS BY TYPE

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - 0 - 10%</td>
<td>C - SLIGHTLY ERODED</td>
</tr>
<tr>
<td>B - 10 - 20%</td>
<td>B - SLIGHT TO MODERATE</td>
</tr>
<tr>
<td>C - 20 - 40%</td>
<td>C - MODERATE</td>
</tr>
</tbody>
</table>

**STEP 2**
RATE EACH TYPE OF EACH FACTOR FOR EACH LAND USE

<table>
<thead>
<tr>
<th>Factor Types</th>
<th>Agriculture</th>
<th>Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example 1</td>
<td>1 1</td>
<td>1 1</td>
</tr>
<tr>
<td>Example 2</td>
<td>2 1</td>
<td>3 3</td>
</tr>
</tbody>
</table>

**STEP 3**
MAP RATINGS FOR EACH AND USE ONE SET OF MAPS FOR EACH LAND USE

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 3 1</td>
<td>3 2 1</td>
<td>3 1 1</td>
<td>2 2 1</td>
</tr>
</tbody>
</table>

**STEP 4**
OVERLAY SINGLE FACTOR SUITABILITY MAPS TO OBTAIN COMPOSITES. ONE MAP FOR EACH LAND USE

<table>
<thead>
<tr>
<th>Agriculture</th>
<th>Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 5 4 4 4 4</td>
<td>3 3 3 3 3</td>
</tr>
<tr>
<td>4 4 4 4 4</td>
<td>2 2 2 2 2</td>
</tr>
</tbody>
</table>

Source: Steiner 1991: 142.
generated maps, such as GIS, can increase the accuracy of mapped information in relation to hand-drawn overlays used in the past. In the end, a composite map is created which depicts the highest suitability of the different land uses. The MSA technique has served the purpose of conserving resources and developing resources.

4.6 Conclusion

The Rural Environmental Planning (REP) approach, the Ecological Approach to Landscape Planning (ECO-P), and the Limits of Acceptable Change (LAC) approach all seem to have the qualities that are needed to address many issues identified in the Selkirk District: rural-oriented, participatory, environmentally-focused, and adaptable to local circumstances. Although the proposed approaches have a number of similarities, there are some differences in the philosophies guiding their decision-making process that make them each somewhat distinct. These similarities and differences will be explored in more detail in the next chapters, as they are applied to the Selkirk District issues. It is the intention of the study to determine the one best approach (or a variation of one) for the situation.

Each of the five plan implementation tools address specific problems, which would indicate the need to apply a combination of techniques to address all of the issues. The ability of the proposed plan implementation tools to address other problems in the Selkirk District will be examined in chapter 6. The best tools to use will depend upon the planning approach selected.
CHAPTER 5: EVALUATION OF THE RURAL ENVIRONMENTAL PLANNING APPROACHES

5.1 Introduction

The REP, ECO-P, and LAC planning approaches (identified in chapter 4) are evaluated on the basis of how well they address the problems of the development plan process (from chapter 2). The evaluation also reviews the applicability, i.e. the practicality or implementability, of each approach in the context of the existing political climate. Simplified relationships between the issues present, and the proposed approaches, are depicted through matrix charts, and are discussed to determine the degree to which the approach may address the issues. The incompatibilities of the approaches in addressing the issues are also identified. Finally, an approach is identified which may be the most suitable to address the problems in the Selkirk District, at this point in time.

5.2 The Evaluation Process

The REP, LAC, and ECO-P approaches are rated to determine the compatibility of each approach in effectively addressing some of the specific issues in the Selkirk District. The three proposed environmental planning approaches are cross-referenced with the following issues to determine how effectively they:

- respond to various interests, especially opposition interests.
- ensure that rural values are reflected in the process, and
- ensure environmental concerns are met.

In addition to these concerns, some practical issues are examined which include:

- the general cost of the approach, to ensure it is reasonable,
- time required, to ensure it is adequate and feasible,
- provincial government policy, to ensure consistency, and
- legal defensibility, to ensure it is within legislative frameworks.

In the analysis of the proposed approaches the respective viewpoints of the SDPAB members, the province, special interests, and private actors will be periodically examined
in the context of how they might be expected to respond, given past history. As well, potential problems that may occur in certain instances are identified through the review of related literature, and ways to address them are examined.

A summary of the evaluation of the proposed approaches is shown in Chart 3. The issues raised in the development plan process are cross-referenced with the REP, ECO-P, and the LAC approaches. The relationships are rated on a scale from 1 to 3, where 1 represents the greatest compatibility between an issue and an approach, 2 representing a moderate compatibility, and 3 representing a very little to no compatibility or relationship. For those instances where the approaches have been given an identical value, the asterisk (*) is placed beside the approach which is favoured over the others, by the judgment of the author casting himself as a consultant working for the SDPAB.

Chart 3: Compatibility Rating of the Potential Planning Approaches in the Selkirk District Context

<table>
<thead>
<tr>
<th>SECTION</th>
<th>ISSUE</th>
<th>REP</th>
<th>ECO-P</th>
<th>LAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3.1.1</td>
<td>Responds to a Variety of Interests/Participation</td>
<td>1</td>
<td>*1</td>
<td>1</td>
</tr>
<tr>
<td>5.3.2.1</td>
<td>Rural Oriented</td>
<td></td>
<td></td>
<td>*1</td>
</tr>
<tr>
<td>5.3.3.1</td>
<td>Environmentally Based/Unified Position</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5.4.1</td>
<td>Fiscally Responsible/Cost of Approach</td>
<td>*1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5.4.2</td>
<td>Time Sensitive/Efficient</td>
<td>*1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5.4.3</td>
<td>Reflects Provincial Policy/Within Legislation</td>
<td>*1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**LEGEND**

<table>
<thead>
<tr>
<th></th>
<th>MOST COMPATIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MOST COMPATIBLE</td>
</tr>
<tr>
<td>2</td>
<td>MODERATELY COMPATIBLE</td>
</tr>
<tr>
<td>3</td>
<td>VERY LITTLE/NOT AT ALL COMPATIBLE</td>
</tr>
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<td>*</td>
<td>SINGLE MOST COMPATIBLE APPROACH</td>
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5.3 Applying the Proposed Planning Approaches to Address the Problems in the Selkirk District Development Plan Process

The relationships between the issues and the proposed approaches are examined below. Each of the three proposed approaches are examined and evaluated for their ability to address each issue in the context of Selkirk District.

5.3.1 Responding to a Variety of Interests through Public Participation

The current planning process in the Selkirk District saw a number of significant interests in opposition to the proposed plan yet an acceptable solution was not established. The three proposed planning approaches thrive on the need for action through collaboratively working on issues that are plaguing the area, and which can potentially elicit some different viewpoints based on the needs and desires of the exercised individuals or groups. The proposed approaches function better with the presence of conflicting goals and the challenge of determining an acceptable balance. Rather than attempting to concentrate on only one goal, the proposed approaches help to identify other available choices that might help to balance the interests into one plan or a number of options/combinations. This can only be done as the goals are being determined.

The process will require that all the stakeholders in the area work together to envision a common future. Despite opposing views, everyone in the District has an interest in seeing the local development plan achieve approval in order to return to normal everyday operations. The proposed approaches have the ability to help focus on the real issues at hand, to determine goals and to guide action. A united effort is necessary to spark each process, despite the presence of some very difficult issues and stakeholders with differing goals. All three of the proposed processes are designed to deal effectively with addressing alternative views and challenging issues.

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6 For example, the amount or acceptable level of rural residential development that is desired for the area.
During the Selkirk District development plan process, the concerns raised were not effectively incorporated into the plan to the satisfaction of those in opposition. The local issues must be addressed by those who have a stake in the outcome of the process. Having the participation and support of local residents, interests from surrounding areas, and the provincial government in a process is a key way to obtain the support needed and to help defend decisions that are made. All three proposed planning approaches include the means for the public to become more involved in decision-making during the whole development plan process. If the public is involved in deciding how to develop their community then they will have more commitment and support for the goals collectively identified. It has been all too common in past experiences to observe major opposition to plans or projects where and when people have been "suddenly" informed how the plan will affect them: "The alternative is to involve people in the planning process, soliciting their ideas and incorporating those ideas into the plan" (Steiner 1991, 18). As well, local plans can have affects on neighbouring areas, as well as other province-wide impacts. Therefore, having a process that addresses these concerns is needed. There are a number of possible participatory techniques towards this end, such as special task forces, citizen advisory committees, or public workshops.

The transfer of knowledge and skills as each participant learns from others in the process, i.e. the mutual learning, is a very important component of the three approaches. "The confidence that develops from successful interaction between community members and the technical team cannot be reproduced by one or two meetings, workshops, or information sessions" (Sargent et al 1991, 5). Mutual learning is accomplished through many meetings over time, where confidence can be instilled in each participant. Friedmann (1987) states that in order to effectively guide practical change, there must be a "transactive" relationship between professionals, clients and public interests. This
transactive relationship can be described as mutual learning. It differs from the
"traditional approach [that] generally assumes that professionals have the ability to offer
proposals and devise efficient plans that are technically and operationally superior to
what might be produced with the involvement and assistance of lay citizens and/or local
officials" (Lassey 1977). The transactive approach balances the interests of planners,
public officials and local citizens to ensure they are equal within the decision-making
process.

Although the legislative requirements of the existing development plan process allow
public involvement through a public open house, it limits individuals and other interests
to respond to a plan that is created by the local council and administration. This approach
leaves little room for negotiation, mediation or compromise, and can create negative
reaction during any part of a planning process. Steiner (1991) has identified that
"planning may be seen as a process for determining appropriate future action through a
sequence of choices" (161), and questions arise continually within this process. Only
having one or two open house meetings during the process cannot effectively address
complex issues. The three proposed processes incorporate the necessary structure to
accommodate public participation input and means to address the issues as they arise
throughout the whole process.

A common problem identified with general public participation methods is the
availability and desire of individuals to participate: "Given the many demands on their
time and resources, most citizens prefer not to be involved in most public decisions...
citizens usually want to be involved only when they have strong feelings on an issue or
when a decision will affect them directly" (Thomas 1995, 56). Inviting people to a
planning process will simply not get people to act. The proposed processes require the
presence of a problem or issue to generate the interest or desire of citizens to participate.
It is the needed spark to ignite residents to speak out or commit to participating in the process. The issues that initiate the process may differ, but people tend to act when there is something close to them that is at risk or needs to be resolved. In the Selkirk District, there are a number of issues that could drive the process.

Municipal officials and politicians might tend to shy away from processes that involve the public: "Public land managers are still scared of the public! [They] tend to feel that the public is not informed enough to participate meaningfully in planning. [They] feel [that] professional expertise should overweight the more subjective values concerning what is "right" for the land. To this end, [they] are often reluctant to design an integrated public participation strategy" (Therrell 1993). Local officials may not implement a public process if they feel the citizen input can be detrimental to its outcome or cause public outrage. Barnett (1995) argues that the above statement is true and it is a result (and a shortcoming) of the existing planning process:

"The developer and builder follow out-moded zoning and subdivision requirements, and thus have little control over many basic design decisions. The planning board and local political leaders have little control either. They have to enforce the regulations on the books. The resulting frustration often makes local decision-making an acrimonious process...[and] thoughtful members of planning boards and community councils, who give up their evenings for meetings, often get more abuse than praise for their efforts" (50).

Especially with the present "open house" participatory method used in the Manitoba development plan process, municipal officials are always responding to complaints because people are commonly asked to evaluate the proposed plan rather than helping to make it. The three proposed planning approaches argue that all individuals have the ability to make informed decisions. The participatory process has the potential to build trust, make the local government seem more accessible and responsive to local concerns, and results in more positive feelings toward government (Thomas 1996). Perhaps, if local officials were to receive the recognition of their hard work in a system that is more conducive for them to act proactively (with additional planning tools), then they may be
more willing to invite all those that want to participate into the process. From the recent experience of negative public outlash at the MMB hearing, the SDPAB could be further away from wanting to include the same interests that had a factor in its demise. The new approach must realize the need for the development and incorporation of complementary plan implementation tools, to play their part in reaching some of their goals.

Some may argue that although public participation can increase the legitimacy or acceptability of goals and actions, it can sometimes do so at the expense of the quality of the decisions made. As more people are added to the process, it can make the process more complex and reduce the quality of the plan. Local citizens will participate if they feel that their concerns will be heard and not discarded within the process. (thus wasting their valuable time). Some may expect that their elected local officials should handle the problems while others may feel a lack of confidence or trust in those individuals. Of course, some individuals will attempt to promote their self-interest within the process, but the process must determine if others share this view and, if not, explain how the views are not consistent with more broadly-scoped goals. These concerns are addressed within the proposed approaches, ensuring that the public efforts are not only heard, but acted upon.

The three proposed approaches would allow various interests to be a part of the decision-making process in an advisory capacity, and would help by ensuring that their issues, strategies, and ideas are reflected. The level of participation should expand beyond a simple open house, and each of the three proposed approaches provides an adequate framework for this to occur.

5.3.1.1 Identifying the Most Suitable Approach

The one approach that would be chosen as the most applicable in the Selkirk District context would have to be the participatory structure of the ECO-P framework. The ECO-
P approach provides the most adaptability in terms of matching the particular type of public participation method to the specific conditions in the Selkirk District. As well, the application of the participatory method can change during the planning process—included or deleted from any stage—if it was felt necessary. Because of the inherent flexibility of this approach, the ECO-P would rate the highest over the REP and LAC frameworks, to address this issue.

5.3.2 Ensuring the Rural Context of the Problem is Addressed

Specific processes for rural areas in the vicinity of urban centres must be adopted, in order to adequately deal with the issues in the Selkirk District. The proposed approaches value and attempt to preserve the very characteristics of a rural area that tend to represent its true resources. The REP approach ensures rural qualities are preserved through designating them as a priority in the process. Once the land demands for the rural resources are determined, then the remaining land can be used for more intensive development. The ECO-P approach ensures that the natural systems in an area are protected through emphasis on ecological systems and landscape design principles.

Certain design strategies that enhance and protect the rural character of a district is fundamental to the ECO-P framework. The LAC approach recognizes that there must be areas designated for physical development but those areas should respect the natural resources which have been identified as the most important to protect. In the LAC approach, strategies can be designed to protect natural areas by determining the suitability of the land to the proposed use (rather than its capability). This contrasts with designating changes in use, based primarily upon demand.

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7 Depending upon what the purpose of the public involvement was to accomplish, the ECO-P recognizes that there are differing participation processes which serve a number of objectives which include: information dissemination, information collection, initiative planning, reactive planning, decision-making, and participation process support. The various participatory techniques include: citizen advisory committees, neighbourhood planning councils, public meetings, group dynamics, and workshops, for example.
The Town of Selkirk would support a rural approach that better addresses the rural municipal problems because of its far-ranging impacts. The Town of Selkirk, a member of the Urban Centres Peripheral Development Group, would welcome a rural-based approach in the hope that it would eliminate some of the problems that arise as urban-style developments are located in the vicinity of urban centres. The UCPDG and the Town of Selkirk are dedicated to an approach that will address the problems that occur as a result of the existing patterns of ex-urban development. With the advent of a rural approach there would be consistency with some of the established provincial policies which reflect many concerns based on negative environmental impacts.

The current provincial government has a reputation for being development-oriented in rural ridings (Russell 1998). As a result, piecemeal scattered development has been permitted over the years, with no coherent future vision. An approach that increases development regulation may not attract the full approval of the province, although, by the interest they have shown in the Selkirk District, change may be afoot. The province must be more cognizant of the past inequalities when applying the PLUPs—the policies must be applied more uniformly across the province in the future. The province would surely welcome rural strategies that incorporate the very policies that they have advocated but have difficulty in applying.

Attempting to secure the rural qualities of a district may require the adoption of some regulatory policies and there may be some local opposition to an increase in regulations from some community members. For example, in the ECO-P approach design features may elicit some negative views because rural areas are typically less restrictive in terms of design than are urban areas, and there is a desire to remain comparatively unrestricted. "A big part of the attraction of rural living is our relative freedom to act without
constantly encountering governmental licenses and rules and procedures and prohibitions" (Schretter 1977. 4). As development pressures grow, however, these areas must adopt more regulations in order to preserve the rural qualities.

5.3.2.1 Identifying the Most Suitable Approach
The three approaches were rated evenly when addressing the issue of rural retention as seen in chart 3. Preference was given to the REP approach. The ECO-P approach requires a design-oriented process (which is more restrictive) and would be more difficult to develop in a short time period (as pressure for action is increasing). The REP is the approach that would both address the preservation of the rural character and the rural resources. The LAC approach is concerned primarily with the preservation of the natural resource.

5.3.3 Securing a Unified Position to Address Environmental Issues
The predominant issue causing division within the Selkirk and District Planning Area Board (SDPAB) has centred on the environmental consequences of certain proposed development. It is only appropriate that the proposed approaches incorporate an environmental focus to the development plan process.

The three approaches vary slightly in their "environmental" perspective. The REP approach is oriented toward a sustainable development approach that puts greater emphasis on the human dimension of planning, such as public empowerment (self-reliance), economic development and meeting basic human needs. The ECO-P approach is focused on the biophysical dimension of sustainability, but has overlapping dimensions with the REP approach. The ECO-P approach supports the protection of environmental systems through environmental and landscape design principles. The LAC approach is
rooted in a resource management background where the conservation of natural resources is a key goal, with a recognition of the importance of human value-sets in the process.

Local officials sometimes shy away from environmental initiatives because they can equate them with interests that are not prepared to "develop" natural resources, and are therefore equated with a "no-growth" agenda. Development is a primary source of revenues for the local governments, through the expansion of the property tax base. In this instance, an environmental approach may be seen as sacrificing the future economic viability of the area. Therefore, ensuring that the SDPAB understands that preventing growth is not the goal of the proposed approaches: instead they favour guiding growth to respect nature and environmental limits, while enhancing the associated economic and social benefits.

Local municipalities have a concern over their ability to effectively protect natural resources, and tend to feel that because provincial and federal policies have guided the regulation of environmental processes in the past, that the responsibility should remain at those levels. Pressure to force municipalities to address environmental problems can be viewed as another strategy by which upper levels of government simply download more responsibilities to the local level. For example, because the LAC approach originates from a discipline that was typically a provincial or federal government responsibility, i.e., natural resource management, this may be interpreted as another downloading of responsibility, and, as such would be opposed by local officials.

The proposed processes must emphasize the level of impact that the land use decisions made by local officials have on natural resources and the environment, and this relationship should be a prime consideration in the planning process. Municipalities will have to take on their share of the responsibility for protecting the environment, especially
if they want continued growth. The addition of planning tools to increase the awareness of the land use planning and environmental impacts may help identify these relationships and further address the problems.

There are a number of provincial policies that support an environmentally-sensitive approach, including Manitoba’s commitment to sustainable development. The initiation of the Sustainable Development Act, the preparation of the Sustainable Development Strategy, and the establishment of recent sustainable development policies is beneficial to the environmental movement. The province is supportive of sustainable development principles and guidelines, which may eventually lead to the incorporation or evolution of a more environmentally-progressive perspective on development and economic growth. The arrival of the sustainable development framework signifies that the province is recognizing the problems of subscribing to the existing development philosophy, and perhaps is on the path to addressing it in a significant manner. Therefore, the province is committed to ensuring that growth will not negatively affect important rural resources identified by local interests. All three proposed approaches embody these qualities. Most importantly, the three possible approaches can help guide the decision-making process and encourage people to think in a broader manner.

The ECO-P approach focuses on biophysical components; its landscape design-orientations are different from what is familiar to the area. The additional variables that this process incorporates increases application processing times. The ECO-P approach is most effective when the boundaries of the jurisdiction are actually based upon an ecological system. For example, the plan would be more effective if it would span the whole area of the aquifer rather than simply being confined within the existing political borders. Of course, the aquifer extends beneath an area much larger than the Selkirk District, which would support the requirement of an inter-district planning structure.
The REP approach may be favoured by municipal officials because of its emphasis on linking the environment with economic and social goals. Due to the incorporation of some qualities that are more familiar to municipal officials, and being less complex than the ECO-P approach, the REP may prove to best address the status quo within the environmental realm, at this time. The REP approach subscribes to sustainable development philosophies, based on a process which can anticipate and prevent negative impacts, incorporate environmental concerns into decision-making processes, and build a better understanding of the limits and opportunities of the local resource base. The problem with this process lies in its support of attempting to determine the carrying capacity of land to support development.

The strength of the LAC approach lies in the belief that determining the carrying capacity of the land through technical solutions is problematic. It challenges the common procedure of trying to determine the most appropriate level of development scientifically, through the collection of numerical data (in order to apply the original development proposal). Rather than conducting the technical studies, the proposed development would be re-evaluated with the recognition that there are limits to what the environment can sustain. It is the local public which must determine the desired or appropriate level and style of development, given the negative environmental impacts identified in the area. The limits or the level of change that the public is willing to accept must be established prior to determining a strategy to address the problems. Alternative development styles or patterns should be explored before costly studies are approved. In this instance, the LAC approach may be the most suitable framework to address the immediate action/reaction that the SDPAB is taking.
5.3.3.1 Identifying the Most Suitable Approach

The LAC approach may be the best of the three proposed approaches. to be applied in the current situation. to encompass an environmental perspective. Since the SDPAB currently wants to determine the capability of the land to support the same level and style of development as proposed in the failed approach. the LAC approach identifies the shortcomings of this process and provides an alternative. The emphasis of the LAC approach is placed upon the need to determine the suitability of the land to support development and not specifically the capability. The goals and values of the local district. adjacent areas. and levels of government must be re-examined in another process before the suitability of the land to support development can be accurately determined. The LAC approach is favoured over the other two approaches because it best recognizes the shortcomings of the current approaches and addresses the environmental concerns in a timely fashion.

5.4 Addressing the Practicality of the Approaches to the Selkirk District Context

Separate from addressing the particular problems of the development plan process. the proposed approaches must be practical and implementable. They must be sensitive to the costs associated with the approach. the amount of time that the approach would require. and ensure it reflects the broad provincial policies relating to land use and development.

5.4.1 Addressing the Cost of Implementing the Alternative Planning Approaches

What are the added costs of implementing an environmental planning approach? Part of ensuring that an approach is "implementable" is the fact that it is economically feasible for the local jurisdiction. The related costs to implementing a new approach would include: added time. wages for human resources. logistical costs. and the other technical or professional studies that may be required. The REP approach best addresses this issue by recognizing the benefit of using existing resources in the area. such as local
universities and colleges or government agencies. Despite being a technique used explicitly in the REP approach, there seems to be no reason that such use of existing resources, could not, also be applied to the ECO-P and LAC approaches.

In the REP approach, a planner is retained to facilitate the process. If a jurisdiction does not have the resources available to maintain a qualified planner on staff, another option exists which includes the recruitment of a qualified individual from a planning degree program at a local university, to tap their planning expertise. An advanced planning studio and an instructor, for example, could serve the purpose. The University of Manitoba has a recognized Masters program in planning and could be the source of some of the inputs in terms of qualified and inexpensive resources. The Rural Development Institute at Brandon University could also be an important source of support, since it focuses on rural development. The REP approach is very flexible in incorporating ideas that could cut costs while at the same time effectively attaining qualified personnel.

Costs could be reduced or eliminated for technical expertise, as well. In the REP approach, where technical advice is sought, the technical team could be composed of representatives from existing provincial government departments, or they could also be representatives from the local university in related faculties. The technical team could participate by collecting data, making required analyses, and assisting in inventorying, planning and implementing actions.\(^8\) They would take an advisory role, addressing the needs identified by the community. The Minister of Rural Development has already indicated to the SDPAB to draw on the various provincial departments in the future, as necessary to move their plan forward. Provincial planning advice is also provided to the

\(^8\)Other necessary studies (i.e., engineering, etc.), would be determined from this process, if it is found that the resources are too strained, or technical data is not available.
jurisdiction because it is an established planning district. This should be viewed as an opportunity to utilize provincial resources at no direct fiscal cost to the SDPAB.

Representatives from public interest groups, such as the Provincial Council of Women, who have been involved in the process, could also be recognized as a resource. The Provincial Council of Women has a history of actively participating in development plan processes and is knowledgeable as regards to existing provincial policy. The Council could apply some of its expertise in the field of planning in a proactive manner. With the advent of government fiscal restraint and downloading of responsibilities, it is somewhat overwhelming and frustrating for local municipal representatives to have to take on more responsibilities, but with no change in resources and powers. However, the participation of the above agencies and groups should be seen as a possible resource and support, rather than a hindrance.

As well, the three proposed planning approaches may be less costly than the approach the SDPAB is choosing to follow. In late 1997, the SDPAB hired engineering consultants to determine the carrying capacity of the aquifer to sustain continued withdrawal of water at the present rate and form of development. Therefore, a numerical figure would need to be determined through costly engineering studies, that represents the carrying capacity of the land or aquifer to support the proposed level of development. As the LAC approach dictates, the practical ability to satisfy the costly technical impact studies are highly unlikely because the results commonly represent the values of those doing the study—rather than the community's values—and can be anticipated to only meet the same opposition as has been encountered in the past.
5.4.2 Making Efficient Use of Time Within the Development Plan Process

In order for an approach to be practical at this point in the process, the amount of time it would require for implementation and the procedure is a crucial variable. Additional time will be required for each of the proposed approaches to be implemented, because they go beyond examining social and economic issues, and incorporate the physical or environmental attributes of the area into the decision-making process. Although the collection of data on the physical attributes of an area may increase the length of the process, the three approaches are sympathetic to the added time that may be required. The proposed approaches do not require spending time collecting information that is not needed. In comparison, some traditional approaches would have planners and officials gathering as much information as possible in order to have it available if and when it was needed. The proposed approaches only gather information that will be needed for the inventory and analysis stages.

Every member of the planning process is concerned for the amount of time an approach will consume. Because the proposed approaches allow for an extended participation process, the local officials may feel that it would add an undesirable amount of time to the process. Realistically, in a planning process, most issues require public acceptance if they are to be successfully implemented. The public can oppose a planning process if they feel their concerns have not been addressed, and this can occur at any stage, delaying the process further. Public involvement strategies could result in the actual reduction in time required for the process. Because the problems are addressed as they arise, there is little chance that opposition will escalate. It is the process that allows the public to participate, that better addresses the issues and anticipates implementation actions: "Initiating action gives managers more ability to guide the development of issues, increasing the likelihood that a decision can be reached before time pressures can become an issue" (Thomas 1996, 30). A goal would be to reduce the length of time of a process.
as much as possible, because lengthy processes tend to reduce the interest of local citizens in finding solutions.

The consequences of blocking an enhanced public participation process can be a more time-consuming process than including more people earlier in decision-making. This seems to be true in the Selkirk District case, and Thomas (1996) summarizes it well:

"The manager who reduces public involvement to save time, risks increased public opposition, endangering rather than facilitating an effective decision. Secondly, public managers face time constraints on implementation as well as on decision making, and the two constraints are inversely related. Time spent to involve more actors in decision making can expedite implementation by winning the support of those who are involved. Conversely, time saved by excluding actors from decision making can slow implementation because those who were excluded may resist and delay that process" (90).

The next process should be more sensitive to public concerns and include those who have expressed opposition to concentrate their energy in a proactive manner rather than in a reactive role.

The prior unsuccessful development plan process in the Selkirk District consumed approximately four years, which included the efforts of many. One of the R.M. members of the Board is already frustrated at the lack of progress in revising the plan, and is threatening withdrawal from the Board if action is not taken soon (Delaurier 1996). Yet, at the present stage of the new development plan process, it could be argued that an approach which better addresses local issues should be valued more than an approach which attempts to rush the revision. There is also the possibility that the general public in the area may now have little confidence in the SDPAB for the earlier failure: yet, can the Board take the chance at failing again? The next strategy must be successful.

Chart 3 indicates that the REP approach is favoured over the ECO-P and LAC approaches. This is due to the fact that the ECO-P and LAC approach involve a longer process. The LAC requires extensive biophysical and sociocultural examinations which
are reflected in detailed landscape design configurations. The LAC requires the establishment of an inventory database that tracks whether desired goals are being adhered to through indicators developed. The data collection process can be long and very time-consuming. Therefore, with the REP approach not having a process which indicates a significant undertaking as the other two do, it would be the most practical in a time consumption context. As well, in the REP approach, having a number of sub-committees working concurrently on various issues helps speed the process along.

5.4.3 Reflects Local and Provincial Policy and Legislative Requirements

A main source of opposition that led to the demise of the proposed Selkirk District development plan originated from provincial department representatives. The provincial representatives apply the various related provincial policies to ensure that the broader public interest is reflected in development plans. The three proposed planning approaches include the opportunity for all possible agencies and bodies to participate in an advisory role, throughout the whole process. The provincial interests could then ensure that their respective policies and legislative frameworks are addressed, which is essential because, without the blessing of the provincial departments, the plan would not be approved. The involvement of the province in the process can help ensure that the PLUPs are applied consistently to the Selkirk District as they have been applied in other areas. The province would be expected to better monitor applications of the policies, so they are indeed applied fairly and consistently.

Having the commitment of the province to the incorporation of sustainable development guidelines and principles into all policy decisions, provides more support for all the proposed environmental approaches. The proposed planning approaches provide the

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9 Such as, integration of environment and economic decisions, stewardship, shared responsibility, prevention, conservation, waste minimization, enhancement, and global responsibility.
framework to incorporate the sustainable development principles and guidelines into the land use planning process, and thus would surely gain the support of the province—knowing that these policies would be reflected in the final plan. Also, the Capital Region Strategy elements concerning partnerships, settlement, environment, resources, and economy are all important aspects of all the proposed approaches.

The legislative process mandated by the Planning Act reflects the minimum requirements for a planning process. Additional approaches or actions are welcomed and encouraged, in order for the plan to better reflect the local issues. Any enhanced approach to the development plan process would be to the benefit of the Selkirk District, displaying that they have gone far beyond legislative criteria to develop a plan that is acceptable to as many interests as possible. Therefore, each proposed approach can be incorporated into the existing planning process because they incorporate, to a higher degree, all of the component steps identified in the Planning Act.

New planning approaches are often not popular with local councils or planning boards because an alternative approach is not required by the Planning Act, therefore, the local decision-makers may feel it is not warranted. Secondly, the existing process has worked in the past in other jurisdictions and there may seem to be no reason why it should not be sufficient again in their district, which would under-value the implementation of an alternative process. There can also be an assumption that rural processes should be developed by provincial agencies through legislation and not by local jurisdictions (Dykeman 1989). The proposed approaches would need to address the difficult challenge of changing many of the existing attitudes and commitments of many of the actors (Fowler 1991).
However, current legislation would support the creation of public advisory committees: the Planning Act has a section that gives authority to a Planning Advisory Committee. This may well suit the proposed environmental approaches, where specific committees are used to take various roles in the process, and, in particular, the REP approach. Having such legislative authority could only further ensure that decisions and actions are taken that carry more weight.

Chart 3 indicates that the REP approach is favoured over the other two approaches when generally addressing planning legislation and reflecting provincial policy. Regarding congruency with public legislation, the REP approach does not vary from the current Planning Act development plan process. As well, the Planning Advisory Committee framework, cited above, fits well in this approach. Regarding provincial policy, the REP approach subscribes to the sustainable development philosophies, while the ECO-P and LAC take an ecological and resource management perspective respectively. While the ECO-P and the LAC both address provincial policy and beyond, they may be too complicated to apply in the near term as the SDPAB finds itself in a distinct time-bind to achieve the revision.

5.5 Comparing the Alternative Approaches: Identifying the Most Suitable Approach

Examining chart 3, and comparing the positive attributes of each of the three approaches in addressing all the issues, the REP approach is the single most favoured. In certain instances, the other two approaches were rated higher. It may prove beneficial for the REP approach to adopt some of these more positive qualities, but at this point only suggestions can be made, and further examination as to how these qualities could be incorporated will be left for further study.
The strength of the REP approach, in comparison to the other approaches, is that it emphasizes the importance of local rural resources from a fiscally-responsible perspective that should be easily understood by the public and local officials. In comparison, the ECO-P approach uses an ecological perspective, which centres around broad ecological processes and specific landscape design factors, which in turn represents more complexity than the REP process. Although the ECO-P approach may address the issues more comprehensively, it may be too big of a step to take at this time in the process. The REP approach would seem to best suit the needs of the existing situation because it is a smaller departure from the status quo that still addresses the issues. It would probably gain most support, due to the pressures present, to complete a successful plan. The REP approach is also likely to be favoured by local municipal officials due to its relative simplicity in comparison to the ECO-P approach.

The REP would probably be viewed more favorably than the LAC approach, because of the former's history of comparatively successful planning applications. The REP approach could incorporate some central components of the LAC technique. For example, the LAC approach responds to the shortcomings of the carrying capacity ideology, which the REP seems to ignore. Focusing on the limits of acceptable change for the land, in comparison to a focus on the capacity of the land to support a certain use, would be particularly beneficial. It would help to address the basic nature of the problems, i.e. human problems (rather than technical problems).

The LAC approach requires that a number of indicators, and monitoring of conditions, become a part of the process. Concerns will have to be addressed whether the indicators are tracking the right information, and whether the focus on gathering such data (given the possible lack of human resources) will detract from concentrating on achieving the stated goals. Balancing these concerns and developing the appropriate monitoring will
take more time to initiate, especially in a land use planning context, and probably more
time than the SDPAB may want to take at this point. Therefore, the REP approach would
be the most favourable process to pursue at this point.

5.6 Conclusion

Each of the proposed approaches has many strengths and similarities, and some
complementarities. At this point in time, the SDPAB requires an approach that addresses
the issues but is not too time-consuming, nor too complex, is within legislative means,
and is supportive of general land use related provincial policies, in order to practically
address the problems of the District. The REP approach seems to stand out as the best
option, in the immediate context, to address the various interests, ensure rural values are
reflected and environmental concerns are met.

While the proposed approaches address some of the primary process issues in the Selkirk
District, they do not have the means to address other significant issues, such as.
establishing a rural-oriented pattern of rural residential development, and addressing
groundwater capacity concerns and groundwater pollution problems associated with
liquid waste disposal systems. The five proposed plan implementation tools will provide
the means to address these issues.
CHAPTER 6:  THE EVALUATION OF PLAN IMPLEMENTATION TOOLS

6.1  Introduction
Which of the five potential plan implementation tools might most effectively address the remaining planning issues in the Selkirk District? The plan implementation tools are evaluated to determine their inherent strengths and weaknesses in addressing the local issues, and these relationships are depicted on matrix charts. Applying the planning tools on an individual basis is not likely to be sufficient to address all the concerns in the Selkirk District; a combined application of some of the tools is anticipated. Within the final evaluation, opportunities and constraints which reflect other potential concerns and problems for stakeholders, are identified, leading to a determination of whether the planning tools would be practical in the sense of implementability in the current context.

6.2  The Evaluation Process
The five tools—cluster development (CD), transfer of development rights (TDR), ecological footprint analysis (EFA), land evaluation and site assessment (LESA), and the McHarg suitability analysis (MSA)—are rated to determine the ability of each technique in addressing the specific problems experienced in the Selkirk District. The five proposed plan implementation tools are cross-referenced with the following issues to determine their ability to:

- respect an acceptable level and pattern of rural residential development,
- address groundwater capacity and pollution concerns,
- address groundwater pollution problems associated with liquid waste disposal systems, and
- prevent spot zoning practices.

In addition to these concerns, some practical issues are also examined. To be effective, the plan implementation techniques must respond to the existing characteristics of the area, and reflect the socio-political environment. Additional concerns are then addressed.
These reflect the specific desires of the Selkirk and District Planning Area Board, and include:

- the preservation of agricultural resources,
- the need to retain the rural character through alternative development patterns.
- the ease of incorporating the technique and its administrative quality.
- the economic feasibility/fiscal responsibility of the approach.
- the observance of provincial land use related planning policies, and
- the compatibility with planning legislation.

The issues that need to be addressed in the Selkirk District development plan are cross referenced with the five planning tools, in the form of a matrix chart. See Chart 4, for a summary of how each of the techniques relates to the specific issues listed. The evaluation is presented in greater detail in the following sections, which are divided by issue headings.

Chart 4: Compatibility Rating of the Potential Planning Tools in the Selkirk District Context

<table>
<thead>
<tr>
<th>SECTION</th>
<th>ISSUE</th>
<th>CD</th>
<th>TDR</th>
<th>EFA</th>
<th>LESA</th>
<th>MSA</th>
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<tr>
<td>6.3.1</td>
<td>Rural Residential Development Supply and Demand</td>
<td>3</td>
<td>*1</td>
<td>3</td>
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<tr>
<td>6.3.2</td>
<td>Groundwater Capac. &amp; Liquid Waste Disposal Limit.</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>*1</td>
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<tr>
<td>6.3.3</td>
<td>Spot Zoning</td>
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<td>*1</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>6.3.4</td>
<td>Loss of Agricultural Land</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>*1</td>
<td>1</td>
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<tr>
<td>6.3.5</td>
<td>Address Sprawl Dev. Pattern/Rural Character</td>
<td>*1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6.4.1</td>
<td>Ease of Incorporating Tool and Administrative Quality</td>
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<td>3</td>
<td>1</td>
<td>*1</td>
<td>1</td>
</tr>
<tr>
<td>6.4.2</td>
<td>Fiscally Responsible/Economically Feasible</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>*1</td>
<td>1</td>
</tr>
<tr>
<td>6.4.3</td>
<td>Reflects Provincial Land Use Policies</td>
<td>2</td>
<td>2</td>
<td>*1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6.4.4</td>
<td>Complement Current Planning Legislation</td>
<td>2</td>
<td>3</td>
<td>*1</td>
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<td>MODERATELY COMPATIBLE</td>
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<td>3</td>
<td>VERY LITTLE/NOT AT ALL COMPATIBLE</td>
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<tr>
<td>*</td>
<td>SINGLE MOST COMPATIBLE APPROACH</td>
</tr>
</tbody>
</table>
6.3 Applying the Proposed Plan Implementation Tools: Addressing the Problems in the Selkirk District

When development plans are implemented, there must be plan implementation techniques in place to address local issues, with the potential to help achieve the goals set out in the plan. The ability of each of the tools to address the issues raised are reviewed below.

6.3.1 Rural Residential Development Supply and Demand

Reviewing Chart 4, the TDR technique was the only method that was given a passing grade for addressing the supply of and demand for rural residential development. The TDR technique has the potential to reduce the large amount of existing undeveloped rural residential lots through the sale of the development rights of the property.

What can be done to ensure that there is a desired amount of lots developed each year in desired locations to reflect municipal goals, when there is a surplus of comparatively unattractive undeveloped lots? Many lots that have been subdivided in the past are commonly still used for agriculture purposes and vary in their sizes. They are not for sale on an open market to buy, and apparently are not in high demand. The problem with this situation is that there is always the possibility that the lots will be built upon. This threatens planning processes which can be suddenly swamped with building applications at a particular time, in a time point when development is being funneled to other areas (such as, away from agricultural resources). The ideal procedure would be to remove residential zoning from the land hosting those subdivision lots that have remained undeveloped for a long period of time.10

The removal of land use designations cannot occur without legal intervention nor without providing compensation in certain cases. In the application of the TDR technique.

10 As well, introduce time limits for new applications restricting a developer to build within a certain period, before their application for subdivision expires.
existing undeveloped subdivided lots could be converted back to their original state through the sale of the development rights. The TDR technique can allow the development rights of the existing subdivided land to be sold, with the land owner recovering some of the "hoped for" value of the subdivided but undeveloped property, and the land remains in agriculture. Owners of new lots would have to purchase the rights of these existing rural residential zoned properties, or the rights from an agricultural operator in the municipality/district. Areas designated for new development need to be established, where the development rights can be redeemed. It would address the potential supply of rural residential lots in poor locations, with the municipality gaining to desired level and locational preferences of future rural residential development, without having to provide compensation to the landowners from their own finances (while preserving the agricultural resource). In the application of the TDR technique, there would be the need for a complementary tool which would help to determine areas that would be best suited to support rural residential development, and serve as 'receiving/redeeming' areas.

6.3.2 Addressing the Groundwater Capacity and Liquid Waste Disposal Issues
Groundwater capacity issues and liquid waste disposal failures are problems experienced from certain levels and patterns of rural residential development. But, in the same instance, different parcels of land have very different qualities and suitabilities to support development or other rural activities. The LESA and MSA techniques can incorporate specific environmental criteria to best situate development in areas where the provision of a safe water supply and sewage disposal is more feasible. In this respect the TDR and CD tools can be direct or indirect beneficiaries of application of the LESA and MSA techniques. However, TDR and CD lack the inherent ability to determine the appropriate physical location that best respects important resource and natural systems constraints. Therefore, the two pairs seem to well complement each other.
At present, the development of a lot does not require a physical site analysis of the parcel of land to determine the natural soil capability to absorb septic system fluids (i.e., slope/drainage, soil type, pollution sensitive areas, etc.). The MSA and LESA techniques would give municipal officials the ability to better assess whether a proposed development will pose a threat to the environment, whether it supports local service requirements, or whether it is inefficient in the use of resources. The LESA technique concentrates on soil quality factors that can help identify which areas can better support septic system effluent naturally. The LESA technique also takes into consideration locational land use qualities of the area. The MSA technique examines the issue from a broader perspective that includes soil qualities, geology, physiography, hydrology, climate, vegetation and existing land use (because each system is interconnected in various ways).

Examples of "environmental" directions, related to the use of groundwater and septic systems, that could be incorporated into the MSA techniques, are as follows:

- prohibit intensive development from situating on sensitive groundwater re-charge areas.
- incorporate the drainage pattern information (topographical) to eliminate development on land with poor drainage or in low-land that can cause problems to septic systems.
- ensure natural soil types are compatible with safe septic system disposal fields, and the thickness of overburden is adequate to support safe septic systems and prevent groundwater pollution.
- criteria that are sensitive to situating unserviced development in the vicinity of the Town of Selkirk's water well sources, and along the Red River (infiltration problems).

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11 Despite new private waste disposal system regulations being developed by the Department of Environment, which proposes the implementation of on-site percolation tests.

12 Such as the percentage of area in agriculture within a certain distance, evaluation criteria which establishes the compatibility with the development plan and zoning, compatibility of proposed use with surrounding use(s), and other factors unique to the site.
-factor in the size of the home in relation to the size of the lot that is proposed for development, because larger households use more water and require larger septic fields, and

-implementation of the proposed on-site percolation tests proposed by the Department of Environment.

In the Cluster Development technique, the consumption of water can be reduced through better attention to design details and smaller lot sizes. Traditionally, rural jurisdictions have the highest peak demand in hot summer evenings when residents are watering their large lawns. A reduction in the size of the lots (and lawns) can significantly reduce this demand, while accomplishing other objectives as well (See Figure 14).

Figure 14: Reducing Water Use Through Reduced Lot Sizes

Figure 14. Diagram A shows the original parcel of land, diagram B shows a typical rural residential subdivision, while diagram C is a small cluster development. In the cluster development, the lot sizes are significantly smaller, therefore less lawn to water. Other benefits of cluster development can also be seen such as the preservation of open space adjacent to the development and the elimination of the strip pattern of development which can cause access problems on provincial highways or other routes. The use of short driveway style gravel roads would be sufficient in this example because of the low amount of traffic it will need to support.

In contrast, because smaller lots are featured in the CD technique, there is the consequent threat that septic systems will be less effective. The primary reasons for septic system failures in the area have not been the result of an inappropriate size of the lot, rather, it has been the inability or in capacity of the soil to handle the level of effluent discharged in the septic field. The existing septic field criteria for a dwelling require it to be a minimum of 15 metres (50 feet) from any property boundary, on a minimum 2 acre lot. If the site could be pre-examined to determine if it has suitable soil qualities that will support the level of development, then the increase in densities in the CD technique would be safely implemented (See Figure 15). The implementation of percolation tests

Figure 15: Applying the Cluster Development Technique with the Suitable On-Site Soil Qualities

Figure 15. Reducing lot size can sometimes help subdivision designers locate all homes on the better soils contained within a development site. On the left, six of the thirteen 2.5-acre lots would have septic systems on marginal soils, barely meeting minimum legal requirements, because these lots contain nothing better. By decreasing lots to one acre in size, all thirteen can be laid out to contain deeper, drier soils (with all wetlands in the open space preservation area, a treed island at the end of the street, and a future street and/or trail connection to adjoining properties). Sometimes such arrangements require a few “flag lots” with a relatively narrow strip of land providing driveway access, a very useful design approach that should generally be allowed, subject to certain safeguards to prevent abuses (such as the infamous “rat-tail” subdivisions with numerous lots having long, snake-like appendages connecting the lots to a distant public road—all to avoid the cost of providing internal streets).

will also ensure the soil on the sites can support certain levels of absorption, but the LESA and MSA site examinations will cover other qualities of the soil and land use as well. The basis of these arguments lies in the known fact that "unless soils are uniformly poor across the entire parcel (shallow bedrock or restrictive layer, seasonal high water table, steep slopes, or excessive fine or coarse soil texture), the variations in soil conditions that typically occur within a parcel offer an opportunity for clustering to produce better systems than would be possible following a conventional approach with standardized lot sizes in a checkerboard layout" (Arendt et al 1994, 209). The CD and TDR techniques require the presence of another tool to identify where the best area for development can be situated.

6.3.3 Addressing Spot Zoning
Spot zoning will be more difficult in a system that applies the LESA and MSA techniques, because of the added criteria required in the process. More conditions or criteria will have to be addressed in a process that uses these tools, yet the development will be accorded some flexibility to ensure it is suitable to the site. The TDR tool would require the owner to purchase rights before trying to alter the original use of a piece of land, and only areas specified in the overall development plan would be permitted to develop more intensively. The CD technique also prohibits development in areas designated 'open space'—thus concentrating development in clusters.

These techniques do not prevent spot zoning from occurring outright, but they incorporate more variables that must be considered before the proposed development is approved. If spot zoning does occur with these planning tools in place, then the impact of the zoning change would likely be less, or the development request would be turned down on its own merit, if conflict arises. The TDR technique would be the most effective
of all the methods because it would necessarily incorporate new enabling legislative powers. rather than strictly being non-statutory in nature.

6.3.4 Addressing the Loss of Agricultural Land
The five proposed planning tools address the loss of agricultural land in their own ways. and all were given a high evaluation in Chart 4. The EFA raises awareness of the importance of conserving the agricultural resource, the LESA and MSA techniques identify the most suitable locational advantages of agricultural activities (and, subsequently, other more intensive development), the CD technique uses land use design strategies to retain open space and agricultural land, and the TDR technique addresses the root cause of rural residential development market pressure in agricultural areas, to reduce consumption of the land resource. All the proposed techniques have the ability to preserve the agricultural resource (and/or other important resources), while at the same time focusing new development on land that is less environmentally-critical.

The EFA approach helps to inform stakeholders in a planning process of the importance of preserving the agricultural land resource. When land is developed, "every acre of productive agricultural land lost decreases that resource base nationally and internationally" (Fabos 1985, 188), and that any effort to curb this trend would be a positive step toward sustaining the resource. Within the decision-making structure, alternative strategies could be evaluated to help determine which approaches would be more agriculturally sustainable. The EFA does not determine site-specific options for locating development, but it can help identify which option is the most sustainable, once sites are identified. It is a planning tool that can begin to make the needed associations between our land use decisions, the local impacts, the global implications and the application of policies focused around sustainable development: "It attempts to translate all the verbiage about sustainable development into something concrete on which wiser
policy choices can be based, and helps people focus on some of the most pressing issues of our time" (Wackernagel and Rees 1996, back cover).

The ability to address the loss of agricultural resources may lie in the better understanding of who is responsible for protecting the resource. Historically, agricultural land preservation programs have been federally—and provincially—operated. The municipal governments do not want to initiate a local approach fearing that they will have to administer and implement the strategy on their own, taking on more "provincial responsibilities." The EFA can help clarify that every level of government has a part to play if agricultural land is going to be preserved, because the economic gains will be seen locally, provincially, and federally (and globally). At this point the lack of leadership addressing the loss of agricultural land may hamper any efforts to design an appropriate local planning strategy—but the EFA technique can at least help direct some much-needed public attention to the issues.

Due to the abundance of prime agricultural land, the biggest challenge in the Selkirk District is to identify the areas (to situate development) that are less appropriate for agricultural operations. The LESA technique uses soil quality ratings to determine the best land for agricultural operations, with the remainder of the land having a better potential for more intensive development. The MSA techniques use biophysical information to physically map out areas that are best suited to accommodate rural residential housing needs, while conserving land that is best suited for agricultural purposes. When an area of land has homogenous agricultural land qualities, the siting of housing can be weighted according to other site qualities, which are also components of the LESA and MSA techniques. Locational attributes will then become the deciding factor in a development decision, ensuring efficiency and environmental protection. The desires of the land owners are met, while respecting public policies that reflect the
importance of protecting the environment. Because the LESA technique focuses on soil attributes, it is the approach that is favoured slightly over the others.

In the flawed Selkirk District development plan, the economic importance of agricultural activities is stressed, and the agricultural zoning used to ensure agricultural land is preserved, but agriculture is still losing out to development pressures. Although agricultural zoning can reduce subdivision pressures, the ability of this technique to address market pressures from adjacent development driving up land values, is limited. Development has been occurring at the cost of good agricultural land in the Selkirk District—further adding to the negative impacts that make continued agricultural operations less attractive. The TDR technique can help address this problem through reducing the inequalities that the land market creates, giving farmers the option to sell only the development rights. Agricultural operators then have the option to keep the land as agricultural, while reaping some market benefits through the sale of the development rights. As well, the TDR technique works best in areas that do not have a small supply of land, nor in areas where a large amount of land is unsuitable for development (due to the geography or other negative features). These limitations do not apply in the Selkirk District.

The CD technique is not an approach that should be permitted throughout the whole District. It is an approach that should be implemented after other agricultural preservation methods have been tried, but have failed to preserve the land resource. The CD technique eliminates some of the problems that occur from ex-urban sprawl 13 and it

13 Based on experience in other exurban areas, the resulting consequences of suburban sprawl include the lack of an overall design/structure of residential patterns, poor traffic circulation, tracts of idled or unproductive land, lack of wildlife corridors, poor pedestrian linkages, and future problems that relate to mail-delivery, school-busing, and garbage collection (Arendt 1994).
should be the method of choice for areas that have been designated for future residential development in rural areas (See Figure 16). Mantell, Harper and Propst (1990) indicate

Figure 16: The Cluster Development Technique and Land Preservation

Figure 16. Open space preservation priorities vary according to the type of resource that is valued most highly. In wooded regions with relatively few fields and pastures, these open lands are often the areas community residents would most like to see preserved. In agricultural areas where woodland remnants and hedges are all that remain untilled, their value for wildlife habitat could alter priorities so that the preferred sites for new development would be on the least prime soil, at the far edge of fields as seen from the public roadway.

that the main disadvantage of the CD technique is that "often [land is] preserved in small, separate pieces, not necessarily linked to a comprehensive open space system" (202). Therefore, it may not address the needs of large agricultural operators. But, the rural-friendly quality, and the attention to design detail, creates an atmosphere that easily surpasses that in traditional sprawl developments.

If the local agricultural community around Selkirk is to be preserved, then the support and input of local farmers will be crucial. In areas "where today's generation of traditional farmers look forward to the sale of their land as their 'last crop', more creative designs for the resulting development must at least be considered" (Arendt et al 1994, 307). The sale of agricultural land to developers, or farmers subdividing their property to reap the increased value it will attract in comparison to leaving it in agriculture, has certainly occurred in the Selkirk District. Pressures of these sorts on municipal councils have been the determining factor on where the next development will occur, resulting in essentially piecemeal or sprawling development patterns.

6.3.5 Addressing the Sprawling Development Pattern and Maintaining Rural Character

Rural municipal councils consider at least the early waves of rural residential development in their area to be an economic benefit because it increases the local tax base. The problem lies in the absence of an approach to direct development in ways that are beneficial to the retention of the rural resource base and the rural character of the area.

Designing new development regulations may be seen as unnecessary, especially in rural areas. A major challenge is that local decision-makers have "clearly institutionalized the art of low-density suburban sprawl" (Arendt et al 1994, 19). The existing development pattern may be so entrenched that people might assume that it must be the work of powerful economic forces. The factor that has directed ex-urban sprawl until now "is not
so much the invisible hand of the marketplace as the deadly grip of outmoded regulations" (Barnett 1995. 47). Many people feel that it is a waste of time to try to change the planning process or oppose certain development, because they feel that the time they may spend would be futile. Providing successful alternatives may prove to be a necessary step in addressing the post-urban form mindset.

Chart 4 indicates that the CD technique best addresses this particular problem in comparison to the others. The CD technique concentrates development in a smaller area (on a large piece of land) while affording the rural quality provided by the adjacent preserved open space. Subdivision design provisions play a large role in this technique and can reflect the natural qualities of the area through a number of different types of designs. Municipalities and home owners benefit from more efficient service provisions and the retention of open space, which can add value to the property, as opposed to developing continuous tracts of large lot subdivisions. The continuous subdivision of large lots results in a more dispersed version of the suburbs, which most people are fleeing from. With an increasing amount of people attracted to rural areas, it can soon result in suburban-type development that ruins or overwhelms the rural quality that was the primary attraction (Mantell, Harper and Propst 1990). Soon there is the need for urban-like services and infrastructure, which would be very costly for local councils to incorporate into existing subdivisions (especially at the lower densities).

For those who may argue there is no demand for the comparatively small rural lots that result from cluster developments this myth can be dispelled by comparing the cluster arrangement to the conventional configuration. See Figure 17, which shows the difference between a two acre subdivision and a three-quarter acre lot subdivision pattern typically found in a CD area. The figure shows the three-quarter acre lot sizes having a 100 foot frontage, which is not permitted in the current environment regulations for septic
Figure 17: The Fallacy of Large Lots

Figure 17. The fallacy that large lots are necessary to ensure privacy in one's home or backyard is widespread and deeply ingrained. Simple sketches such as this one, produced by the Livingston County (Michigan) Planning Department, can help dispel such myths by showing that two-acre lots often provide only 50 feet more distance from neighbors than three-quarter-acre lots. The truth is that visual screening (through hedges or fences) is necessary in both instances to create backyard privacy, and that the extra 50 feet of separation is of little value if a neighbor plays the radio or stereo system too loudly. Unfortunately, even a two-acre lot is not very helpful when neighbors are inconsiderate. The advantage of smaller lots is that, in the accompanying example, nearly nine acres of woods or farmland can be permanently preserved, at no extra cost to the developer or the municipality, while preserving the equity of the original rural landowner.

Source: Arendt et al. 1994. 236.
systems. But, if the lots were to be situated on soil that was better suited for the septic absorption rates, then the smaller lot sizes would be permitted. The primary reasons for moving to rural areas in the Selkirk District have been because of lower property taxes and the rural lifestyle, rather than the sole desire to own two acres of land. In fact, after many households move to lots with two acres, they find themselves working long hours cutting the grass and doing other yard work, and spending less time enjoying their property.

Rose (1975) states that CD is more effective in rural-urban fringe areas that are relatively undeveloped. When areas are partially developed, it is less effective. In the Selkirk District, there are areas that have been built up, especially in the R.M. of West St. Paul between the City of Winnipeg and the Town of Selkirk. Most of the physical development has occurred along the existing highways and other arterials. But there are still large tracts of land that have remained in agriculture. Therefore, it is not too late to implement the CD technique as future development pressures continue on the abundance of remaining land.

6.4 Addressing the Concerns of the Main Stakeholder—The SDPAB

Four other concerns that the SDPAB may have regarding the implementation of the proposed tools would include: the ease of incorporating the technique, i.e., the level of administrative complexity required, and the economic costs and benefits associated with implementing the technique, the compatibility with provincial land use policies, and respect for planning legislation. Each of these points will be examined separately below.

6.4.1 Ease of Incorporating the Planning Tools: The Administrative Complexity

As seen in chart 4, the TDR technique is clearly the most complex technique to apply. It requires a great deal of planning and administrative accountability, management skills
and flexibility in planning (Sargent et al 1991; Mantell, Harper, and Propst 1990). A common problem with TDR techniques is the lack of public understanding of the idea, and the subsequent education that is required to inform relevant parties and the public. The technique must be taught to government officials of different levels, lawyers, real estate agents, bankers and developers (Rose 1975; Mantell, Harper, and Propst 1990). Rose (1975) states that the major obstacle to be overcome would be to convince the public that the existing planning system is not working. He argues that:

"The general public does not understand the mechanisms of our present form of land regulation. They somehow have the impression that zoning protects them; that the key to reform is honest officials. Given that situation, it is difficult for the public to accept something different which requires some background knowledge of our present system. Those who know the present system all too well feel that they benefit and are threatened by the possibility of change" (341).

Through experiencing the failed Selkirk Development plan process, the local public and municipal officials should recognize that there are a number of shortcomings in the existing process, and the need to address them should be a top priority.

The TDR technique is time-consuming to initiate due to the complexity in setting up and establishing an administration system. The time it would take to develop the TDR approach to effectively address the Selkirk District situation may take longer than the local officials care to dedicate at this time. Perhaps the elements of TDR technique can begin to be debated and researched, and considered for implementation in the next five-year development plan review. Because of the complexity of the TDR technique, it would be necessary to hire planning consultants to do further research, work out the process, and determine the appropriate style of TDR that would be effective.

Finally, before the TDR technique is applied, a study must be completed to determine an accurate number of existing rural residential lots and their location in the Selkirk District. Estimates by a number of sources seem to hint that the number of existing undeveloped
lots may be significant, and many are in locations that would benefit from the TDR technique.

The LESA and MSA techniques are easier to implement because they are advisory tools and they reflect the importance of using existing information. In comparison to the TDR technique, the other planning tools are less complex to understand and easier to incorporate into the existing system. Again, the LESA technique is the least complex and in this instance would be favoured over the others.

6.4.2 Fiscally Responsible and Economically Feasible

Local officials may be opposed to the added responsibilities associated with the incorporation of the proposed planning techniques, but it would be the local areas that would receive a majority of the economic benefits from the resulting development patterns (in comparison to the current costs of sprawling unplanned development). These benefits to municipal governments are in the form of higher municipal tax assessments from the increased real estate values, (due to the open space designs), and the increase in efficiency of municipal services to rural residents. As well, environmental benefits, such as the resulting reduction in the rate of consumption of land, and reduction in water pollution hazards, are anticipated.

The TDR technique could help eliminate the supply of poor lots and maximize the tax revenues generated from the construction of a dwelling on a smaller lot in a better location (versus a poor location), as discussed earlier. Municipal governments would enjoy the added tax revenues. The TDR technique allows the inherent inequalities of land ownership from escalating, due to locational attributes, because one development right is equal across the district regardless of the physical land attributes (which may increase or reduce the market value of the parcel of land). It allows agricultural operators
to benefit from the increased market value of their land by selling the development rights, but retaining the land for agriculture purposes. In the current system, farmers face rising costs because of higher property assessments (due to nearby development pressures) and they sell their land to speculators at the inflated value. The TDR technique takes away the higher assessed values of the property when the land owner sells the development rights and makes the land more attractive to remain in agriculture. The municipality benefits through the increase in the assessed value of rural residential developments in locations that are more attractive (the TDR development zones).

There is a case study that has compared real estate values in areas of CD subdivisions versus conventional development. Two decades from the date of construction, the real estate values were re-examined and although both subdivisions had appreciated in value, the appreciation was 12.7% higher in the open space subdivision (Arendt et al 1994). There were also positive economic impacts from CDs on neighbouring property values. Buyers are attracted to an area that retains or increases its value. Housing is one of the single most expensive items a household will ever buy, and knowing that the investment should attract and retain a high value, will increase the popularity of this approach.

CD allows more open space to be preserved to help sustain the rural quality and character which many desire in the first place. It helps municipalities preserve valuable open space without having to acquire the land through fee simple, which can be very costly. In areas where the open space may not accommodate or suit large agricultural operators, the open space can be utilized for more intensive operations, such as farmer market gardens, tree farming or hobby farms. For CDs that border on larger agricultural operations, wide buffer zones, such as trees, bush lines, or other natural vegetation, should be established between the two differing land uses to help reduce any land use conflicts. The CD techniques, "which exist in many forms, have become increasingly popular as more
communities realize that conventional zoning and subdivision regulations often result in unsightly low-density sprawl with no intervening open space" (Mantell, Harper and Propst 1990, 181).

The time it takes for the approval process for CDs is greater, due to the need for more detail on site design. Also, in the proposed Selkirk District development plan, it is recognized that former urban residents often put demands on rural councils for more urban-related services. These demands contribute to higher assessments and property taxes. With cluster development, the services can be implemented with lower costs, especially if necessary infrastructure is incorporated or planned for, prior to development. Incorporating infrastructure after unplanned development has been constructed is very costly to municipal and provincial governments, and is a too common reality that eventually occurs with sprawling development.

The EFA "is not about how bad things are. It is about humanity's continuing dependence on nature and what we can do to secure Earth's capacity to support a humane existence for all in the future. Understanding our ecological constraints will make our sustainability strategies more effective and livable" (Wackernagel and Rees 1996. 3). It would be an additional tool tacked-on to the approach which can be conducted by the current planning professionals. It would not require a significant amount of time or money to conduct, as the process identifies a number of resources which commonly have the necessary data available.  

14 Data sources for the ecological footprint analyses include: Food and Agriculture Organization of the United Nations; International Road Transportation Union; United Nations Development Program; The World Bank; World Resources Institute; Worldwatch Institute; Government Publications with national statistics on consumption, economic production and trade, state of the environment, transportation, land-use, housing, energy, agriculture, and forestry; as well as other relevant handbooks, references, and research papers.
The LESA and MSA techniques could be applied by current staff of municipal governments. Again, the LESA technique was chosen as the most cost efficient to apply but although the other tools may be more costly to implement, they still have some very cost-effective results.

6.4.3 Reflecting Provincial Policy (PLUPs)

PLUPs allow for a rural residential development that is approximately two acres in size to protect the character and open space of rural areas. Yet, such large-lot zoning is clearly outdated and only exacerbates the problem of sprawl development. It is a crude planning approach that must be substituted with one or a combination of the proposed planning tools. A CD technique would better cater to the goal of providing rural residential development while retaining rural characteristics such as open space and preserving land for agriculture or other resource-intensive activities. The CD technique may require some minor policy change at the provincial level but existing human resources and administrative infrastructure could implement the technique.

The EFA technique can raise public awareness to a better understanding of the true impact of the land use decisions on future generations. The EFA could be used to identify the benefits associated with agricultural land preservation, through identifying the true costs of sprawl development, i.e. the loss of agricultural land and the resulting problems that it poses for future generations. The LESA and MSA techniques are congruent with the goals of the PLUPs and provide the means to practically implement the objectives.

6.4.4 Reflects Provincial Planning Legislation

Four of the proposed planning tools are advisory in nature. The LESA, MSA, EFA, and the CD techniques would not require any change in legislative processes. In contrast, the
TDR planning tool would require some amendments to the Planning Act. to recognize the separation of the development rights of the land, from the physical entity. An opportunity now exists to research the practicality of a legislative technique such as the TDR technique, because the province is conducting a Planning Act review. The Selkirk District may opt to be a case study for the approach if the province would help in its development.

6.5 Combining the Proposed Planning Tools to Address the Issues in the Selkirk District

Where some planning tools have a weakness others have a strength, as can be seen in the chart 4, and in the above review. The TDR, LESA, MSA and EFA techniques all acknowledge the negative impacts of large-lot development in the preservation of rural character, but lack the ability to determine an alternative subdivision form. The CD technique tends to respond to this void in these four methods. Combining them, and incorporating them as a group, or as a tool-set, may be the possible solution.

The TDR technique is the only method identified that has the ability to address the supply of, and demand for, rural residential development. However, regulating the supply and demand of rural residential development does not help to determine why the future subdivisions are going to be located in a particular area. The LESA or MSA techniques (which are typically not implemented on their own, but are used in conjunction with other techniques) can determine the location of land that can be developed, which best conserves resources, within the TDR and the CD frameworks.

The EFA can serve as an initial awareness-raising tool that can inspire people to pursue alternative development patterns, and help them understand the true adverse impact of the existing system. It lacks the ability to achieve goals is strong in helping decision-makers
determine the best choice regarding land development practices. The EFA would complement the TDR and CD techniques well.

A combination of the TDR, EFA, CD, and LESA or MSA is an ideal tool-set to address all of the issues in the Selkirk District. The practicality of developing and implementing all of these tools is highly unlikely in the short-term. Determining which tools would constitute the very minimum required to achieve a successful plan will be examined in the next chapter.

6.6 Conclusion
The five proposed planning tools have been rated to determine how successful they can be in addressing the particular issues in the Selkirk District. The main strengths and weaknesses of applying each tool are highlighted followed by an identification of the best combination of tools that could collectively address all the primary concerns. The tools identified cannot address all problems alone, but will require a combined effort to address the various issues. An ideal strategy would be to incorporate four main techniques, the EFA, the TDR, the LESA or MSA, with the CD technique. The only major overlap in the planning tools presented appears to be between the LESA and MSA techniques.

In the following final chapter, the planning tools that work best with the proposed approaches are examined. The combination of approaches and tools that could most likely be implemented at this time is identified, and a rationale is provided. Recommendations for future actions by the SDPAB are proposed, some gaps in the techniques are identified, and some questions are raised for further research consideration.
CHAPTER 7  RECOMMENDATIONS AND CONCLUSION: A STRATEGY FRAMEWORK

7.1 Introduction

The planning approaches that work well with the plan implementation tools are assessed, and a combination of a particular approach with specific tools to address the immediate issues in the Selkirk District is identified. Two strategies have been proposed. The short-term strategy is responsive to current SDPAB concerns for time-sensitive and least-cost implementation. A second, longer-term strategy would see some of the more comprehensive techniques pursued and other gaps in the process addressed.

7.2 Combining the Environmental Planning Approaches with the Plan Implementation Tools

Chart 5 summarizes the assessed level of compatibility between the proposed planning approaches and the plan implementation tools. The following sections will review these relationships. The asterisk (*) represents the recommended approach and plan implementation tools for the short-term strategy. The check-mark (√) represents the recommended long-term strategy component approaches and tools.

Chart 5: Matching the Planning Approaches with the Plan Implementation Tools

<table>
<thead>
<tr>
<th></th>
<th>CD</th>
<th>TDR</th>
<th>EFA</th>
<th>LESA</th>
<th>MSA</th>
</tr>
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<tr>
<td>REP*</td>
<td>2</td>
<td>1</td>
<td>*2</td>
<td>*1</td>
<td>2</td>
</tr>
<tr>
<td>ECO-P</td>
<td>√1</td>
<td>√1</td>
<td>√1</td>
<td>2</td>
<td>√1</td>
</tr>
<tr>
<td>LAC</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

LEGEND

1 MOST COMPATIBLE
2 MODERATELY COMPATIBLE
3 VERY LITTLE/NOT AT ALL COMPATIBLE
* SHORT-TERM STRATEGY
√ LONG-TERM STRATEGY
7.2.1 Complementary Plan Implementation Tools to the REP Approach

The CD, TDR and LESA techniques are all components of the REP approach as identified by Sargent et. al. (1991). This combination has had some success in retaining farmland while focusing development in certain parts of rural areas that are especially suited to development. The EFA and MSA techniques have not been identified in the literature as tools that have been used with the REP approach, but they still have applicability here. The EFA and the MSA support an ecologically-based approach more directly than the sustainable development philosophy underlying the REP approach.

7.2.2 Complementary Plan Implementation Tools to the ECO-P Approach

Steiner (1991) has identified the compatibility between the ECO-P approach and CD, TDR, LESA and the MSA, depending upon the issues that need to be addressed in an area. Because the ECO-P approach is ecologically-based, the EFA would also be an ideal complementary planning tool to use to raise awareness of the ecological costs and consequences of development. The ECO-P approach is design-oriented, and therefore might better incorporate alternative CD techniques than the REP. Further, the ECO-P approach reflects landscape planning philosophies which respect natural features of the landscape, through design principles. Clustering of development relies on a keen understanding of the role design plays in mediating physical land use impacts on the natural landscape and on broader settlement patterns. In this context, the ECO-P approach is more comprehensive than the REP approach, in easily absorbing/incorporating the CD technique.

The MSA technique would be preferred over the LESA technique within the ECO-P approach, to determine the suitability of the land in relation to the proposed use. The MSA technique references physical development in the context of all natural systems,
rather than only the soil qualities focus of the LESA technique.15 The MSA technique is more holistic in its approach, which better accords with the inter-relationships within an ecosystem.

7.2.3 Complementary Plan Implementation Tools to the LAC Approach

It is more difficult to determine which techniques better suit the LAC approach because it has not, so far, been applied in a land use planning process. The LAC approach does not subscribe to the carrying capacity concept; instead it focuses on the importance of incorporating the value-sets of local interests, in determining what change would be deemed acceptable in terms of impact on the environment. The LESA and MSA techniques are both appropriate tools in this respect because they both incorporate the value-sets of those in the area to determine the impact that a proposed use may have. The LESA and MSA techniques incorporate the value-sets to determine the most suitable location for natural resource preservation and future development. For example, the LESA technique requires the weighting scheme to be determined and applied by local stakeholders, while the MSA technique requires the relationships between the many variables to be identified by reference to some representation of the public interest. Since the LAC approach has an emphasis on the inter-relationship between all natural resources and processes, the MSA would possibly reflect some of the natural processes better than the LESA technique.

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15 For example, the MSA technique examines all land uses (such as industrial, commercial, residential, recreation and agriculture) in the context of natural systems which include geology, physiography, soil, hydrology, climate, vegetation, wildlife, and existing land use. These variables are then examined against the biophysical and social land use needs such as groundwater availability, on-site sewage disposal, productive soils, adequate site drainage, favorable slope and erodability, scenic interest, topographic interest, vegetation interest, wildlife interest, construction of paved surfaces, light structures, heavy structures, lawns, present land use compatibility, distance to population centre, access to major arterials, access to city water, and access to sewer lines (Steiner 1991).
The EFA would also prove beneficial in raising awareness among individuals of the impacts of development on the environment, as a part of the LAC approach. The EFA technique recognizes that attempting to determine the human carrying capacity of land to support a certain level of population is futile and that many more relationships must be considered. The primary shortcoming of the LAC approach identified by Wight (1994) has been in regards to its inability to offer pointers as to the wisest use of the environmental resources of an area. Therefore, the EFA would be an important complementary tool that could address this gap, helping to determine which option is more ecologically sustainable. The CD and TDR techniques could also prove to be effective tools to employ on the sites determined to be more appropriate for development.

7.3 Identifying the Most Appropriate Strategy for the Selkirk District

Once the commitment to support a rural planning approach has been established, the determination of a specific strategy can be pursued.

7.3.1 Establishing the Commitment

As Arendt et al (1994) have recognized, "the challenge lies in fashioning land-use approaches that are appropriate for each type of political area" (307). There is no benefit to incorporating a particular planning technique if the decision-makers for the locality do not feel that it will help address their issues. Sargent et al (1991) state that the suitability of methods for an area varies according to many factors including, the "level of understanding, experience and sophistication in planning; skill and leadership of people in government; and public attitudes toward land use control" (102). Again, Arendt et al (1994) reinforce the importance of political commitment: "Without strong broad-based support from rural land owners and the general population, it is not likely that political leaders will enact highly restrictive land use ordinances of the kind that are needed to protect traditional agriculture" (or other values that may be important to the area) (306).
Therefore, without the support of local agricultural operators, there may be difficulty in achieving measures to protect agricultural land from further negative impacts. Because of the lack of broad-based support from agricultural operators in the Selkirk District during the past development plan process, strategies developed solely to protect farmland would be very difficult to implement. This is not to say that if an alternative participatory process was created, that perhaps agricultural operators would provide more input and help develop a progressive strategy.

The proposed planning tools seem to address the problems in the Selkirk District (in one way or the other) but the challenge lies in establishing if the political will exists to implement these approaches and tools. The failure of the first process to achieve an acceptable plan should provide some indication that the existing process and techniques lack the ability to deal with the specific rural issues. A new process must address the proposed style, pattern, and level of rural residential development in the Selkirk District by recognizing that this is the central problem. Strategies developed must revolve around changes in these respects. The SDPAB is very bitter over the province's opposition to its first attempt, and feels that they have been singled out, in comparison to some other recent development plan processes, for harsh obstructive treatment. The SDPAB must suppress its frustration and work with the province to focus on creating a mutually acceptable and responsible development plan. Addressing the problems through collectively establishing new goals for the District must occur, rather than attempting to determine how best to maintain the status quo. An opportunity exists for the Selkirk District to use the recent Planning Act review process to further examine the options explored in this research and join forces with the province to further develop some of them. The Selkirk District could be a test site for these approaches and plan implementation tools, with the province providing support through funding, technical support and administrative aid.
A key factor at this point is to identify a process that is not lengthy, and where implementation costs are not significant. The least amount of work needed to ensure a provincially-approved development plan is the desired approach for the SDPAB. But the approach must still acknowledge and respect the rural environmental qualities. Therefore, only those planning approaches and tools that are particularly sensitive to these types of issues would be practical. The opportunity would still exist to examine and develop the more ecologically progressive strategies identified in this research, but at a later date (once the revised plan is approved). A well-developed REP strategy would at least then be in place for reconsideration in ecological planning terms, on the occasion of the next five-year review.

The province would probably view the proposed initial approaches and tools as being sufficient, because it too has begun to recognize that there is a need to change "the way we develop". There have been a number of policies created which reflect the need for a new development philosophy, in order to protect the resources for future generations, i.e. the sustainable development approach. When the Department of Environment releases the proposed regulations for private sewage systems—which would require a soil percolation test before development is permitted—the SDPAB (as also other municipalities) will need a method to determine the particular areas that are suitable for future development. If provincial policies can be reflected in the approaches and planning tools toward development, then the province should be "on-side" in supporting the SDPAB efforts.

7.3.2 Establishing the Specific Strategy

A strategy that could address the immediate issues in the Selkirk District is offered, with recommendations for the further development of a more comprehensive strategy, to be
developed over the next five years (with the intention of having it form the basis for the next development plan review process).

7.3.2.1 The Short-Term Strategy

The initial stage of the process should open the plan-making effort to the public, through representation on public advisory committees, using a basic REP approach. Existing networks should be tapped for representatives of established groups to sit on the committees, so that they can in turn involve their constituency in consideration and evaluation (to shorten the public consultation time). It would also be appropriate to take up the offer the province has made to provide support to the process by having provincial interests sit on a technical advisory committee. Additional resources could be pursued such as at a local university. If the goals are clear for everyone, having more human resources gathering information and addressing objectives can only make the process more efficient and more inclusive.

Referring to Chart 5, in the short-term the REP approach, combined with the LESA technique, is favoured (over the ECO-P approach, combined with the MSA technique), largely because the former will require less effort to put something better, and basically acceptable, in place. For example, the MSA technique relies on detailed physical/ ecological analysis of the landscape that would add too much time to the process at present. If the ECO-P and MSA were to be applied, then there would be the need to examine every natural element of the area including micro- and macro-climate, geology, physiography, hydrology, vegetation, and wildlife. In terms of the needs of the current development plan process, this strategy may be too progressive at this point. Also, some may initially question why there should be an examination of wildlife impacts, for example, when the issue of septic system failures is a more predominant current concern.
Since the Selkirk District is primarily composed of agricultural land, the LESA technique should address the predominant interest in the area. Because the LESA technique focuses on soil qualities, it could determine areas which have low probability for agricultural use, as well as those areas that rate high in their natural ability to support septic systems. The LESA technique could address the needs for determining the areas that can sustain septic systems safely, which the new provincial sewage disposal regulations will require.\textsuperscript{16} Initial efforts should be concentrated in areas that do not feature prime agricultural land, but they must be safe for septic system operations. As well, areas should be identified where development should be restricted due to their agricultural value, and/or their limited suitability for non-agricultural development.

Given the importance of land-use sensitive development designs indicated in this research, alternative and more compact forms of development should be considered (with the intention of developing CD zones in the future): perhaps development can initially be funneled into existing settlement centres. As well, the EFA technique could serve to help raise awareness of the true impacts from the existing development pattern, and help to identify alternative plans that would reflect a more sustainable approach. An approach that completely reverses the existing pattern of development is not a realistic goal at this point. However, a beginning could be made on a process which instills the understanding that development cannot indefinitely continue in the form that it has in the past; new forms and concepts of development are needed. Taking steps toward sustainable development—albeit small steps—would be a satisfactory beginning for enhanced efforts in the future.

In summary, the short-term strategy being recommended to the SDPAB, is as follows:

\textsuperscript{16} Certain soils have inherent textures, properties, permeability, and other factors that make them more suitable for septic fields (Michalyna, Gardiner and Podolsky 1975).
-implement a REP process to guide development with the intention of protecting the rural environment while respecting economic development wishes.

-include those interests in the planning process who were originally opposed, so that their interest can be addressed more comprehensively this time around.

-implement site suitability criteria with respect to soil qualities, similar to the LESA technique, to preserve farmland.

-prohibit development in areas that are a high-risk for septic system failure (established through soil analysis, using the LESA technique).

-locate development in a pattern that respects the rural character and natural resource limits of the area, through designs evaluated by reference to the EFA technique.

Such an environmentally-based strategy should, at the very minimum, represent enough of an effort for now to have the resulting revised plan approved by the province. However, further application of an even more progressive set of tools and processes should be actively pursued during the next five years, in order to move towards a more ecologically-based approach.

### 7.3.2.2 The Long-Term Strategy

Over the next five years, research and development of a more progressive approach to rural environmental planning should be conducted which would feature the ECO-P approach, for example. Within the ECO-P approach, the EFA can be used as an initiation tool: it helps raise awareness of the importance of committing to an ecologically-based approach. The MSA technique should gradually replace the LESA technique. Factors beyond soil types can then be incorporated into the process to determine where septic systems would be the most suitable (i.e. taking into consideration geological qualities, topography, physiography, etc.). A TDR technique could also be explored to reduce the number of undeveloped lots and replace them with lots in environmentally-safer and more settlement-pattern efficient locations. TDR could also be applied in combination with the CD and MSA techniques to situate development respecting the underlying
characteristics of an area and favouring the open-space preserving style of development in designated areas. Perhaps the province would be willing to contribute funding for further study of such an approach, in the hope that the underlying strategy can be employed more generally in the province.

In summary, the long-term strategy being recommended to the SDPAB is as follows:

- replace the REP with the ECO-P approach (or establish an appropriate variant of them).
- apply the CD technique to attain a more rural-oriented, sustainable pattern of development in the Selkirk District.
- replace the LESA with the MSA technique to more comprehensively address environmental impacts in the district.
- conduct a study to determine the current amount of undeveloped rural residential lots in the Selkirk District (and their locations) to establish whether the TDR technique is a suitable option.
- establish funding for further research on the TDR technique to identify a particular TDR style that would address the rural residential supply and demand problem in the Selkirk District (perhaps the province may support a rural environmental planning research pilot project investigating the pros and cons of TDR in the Manitoba context).

### 7.4 Addressing Gaps in the Recommendations

The combined strategy, as presented, is not necessarily fully evolved. Any gaps in the process that may be identified may require additional plan implementation tools, and this should be welcomed as cause for further research and development. Two such examples that have arisen during this research are explored below.

With the application of the CD technique, and depending upon the size of the proposed development, the increase in density on a parcel of land may create health concerns with the number of septic systems in a small area. For example, if suitable soils could not be found in areas that were determined to be unsuitable for agricultural operations, another option should be offered. Community liquid waste infrastructure systems could be
installed in the development nodes. This would be more environmentally-responsible and provide protection from the threat of septic system failure and aquifer pollution. When the number of households increases in a development node, a combined sewage system may become economically feasible. Also, community wells and infrastructure could be installed for these developments. Water consumed could be metered and the consumption better regulated. Those who use the resource would then bear more of the associated costs. The infrastructure could be planned or implemented before construction begins (and perhaps the municipality could have the developers undertake the initial costs). It is also possible that new ecological technology could be pursued (wetlands engineering; living machines; grey-water recycling, etc.).

Further water use reduction methods could be applied in the proposed frameworks. When lots become smaller in the CD technique, their particular area of the lot should not only reflect the size of the dwelling, but whether water-efficient technologies are installed. A large part of indoor water use originates from toilets, washing machines, and dishwashers, which consume approximately 59% of total household use (Graham and Jopling 1994). For example, if water-conserving devices and appliances are installed in the home, the lot could stand a further reduction in size (because the septic system will be working at a lower capacity). The development of a lot would require the water source to be metered and periodically monitored to ensure the level of conservative use is maintained. Overall, such possible refinements would address two of the primary issues in the area; treating carrying capacity concerns by significantly reducing the consumption of water, and reducing the risk of septic system failure.

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17 Approximately, 59% of total indoor household water use originates from these three sources: toilets consume about 38%, washing machines 18%, and dishwashers about 3% (Graham and Jopling 1994). Conservation appliances can drastically reduce water use in these areas. Water efficient low-flush toilets can reduce the amount of water used from 78% to 95%, conservation laundry facilities by 67%, and low-flow dishwashers from 33% to 70%, depending upon the model (Ibid.). The implementation of conservation fixtures can result in a reduction in water use and the amount of liquid wastes disposed, for residential sites in rural areas. It could also have a significant impact on future development patterns.
7.5 Limitations and Recommendations for Further Research

The evaluation of the approaches and plan implementation tools was limited to the present author's understanding of the needs and the constraints that the SDPAB would value and respect in addressing the issues. The evaluator cast himself in the role of consultant, to the SDPAB as client. The evaluations offered are therefore specific to this context and are far from being exhaustive. Different evaluations might well have emerged had the author cast himself in other roles or as consultant to other clients.

A more objective multi-party evaluation phase of the research was planned initially, but was set aside owing to time and resource constraints on the part of the researcher. This activity might usefully be the central concern of some follow-up research, perhaps as part of a broader consensus-building exploration of more explicit collaborative planning methodology (Healey 1997). In this context it might be beneficial for a number of those who were involved in the actual failed development plan-making process—such as professionals, key stakeholders, and representatives of the general public in the District—to each evaluate the approaches and tools from their own perspectives.

The rating system employed here could also be the subject of further research, in search of something both more comprehensive and more sophisticated in capturing important differentiation. Other interests might well be expected to want to tackle the rating system differently, demanding that the rating system be developed further. More consistent and more justifiable rating decisions, as to the most suitable strategy make-up, might thus be achieved.

There is also a clear need for further study of some of the plan implementation tools. For example, regarding the TDR technique, further study could be conducted in conjunction
with the province, in the form of a pilot project or a demonstration project to determine its broader feasibility and suitability in the Manitoba context. Perhaps an immediate opportunity exists for this to occur in connection with the Planning Act review process now underway (especially since the TDR technique would require legislative amendments). As well, the Department of Environment will be soon releasing a new regulation for septic system installations which will require on-site percolation tests for new development. Municipal governments will be responsible for ensuring these studies are conducted prior to allowing development to occur. Therefore, research into operationalizing the LESA technique may be timely. This technique could include consideration of soil percolation qualities (in addition to the agricultural value of the soil), and seems to be a suitable mechanism not only for identifying areas that are ideal for agriculture, but also those that are more appropriate for development.

7.6 Concluding Remarks

Site selection for development should not be determined arbitrarily but should be evaluated through a process which references physical, social, and aesthetic data to maximize the social benefits and minimize environmental costs. Planning and design 'with nature' lets the natural site influence where development is or is not located, according to a 'plan' that nature provides (Kellar 1988).

Many of those in opposition to the proposed development plan have criticized the SDPAB for too readily accepting a certain level of sprawling, indiscriminately-located development. The fact remains that the current legislated approach and tools favour this development pattern to some degree. The benefit of the strategy proposed here is that it does not attempt to place a moratorium on future development, or attempt to place many restrictions on development. Instead, the strategy reflects an attempt to structure the problem around the notion that the SDPAB has a very significant resource in terms of its
rural land base, and should make the best out of this to ensure that the very qualities that now make it attractive do not disappear. It involves the need to develop and design 'with nature' rather than ignore its intrinsic qualities. Growth will still occur—only in varied forms that depart from the past, outdated, patterns of environmentally-unfriendly, or environmentally-irresponsible, development.

The SDPAB has a choice to make in addressing the challenges of the area. If the SDPAB decides to pursue the same philosophy as in the last development plan attempt, referencing scientific carrying capacity to try to determine an acceptable level of impact, it will almost certainly meet with the same opposition as in the past. Instead, approaches and techniques which emphasize consideration of the suitability of the land, in relation to its proposed use (and the desires of the community), need to be applied.

There are a number of approaches and tools which have been identified, which can be combined or adapted to better suit the area, as long as there is strong commitment to achieve the environmentally-sensitive goals. The dual strategy presented here will help address the issues and could well instill greater certainty in the long-term. The SDPAB could also emerge first, as a provincial leader in progressive rural environmental planning, and then, as a pioneer in the ecologically-sustainable approaches which could truly secure the District's future.
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APPENDIX 1

Correspondence Between the SDPAB and the Department of Environment
July 12, 1996
July 12, 1996

Mr. David L. Wotton  
Regional Director  
Environmental Operations Division  
Manitoba Environment  
Bldg. 2 139 Tuxedo Avenue  
Winnipeg, Manitoba  
R3N 0H6

Dear Mr. Wotton:

Further to our conversation regarding topics for discussion, the Planning Board would among other items request some answers to the following.

- Will the department of Environment adopt percolation tests for the establishments of septic fields in the clay soils of the Selkirk and District region.

- Have the Engineering requirements been established to determine the percolation rate, and will these standards be universal in the Province of Manitoba.

- Is it the responsibility of the Department of Environment to be responsible in both the protection of the aquifer and have control over sewage disposal.

- What types of studies has the department of Environment undertaken in order to determine that present regulations pertaining to septic fields and ground water pollution are sustainable. Are those available to the Board.

- Will the proposed new regulations or standards pertaining to sewage treatment incorporate sustainable development principles and guidelines and will these standards be enforced by the department of Environment.

- Will municipalities of the Selkirk and District Planning Area be able to permit concentrations of 60,000 square foot subdivisions between Winnipeg and Selkirk once your new regulations have been legislated.
If not, then what further requirements are to be provided in order to permit these types of development concentrations.

• Will the department be prepared to provide the Selkirk region with a standard design of acceptable sewage disposal systems based on the types of clay soils and a system designed to meet present and future environmental requirements.

• At Municipal Board hearing regarding Selkirks Development Plan your department representative Mr. Sokolowski made a recommendation stating that "New regulations are being considered but the process is taking a long time and it is possible that a serious situation could develop before it is complete. It would be a significant improvement if the registration required by the current regulation could be accomplished in the offices of the Planning District at the same time as a building permit is obtained" Could you explain how this registration by the Planning Board would in any way alleviate the serious situation which could develop before it is complete. Could you also describe what is meant by the serious situation.

• Will the new regulations be enforced by the department of environment in any other manner or will the enforcement policies remain as defined in the present act.

• Are the stakeholders of the new regulations to be consulted prior to adoption by government.

These are some of the questions that the Board may want to discuss with you at the meeting which could be held August 21, 1996.

Please confirm if this date is acceptable and we will see you at 7:00 P.M. at the Town of Selkirk council chambers located at 200 Eaton Avenue.

If you have any further questions please don't hesitate to give me a call.

Yours truly,

Ed Arnold
Secretary-Treasurer/Senior Planner
APPENDIX 2

The Adoption and Amendment Procedure for Development Plans and Basic Planning Statements in Manitoba

A2.1 Flowchart of the Development Plan Process
A2.2 Outline of the Steps of the Development Plan Procedure
A2.3 Summary of the Manitoba Development Plan Process
A2.1: THE ADOPTION AND AMENDMENT PROCEDURE FOR DEVELOPMENT PLANS AND BASIC PLANNING STATEMENTS

(Sections 24-37 of the Planning Act)

1. Advise Minister
   (B.P.S. Format Approval)

2. Consultation and Background Information

3. Prepare Development Plan or Basic Planning Statement

4. FIRST READING

5. Notice

6. Public Meeting

7a. No Alterations or Minor Alterations

7b. Major Alterations

7c. Not to Proceed

7d. 7a & 7c

8. SECOND READING

9a. Minister's Approval

9b. Minister Requests Change &/or Receives Objections

10. Municipal Board Hearing

11. THIRD READING

12a. L.G.C. Approval for Development Plans

12b. Minister's Approval for B.P.S.

13. Publish Notice of Approval

14. Five Year Review

Source: Manitoba (Province of)
Department of Municipal Affairs
No Date.
## A2.2: Checklist for the Adoption and Amendment of Development Plans and Basic Planning Statements

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<tr>
<th>Step</th>
<th>Description</th>
<th>Planning Act Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preparation Stage</strong></td>
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<tr>
<td>1.</td>
<td>Decision to prepare or amend a Development Plan or Basic Planning Statement:</td>
<td>Sec. 24(4), 35, Sec. 36(2)</td>
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<tr>
<td></td>
<td>a) Advise the Minister</td>
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<td></td>
<td>b) B.P.S. Format Approval</td>
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<tr>
<td>2.</td>
<td>Consultation and Background Information:</td>
<td>Sec. 25(2) &amp; (3)</td>
</tr>
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<td></td>
<td>a) consult with a qualified planner</td>
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<td>b) consult with any public authority concerned</td>
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<td></td>
<td>c) consult with the public</td>
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<td></td>
<td>d) consult with member municipalities if in a planning district</td>
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<tr>
<td></td>
<td>e) prepare land use studies</td>
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<td>3.</td>
<td>Prepare Development Plan or Basic Planning Statement</td>
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<td></td>
<td>(It is advisable to have the Provincial Planning Branch circulate the plan informally prior to first reading)</td>
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<tr>
<td><strong>Adoption and Amendment Process</strong></td>
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<td>4.</td>
<td>First Reading</td>
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<td>5.</td>
<td>Notice:</td>
<td>Sec. 28(1),(2) &amp; (3) &amp; 37(3)</td>
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<td></td>
<td>a) Newspaper (two ads—the first at least 21 days before the meeting)</td>
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<td></td>
<td>b) Mail notice to:</td>
<td></td>
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<tr>
<td></td>
<td>i) Minister</td>
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<td></td>
<td>ii) adjacent municipalities</td>
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<td></td>
<td>iii) adjacent planning districts</td>
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<td></td>
<td>iv) municipalities within the planning district</td>
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<td></td>
<td>v) City of Winnipeg if applicable</td>
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<tr>
<td>6.</td>
<td>Public Meeting</td>
<td>Sec. 28(4),(5),(6) &amp; 37(3)</td>
</tr>
<tr>
<td>7.</td>
<td>Board or Council Action:</td>
<td>Sec. 28(7) &amp; 37(3)</td>
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<td></td>
<td>a) proceed to second reading</td>
<td></td>
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<td></td>
<td>b) alter the plan and redo public meeting (go to 5)</td>
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<td></td>
<td>c) alter the plan and proceed to second reading if the alteration is minor</td>
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<tr>
<td></td>
<td>d) do not proceed</td>
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<td>8.</td>
<td>Second reading:</td>
<td>Sec. 30(2) &amp; 37(4)</td>
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<td></td>
<td>a) Send notice to those who made representations</td>
<td></td>
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<td></td>
<td>b) Send by-law and documentation to Minister (see sample affidavits)</td>
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</tr>
<tr>
<td>9.</td>
<td>Minister's Approval:</td>
<td>Sec. 30(5) &amp; 37(4)</td>
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<tr>
<td></td>
<td>a) Minister approves by-law and returns for third reading, or</td>
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<td></td>
<td>b) Minister requires an amendment and/or receives objections and refers to Municipal Board</td>
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<tr>
<td>10.</td>
<td>Municipal Board Hearing (if necessary)</td>
<td>Sec. 30(7) to (11)</td>
</tr>
<tr>
<td>11.</td>
<td>Third Reading</td>
<td>Sec. 30(12), 30(5) &amp; 37(4)</td>
</tr>
<tr>
<td>12.</td>
<td>Final Approval:</td>
<td>Sec. 30(13) to (16)</td>
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<tr>
<td></td>
<td>a) L.G.C. Approval for Development Plans, or</td>
<td></td>
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<td></td>
<td>b) Minister's Approval for B.P.S.</td>
<td></td>
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<tr>
<td>13.</td>
<td>Publication of Notice</td>
<td>Sec. 31 &amp; 37(8)</td>
</tr>
<tr>
<td>14.</td>
<td>Five Year Review</td>
<td>Sec. 26</td>
</tr>
</tbody>
</table>

Source: Manitoba (Province of) Department of Municipal Affairs. No Date.
A2.3: The Manitoba Development Plan Process

An abbreviated version of the development plan process, mandated by the Manitoba Planning Act, is outlined in the following pages. The steps are required when adopting or amending a development plan. The development plan process must begin with the preparation of a background study(s) to provide the municipal decision-makers with a basic understanding of the relevant existing and future physical, economic and social factors in the local community. The next stage includes consultation with a community planner, incorporating concerns from provincial authorities that are effected, and consultation with members of the public and members of the municipality or planning district. Once the background study and consultation stage are complete, the draft development plan is then prepared and circulated through provincial government departments for review. First reading of the plan can then take place.

Before the plan can proceed past the second of three readings, there must be an open house or public meeting that is advertised extensively in the area. The issues and concerns that are received at the open house, proponents or objections, are reviewed by the local council or board and they determine how to respond. Their options are numerous. The council can alter the plan and have a second public meeting for further evaluation, they can make minor changes and continue to second reading without further public consultation, or they can choose to ignore public concerns and continue to second reading.

If there is any opposition that exists after the plan has passed second reading, a municipal board hearing will be scheduled. All those who have been in opposition and still have concerns about the proposed development plan are invited to present their case to an impartial quasi-judicial board, called the Manitoba Municipal Board (MMB). The MMB hears all concerns, both for and against the plan, and makes recommendations to the Minister of Rural Development on how to proceed. It is the Minister of Rural Development who has final say on how to address the matter but experience reveals that the Minister tends to support the recommendations of the MMB. The municipality or district must satisfy the recommendations of the MMB before the plan can have third and final approval. For example, the MMB can recommend certain changes be made before the plan is deemed acceptable or it can ask that certain issues be re-examined. Once the plan is given final Provincial approval, all development proposals must comply to the policies and criteria stated within.
The development plan alone is not in itself a complete planning tool. "Rather, it must be used in conjunction with other planning controls available to a municipality or planning district under the Planning Act and other legislation" (SDPAB 1995, 75).
APPENDIX 3

Correspondence Between the Minister of Rural Development and the SDPAB
July 4, 1996

A3.1 Letter to Ed Arnold from the Minister of Rural Development
A3.2 Report and Recommendation from the MMB Hearing
Mr. Ed Arnold  
Secretary-Treasurer  
Selkirk and District Planning Area  
200 Eaton Avenue  
Selkirk, MB R1A 0E6  

Dear Mr. Arnold:

Re: Selkirk and District Planning Area  
Development Plan  
By-law No. 120  

I wish to inform you that I have now received the Report and Recommendation (copy attached for your information) of The Municipal Board regarding By-law No. 120.

The Municipal Board has recommended that By-law No. 120 not be approved for the reasons stated in its report. I have considered this matter and advise you that I am not prepared to recommend approval of this by-law to the Lieutenant Governor in Council, in accordance with the provisions of The Planning Act.

Based on the Municipal Board Report it is clear that further information, study and evaluation are required to address the fundamental issues raised. In the spirit of shared responsibilities and partnership for land development policies and desire to resolve these matters, my Department is prepared to offer coordination assistance to confer with Environment, Highways & Transportation and Natural Resources, your Board and member municipalities, to develop a strategy for defining the further work and actions required on the part of the Province and the Selkirk and District Planning Area Board in order to have your plan move forward.
I certainly recognise and appreciate the time and effort that your Board and staff have devoted to the preparation and processing of this plan and sincerely believe that through a cooperative approach we will be able to achieve our common goals.

I look forward to hearing from you in this regard.

Yours sincerely,

Len Derkach
Minister

Enclosure

C: The Honorable James Glen Cummings
   The Honorable Glen Marshall Findlay
   The Honorable Albert Driedger
   Town of Selkirk
   RM of St. Andrews
   RM of St. Clements
   RM of West St. Paul
   List of Objectors
   List of Proponents
REPORT AND RECOMMENDATION

IN THE MATTER OF OBJECTIONS TO BY-LAW NO. 120 OF THE SELKIRK AND DISTRICT PLANNING AREA BOARD, BEING §. BY-LAW TO REVIEW AND REPLACE THE DEVELOPMENT PLAN OF THE DISTRICT ADOPTED BY BY-LAW NO. 15 AND THE RURAL MUNICIPALITY OF WEST ST. PAUL COMMUNITY PLAN
REPORT AND RECOMMENDATION

IN THE MATTER OF OBJECTIONS TO BY-LAW NO. 120
OF THE SELKIRK AND DISTRICT PLANNING AREA BOARD
BEING A BY-LAW TO REVIEW AND REPLACE THE
DEVELOPMENT PLAN OF THE DISTRICT ADOPTED BY
BY-LAW NO. 15 AND THE RURAL MUNICIPALITY
OF WEST ST. PAUL COMMUNITY PLAN

By letter dated February 22, 1996, the Honourable Len Derkach, Minister of Rural Development, directed the Board to hold a hearing to consider objections to the Selkirk and District Planning Area Board By-law No. 120 which purports to replace the existing Development Plan By-law No. 15 and the Rural Municipality of West St. Paul Community Plan. Following notice, in accordance with Section 30 of The Planning Act, the Board sat in the Recreation Centre, Town of Selkirk on May 6th, 8th and 9th and heard all persons who appeared and desired to give evidence or make representations.

The Board Members sitting were:

Mr. R.G. Smellie, Q.C., Chairman
Mr. D.J. Pratt, Q.C., Member
Mr. R.L. Maillard, Member

The persons appearing and giving evidence or making representations were:

Mr. Richard M. Beamish
Counsel

Mr. Bob Singh
Member

Mr. Ed Arnold
Secretary-Treasurer

Mr. Richard Brundrige
District Planner

Mr. Doug Hacking
Councillor
R.M. of St. Andrews

-for the Selkirk and District Planning Area Board
File No. 96B4-001

Mr. Alex Pawluk
Councillor
R.M. of St. Clements

Mr. Ike Warkentin

Mr. John Dubois

Mr. David Martiniuk

Mr. Gerald McArthur

Mr. Peter de Graaf

Mr. Rudolph Dielman

Mr. Bill Guest

Ms Judith Topolniski - Proponents

Ms Dawn MacFarlane
Deputy Mayor

Mr. James Fenske
Town Manager - for Town of Selkirk, Objector

Mr. Ed Sawatzky
Corporate Planning & Business Development
Manitoba Rural Development

Mr. Rick Sokolowski
Environmental Operations Division
Manitoba Environment

Mr. Lock Gray
Water Resources Branch
Manitoba Natural Resources

Mr. Amar Chadha, P.Eng
Transportation Systems Planning & Development Branch
Manitoba Highways & Transportation

Mr. Ed Boldt
c/o Sutton Group - Kilkenny Real Estate
THE MUNICIPAL BOARD OF MANITOBA
WINNIPEG, MANITOBA

File No. 9634-001
Order No. B-96-006

Mr. Mike Kuzminski
Mr. H. Clare Moster
Mr. Gerard Lightfoot
Mr. Wm. Byte
Mr. Mark Pankiw
Mr. Ron Kupchik
Ms Janice Marcinyk
Mr. John Pankiw
Mr. Doug Henne
Mr. Wally Arndt
Mr. Don Oliver
Ms Nancy Dickson, President
Provincial Council of Women

Ms Yolinda Morris
Provincial Council of Women

Ms Rosemary Malahar
Provincial Council of Women

Ms Cheryl Dusome

Mr. Stan de Groot

Mr. Stan Galic

Mr. Barry Mulder
Mulder Construction & Materials

Mr. David Palubskie
Lombard North Group

Mr. Harold Shinnimin

- Objectors
BACKGROUND

By-law No. 15 of the Selkirk and District Planning Area Board was passed in 1981 and has since been amended. By-law No. 120 is a proposed new development plan in accordance with the provisions of Section 26 of *The Planning Act*. It purports to provide for building sites to supply the needs of the area, at present rates of development, for the next three decades.

The Selkirk and District Planning Area faces at least two major problems, namely:

1. its proximity to The City of Winnipeg with the consequent pressure for urban sprawl; and
2. the clay soil present in most of the area which makes sewage disposal very difficult on an individual property basis.

SUMMARY OF EVIDENCE AND REPRESENTATIONS

Issue No. 1 - Groundwater Resources and Waste Disposal

The Town of Selkirk; the Provincial Council of Women; the Provincial Planning Co-ordinator, Department of Rural Development; the Selkirk Regional Supervisor, Department of Environment; Head, Groundwater Management Section, Water Resources Branch, and several individuals expressed concern with respect to the long term sustainability of the development contemplated by proposed By-law No. 120 because it does not address adequately the very significant issue of rural residential water and sewer servicing.

Provincial Land Use Policy No. 1 reads as follows:

"Development shall be encouraged to take place in a safe and efficient manner so that the economy, resource use and the environment are sustained, existing urban centres are enhanced, different types of land uses complement one another, and public services can be provided economically".

The proposed Development Plan sets out as policies (page 22) with respect to groundwater resources the following:

1. Intensive development (subdivisions) and high capacity wells should be permitted only in areas where they will not cause a reduction in water supply for existing users.
2. Development shall occur in a manner which sustains the yield and quality of water from significant aquifers.
3. Activities that may cause pollution should not be permitted in groundwater pollution hazard areas unless it can be proven by adequate field investigation that the proposed activities will not cause pollution of existing or potential groundwater supply in the areas.

4. Development of land within groundwater pollution hazard areas should be preceded by adequate field investigation to determine if the groundwater quality is sufficient to support habitation.

5. Wells in flowing well areas should be constructed in a manner that would facilitate control of discharge.”

However as a footnote (page 22) it states:

“1. As aquifers which serve the Selkirk District are believed to lie within and outside District boundaries, groundwater use may be unable to be controlled by the Selkirk and District Planning Area Board. The Province of Manitoba, through Manitoba Natural Resources is responsible for aquifer management, as groundwater is recognized as a provincial resource.”

The Selkirk and District Planning Area Board (P.A.B.) has accepted all of the areas of responsibility offered under The Planning Act. It is therefore the final arbiter in dealing with zoning by-laws of the member municipalities. As indicated above, the P.A.B. denies any responsibility for aquifer management.

Mr. Sawatzky, of the Department of Rural Development, suggested that, as in the past, the P.A.B. and the Province of Manitoba had acted in partnership in areas of shared responsibility, they should do so again to develop a strategy for 1) defining the studies required, and who should undertake them, 2) what controls over development may be required, and 3) who should bear the costs.

Similarly, because the Province of Manitoba has issued regulations under The Environment Act regarding private sewage disposal system (Regulation 95/88R), the P.A.B. assumes no responsibility for the number of failed private systems in the Planning Area.

Mr. Sokolowski, of the Department of Environment, stated that changes in land use should not take place prior to undertaking the necessary studies to determine a) the requirements to improve sewage disposal in existing subdivisions and b) what controls should be imposed on private sewage disposal systems in areas where clay subsoils, poor drainage and uncontrolled use of water contribute to many private system failures.

Representatives of the Province took the position that the P.A.B. did have a responsibility in both the protection of the aquifer and control over sewage disposal. Neither is apparent in the proposed new Development Plan.
Issue No. 2 - Need for Additional Building Sites

The proposed Development Plan takes a very progressive look at future needs for building sites in the area. One estimate indicated that with the sites now available, the new sites proposed, and the present rate of development, there would be a sufficient supply for the next 35 to 40 years. Unfortunately the Plan does not justify the need for an increase in building sites at the present time.

Mr. Brundige, the District Planner, took issue with these facts and indicated that the proposed plan provided only 1432 new sites. Even that number would be a supply for 10 years at present rates of development. It did not take into account the number of building sites that already exist.

The Board is satisfied that there is no pressing immediate need for new building sites.

Issue No. 3 - Reduction in Size of Building Sites from 4 Acres to 2 Acres

The proposed change in land use classification will add an additional 7,761 acres of land for development in 2 acre building sites. Nothing is said concerning the impact of that change on either the rural municipalities, school divisions, or the urban centres, and the costs associated with such developments.

Mr. Sawatzky, Rural Development, explained that the proposed plan puts the onus on either the Province or a developer to undertake the necessary studies and to assume the consequent costs.

Mr. Sokolowski, Environment, produced a map of the area (which excluded West St. Paul) showing over 300 properties with failing septic systems in the period 1988 to 1995 (attached as Schedule “A” to this Report). He advised that, unfortunately, the regulations (95/88R) provide no real control over private sewage disposal systems except registration. In an area such as this Planning District, with predominant clay subsoils, certain types of private systems may not be desirable and in some areas probably should be prohibited.

The last major revision of Regulation 95/88R took place in 1976 with some further amendment in 1981. Since then there has been no change except some minor housekeeping amendments.

New regulations are being considered but the process is taking a long time and it is possible that a serious situation could develop before it is complete. It would be a significant improvement if the registration required by the current regulation could be accomplished in the offices of the Planning District at the same time as a building permit is obtained.

Mr. Gray, for the Groundwater Management Section of Water Resources Branch, expressed concern that the capacity of the aquifer to meet the demands of the proposed development cannot be guaranteed. Use of water for domestic purposes requires no license and is uncontrolled.
Mr. Chadha, for the Department of Highways and Transportation, indicated strong reservations about increasing the density of population in an area where traffic volumes are already high and increasing dramatically on an annual basis. He was concerned about safety of traffic; increased drainage into highway ditches as development takes place and the increased cost of the proposed new Winnipeg to Selkirk transportation corridor.

Several individuals spoke on both sides of the issue. Those in favour of increased density and those opposed appeared to be approximately equal in number.

The Provincial Council of Women made a thoughtful contribution to the debate. They introduced as Exhibit No. 41 the booklet produced by the Province of Manitoba, entitled “Applying Manitoba’s Water Policies” and referred in particular to Policy 3.3. of that booklet (pages 34 and 35) They emphasized that it stated in part:

“1. Manitoba will ....maintain a comprehensive aquifer data base, evaluate aquifers to define their location and dimensions, water table, flow dynamics, water quality, yield, pollution hazard areas, and interrelationships with other aquifers, wetlands, and stream flow...monitor and regulate groundwater use: to ensure that withdrawals do not exceed the sustainable yield of the aquifer, and to support aquifer management guidelines and priorities established through the basin, watershed, and aquifer planning processes...protect aquifer quality by guiding and regulating land use activities in sensitive recharge areas and pollution hazard areas.

2. Local Authorities can: ........ promote, plan and control local development to support the protection of groundwater quality and the sustainable yield of aquifers.”

They concluded that the large increase in the number of potential building sites without data to support compliance with Water Policy 3.3 was not responsible.

The Town of Selkirk presented a well prepared brief detailing their concerns. It pointed out that in 1995 this Board by its Report and Recommendation to the Minister set out in Order No. B-95-006 referring to a Development Plan Amendment By-law No. 113 of the Selkirk and District Planning Area Board stated in part (on page 5) as follows:

“3. Until there is a well defined plan for the regulation of the Management of Wastewater, no changes should be made which will increase the population density;”

It then summarized the position of the Town of Selkirk as follows:
"Based on records provided by the R.M. of St. Andrews, population 9,461, and the R.M. of St. Clements, population 7,870, Town of Selkirk personnel estimate that approximately 1,673,070,600 L/year of grey water waste are currently being produced within the Selkirk and District Planning Area. By-law No. 120 is quite simply proposing the doubling of the population density within the rural municipalities of the Planning Area. The grey water estimate, the fact that no reliable information is available regarding the volumes of water actually removed from the aquifer and the potential doubling of the rural population has generated a very real concern regarding the future of the areas most critical resource; its supply of potable water."

The Town of Selkirk within its submission is not objecting to the creation of additional residential lots within the Planning Area. Rather its objection is to the lack of protection, within By-law No. 120, over the expanded use and future protection of the Selkirk Groundwater Management Area. The Town is recommending that By-law 120 include a requirement to have Manitoba Environment approve the Wastewater Treatment Plan for every subdivision. The Town of Selkirk is also recommending that the municipal government, in which a subdivision is proposed, shall issue a water permit for every subdivision and/or every lot within the subdivision. It is the final recommendation of the Town of Selkirk that both of these conditions must be met prior to any subdivision's approval by the Selkirk and District Planning Area Board. Clearly these are two authorities which currently have some legislative authority to approve these two critical controls over the aquifer; its protection and use.

Finally the Town of Selkirk is requesting that The Municipal Board recommend to the Minister that the Department of Natural Resources be requested to initiate a review of The Water Rights Act in order to ensure that legislative controls are applied to the installation of wells and the removal of water from the aquifer. The Selkirk Groundwater Management Area, as defined in Appendix "D", extends beyond the boundaries of the Town of Selkirk and the Selkirk and District Planning Area. The legislative authority and policy mandate to protect the aquifer clearly belongs to the Province of Manitoba. It is clear that the controls, as they exist now, do not provide an adequate level of protection for the Carboneate Aquifer. To protect the future commercial, industrial and residential survival of the Town of Selkirk and the Selkirk and District Planning Area, the Province of Manitoba must fulfil its responsibility to protect the essential resource.

Issue No. 4 - Spot Planning

More than one half day of the hearing was devoted to presentations concerning the proposed expansion of a small parcel designated Highway Commercial.
Under the previous Development Plan a small portion of a lot designated for residential purposes had been separated out of the main property and designated Highway Commercial to permit the establishment of a small business dealing in recreational vehicles and boat sales and service. The proposed Development Plan would permit the whole of the residential property to be added to the portion designated Highway Commercial.

The problem began when the P.A.B. spot planned the original Highway Commercial lot. It has been a problem ever since because of the owners natural desire to expand the business and to encroach upon his adjoining residential property.

Other residents of the area hold strong views in this connection. They appear to be divided, approximately equally, with opposition increasing with proximity to the said business.

The proposed new Development Plan also would designate a small area in the midst of Agricultural Area 1 for a Mobile Home District. This proposed development was previously rejected by this Board as spot planning and because it was not contemplated in the Development Plan.

The Board asked why this parcel was being spot planned and the answer was that the soil was poorer than the surrounding area. No evidence to support that statement was tendered.

Several other instances of spot planning appear in the proposed Development Plan, but were not questioned by any of the objectors. The Board remains convinced that this is a planning procedure that should be used only in the most compelling circumstances, if at all.

RECOMMENDATION AND REASONS

The Board is convinced:

(a) that adequate data concerning the aquifer is not available to the P.A.B.;

(b) that adequate controls over private sewage disposal systems do not exist;

(c) that an expansion in the number of building sites has not been justified at this time;

(d) that expansion of the number of building sites should not occur until an effective system of control over, or prohibition of, private sewage disposal systems in an area of clay subsoils is in place; and

(e) that spot planning should be discouraged.
THE MUNICIPAL BOARD OF MANITOBA
WINNIPEG, MANITOBA

File No. 96B4-001 - 10 - Order No. B-96-006

THEREFORE, IT IS RECOMMENDED that By-law No. 126 of the Selkirk and District Planning Board NOT BE APPROVED.

THE MUNICIPAL BOARD

[Signature]
Chairman

Date June 13, 1936

THE MUNICIPAL BOARD OF MANITOBA
WINNIPEG, MANITOBA

File No. 96B4-001 - 11 - Order No. B-96-006

Schedule “A” (one copy only) delivered with Report and Recommendation to the Minister of Rural Development.
APPENDIX 4

The Four Soil Systems of the Land Evaluation (LE) Technique
Appendix 4: The Four Soil Systems of the Land Evaluation (LE) Technique

**Land capability classification** identifies degrees of agricultural limitations that are inherent in the soils of a given area. It enables state and regional planners to use the system for planning and program implementation at regional and state levels.

**Soil productivity** relates the LE score to the local agriculture industry based on productivity of the soils for a specified indicator crop. The use of both soil productivity and land capability classification should provide some indication of relative net income expected from each category of soils.

**Soil potentials** for specified indicator crops are preferred in place of soil productivity in the LE system. Soil potential ratings classify soils based on a standard of performance and recognition of the costs of overcoming soil limitations, plus the cost of continuing limitations if any exist. These classes enable planners to understand the local agricultural industry.

**Important farmland classification** enables planners to identify prime and other important farmlands at the local level. Use of the national criteria for definition of prime farmland provides a consistent basis for comparison of local farmland with farmland in other areas.

Source: Steiner 1991
APPENDIX 5

A5.1 Steps in the McHarg Suitability Analysis (MSA)

A5.2 The McHarg Suitability Analysis (MSA) Matrix Charts Showing the Relationships Between Variables
A5.1 Steps in the McHarg Suitability Analysis (MSA)

1. Identify land users and define the needs for each use.
2. Relate land-use needs to natural factors.
3. Identify the relationship between specific mapped phenomena concerning the biophysical environment and land-use needs.
4. Map the congruences of desired phenomena and formulate rules of combination to express a gradient of suitability. This step should result in maps of land-use opportunities.
5. Identify the constraints between potential land uses and biophysical processes.
6. Overlay maps of constraints and opportunities, and through rules of combination develop a map of intrinsic suitabilities for various land uses.
7. Develop a composite map of the highest suitabilities of the various land uses.

Source: Steiner 1991, 141.

A5.2 The McHarg Suitability Analysis (MSA) Matrix Charts Showing the Relationships Between Variables

Example of land use needs for agricultural, recreational, residential, commercial, and industrial use in a U.S. State.

Relationship of land use needs to natural factors in a U.S. State.
A5.2: Continued

Relationships of Mapped Phenomena to Land Use Needs in a U.S. State.

<table>
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<tr>
<th>PHENOMENA</th>
<th>LAND USE NEEDS</th>
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<tr>
<td></td>
<td>Biophysical water availability</td>
</tr>
<tr>
<td>Slope</td>
<td></td>
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<tr>
<td>0–3%</td>
<td></td>
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<td>3–6%</td>
<td></td>
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<td>6–15%</td>
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<td>15–25%</td>
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<td>25% and greater</td>
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<td>Soil</td>
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<td>Asoitn silt loam</td>
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<tr>
<td>Asoitn silt loam deep</td>
<td></td>
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<tr>
<td>Asoitn silt loam shallow</td>
<td></td>
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<tr>
<td>Beverly gravel silt loam</td>
<td></td>
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<tr>
<td>Beverly loam fine sand</td>
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<tr>
<td>Chard silt loam 3–7%</td>
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</tr>
<tr>
<td>Chard silt loam 7–25%</td>
<td></td>
</tr>
<tr>
<td>Chard silt loam 25–40%</td>
<td></td>
</tr>
<tr>
<td>Chard fn sandy loam 7–25%</td>
<td></td>
</tr>
<tr>
<td>Chard fn sandy loam 25–40%</td>
<td></td>
</tr>
<tr>
<td>Chard grav fn sand loam</td>
<td></td>
</tr>
<tr>
<td>Paha stony silt loam</td>
<td></td>
</tr>
<tr>
<td>Pah Creek silt loam</td>
<td></td>
</tr>
<tr>
<td>Pah Creek silt loam</td>
<td></td>
</tr>
<tr>
<td>Riverwash</td>
<td></td>
</tr>
<tr>
<td>Basalt rock outcrop</td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Erosion Hazard</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Flood Hazard</td>
<td></td>
</tr>
<tr>
<td>Flood plain</td>
<td></td>
</tr>
<tr>
<td>Intermittent/perennial</td>
<td></td>
</tr>
<tr>
<td>Existing Land Use</td>
<td></td>
</tr>
<tr>
<td>Single-family residential</td>
<td></td>
</tr>
<tr>
<td>Multifamily residential</td>
<td></td>
</tr>
<tr>
<td>Public and quasi-public</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
</tr>
<tr>
<td>Cropland/orchard/pasture</td>
<td></td>
</tr>
<tr>
<td>Rangeland</td>
<td></td>
</tr>
<tr>
<td>Vacant or undeveloped</td>
<td></td>
</tr>
<tr>
<td>Distance to Population Ctrn</td>
<td></td>
</tr>
<tr>
<td>0–1/2 mile</td>
<td></td>
</tr>
<tr>
<td>1/2–1 mile</td>
<td></td>
</tr>
<tr>
<td>1 mile and greater</td>
<td></td>
</tr>
<tr>
<td>Proximity to Arterials</td>
<td></td>
</tr>
<tr>
<td>0–1,000 feet</td>
<td></td>
</tr>
<tr>
<td>1,000–2,000 feet</td>
<td></td>
</tr>
<tr>
<td>2,000 feet and greater</td>
<td></td>
</tr>
<tr>
<td>Proximity to water/sewer</td>
<td></td>
</tr>
<tr>
<td>0–1,000 feet</td>
<td></td>
</tr>
<tr>
<td>1,000–3,000 feet</td>
<td></td>
</tr>
<tr>
<td>3,000 feet and greater</td>
<td></td>
</tr>
</tbody>
</table>

Source: Steiner 1991. 143-144.