Planning for a Sustainable Food System in the Alberta Capital Region

Supervised Research Project Report
Submitted in partial fulfilment of the Masters of Urban Planning degree

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Abstract

Food is an essential substance for all life and a large component of our health and well-being, yet current priorities in the conventional food system suggest otherwise. Within the last decade, municipal and regional governments have taken on a larger role in addressing questions regarding what we eat and where our food comes from. Similarly, it is only recent that planners have taken interest in addressing problems in the food system. This Supervised Research Project explores, primarily through interviews, the opportunities and challenges for food planning and policy in the Alberta Capital Region. Findings indicate that a number of possible actions can be taken to protect farmland, resolve land use conflicts, invest in food infrastructure, and provide farmers and the general public resources and information pertaining to educational, social and public health programs related to food. However, changes to the region's governance structure, including the transfer of planning authority from provincial jurisdiction to the region and sustainable funding mechanisms for the Capital Region Board, will be necessary to ensure that the region has sufficient capacity and ability to support such initiatives. For the time being, planners must be proactive in protecting agricultural lands when determining areas for development. The immediate creation of a regional food policy council is also recommended to generate further discussion and initiatives among stakeholders. Lastly, the economic dimension should not be overlooked in the planning of permanent agriculture zones. It is necessary to further examine the roles and responsibilities of planners in food planning and policy. This examination will help determine an appropriate framework to improve the food system in concert with other actors.

Keywords: agriculture, Edmonton, food system, regional governance, regional planning

Sommaire

La nourriture est une composante essentielle de la vie et un facteur important dans notre santé et notre bien-être. Pourtant, les priorités auxquelles répond le système alimentaire conventionnel nous suggèrent le contraire. Au cours de la dernière décennie, les gouvernements municipaux et régionaux ont assumé un rôle plus important dans la question de la provenance et de la composition de ce que l'on mange. De la même manière, ce n'est que récemment que les urbanistes ont commencé à s'intéresser à ces enjeux alimentaires. Cette étude explore, en grande partie par l'entremise d'entrevues, les opportunités et les défis qui existent pour l'adoption de politiques alimentaires dans la région de la capitale de l'Alberta. La recherche montre qu'un nombre important d'actions peuvent être prises pour préserver les milieux agricoles, résoudre les conflits à propos de l'utilisation des sols, investir dans les infrastructures alimentaires ainsi que fournir aux agriculteurs et au grand public des ressources et des informations au sujet des programmes sociaux, d'éducation et de santé publique liés à l'alimentation. Pour arriver à ces fins, des changements structurels de gouvernance régionale, tels que le transfert de l'autorité de planification régionale des instances provinciales aux autorités régionales et des mécanismes de financement pour le *Capital Region Board*, seront nécessaires pour que la région ait la capacité et la compétence de soutenir de telles initiatives. En attendant, les urbanistes se doivent d'être proactifs lorsque vient le temps de déterminer les zones destinées au développement afin d'assurer la protection des terres agricoles. La création immédiate d'un conseil de politique alimentaire à l'échelle régionale est aussi recommandée afin d'inciter la discussion entres les parties prenantes et stimuler de nouvelles initiatives. Finalement, la dimension économique ne doit pas être négligée dans la création d'une zone agricole permanente. Des analyses et des discussions au sujet du rôle des urbanistes et des aménagistes régionaux dans la planification et la politique alimentaires seront nécessaires pour déterminer un cadre de travail approprié pour améliorer le système alimentaire de concert avec d'autres acteurs.

Mots-clés : agriculture, aménagement du territoire, Edmonton, gouvernance régionale, système alimentaire

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1. Introduction

From production to consumption to waste, the food and agriculture system touches upon a broad range of issues that impact everyone. The food system is defined as the set of processes and infrastructure used to feed a population from production, processing, packaging, distribution, sale, preparation and consumption to disposal and recovery (HB Lanarc Consultants, 2010). (See Figure 1). The last step, recovery, feeds back into the food system cycle because nutrients from food waste can be used as input for production. Each step in the system involves various social, political, economic and environmental factors and requires human capital for labour, research and education.

Figure 1: The food system and its components arranged in a cycle of stages.

(Source: *fresh: Edmonton's Food and Urban Agriculture Strategy*; City of Edmonton 2012)

Food is essential for all life and impacts every aspect of sustainability. From the perspective of social equity, food deserts and low access to nutritious foods at the neighbourhood level are connected to problems in learning development in children and in human health in general (Simeon et al., 1989; Smoyer-Tomic et al., 2006; Hemphill et al., 2008). In economic terms, the food and agriculture industry is an important source of income for many workers and businesses including farmers, food processors, distributors, retailers, and restaurants. Environmentally, our current food system is

heavily dependent on fossil fuels and resource consumption. Consequently, it has had detrimental impacts on the quality and/or quantity of our air, water and earth from food production, distribution and waste (Pollan, 2006).

Since the turn of the 21st century, there has been renewed interest in ecological (or systems) approaches to addressing food and public health issues, known as the public-health ecological model. Because ecological perspectives have stemmed from several disciplines, this ecological model recognizes the complexity of problems. In contrast to traditional approaches that use "linear and mechanistic ways of construing causality" (McLaren and Hawe, 2005), an ecological analysis places more emphasis on context, interdependence, relations between organisms and the environment, and on studying problems in non-experimental settings. An ecological approach also recognizes the inherent feedback loops that influence all aspects of the system and thus requires monitoring for future considerations. In this sense, food policy becomes a large determinant of food system outcomes because it can influence behaviour and the environment (ibid.).

Food and agriculture touch a wide spectrum of issues and all levels of government, nongovernmental organizations, and the private sector play important roles in promoting a more sustainable food system. In Canada, municipal governments have responsibility for many food-related issues including, but not limited to, urban agriculture, the preservation of peri-urban agricultural lands, the distribution of food markets, waste management and food education (HB Lanarc Consultants, 2010). In order to develop an integrated food strategy or policy, municipal administrations will need to coordinate internally and collaborate externally with other organizations, stakeholders, and the public to enable and support various organizations in achieving desirable outcomes in the food system.

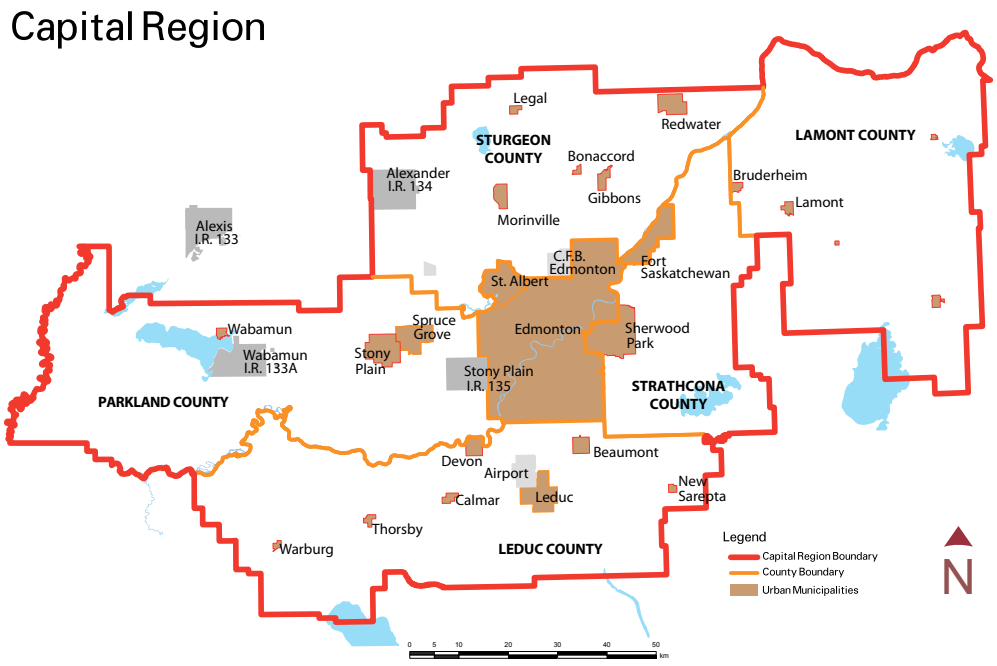
For the past two decades, many city governments or agencies across the globe have studied or have taken action to address food issues through policy and programming (e.g. Toronto Food Policy Council, 1991; London Food, 2006; City of Vancouver, 2007; New York City Council, 2010). Many local governments, community-based organizations, and government-endorsed health boards have also formed food policy councils (Schiff, 2008). As food issues evolve, these cities continue to develop and refine their food policies, programs, and strategies. Similarly, partnerships between municipalities and counties have formed to address food system concerns at a regional

scale. Since 2008, the City of Edmonton has allocated resources to address community concerns regarding food and agriculture from both local and regional perspectives.

Food is a significant component of regional urban systems as it impacts the region's economy, environment, public health, and quality of neighbourhoods (Pothukuchi and Kaufman, 1999). For instance, all city regions, including the Alberta Capital Region (Figure 2), are facing problems in controlling urban growth as valuable farmlands within and outside the City of Edmonton are being swallowed up by suburban sprawl (Figures 3 and 4). Furthermore, the pesticides and fertilizers used and the waste produced in agriculture can pollute urban water reserves and harm populations downstream. As well, the food sector provides employment for many people, especially lower-income groups (ibid.). Municipalities and city regions, due to their immediate connection to their communities and their ability to implement local strategies, have been urged to take on a larger policy role to address problems with food systems. Indeed, municipal governments have direct influence on food systems through land use zoning, regulation, policy, and programming (HB Lanarc Consultants, 2010). These actions also must be coordinated and integrated among municipalities and counties in order to minimize conflicting policies within the regional food system.

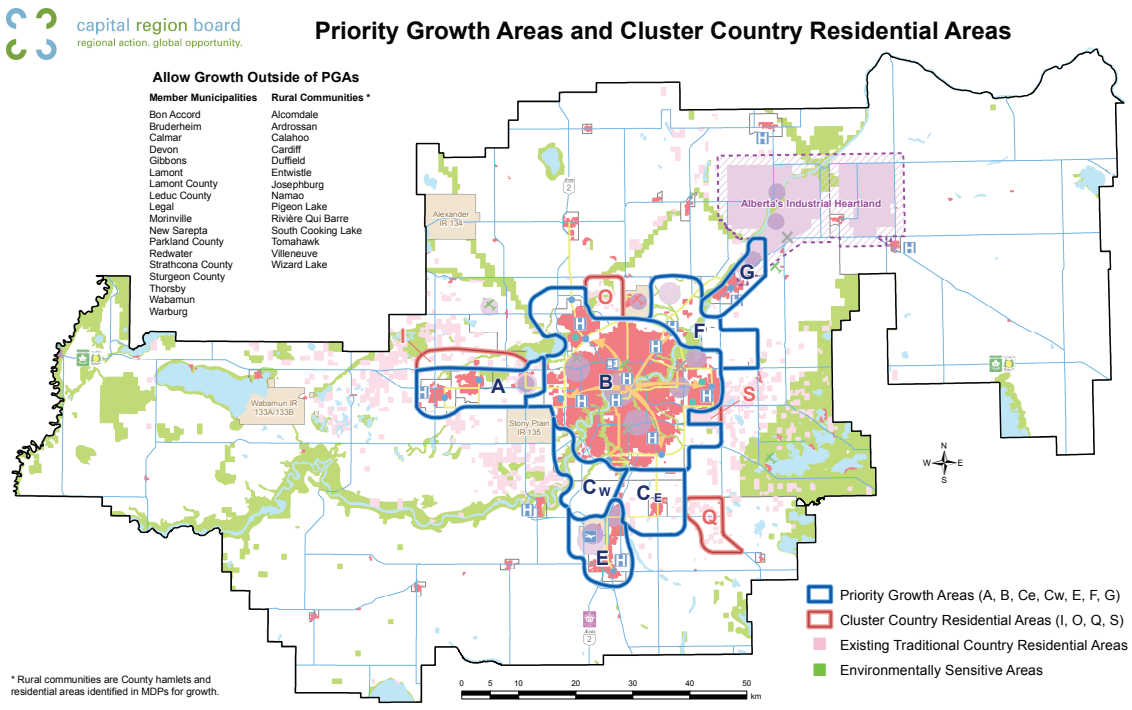
This paper examines the potential application of regional food policies in the Alberta Capital Region. The examination of previous and current efforts on various regional issues in the Alberta Capital Region will inform what can be done using existing resources. Emerging problems in existing policies and plans adopted by the Capital Region Board, the current regional authority for this area, can help identify possible challenges for a regional food policy that may require further action or higher-level intervention (i.e. the Province of Alberta). Finally, this study will provide guidance and lessons from other jurisdictions for future action in the Capital Region.

Figure 2: Map of the Alberta Capital Region as defined by the Capital Region Board



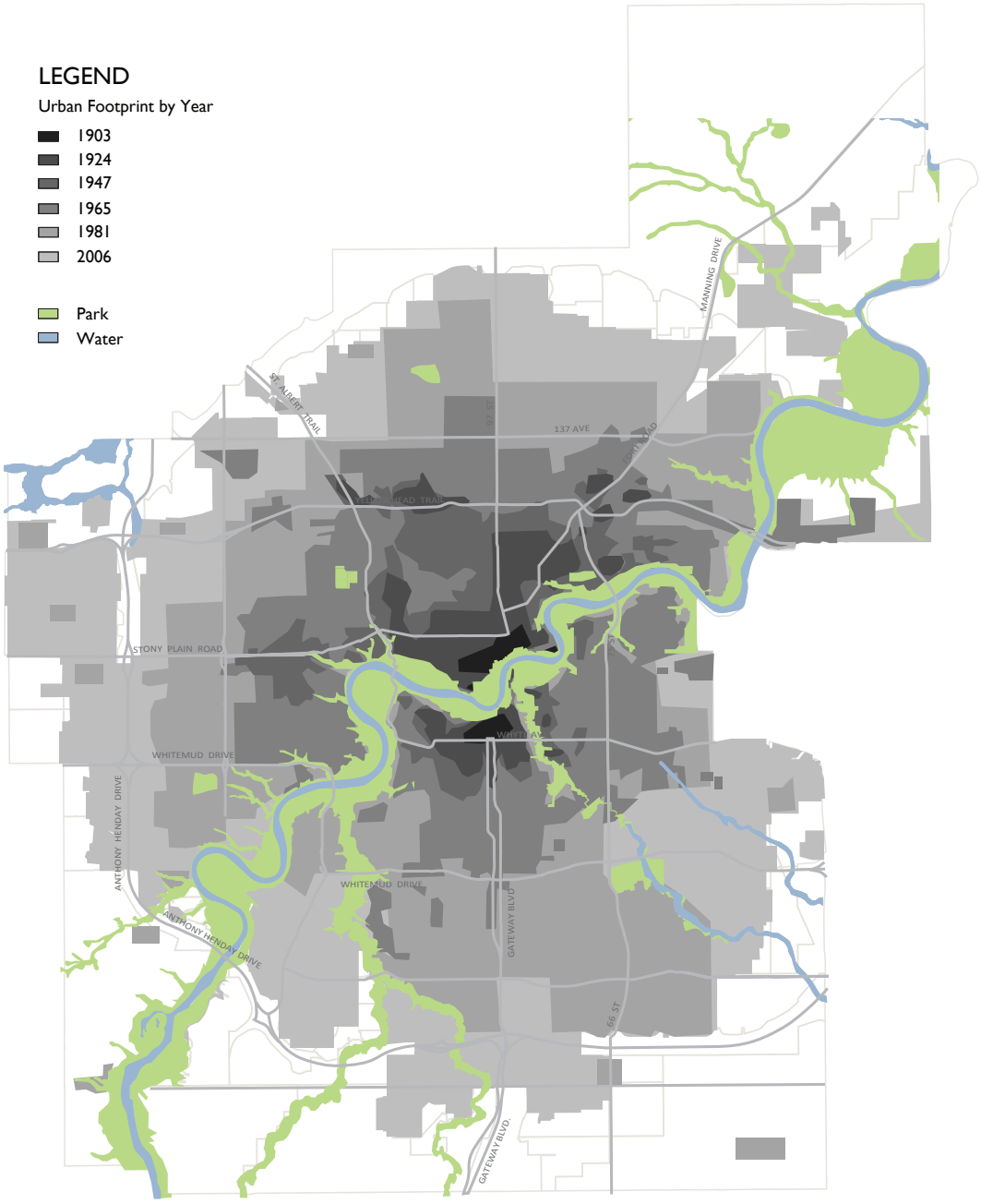
(Source: Capital Region Board)

Figure 3: Designated Urban Growth Areas in the Alberta Capital Region.



(Source: Capital Region Board)

Figure 4: Urban and industrial growth within the City of Edmonton, 1903–2006.



(Source: City of Edmonton)

1.1 Food Policy Context in Edmonton

Edmonton is in a unique position to address the sustainability of its food and agricultural system. Several existing agencies and institutions in the Capital Region are addressing food-related issues from various social and health perspectives. The Alberta Research Council and the University of Alberta also position Edmonton as the centre of agricultural and food research and expertise in the province. With over 60 food-processing businesses in the city region and large tracts of prime farmland (i.e. class 1 soils and a favourable micro-climate) within the city's boundaries, many significant opportunities exist for Edmonton's food system (City of Edmonton, Sustainable Development, 2010).

In November 12, 2009, Edmonton's City Council added a Food and Urban Agriculture chapter to the Municipal Development Plan (MDP), Bylaw 15100, in response to growing public interest in the local food and urban agriculture system. Through citizen presentations during the 15-month public hearing process, the public emphasized the importance of food and agriculture and its relationship with sustainability, municipal governance and land-use decisions (ibid.). Topics ranged widely and included food accessibility, nutrition, obesity, hunger, affordability, local foods, landowner rights, urban development, protection of agricultural lands, access to land for growing food, economic development, sustainability, and sense of community.

Officially named *The Way We Grow*, the MDP was adopted by Edmonton City Council on May 26, 2010. Food and agriculture were identified as one of the nine strategic goals developed for the achievement of the city's vision (*The Way We Grow*, *Move*, *Green*, *Live*, *Prosper*, and *Finance*):

> *Edmonton has a resilient food and agriculture system that contributes to the local economy and the overall cultural, financial, social and environmental sustainability of the city.*
>
> (City of Edmonton, 2010, Bylaw 15100, p.8 Section 1.7)

Seven policies were outlined in the document to support this strategic goal:

1. *Support the establishment of a community based City Food Policy Council*
2. *Work collaboratively with the community to create and endorse a City Food Charter.*

3. *Work with the Region to develop a Regional Food Policy Council and Food Charter.*
4. *Develop and implement a City-Wide Food and Agriculture Strategy (CWFAS).*
5. *Assess the economic development potential to identify key opportunities and challenges for the expansion of agriculture and food related industries.*
6. *Establish guidelines for the integration of urban agriculture into public realm and private improvements and developments.*
7. *Identify potential areas to develop temporary or permanent urban agriculture activities.*

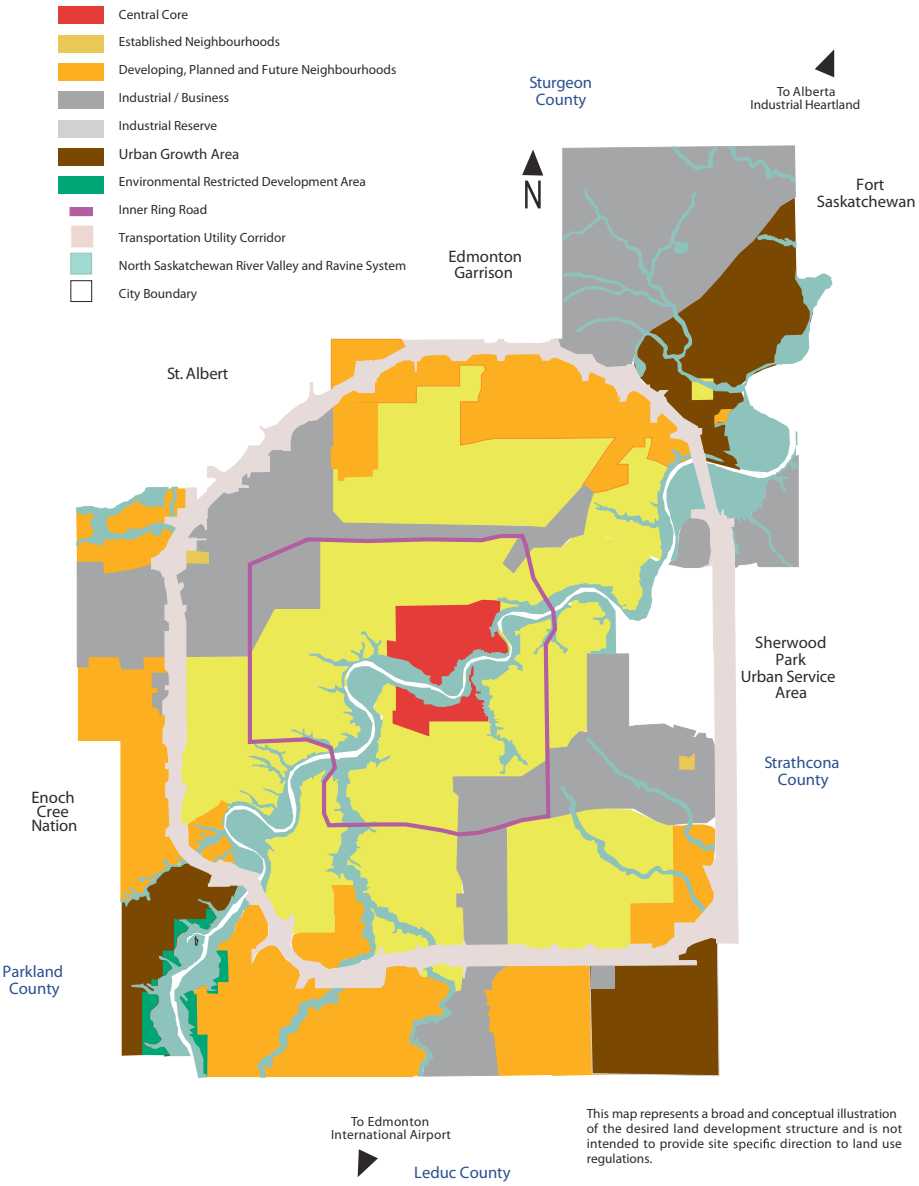
(City of Edmonton, 2010, Bylaw 15100, p.100-101 Sections 10.1.1.1-7)

The MDP encourages collaboration among communities, landowners, other organizations and stakeholders for the development of the City-Wide Food and Urban Agriculture Strategy (CWFAS). As well, these policies will align with the six strategic plans towards the achievement of the city's vision. For instance, new Area Structure Plans (ASPs) and Neighbourhood Structure Plans (NSPs) for the city's Northeast, Southeast and Southwest Urban Growth Areas must include a peri-urban agriculture section and also adhere to the CWFAS (City of Edmonton, 2010, Bylaw 15100, Sections 3.2.1.7–9 and 3.2.1.11). (See Figure 5).

Within a year, the City held a series public events and advisory committee meetings for the food and urban agriculture project. The City of Edmonton Urban Planning and Environment Branch under the Sustainable Development Department has hired consulting firm HB Lanarc and Golder Associates to conduct research and integrate results from public consultations to help develop the CWFAS (City of Edmonton Council Report, 2011). In November 2012, Edmonton City Council approved the CWFAS and the creation of the Edmonton Food Policy Council is expected for summer of 2013.

The City's food and agriculture system reaches beyond its borders. Consequently, the city's food policy initiatives are connected to and influenced by other jurisdictions, particularly at the regional level. Although the MDP requires that the City of Edmonton to collaborate with the Capital Region to produce a regional-level Food Charter and Food Policy Council, the City will first move forward with its own food initiatives within its own jurisdiction. Currently, there is no active discussion for a regional food policy. This leaves a window of opportunity for this research to provide both city and regional administrations future guidance relating to regional food policy and planning.

Figure 5: Map of designated Urban Growth Areas in Edmonton.



(Source: City of Edmonton, 2010, Bylaw 15100)

1.2 Research Questions and Methodology

As previously mentioned, the objective of this research is to explore the opportunities for and challenges of regional-level food initiatives in the Alberta Capital Region. To accomplish that, the study will first identify potential areas of focus that should be addressed at the regional scale, and then analyse whether or not they could be adopted by the current governing framework in the Edmonton area. Further examination of regional efforts in the Capital Region and other jurisdictions will provide lessons learnt

and future guidance for regional food initiatives. The following questions were used to structure the research's methods:

1. What issues should a regional food policy in the Edmonton Region address?
2. How likely is the Capital Region to adopt a regional food policy?
3. What planning lessons from existing regional initiatives in the Capital Region can be applied to the development of regional food policies or initiatives?
4. What additional lessons from other city regions can the Capital Region learn in terms of food planning and policy-making?

The study used a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis to examine existing regional initiatives and see their potential application towards future regional initiatives. This approach involves the identification of internal and external factors in the regional governance structure that are favourable and unfavourable to achieving regional objectives. This analysis aims to identify anticipated challenges and possible options to consider when developing a regional food policy for the Alberta Capital Region. The SWOT analysis was employed for the second and third questions to identify the likelihood of regional food policy adoption in the Alberta Capital Region as well as to determine opportunities for and limitations of such a policy. Specific methods to carry out this research included personal interviews and the examination of primary and secondary sources.

Interviews

The selection of interviewees was based primarily on their personal experience in regional and/or food policy and planning. Convenience sampling was used to identify key informants who meet the criteria. In total, three planners were interviewed to examine possible opportunities, limitations and lessons for building a more sustainable food system in the Alberta Capital Region. Although there are politicians who may influence regional policies, they are not included in the sample because this research focuses on the issue of regional food policy from a professional planning perspective. Rather than relying on the will of politicians, the aim of this paper is to provide regional planners the advice and tools to improve the food system regardless of the political landscape.

Personal interviews were semi-structured and a set of interview questions was prepared for the interviewees depending on their affiliation and position (see Appendix for

sample interview questionnaire). The questions were designed to be open-ended to allow the interviewee to provide complete and thorough thoughts. Probes were used to encourage the interviewee to expand and elaborate on topics of interest. Two of the three planners agreed to have their interviews recorded and transcribed.

The intentions of this research were fully explained to all interviewees. Confidentiality was observed to the highest degree and interviewees were made aware that the interview or recording could be stopped at any time. All interviewees wished to have their names, positions and affiliations to remain anonymous. Interviewees were required to give full consent to proceed with the interview. All personal interviews were face-to-face, individual, and in a private setting. The McGill Research Ethics Board granted research ethics clearance for the interviews.

Primary and Secondary Sources

Because regional food policy is an emerging field in Canada, there are only a few precedents that exist (e.g. Metro Vancouver 2011; Greater Toronto Area Agricultural Action Committee, 2012). These long-term food strategies have been created only recently and it is difficult to assess their effectiveness. Consequently, the study could only review a limited number of primary and secondary sources to answer the research questions. Plans and policies adopted by the Capital Region Board were documented and evaluated to identify existing initiatives and missing gaps in the regional food system. Other sources included peer-reviewed articles, plans, policy documents, news articles, and press releases for recommendations and additional support to the analysis.

1.3 Overview of Report

This report consists of six chapters. The second chapter examines current issues in the Canadian food system in national and regional contexts and studies how city regions are attempting to address them. To identify problems in the food system specific to the Alberta Capital Region, the third chapter provides a food system assessment of the region. The fourth chapter examines regional initiatives in Edmonton and analyses how they can be applied to regional food planning and policy. The fifth chapter provides a discussion of these findings and a conclusion.

2. Food Systems and Food Policy in the Canadian Context

From a historical perspective, food systems in Canada have largely been influenced by agriculture-driven policies as opposed to those favouring public health and ecological concerns. To fulfil colonial obligations, for instance, Canadian farms provided food for Britain during the Industrial Revolution and were later encouraged to secure territories in the Prairies (Skogstad, 1987). To this day, the food industry, particularly the grain and livestock sectors, still dominates food systems in terms of their influence on policy. It has drastically evolved into a large-scale food and retail industry deeply interconnected with global markets (Forbes, 1985; Skogstad, 1987). It was not until the early part of the 20th century that health concerns started to influence food-related policies (Macdougall, 1990). However, current national food policies are inadequate as health concerns only involve food safety regulations and standards. It is quite evident when one looks at the mandate of Agriculture and Agri-Food Canada that the focus of the farming industry is still supply-focused and driven by global markets with little acknowledgement of its impact on public health:

> *Agriculture and Agri-Food Canada (AAFC) helps ensure the agriculture, agri-food and agri-based products industries can compete in domestic and international markets, deriving economic returns to the sector and the Canadian economy as a whole. Through its work, the Department strives to help the sector maximize its long-term profitability and competitiveness, while respecting the environment and the safety and security of Canada's food supply. The activities of the Department extend from the farmer to the consumer, from the farm to global markets, through all phases of producing, processing and marketing of agriculture and agri-food products.*
>
> (Agriculture and Agri-Food Canada, 2012)

As of yet, neither the Canadian nor provincial governments have any clear policies or legislative acts addressing food issues from a systems approach (MacRae, 2011). Consequently, concerns relating to public health, social welfare, and the environment have largely been ignored in the shaping of the existing Canadian food system.

2.1 Current Issues in Conventional Food Systems in Canada

When industrial approaches became widespread in agriculture after the Second World War, the focus in farm policy shifted towards international markets and economies of scale. To keep the costs of processing low per unit, food firms have encouraged

overproduction in farms. Companies have also encouraged the overconsumption of food products to increase profitability. This cycle of boundless production and consumption extends beyond the country's borders, considering Canada's commitments to maintain its long-standing position as a global food exporter. Canadian farmers are more dependent than their American or European counterparts on exports, and half of the exports go to the United States (Veeman and Gray, 2010). Overall, the Canadian food system appears to be economically beneficial because it augments the gross national product despite the escalation of health care costs (MacRae, 2011). However, there are several problems with the long-term sustainability of food production growth for the environment, economy, and society.

Intensive agriculture has placed enormous strains on ecosystems due to large-scale operation, land consumption, and increasing fossil fuel and resource use. Conventional tillage practices have resulted in soil degradation, erosion, and reduced biodiversity (Baig and Gamache, 2009). Large fertilizer inputs, particularly from chemical products and excessive animal waste, deplete soil quality and contaminate downstream water-bodies. In the Prairies, heavy irrigation can lead to water scarcity and thus exacerbate the negative impacts of eutrophication by further concentrating nutrients from fertilizers in water bodies (Schindler and Donahue, 2006). As well, intensive use of fossil fuels for food production and distribution, particularly for livestock and biofuel production, contributes to roughly a fifth of the world’s greenhouse-gas emissions (McMichael et al., 2007). Additionally, large amounts of food and food-related waste are produced throughout all stages of the food system.

From a public health perspective, the Canadian food system does not encourage healthy eating habits, nor does it evenly distribute healthy foods. The high sugar, sodium, and fat content and caloric value of processed food products have contributed to the obesity epidemic in many developed nations including Canada. Coupled with increasingly inactive lifestyles, poor diets have caused widespread health concerns among Canadians, including diabetes and heart-related diseases (Janssen et al., 2004). The long shelf-life of processed foods contributes to the low pricing of these foods in comparison to perishable, yet more nutritious produce, particularly in the North (Boult, 2004). The dominance of a few large food-firms in Canada and the increasing catchment areas of their stores have created food deserts in many neighbourhoods because it is assumed that the majority of people will drive a vehicle to buy their groceries. Thus, residents living in low-income suburban areas are likely to be more exposed to low-quality foods

(i.e. processed food products and fast food) because their relatively low prices are competitive against the convenience cost of access to healthy produce (Johnson-Down et al., 1997; Smoyer-Tomic et al., 2006).

Unfortunately, federal food policies focus largely on supply-related dynamics involving food safety and fraud prevention rather than paying attention to consumer choice and regulation. Governments are reluctant to address dynamics at the consumer end because it would be seen as an infringement on individual freedom and it would also contradict long-standing priorities towards production and industry (MacRae, 2011). Likewise, the health-care system, since it focuses on cure rather than prevention, has a similar hesitancy to address food-related health issues from the consumer end. For instance, Health Canada's role in food policy is limited to improving food safety, increasing nutritional value and improving the labelling of foods (Health Canada, 2012). Although the federal department also provides guidelines for healthy eating, they are not enforceable and there is little integration of the guidelines in government policies.

The transformation of the food system over the past century has also led to a negative shift in rural communities. Large corporations benefit most from the revenues generated by the agri-food industry, and there was also a dramatic reduction of the workforce. In 2005, multi-million dollar farms, representing less than three percent of all farms in Canada, earned nearly 40% of the total farm receipts (Mitura, 2007). Conversely, the majority of Canadian farms (65.6%) made less than $100 000 CAD in farm receipts. Farm households are also increasingly linked to the non-farm economy, with half of all Canadian farms reporting off-farm income (ibid.). This is especially the case for unincorporated farms, where off-farm income is four times as important to a farm household as the net operating income generated from farming (AAFC, 2009).

At the same time, Canada lost 160 700 jobs in the agricultural industry from 1991 to 2006, representing a 31% decrease in employment (Statistics Canada, 2007). The economic and social viability of small farms has been lost because the workforce will be hard to replace as interest in agriculture has decreased, knowledge has been forgotten between generations, and work prospects are low. These factors have made it difficult for inexperienced young farmers to successfully operate a business. This will be an issue in the future as the majority of farm operators, averaging 52 years of age, are approaching retirement age (Statistics Canada, 2007).

Since European settlement, the conventional food system in Canada has increasingly narrowed its focus towards agricultural output and sale at the expense of the environment, public and social health, and society. This trend is hardly sustainable in the long term because the system favours agro-food corporations, whose industrial-scale practices severely pollute the environment, and provides little opportunity for other farmers. In response, there has been renewed interest by policy researchers and governments in improving the food system from a public-health and ecological perspective.

2.2 Policy Change for Sustainable Food Systems

From a policy standpoint, the transformation of a conventional food system into a more sustainable one will not be an easy task because there will be several challenges to address. First, a paradigm shift is required to redefine food priorities beyond productive agriculture and safety towards health and ecology (McMichael, 2001). New approaches will also mean treating food as something more than a marketable commodity, which may conflict with policies focusing on wealth creation and economic competitiveness. Recently, institutional reforms in the Europe Union and the United Kingdom have addressed some of the public challenges against the dominant paradigm with the creation of new departments and agencies focused primarily on food and health issues.

However, upon analysis, Barling et al. (2002) found that these reforms have resulted in limited integration of food policies and did not reflect a true public-health ecological model. For instance, the United Kingdom's Food Standards Agency was created in 2001. It was free from sponsorship of any food industry sector and was meant to take on an advisory role in developing a more integrated food policy. However, the agency was conservative in its approach and continued to promote conventional food policies instead. Barling et al. also suggest that food policy integration initiatives often are short-lived, lose their cross-sectorial characteristics and subsequently end up confined to a single department or agency with a narrow focus.

The constitutional and institutional division of responsibilities for food systems also makes it hard to integrate food policy using a systems approach. Each jurisdiction has a limited role in addressing food-related issues and some critical elements aside from food safety, such as health, social, and cultural concerns, may be entirely missing (MacRae, 2011). Even the issue of food safety encompasses more than 90 statutes and 37 agencies

across Canada, with differences in additional regulations between provinces. Consequently, jurisdictions have often approached food policy in a disparate manner. Governments and departments at various levels have to restructure, align their priorities, and ensure clear communication to avoid conflicts and build upon their relationships. Norway and Finland have each pioneered a more holistic food policy approach that integrates food policy closely with public health (Barling et al., 2002). Both Nordic countries have a long history of using food-related councils to coordinate and recommend policies on food supply and public health (ibid.).

Currently, the Canadian government does not have the capacity to monitor food systems and subsequently improve its policies because it has a limited data-collection capacity relating to health promotion, culture, and the environment (MacRae, 2011). There is limited public access to environmental data because, in many cases, this information is available only to farm organizations, agri-food firms, and food-safety agencies (ibid.). Another challenge is that most levels of government have insufficient human resources, a lack of knowledge about food systems, and a limited range of policy tools and instruments to address the complexity of food systems.

MacRae (2011) identifies ten policy statements that should be considered to define the ideal Canadian food system. An ideal food system consistent with the public health ecological model is one where:

1. *Everyone has the resources to obtain enough food (quality and quantity) to be healthy and the knowledge to optimize nutritional health.*
2. *Food production, processing, and consumption are suited to the environmental, economic, technological, and cultural needs, potentials and limits of the distinct regions of Canada. Food supply and quality are dependable. They are not threatened by social, political, economic, and environmental changes.*
3. *The food system provides an essential public service and is linked to other related public services such as health care and education. Ownership of food system resources is widely and often publicly held.*
4. *Food is safe for people who produce it, work with it, and eat it, as well as the environment.*
5. *Resources (energy, water, soil, genetic resources, forests, fish, wildlife) are managed efficiently (in an ecological sense), and there is no waste and pollution.*
6. *The resources of the food system are distributed in a way that ensures that those who*

provide the most essential tasks are provided a decent income. In particular, people in rural communities have enough work and income to maintain or improve their life and to care for the rural environment.

7. *Everyone who wants to be involved in determining how the food system works has a chance to participate.*
8. *Opportunities are available for creative and fulfilling work.*
9. *Food creates positive personal and cultural identity and social interaction.*
10. *Canada's food system functions in a way that allows other countries to develop food systems with similar purposes and values, and trade with them is a priority.*

(MacRae, 2011, p.432-433)

MacRae emphasizes that food policies stemming from these policy statements should be coherent, unified, transparent and comprehensive. As well, the ten goals recognize the integrated responsibilities and activities among various actors and thus are trans-disciplinary. Close engagement and collaboration of people in all sectors of the food system are necessary in the planning process for the application of a systems approach to policy-making. Here, all levels of government must work together to support all food actors in changing the food system. Likewise, each jurisdiction has a distinct role to play and work within a predetermined scale. The following section explores this relationship between policy and scale to provide clarity on the appropriate actions that a municipality or city region should take.

2.3 Food Policy and Jurisdictional Scale

It is important to recognize that city regions are not closed systems and that food issues can and should be addressed at various scales. Thus, planners should avoid the assumption, also known as the *local trap*, that a local strategy is the preferable option and is inherently good (Born and Purcell, 2006). The local trap comes in many manifestations, including the "buy local" campaign and the "slow-food" movement, which call for more local ingredients and recipes to be used in restaurants (Petrini, 2004). Still, the majority of the literature on food systems claims that local solutions, as opposed to those at provincial or national levels, are ideal when developing policies regarding food systems (Born and Purcell, 2006). Furthermore, this body of research discourages the adoption of strategies at larger scales because they are often associated with the free market and intensive agricultural approaches that have led to social injustices, environmental degradation, and food insecurity (ibid.).

Arguments for a more localized food system can be categorized into three groups: ecological sustainability, social and economic justice, and human health. In terms of ecological sustainability, food systems research has emphasized the detrimental and excessive use of fossil fuels and resources used to transport, process, market, distribute, and discard food from large corporate farms across large geographic areas (Norberg-Hodge et al., 2002). This phenomenon has been often measured in terms of "food miles" which contribute to greenhouse gas production and climate change (Pirog et al., 2001). Although the amount of carbon emissions produced by the food system is a legitimate concern, producing local food is not always more carbon-friendly than importing foods from other regions (Saunders et al., 2006; Canals et al., 2007). Food miles do not assess the full lifecycle of foods and analyses need to consider regional differences in food production practices and energy investments for storage (Smith et al., 2005). Furthermore, Weber and Matthews (2008) found that reducing the amount of meat in a person's diet would reduce the individual's carbon footprint more than simply buying local. Other environmental considerations must be accounted for as well. In Alberta, food systems already have large implications for water consumption and native prairie habitat preservation. Similarly, large-scale production of local food in Arizona may have disastrous consequences on the desert ecosystem (Born and Purcell, 2006).

Another argument used for the 'localisation' of food systems is that it will bring social and economic justice for communities. Feenstra (1997) asserts that localisation will produce economic gains as well as foster civic involvement, healthy social relations, and cooperation. However, this may not necessarily be the case. A localised food system can also mean financial losses for the community if opportunities from trade or economic ties with other regions are missed (Born and Purcell, 2006). Likewise, if local investment becomes concentrated and circulated within a defined group, existing inequalities can potentially be exacerbated at various scales (Hinrichs, 2000). Even in Ontario, Leung (2012) has reported instances where local practices in food production violate labour safety conditions for immigrant workers. In this case, buying local food would not be considered ethical or socially just.

It is often assumed that local foods are higher in quality, healthier, and fresher than imported foods (Holloway and Kneafsey, 2000). Indeed, it is easy to imagine that a local farmer could have an easier and faster trip to transport fresh foods to the market, while corporate farms, cross-continental and overseas operations in particular, may need to harvest early or use preservatives and chemicals to maintain 'freshness'. However,

unlike local farmers, large-scale operations must use rapid-shipping and quick refrigeration methods (Born and Purcell, 2006). There is no guarantee that local foods are handled or stored properly to meet safe health standards and ensure quality.

The local scale itself is a social construct and can only be used in relation to other scales; therefore, there is nothing inherent in scale because its definition can be easily changed and reinterpreted (Delaney and Leitner, 1997; Born and Purcell, 2006). For that reason, localisation should not be an end goal itself. Instead, it should be a means or strategy to empower actors and help achieve many different goals (Born and Purcell, 2006). Food policies in a regional food system can use strategies at various scales and they should focus on addressing problems like social justice rather than assuming that localisation will resolve them. Thus, city regions must collaborate with other jurisdictions at various levels to determine the best scale that is most likely to produce desirable outcomes for a given policy. For instance, the City of Toronto's food strategy recognizes the importance of working with higher-level governments to help establish health-focused food policies, as this task would be near impossible for local agencies to address (Toronto Public Health, 2010). Likewise, local zoning ordinances regarding grocery markets or the establishment of farmer markets would be outside the realm of provincial and federal policy. To provide more concrete examples relevant to the Alberta Capital Region, the next section examines existing practices in food systems planning at the municipal and regional scales.

2.4 Institutional Practices in Food Systems Planning for City Regions

To fill the policy gaps that currently exist in conventional food policy, various cities and city regions in North America have used food charters, food policy councils, and food strategies or plans. In accordance with the MDP, the City of Edmonton will implement all three practices at the municipal level. In many cities, a food policy council is usually formed first and that council then creates a food strategy. This process, however, was reversed for the City of Edmonton. The City also intends to work with municipalities in the Capital Region to develop a regional food charter and food policy council. This section details what food charters, food policy councils and food strategies are.

Food Policy Councils

Food policy councils are officially sanctioned bodies, made up of representatives from various components of the food system and selected public officials. Food policy

councils examine the operation of food systems and provide policy recommendations for how they can be improved to implement sustainable food initiatives (Hamilton, 2002). In theory, these organizations have the potential to address the integration of food policy by enabling multiple sectors to work together. Policy councils are where disparate interests meet to hear from each other and work together in order to shape the food system. In Canada, food policy councils were set up in Toronto (1991), Kamloops (1995), Vancouver (2004) and Halton Region (2009), with more being proposed in other municipalities and regions.

In practice, the role of food policy councils is unclear since the organizational structure and the policy process vary between local, regional, state, and national levels. Many food policy councils consider making policy recommendation and supporting government food planning as primary roles; however, some food policy councils do very little policy work and focus instead on programming and projects. Members of some food policy councils have found that unstable relationships with government made it difficult to work on policy change and that policy work distracted the council from the implementation of food initiatives (Schiff, 2008).

Early food policy councils, including those in Knoxville, Toronto, and Hartford, were created as government-mandated agencies under public health departments. Since then, food policy councils have evolved to include non-governmental organizations as well. Nevertheless, Schiff (2008) suggests that government-affiliated councils function more successfully than their non-governmental counterparts because they are legitimized by the government and have access to more resources. Conversely, she also found that one food policy council believed it was advantageous to distance themselves from their local municipality because farmers and other stakeholders felt threatened by government interests and activities. Still, this particular council maintained strong governmental relations in order to benefit from funding and access to resources. Other non-profit councils, on the other hand, found it difficult to compete with other non-profits for adequate funding and grants (ibid.).

Schiff (2008) also found that most food policy councils emphasize the importance of their roles as networkers, facilitators, and educators in food system sustainability. It is through their facilitation and coordination that various stakeholders in the food system can gather, network, and cooperate to implement goals that address a wide range of food system concerns. Facilitators are necessary to ease tensions between conflicting

interests and to help develop innovative ideas. Often, food policy councils need a few years to build political capacity as well as expertise on food systems. Projects and programs are most successful when implemented and maintained in partnership with other organizations because food policy councils have limited capacity to address the broad issues in food systems by themselves (ibid.).

Food policy councils are not a new concept in Edmonton. An Edmonton Food Policy Council existed from 1988 to 1992 that consisted of a group of municipal-level health and social agencies, including the Boyle Street Community Services Co-operative, Edmonton Board of Health, Edmonton City Centre Church Corporation (now Edmonton for Communities), Edmonton Gleaners Association (now Edmonton Food Bank), and the Edmonton Social Planning Council. However, this organization did not adopt a food systems approach nor did it directly address food policy. Instead, it focused on tackling hunger-related issues. During that period, the policy council created a community food assessment of the City of Edmonton and initiated programs that still operate today, such as the school lunch program and food basket program (Male, 2012). The formation of a new food policy council is expected to occur in 2013. It will be supported by the City of Edmonton. Unlike many others food councils, this one will likely report to a planning and/or community service department rather than a public health agency.

Food Charters

According to the City of Vancouver (2007, p.1), food charters are broad policy documents that "express key values and priorities for developing just and sustainable food systems." They provide vision and values towards a comprehensive food strategy that engages individuals and organizations representing various elements of the food system. Canadian jurisdictions that have adopted food charters include the cities of Toronto (2001), Saskatoon (2002), and Vancouver (2007), as well as the Province of Manitoba (2006). Fox (2010) notes that some members of the Toronto Food Policy Council feel that the Toronto Food Charter is largely symbolic and weak in implementation. However, MacRae (2010) argues that the Food Charter justifies the activities of the Toronto Food Policy Council and facilitates implementation of its goals. In 2002, the Edmonton Food Charter was drafted by the city administration, but the food charter lost momentum because there was an absence of high-level policies that would support the initiative (Male, 2012).

Food Strategies

Municipalities have also adopted policy documents known as food strategies or food plans which function similarly to food charters because they also provide a vision and values. However, the primary function of food strategies is to provide a framework to address issues in the food system through an action plan that list a number of directions or initiatives. These documents have been developed in cities around the globe including London (London Food, 2006), Toronto (Toronto Public Health, 2010) and New York City (New York City Council, 2010). They have been shaped through public engagement, with wide representation from various food-related sectors, organizations, and experts. Common policy goals among the strategies include providing fresh food access to target communities and children, increasing food security, expanding urban agriculture, developing regional food links/procurement of local foods, and supporting/expanding food-related businesses. To date, it is important to note that there is no major city that addresses farmland preservation within city limits – a unique situation for the development of a food strategy in the City of Edmonton.

The food strategies from London, Toronto, and New York City vary greatly in their structure. For instance, London's Food Strategy is the only one of the three to present a clearly stated vision that guides the goals, objectives, and priorities of the strategy (Table 1). Toronto and New York City's food strategies, on the other hand, do not provide a clear vision and instead use general references to achieving regional sustainability and its various benefits.

In regards to principles and values, Toronto's strategy focuses largely on health and social values, with some consideration given to environmental and economic issues. New York City's food strategy has a broader approach that covers issues relating to food security, economics, environment and public health. London takes an extra step with the inclusion of food culture and celebration as one of their core values. Both Toronto and London have six areas of priority and detailed initiatives under each priority (Table 1). In contrast, New York City lacks explicit focus areas in its plan. Toronto's focus areas are centered on health and social-related initiatives, whereas London also places emphasis on economic development for food-related industries within the city.

Toronto's food strategy is missing important components of the food system (i.e. processing, distribution, and disposal). Both London and New York City provide a more complete strategy in this respect; however, New York City's strategy does not

adequately address food-related issues concerning restaurants and caterers. Although London's food plan is quite thorough, weak language can be found in the document with many uses of the expression "as far as/whenever possible" in the proposed actions. Since these plans have only been adopted recently, it is currently difficult to assess the impacts that they may have on the food system.

Edmonton's CWFAS follows the same format as the London Food Strategy because it also includes a vision, goals, and various focus areas or objectives (Figure 6). However, one notable concern is that the strategy does not directly address issues in public health and social justice. Other critiques of the strategy pertain primarily to the lack of recognition of current initiatives and opportunities in the city, vagueness in the objectives and the absence of a concrete action plan. Conversely, strict adherence to an action plan can also be limiting. For instance, a city council can decide not to act on a rare opportunity to improve the food system because it does not align with the action plan. Nevertheless, many planners believe that the establishment of the Food Policy Council will eventually address missing gaps. The adoption of a food charter with a broader mandate could justify initiatives beyond the scope of an action plan.

Despite their limited access to resources and funding, cities and regional municipalities are currently leading the policy change in the Canadian food system. Common institutional practices at this scale include food charters, food policy councils, and food plans. These tools can be used to enable stakeholders, share resources, and implement food-related initiatives. Regional and provincial governments also play a significant role in food systems policy and planning, especially for farmland protection. However, regional initiatives cannot go forward without studying the food system. The next chapter provides an assessment of the Alberta Capital Region's governance structure and food system to identify problems that could be addressed by regional food plans and policies.

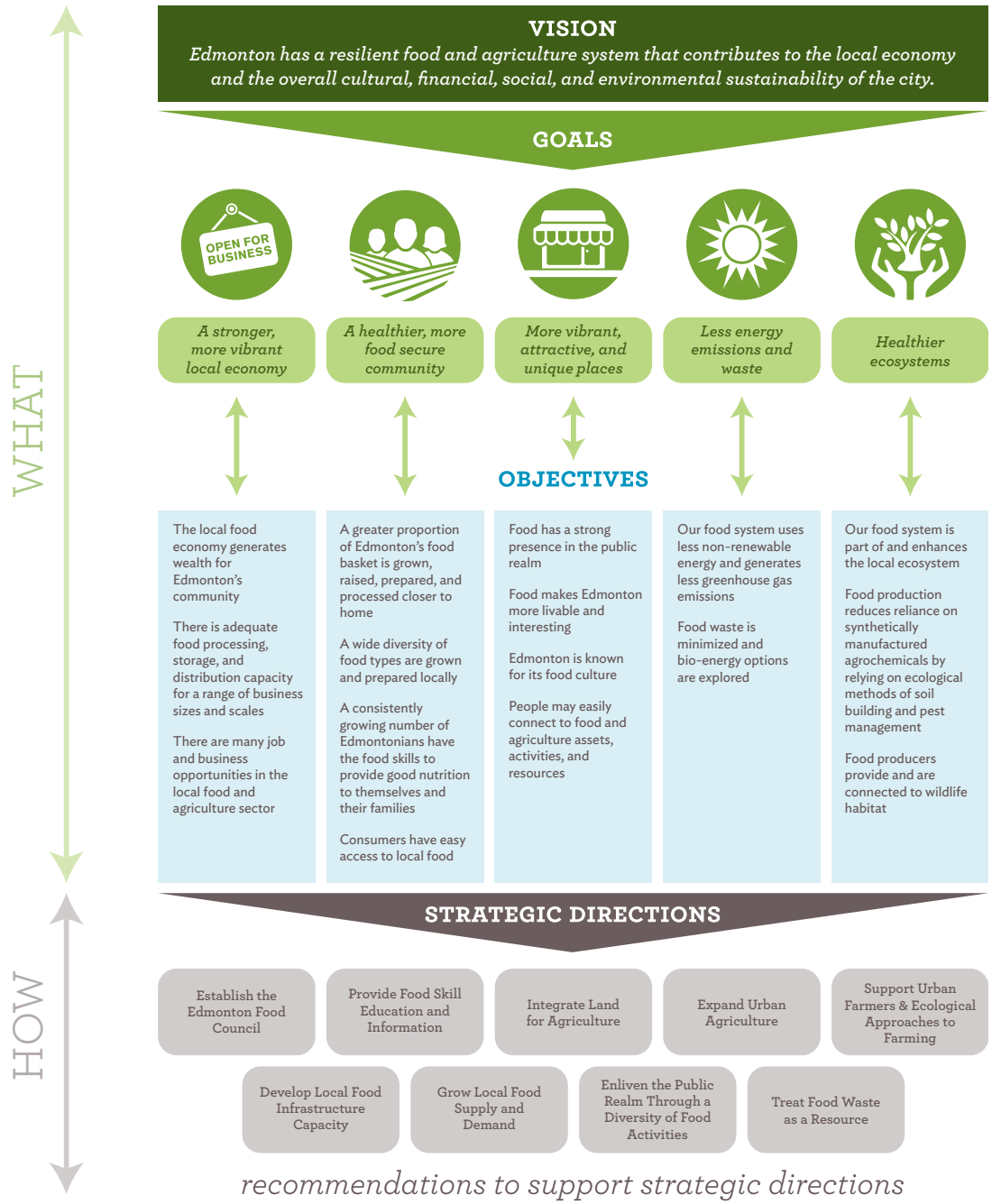
Table 1: Comparison of food strategies from Toronto, New York City, and London.

	Toronto (2010)	New York City (2010)	London (2006)
Vision	No clear vision stated *"[The Food Strategy project] is founded upon the idea that the food system should be **health-focused**. A health-focused food system, in other words, nourishes the environment, protects against climate change, promotes social justice, creates local and diverse economic development, builds community and much more."*	No clear vision stated *"We can build a better food system for our growing city – one that that provides healthy, affordable food for all New Yorkers in our growing population, while supporting our local and regional economy and mitigating environmental impacts. In short, our food system will be better able to respond to the needs of New Yorkers today and in the years to come."*	*"In 2016, London's people, residents, employees and visitors and organisations public, private and voluntary sector – are:* • *taking **responsibility** for the health, environmental, economic, social, cultural and security impacts resulting from the food choices that they make, and their role in ensuring that food and farming are an integrated part of modern life* • *demonstrating **respect** for all the many elements involved in the provision of their food, and are treating fairly the environment, the people, the animals, the businesses and others involved in providing their food* • *conscious of the **resources** being used in growing, processing, distributing, selling, preparing and disposing of their food, and continuously engaged in minimising any negative impacts arising from this resource use* • *benefiting from the **results** of this effort, such that all Londoners have ready access to an adequate, safe, nutritious and affordable diet that meets their health, cultural and other needs*."

Table 1 continued

	Toronto (2010)	New York City (2010)	London (2006)
Values	Primarily focused on: • Health concerns • Social concerns Some consideration given to: • Environment • Economics	Focused on benefits from the following perspectives: • Security • Economic • Environment • Public Health	Values explicitly stated: • Improve **Health** and reduce health inequalities via food • Reduce ecological footprint and **Environmental** impacts of London's food sector • Support a vibrant food **Economy** • Celebrate and promote the diversity of London's food **Culture** (**Social** impacts covered under this category) • Develop London's food **Security** *Feasibility also an emphasized value for selection of actions*
Key Focus Areas	• Support food friendly neighbourhoods • Have food as the centre-piece of a green economy • Eliminate hunger in Toronto • Empower residents with food skills and information • Connect the city and country-side through food • Urge higher-level governments to establish health-focused food policies	No focus areas explicitly stated Direction of food strategy based on values listed above: • Moving from food system insecurity to opportunity • Seizing economic opportunity • Improving environmental sustainability • Improving public health	Six priority areas have been identified and take precedence in the proposed actions: • Ensuring commercial viability • Securing consumer engagement • Levering the power of procurement • Developing regional links • Delivering healthy schools • Reducing waste

Figure 6: Vision, goals and objectives of Edmonton's City-Wide Food and Urban Agriculture Strategy.



(Source: *fresh: Edmonton's Food and Urban Agriculture Strategy*; City of Edmonton 2012)

3. The Alberta Capital Region

According to the 2011 Census Canada definition, the Alberta Capital Region, also known as the Edmonton Census Metropolitan Area (CMA), consists of thirty-five census subdivisions and a total population of 1 159 869 people living in an area of 9426.73 square kilometres (Statistics Canada, 2011). (See Figure 4, Table 2). With the exception of Lamont County, all representatives on the 24-member Capital Region Board (CRB) reside within the CMA. However, the Village of Spring Lake, eight summer villages, and four Indian Reserves are not members of the CRB.

Table 2: Municipalities in the Edmonton Region and Capital Region Board (CRB) membership.

Municipality	Municipal status	Population (2011)	CRB member
Alexander 134	Indian reserve	1,027	No
Beaumont	Town	13,284	Yes
Betula Beach	Summer village	10	No
Bon Accord	Town	1,488	Yes
Bruderheim	Town	1,155	Yes
Calmar	Town	1,970	Yes
Devon	Town	6,510	Yes
Edmonton	City	812,201	Yes
Fort Saskatchewan	City	19,051	Yes
Gibbons	Town	3,030	Yes
Golden Days	Summer village	141	No
Itaska Beach	Summer village	20	No
Kapasiwin	Summer village	10	No
Lakeview	Summer village	26	No
Leduc	City	24,279	Yes
Leduc County	Municipal district	13,541	Yes
Legal	Town	1,225	Yes
Morinville	Town	8,569	Yes
Parkland County	Municipal district	30,568	Yes
Point Alison	Summer village	15	No
Redwater	Town	1,915	Yes
Seba Beach	Summer village	143	No
Spring Lake	Village	533	No
Spruce Grove	City	26,171	Yes
St. Albert	City	61,466	Yes
Stony Plain	Town	15,051	Yes
Stony Plain 135	Indian reserve	987	No
Strathcona County	Specialized municipality	92,490	Yes
Sturgeon County	Municipal district	19,578	Yes
Sundance Beach	Summer village	82	No
Thorsby	Village	797	Yes
Wabamun	Village	661	Yes
Wabamun 133A/B	Indian reserves (2)	1,086	No
Warburg	Village	789	Yes

(Source: Statistics Canada 2011)

3.1 Regional Governance

The Alberta Planning Act of 1963 aimed to address boom-and-bust development patterns, a cycle characterized by intense and rapid growth followed by periods of severe downturn, through state intervention in property markets and centralized planning. The act was the result of the 1954 McNally Commission, an initiative triggered by development battles between the City of Edmonton and the Municipal District of Strathcona following the discovery of oil in 1947 (Climenhaga, 1997). The Commission's objectives were based on an interpretation of the "uni-city" philosophy, where orderly urban development could only be achieved with the absence of dissent from surrounding municipalities. Consequently, the Regional Commission Boards created by the Alberta Planning Act favoured large, urban municipalities by giving the central city full veto powers on matters relating to regional growth (Ghitter and Smart, 2009).

Until 1992, the Alberta Government supported the urban agenda and allowed urban municipalities to easily annex land from adjacent rural municipalities for future urban growth (Ghitter and Smart, 2009). Moreover, proposals for development in smaller and more rural municipalities within these regions were regularly opposed by the Regional Commission Boards and turned down by the Province (Bettison et al., 1975). Especially in the high-growth city regions of Edmonton and Calgary, this process left a legacy of resentment and rural resistance (Climenhaga, 1997). In 1992, Ralph Klein was elected leader of the Progressive Conservative Party of Alberta based on a neoliberal platform of fiscal austerity and smaller government. This would be achieved by downloading powers to lower-levels of government and empowering individuals through the market. As Premier, he introduced the Municipal Government Act, which enabled rural municipalities to get the advantage concerning regional issues.

As a result, there are currently no clear guidelines for municipalities to resolve issues and disputes concerning areas of shared responsibility. The Municipal Government Act, adopted in 1995, eliminated regional planning in Alberta by effectively transferring subdivision approval authority from the now-abolished Regional Commission Boards to individual municipalities (Elder, 1996; Ghitter and Smart, 2009). Similarly, tax revenues generated from land and industrial development also went to individual municipalities instead of to regions. Not only did this limit the City of Edmonton's ability to annex land for future urban growth, but it also promoted the proliferation of subdivisions and other urban uses throughout the region with little coordination among jurisdictions.

The Emergence of New Regional Governance Structures

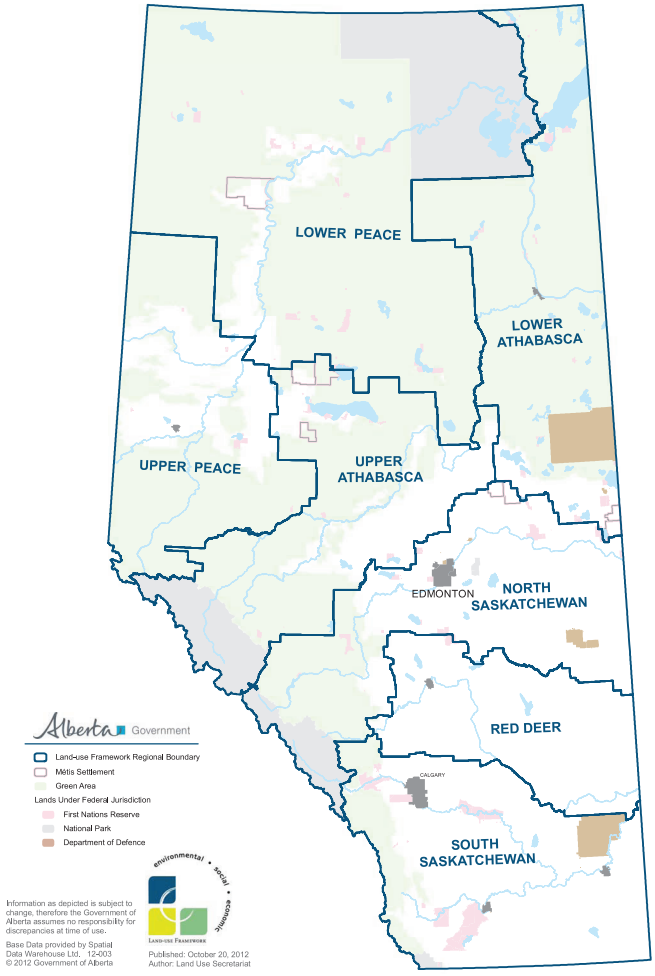
To encourage cooperation within the metropolitan region of Edmonton, the Province of Alberta created the Alberta Capital Region Alliance under the Alberta Companies Act (2000). Under this structure, there must be unanimous agreement among all municipalities of the former 22-member organization (i.e. Alberta Capital Region Alliance) for a regional initiative to go ahead. However, the City of Edmonton believed that it did not have adequate representation and influence. The core city, comprising 71% of the region's population, had a vote equal only to that of a suburban or rural municipality (Sancton and Young, 2009). In particular, the City felt that it was unfair that it had to fund its own infrastructure and services, which many municipalities in the region regularly use, without profiting from the large industrial tax bases in the counties of Leduc, Strathcona, and Sturgeon (Canadian Broadcasting Corporation, 2007). Consequently, the City of Edmonton withdrew from the alliance in November 2006 and the alliance dissolved in 2007 as major disputes erupted between the remaining municipalities and counties.

The Province of Alberta, tired of managing the numerous disputes in the region, forced the municipalities to form the Capital Regional Board in 2008. Changes were made to the governance structure such that a double majority of the region's population (70%) had to support proposed plans and initiatives before their approval (Sancton and Young, 2009). This structure effectively gave the City of Edmonton veto power in deciding regional issues. Additionally, the Regional Board was required by the provincial government to create and adopt a regional plan. Although relations have improved between municipalities since 2008 with the appearance of joint planning studies and agreements on regional public transit infrastructure, the municipalities still act independently of one another and in conflict with regional interests (Filion and Kramer, 2012). It is premature to determine if this regional governance structure will be effective.

In 2009, the Province of Alberta enacted the Land Use Stewardship Act, an omnibus legislation that abandoned conventional approaches to resource management in favour of a more integrated and results-oriented governance structure (Stelfox, 2010). The Act divides the province into several large regional units loosely based on watershed boundaries (Government of Alberta, 2012a). (See Figure 7). Each region is required to adopt a regional plan that will coordinate urban development and resource management. The Lower Athabasca Regional Plan (Government of Alberta, 2012b) has been approved and the South Saskatchewan Regional Plan is currently under

development (Government of Alberta, 2012a). The North Saskatchewan Regional Plan initiative, which includes the Alberta Capital Region, has not yet commenced.

Figure 7: Alberta Land-use Framework Regions.



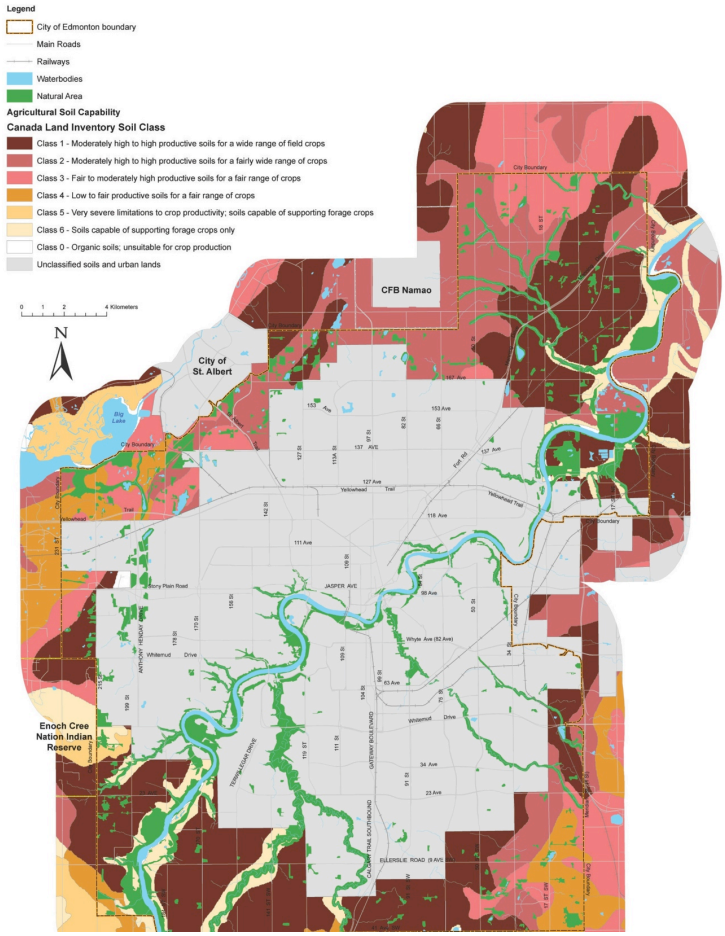
(Source: Government of Alberta)

3.2 Assessment of the Food System in the Alberta Capital Region

The Alberta Capital Region is situated on some of the best agricultural lands found in the province. Approximately half of the land's soil is under the Chernozemic Order due to glaciation (Soil Inventory Working Group, 1998). They are predominantly black in colour and high in quality (Capability Class 1) because they penetrate deep into the ground and hold moisture well; therefore, soil productivity is easily maintained for a wide range of field crops (non-fruits/vegetables). The highest concentration of

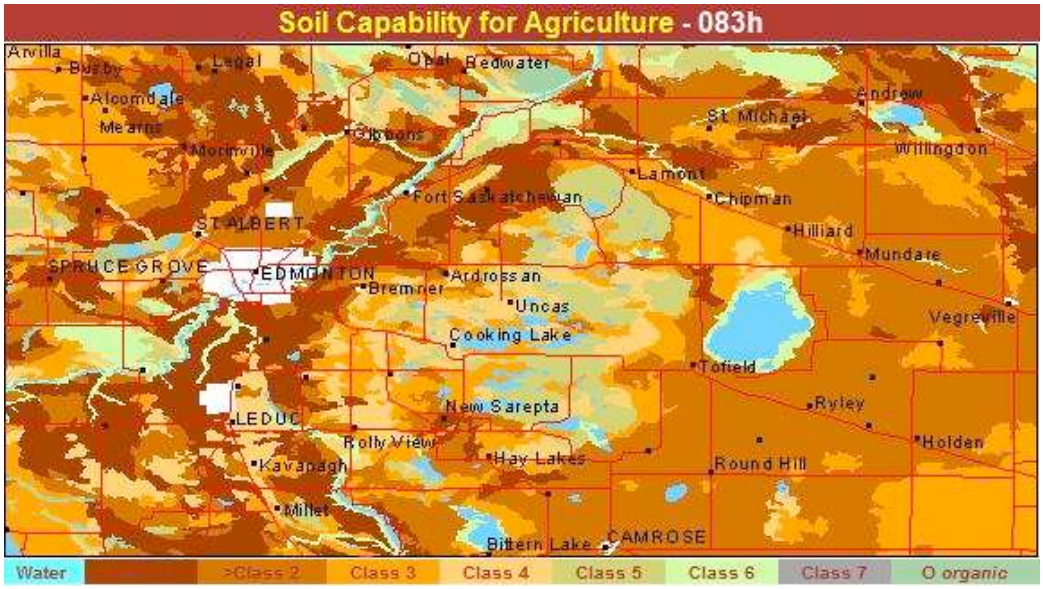
Chernozemic soils is in the vicinity of the City of Edmonton, along the North Saskatchewan River and creeks (Figure 8 and 9). Half of the remaining soils in the surrounding region are classified as Capability Class 2, with some limitations for agricultural activity.

Figure 8: Soil Map for the City of Edmonton.



(Source: City of Edmonton, 2006)

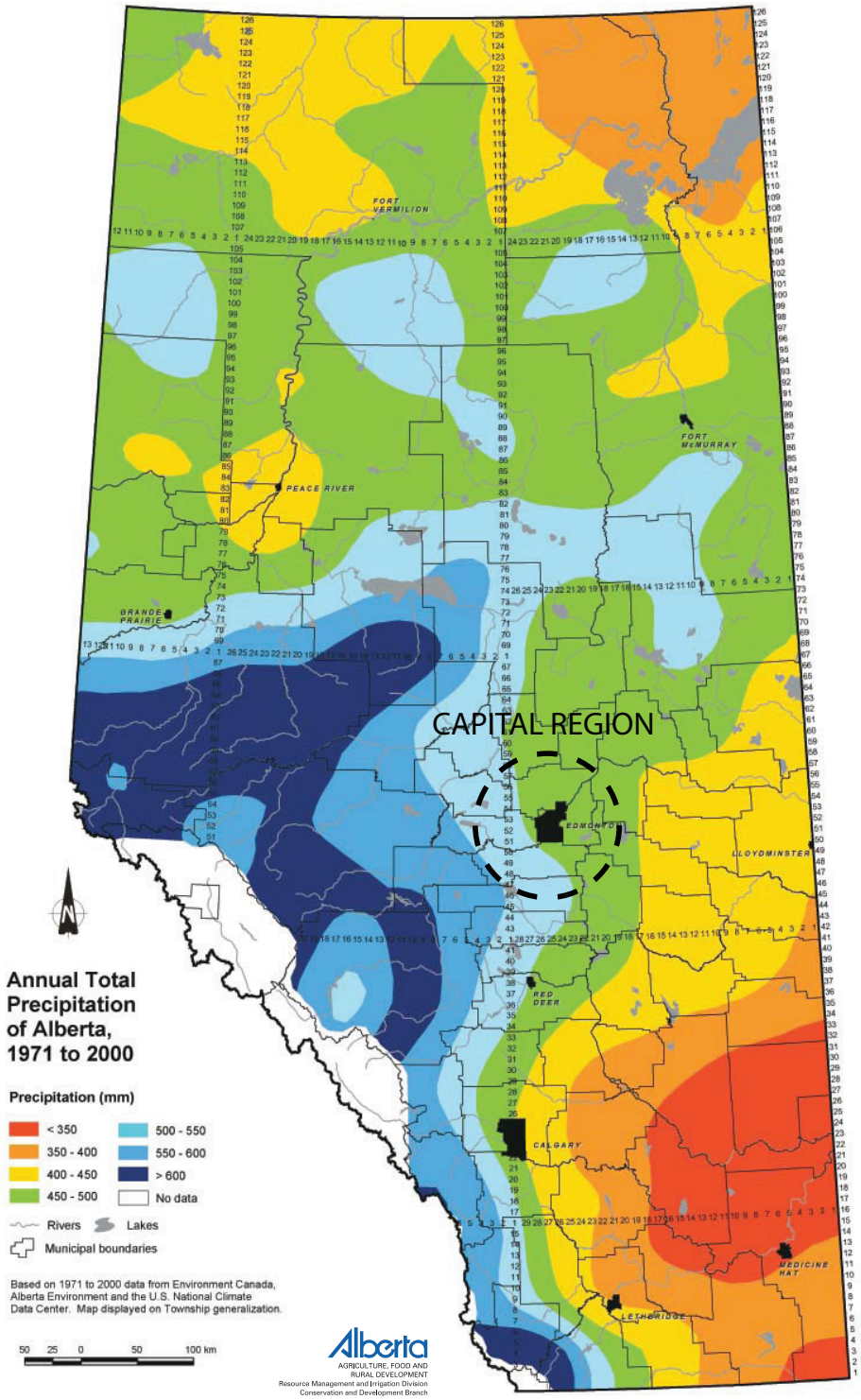
Figure 9: Soil Map for the Edmonton Region.



(Source: Soil Inventory Working Group, 1998)

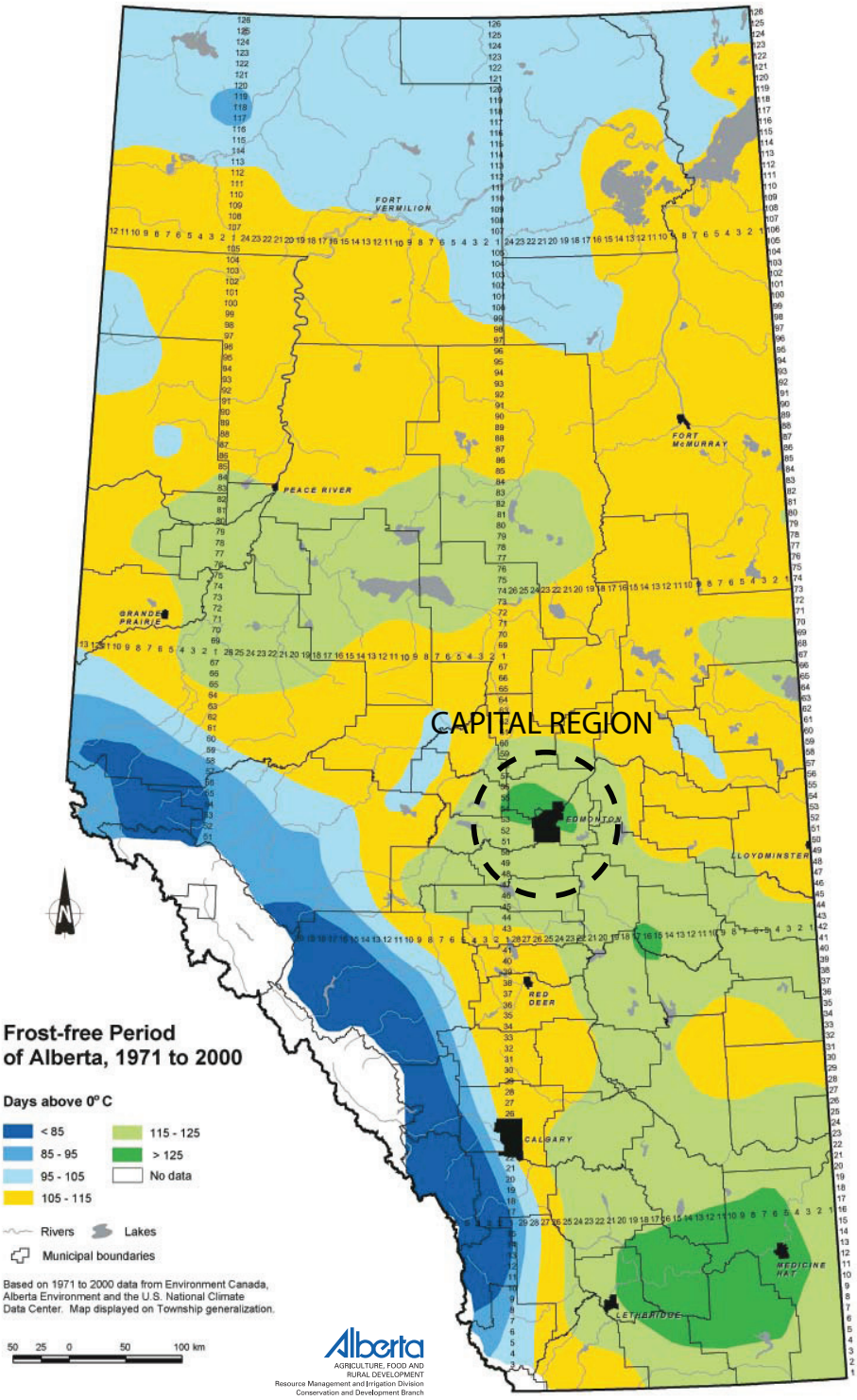
Located farther east of the Rocky Mountains, beyond the influence of dry westerly Chinook winds, the region receives higher levels of precipitation than Southern Alberta and thus is less prone to drought (Government of Alberta, Agriculture and Rural Development, 2005). (See Figure 10). Additionally, due to the lower altitudes, the region boasts one of the longest growing seasons in the province, with 143 consecutive frost-free days in contrast to 115 days in the Calgary Region (Government of Alberta, Agriculture and Rural Development, 2005). (See Figure 11). The northern latitudes also give the advantage of longer daylight hours during the summer, which is especially true for south-facing land aspects located on the north side of the North Saskatchewan River Valley. This combination of factors makes the Edmonton Region ideal for agricultural activity in Alberta.

Figure 10: Annual total precipitation in Alberta, 1971–2000.



(Source: Government of Alberta, Agriculture and Rural Development)

Figure 11: Average length of the frost-free period in Alberta, 1971–2000.

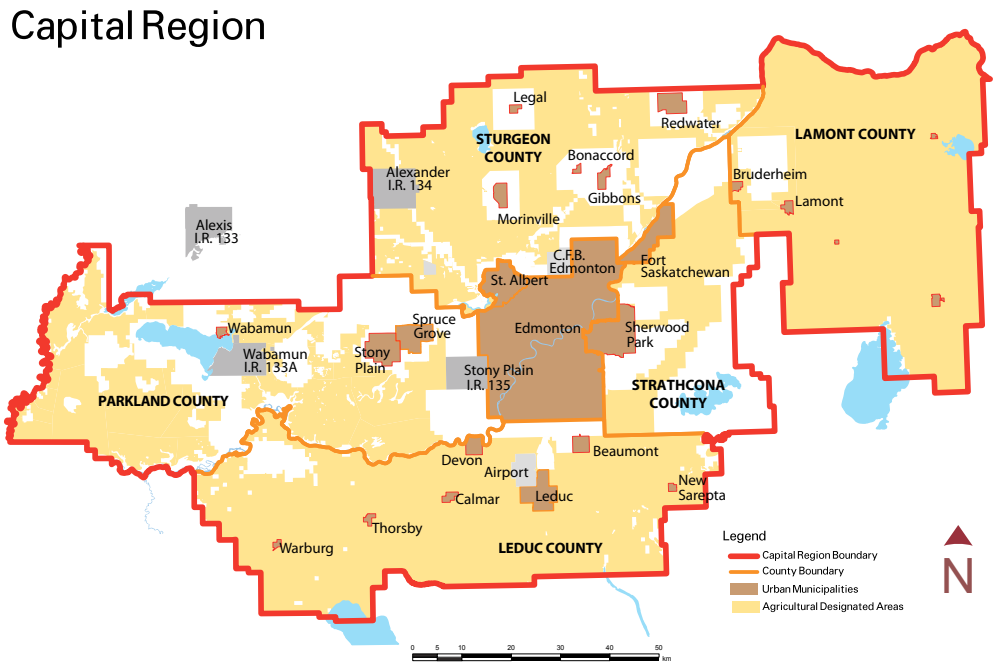


(Source: Government of Alberta, Agriculture and Rural Development)

Production

Farming first appeared in the vicinity of Fort Edmonton around the 1860s and quickly expanded to include nearly 10 000 acres of agricultural area by 1890 (Soil Inventory Working Group, 1998). When the first railway reached Edmonton in 1892, the growth of agricultural lands quickly accelerated. The City of Edmonton expanded its borders into agricultural lands throughout most of the 20th century; its last major annexation was in 1982. As of 2006, about 39.3% of all land within the city's boundaries, a total of 66 548 acres, were zoned for agriculture with proposals for urban development (Vanin, 2009). Even more agricultural land exists in neighbouring rural municipalities (Figure 12).

Figure 12: Lands designated for agriculture use in the Edmonton Region, 2009.



(Source: Capital Region Board)

Since the 1950s, the number of farms in Alberta has steadily decreased, while the average farm size has increased. Furthermore, land values for farmland have jumped significantly. Technological advances and the industrialisation of agriculture are important factors contributing to this pattern. The increased investment in land, equipment, and infrastructure for farms has led to large-scale operations and high productivity, with a minimal need for farmers. As a result, farmers represent less than three percent of the population in Alberta (Government of Alberta, Alberta Agriculture and Rural Development, 2003).

At present, there are over 5000 farm operators in the region (Government of Alberta, 2012c). Nearly half of all operators in the Edmonton region produce oilseeds, grains or beef. The remainder include a variety of farms for horse rearing, poultry, fruits and vegetables, and greenhouse production (Statistics Canada, 2011). Oilseed, grain or beef farms make up 67% of all farm types in Alberta. Additionally, field crop operations represent 88% of all crop farms in Alberta (The Western Producer, 2012). The majority of farms in the Edmonton region are conventional industrial farms that produce regional surpluses for markets outside the region (Government of Alberta, Alberta Agriculture and Rural Development, 2003). Only a few farms, particularly those in Northeast Edmonton, are small-scale operations that are dedicated to serving the regional market.

Few environmental regulations apply to farms operations in Alberta and best practices are only encouraged on a voluntary basis. The Government of Alberta, in partnership with other organizations, has supported campaigns to reduce the ecological footprint of farming operations in the province. One of the most successful campaigns was the Reduced Tillage LINKAGES program to discourage farmers from practicing conventional tillage. Between 2001 and 2009, no-till practices increased from 16.5% to 27% of all farmers and the amount of untilled farmland increased from 5 million to 9 million acres (Reduced Tillage LINKAGES, 2009). However, farms still have a considerable negative impact on the environment. For instance, agricultural runoff into water bodies, especially from spring melt, has increasingly become a health and environmental concern in Alberta because it has made many lakes unsafe for drinking and swimming (The Canadian Press, 2011). High amounts of manure production from livestock located in sub-watersheds surrounding the Capital Region also contribute to the heavy loading of nutrients in nearby waters (AMEC Earth and Environmental, 2005; Schindler and Donahue, 2006).

Agricultural production in urban areas is restricted to house gardens, community gardens, and small-scale operations in the Capital Region. The supply of vegetables produced from existing urban agriculture initiatives is limited, as it is only enough to provide food for individual gardeners. Additionally, this food may require some unpaid labour and be only available during the summer and autumn months. Still, there is large potential for fruit (apples and berries) and honey production in the region as many fruit trees are often left unpicked and they require bees or other insects for pollination (Operation Fruit Rescue Edmonton, personal communications). One urban greenhouse operation exists in the region and provides food for a few restaurants.

In general, the Capital Region and the province produce surpluses of food large enough for the City of Edmonton to have a relatively secure food supply. Edmontonians consume only a small fraction of the beef, pork, poultry, dairy, potatoes, and peas produced in the province (Toma and Bouma Consultants, 2010). (See Table 3). However, they do consume more fruits and vegetables than what is being produced in the province. For example, Edmontonians consume nearly fifteen times the amount of tomatoes produced in Alberta. This short supply is due to climatic conditions that are unsuitable for most fruits and to the inability of local producers to compete with global suppliers (ibid.). In fact, a large number of food products are imported into the Capital Region. Some of these imports may be redundant since some food items are already produced within the region. In light of climate change, it is also important to note that these statistics do not take into account for years with low yields, such as during droughts or disaster events.

Table 3: Percent of Alberta food production consumed by Albertans and Edmontonians for selected food products.

Food	Percent of Production in Alberta consumed by Albertans	Percent of Production in Alberta consumed by Edmontonians
Beef	13.4%	3.7%
Pork	35.7%	10.0%
Dairy	116.8%	30.2%
Poultry	107.8%	32.7%
Potatoes	78%	21.8%
Peas	0.5%	0.14%
Beans	1680%	470%
Tomatoes	5266%	1474%

(Source: Toma and Bouma Consultants, 2012)

Processing

As previously mentioned, the Edmonton Region is home to many food-processing businesses. Next to petroleum products, food and beverage processing is the second-largest manufacturing industry in Alberta, representing a quarter of the total value of manufacturing shipments from the province (Government of Alberta, Alberta Agriculture and Rural Development, 2003). The current trend in food processing is towards fewer, larger, and more efficient businesses with greater volume and value of production. There is a more modest trend towards smaller, specialty processors as well (ibid.). The City of Edmonton houses over 60 food and beverage processing businesses that distribute products to North American markets. Businesses include major

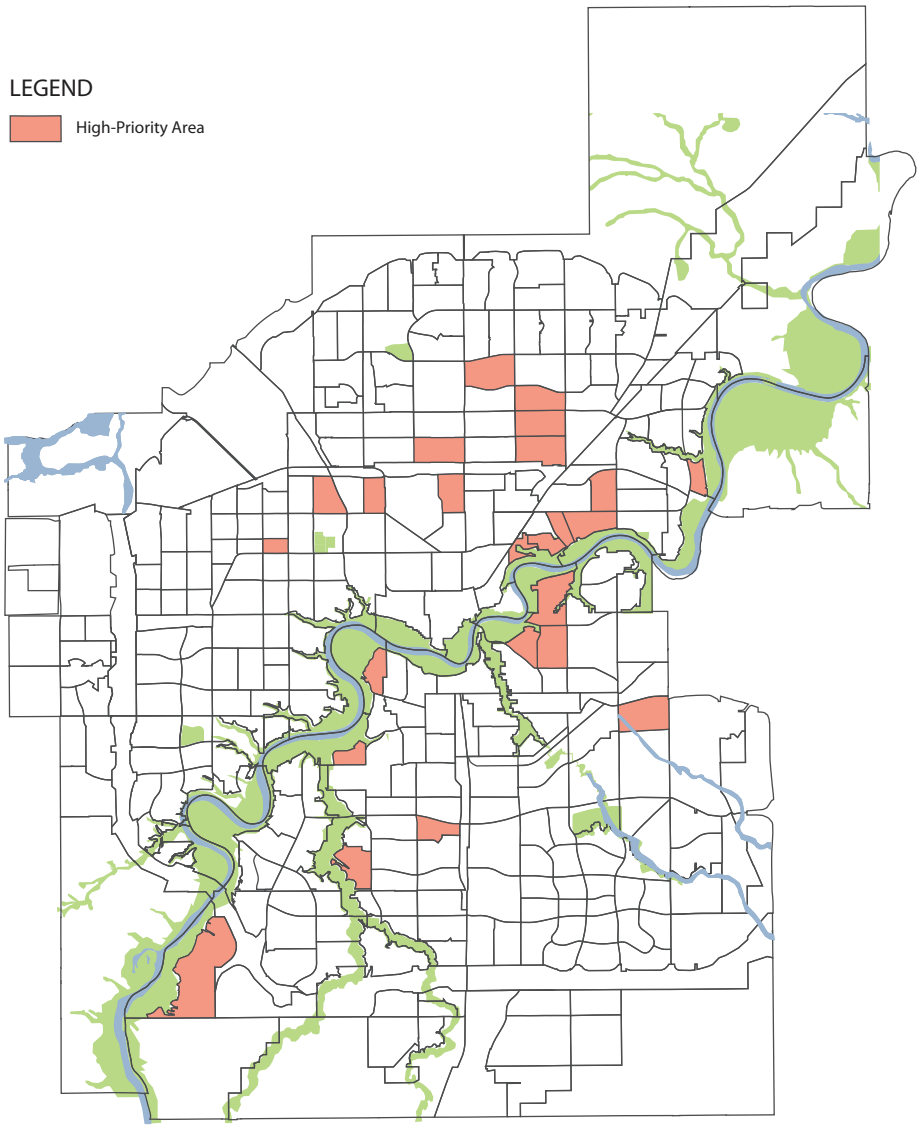
companies such as Lilydale and Maple Leaf Poultry, as well as speciality processors including The Little Potato Company and Kinnikkinnik.

Storage, Distribution, and Sale

Food produced in the Capital Region can be stored, processed, distributed and marketed within the region according to different agri-food hub models. These models include (but are not limited to) wholesale local food distributors, community-supported agriculture operations, and farmers' markets. Sunfresh Farms is one of the few wholesale distributors in the Capital Region that distribute food from producers in the region. It should be noted that this distributor does not always provide local food if it is not available, particularly during the winter months. Instead, its mandate is to give local foods a priority when applicable (Government of Alberta, Agriculture and Rural Development, 2012a). This approach ensures that distributors provide reliable service and retain contracts with corporate grocery stores. Still, most producers will use major distributors to deliver their goods to national and global markets.

The geographical distribution of supermarkets with a full range of grocery items (i.e., dairy products, fresh produce and meats, and baked goods) is uneven in Edmonton. Smoyer-Tomic et al. (2006) have identified several low-income as well as inner-city neighbourhoods in high need of a supermarket within walking distance (Figure 13). In some of the inner-city neighbourhoods, former supermarket locations have restrictive covenants that prohibit future large-scale food retail use on that site. Suburban Edmontonians living without a car generally experience worse food accessibility than those in the inner city due to commercial land use patterns that foster car dependency (ibid.). Studies on supermarket accessibility have not been completed at the regional level for the Edmonton metropolitan area. Residents in rural areas travel far for their groceries but may also have some sustenance provided from farms or gardens. The high ownership of personal vehicles among farming families largely offsets the concern of access to healthy food.

Figure 13: "High-priority" neighbourhoods in the City of Edmonton in need of a grocery store.



(Source: Smoyer-Tomic et al. 2006).

The problem of food deserts, particularly in the inner-city, can be addressed by the creation of farmers' markets, community food hubs or community gardens. In Alberta, farmers' markets are defined as markets where food, food products, and crafts (80% of all marketed goods) are purchased directly from the producer or processor (Government of Alberta, Agriculture and Rural Development, 2012b). More than two dozen farmers' markets exist in Edmonton. Many of these markets have only been recently established in some neighbourhoods with otherwise low access to healthy foods within walking

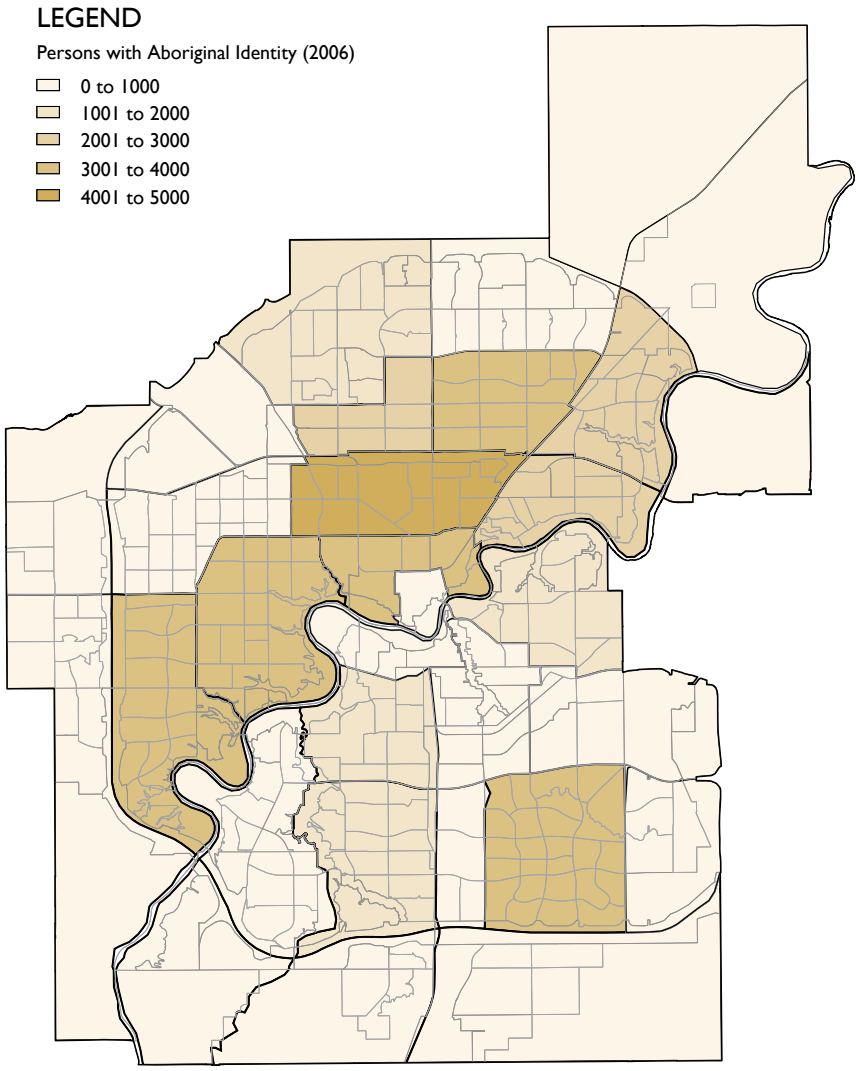
distance. However, the financial security of markets is uncertain in many of these neighbourhoods since they must be managed by a not-for-profit organization in order to be approved provincially as a farmers' market (ibid.). Furthermore, many consumers often view local foods and products as more expensive and are thus less likely to support these markets.

The cost of food in Alberta is higher than in other provinces, which has the greatest impact on low-income groups (Alberta Community/Public Health Nutritionists and Dietitians of Canada, NDC, 2009). Food prices have generally been increasing as well. In a boom and bust economy such as Alberta's, food prices tend to rise to match increasing salaries and wages. However, during busts and recessions, salaries and food prices tend to remain stagnant. The loss of jobs in Alberta triggered by the 2009 recession caused a 61% annual increase in the use of food assistance programs. In fact, food bank usage rates in Alberta are two times higher than usage rates in all other provinces. In comparison, the increase in food assistance usage in other provinces was less than 20%. The usage rate is worse in cities where high housing costs compete with food budgets. A large percentage of people living with food assistance (43%) are children (Food Banks Canada, 2009).

The Edmonton CMA has the second-largest urban aboriginal population in Canada (52,100 persons), following closely behind the CMA of Winnipeg (Statistics Canada, 2006). This demographic group is largely young and rapidly growing. Aboriginal communities, both on- and off-reserve, have several barriers to accessing healthy foods. Aboriginals on reserves often travel far to grocery markets where certain food items are often unavailable, expensive, poor in quality, or lacking in nutritional value (NDC, 2009). Inner-city neighbourhoods with high concentrations of aboriginals (Figure 14) are typically in the lowest income bracket and thus face food shortages due to poverty. Further straining the problem, these same neighbourhoods are typically food deserts.

There are four Indian Reserves (IR) in the Capital Region: the Enoch Cree Nation (Stony Plain 135 IR), the two Paul Band Reserves (Wabamum 133A and 133B IR), and the Alexander First Nation (Alexander 134 IR). Hunting grounds are often adjacent to detrimental uses that threaten access to healthier country foods found in the wild. Many Indian Reserves neighbouring the Capital Region, including one near Lac Ste. Anne, also face food-accessibility problems on hunting lands due to adjacent industrial uses (Wittmeier, 2012).

Figure 14: Distribution of people with aboriginal identity in the City of Edmonton.



(Source: City of Edmonton, 2010)

Consumption

Albertans, like many North Americans, generally favour higher proportions of meat in their diets in comparison to fruits and vegetables. Additionally, this diet typically has high caloric and salt intake. This has a significant impact on public health, causing an increase in the frequency of food-related diseases such as obesity and diabetes. In the Prairie Provinces, rural residents tend to have a higher prevalence of obesity than those living in urban centres despite their higher rates of physical activity for leisure and work (Vanasse et al., 2006). This trend is correlated with the low consumption rate of fruits and vegetables among rural residents (ibid.).

Hunger among low-income groups in Alberta is particularly high in comparison to other provinces (NDC 2009). The incidence of hunger is particularly strong in children. A study by the Social Planning Committee of Edmonton (1999) reported that there are more than 20 000 hungry children in the city and an additional 28 000 who are at risk of hunger and malnutrition. Single parents will often reduce the portions of their meals so that their children have enough to eat (NDC, 2009). Consequently, low-income groups typically consume cheaper, highly processed foods, which contributes to weak health as well as poor physical and mental development in children. Such foods include items with higher carbohydrate, sodium, sugar and fat content (Milway et al., 2010). Similarly, Smoyer-Tomic et al. (2008) found that low-income neighbourhoods located in food deserts within the City of Edmonton tend to have a high concentration of fast-food outlets. This pattern of high exposure to fast-food may promote the consumption of less nutritious foods.

To prevent unhealthy eating, traditional home cooking has often helped low-income households, as home cooked meals are cheaper and more nutritious than pre-made meals. However, in many countries, including Canada, cooking and food skills are not largely emphasized in the education system (Stitt, 1996). Consequently, many households are at risk of unhealthy eating if individuals do not learn food skills at home. This is an increasingly common problem in low-income neighbourhoods and aboriginal communities in Canada. To counter this trend, community kitchens that offer cooking classes and food information can be effective in promoting healthy eating (Engler-Stringer, 2010; Mundel and Chapman, 2010). Managed by Alberta Food Banks, there are over twenty collective kitchens operate in the Edmonton Region, many of which are located in low-income neighbourhoods.

Waste and Disposal

After seeing a negative trend during the 1990s, the Alberta Capital Region has seen an annual 1.5% increase in the amount of waste produced since the turn of the 21st century (Capital Regional Waste Minimization Advisory Committee, 2011). This growth in waste throughout the province is largely due to economic development and a booming population. Currently, multiple municipalities are independently addressing the question of solid waste reduction at different levels. However, most wastewater is treated regionally through the Alberta Capital Region Wastewater Treatment Plant and the Goldbar Treatment Plant. Regional wastewater treatment facilities provide secondary treatment, reuse for industrial activities, and gas recovery for energy.

The City of Edmonton is considered an international leader in waste management with a waste diversion rate of 60% from landfills (City of Edmonton, 2012a). Most residential solid waste is either recycled or composted (in North America's largest composting facility). The city's diversion rate is expected to go up to 90% for 2013 once the waste-to-biofuel facility is in operation, converting non-compostable waste into an energy source. In comparison, the Alberta Capital Region aims to divert 80% of all generated waste from the landfill for reuse by 2020. A partnership between the City of Edmonton and Strathcona County was established to generate district heating and synthetic natural gas from a waste facility and to provide services for a local community (ibid.).

Summary of Food System Assessment

The Alberta Capital Region has among the most productive farmlands in the province due to water availability, soil capability and length of growing season. Prime areas for production are located on the southeast facing slopes along the North Saskatchewan River. There currently exists a wealth of agriculture activities at the industrial scale, but small-scale production and processing are under-represented, especially for regionally scarce, nutritious crops (i.e. fruits and vegetables). Additionally, the distribution of healthy foods does not reach all communities and this inequality often disadvantages low-income groups. Still, initiatives such as the collective kitchen programs and the City of Edmonton's waste management demonstrate that local governments and community organizations in the region are willing to make efforts to improve the health, social, and environmental impacts of the food system.

4. Analysis of the Potential of a Regional Food Policy

The previous chapter demonstrates a wide range of food system problems in the Alberta Capital Region that could potentially be addressed by a regional food policy. However, it is important to evaluate whether or not the region would likely adopt such a policy and to determine the region's capacity to implement it. Whenever possible, the Capital Region should also adopt best practices in food systems planning. The following four sections will detail and analyze the findings from interviews and sources for each research question.

4.1 Potential Focus Areas of Regional Food Policies in the Capital Region

Interviewees were asked if and how regional food policies could address agriculture protection, sustainable practices in agriculture, economic development, social equity and waste management. Policy documents and plans produced by the Capital Region Board were also examined in this analysis. Please note that this is not an exhaustive list of potential opportunities or actions.

Agriculture Protection

All interviewees agreed that the issue of agriculture protection would require further discussion at the regional level as existing policies are lacking. The *Capital Region Land Use Plan* simply identifies the protection of agriculture as an important principle and provides one relevant policy action:

> *In accordance with the final Provincial Land Use Framework (i.e. the North Saskatchewan Regional Plan), and through a process involving consultation with CRB municipalities and consideration of the full policies of the CRB land use plan and Growth Plan, a revised map* will be prepared to identify agricultural lands which will need to be preserved from future fragmentation and conversion to other uses.*
>
> (Capital Region Board, 2009, p. 12)
>
> *See Figure 9

Protection measures for farmland, however, have not yet been identified because regional planners intended to wait for guidance and direction from the North Saskatchewan Regional Plan (Interviewee 2). Planners initially expected that the Land Use Framework for the North Saskatchewan Region would be completed by 2014;

however, only initial discussions for the regional watershed plan are now expected to occur by 2014 (ibid.). Consequently, the only measure stated in the document is the encouragement of cluster development for rural country residential development in order to minimize fragmentation of natural areas and farmland. This policy, however, was flawed in practice because it triggered even more residential development on prime farmlands in some counties (Climenhaga, 2010). The CRB recognizes these shortcomings and regional administration is currently reviewing the agricultural policies for the plan's five-year review (Interviewees 1 and 2). Unfortunately, regional planners "cannot adopt policy positions without direction or leadership from [the Capital Region's] board members, i.e. elected representatives" (Interviewee 1); therefore, interviewees were not able to provide further information on the likely changes to agricultural policies.

There is also strong political support and public need for policy regulation on agriculture protection in the region. This is evident from a report completed by the CRB (2009), which indicate that a significant majority of residents throughout the region (60%) support the protection and preservation of agricultural lands. Still, there are diverse views on the amount of land that should be protected and the mechanisms that should be used for protection. There is a perception that there will be conflicts with landowners' property rights. Developers believe that agricultural lands under growth priority areas will have "to be developed in order to sustain contiguous growth patterns" (Capital Region Board, 2009, p.43). Environmental organizations and other groups, however, argue that these agricultural lands are the best farmlands in the province and development would thus undermine the region's food security. They believe that protecting agricultural lands indefinitely and focusing development towards brownfield sites wherever possible is favourable to a more sustainable food system.

Because the issues of land use and food security are both highly politicized, the degree of protection and the mechanisms for preservation of agricultural lands are still under considerable debate. Even at the municipal level, the CWFAS avoids addressing this question directly and instead provides the City Council with a framework to consider when integrating agriculture in the urban growth areas within city limits. Mechanisms for agricultural land protection include the use of transferable development credits, the creation of an agricultural land reserve or trust, cluster development, and land swaps (City of Edmonton, 2012). Abma (2004) advocates a change in taxation because the current tax structure based on land use encourages development speculation on

agriculture lands. Instead, landowners should be encouraged to place conservation covenants on their lands in return for lower taxation. Interviewee 2 believed that the issue of agriculture protection in the region could be addressed in a "tangential" manner by clearly defining areas good for development, reducing the urban footprint through densification and directing urban growth away from agriculturally productive lands.

Indeed, the annexation of farmland by the City of Edmonton in 1986 and the designation of surrounding lands as a priority growth area in the regional land use plan have set a path for development that is difficult to reverse:

> *The problem that we have is that there already has been agreement within the region that [the priority growth areas] are already considered good for . . . residential, industrial, business development. Because there has been a kind of agreement to that, it would be hard . . . to turn around and say that if someone wants to annex the other municipality and talk about preserving agricultural land . . . because that discussion should have happened when they approved the plan that said that [the priority growth areas] were good for growth.* (Interviewee 2)

As noted by the Capital Region Board (2009), the discussion about food security and the debate over agriculture protection did indeed happen during the consultation phase of the plan. Among those consulted, the Greater Edmonton Alliance (GEA), representing over 1000 members, believed that the document did not adequately project future development and urged the land use committee to adopt food security as a key component of the region's plan. Other groups also expressed this concern during consultations and supported GEA's recommendation. However, there was no political will among municipalities in the region to address the issue.

In contrast to Interviewee 2, Interviewee 3 believed that an agricultural land reserve or a greenbelt, a band of protected land wide enough to prevent leapfrog development, would better address the issue of farmland protection in the region than would the definition of priority growth areas:

> *[A greenbelt] forces development to happen closer to urban areas, avoids sprawl because it is wide enough . . . so you don't get these urban pockets on the other side commuting to the city. Otherwise, you will end up with scattered development. We heard from the agricultural community that they need certain amenities to be viable. They need to be*

> *closer. They need to be clustered . . . [for] even simple things like vets for livestock. If farm development is scattered across all over the place, these services will not be close. Also, they don't like moving their equipment, their tractors, on high traffic roads.*

Greenbelts and Agriculture Land Reserves (ALRs) or permanent agricultural zones currently exist in the city regions of Montreal, Ottawa, Toronto, and Vancouver. However, in all cases, the provincial government largely determined which farmlands were to be protected. Similarly, the Province of Alberta would need to enact a new legislative framework to allow for such land reserves (Interviewee 1). It would require more cooperation within the region and strong political clout to make the provincial government take such action (Interviewee 3).

The use of transferable development credits/rights (TDC) was not considered a feasible option among interviewees. Interviewee 2 believed that they have little applicability in the region:

> *[Using transferable development credits] is difficult because you also have to be realistic in that what kind of development would have occurred in agricultural lands that are twenty-five miles away from the city. Let's say [the landowners] are allowed one subdivision of land . . . when a developer comes to buy . . . two sub-divisions from a farmer, it's not going to be very much money in comparison to what people expect to get from these things. You're not going to have a developer who is going to be interested.*

Developers have insisted that the market should determine what lands get developed and that there is large demand for greenfield suburban development to address issues of housing affordability and choice (Capital Region Board, 2009). Indeed, it is understandable to see the lack of interest seen among both planners and landowners towards using this mechanism. Still, planners in the Edmonton region should explore TDC to address farmland being lost to country residential development rather than applying it to land targeted for suburban development. This is a more feasible option because peripheral areas do not have the same market pressure to develop and involve fewer subdivisions for credit compensation.

Sustainable Practices in Agriculture

All interviewees agreed that little policy regulation or enforcement could be done to influence sustainable practices in agriculture. There are some measures currently used

by the Province to protect water bodies, wetlands, and natural areas (Interviewee 1), but these actions do not influence farming methods. The interviewees believed that individual farmers would have to address this issue on a voluntary basis. Interviewees 2 and 3 both said that partnerships between non-profit organizations and government could provide educational campaigns that would be more effective towards achieving the goal of sustainability in agriculture. This method proved to be successful in the no-till campaign in Alberta during the 1990s. Having various stakeholders at the same table, a food policy council at the regional level could also help initiate discussions about education campaigns:

> *[The] food council made us realize that the issues [individual stakeholders] were talking about were the same things and we . . . should be there to make things happen. There were three aspects to the food policy council: there was 1) policy development, 2) education, and 3) networking and events. It would not make [member] organizations to take on these tasks as they represent so many elements of the food system. . . . Food Policy Councils are about nurturing knowledge, partnering, collaborating because otherwise there is no real other purpose. So it really creates these connections and networks.* (Interviewee 3)

Interviewee 3 also suggested that the creation of a land trust with small farm parcels and incubator farms could be used as an opportunity not only to train new farmers (especially those in financial need), but also to provide education about organic farming methods and best practices in land stewardship. This is important to share this knowledge because the certification process for organic goods, which can be time-consuming and costly, prevents many farmers from adopting more sustainable practices (Interviewee 3).

Economic Development

In the regional land use plan, one policy addresses rural development through the provision of "a wide variety of agricultural . . . and other employment opportunities to attract and retain a diverse range of people" (Capital Region Board, 2009, p.19). However, the agro-industry in the Edmonton region is quite large, strong and complex and interviewees 2 and 3 felt that the region should not regulate this sector. Indeed, the provincial government is heavily invested in rural development and has provided large subsidies to the agro-economy (Interviewee 3). It would be difficult for a municipality or region to take a role in what is largely considered provincial jurisdiction. Additionally, since many of the farm businesses are export-oriented and do not directly serve the

region, there has been little interest and minimal work in food systems policy and planning to address economic development from a regional or city level (Interviewee 3).

Social Equity

Unlike infrastructure and land use, social services are not typically administrated at the regional level. Since there is no mandate for municipalities to provide such services under the Municipal Government Act (1995), many rural counties and small towns take little or no action on social issues (Interviewee 2). In Canada, it is often assumed that larger cities or the province will take on this role. However, neighbouring municipalities eventually start replicating the same social services, which may become redundant if resources are not shared between municipalities (Lightbody, 2006). As a result, it is difficult for the region to address food-related health issues because it is up to the decision of individual municipalities.

Interviewee 3 believed that health and social organizations could address regional food problems related to public health and social justice with the support of the Capital Region Board. There is also an opportunity for discussions and programs relating to food and social equity (e.g. community food centres, healthy food access through community gardens or mobile markets) through a food policy council. Unfortunately, such services may not reach the communities in Indian Reserves because their lands are under federal jurisdiction.

Concerns about food access and conflicting land uses adjacent to Indian Reserves will be difficult to address, as the reserves are not part of the Capital Region Board (Interviewee 2). Consequently, there are limited discussions between the two jurisdictions:

> *Enoch [Nation of the Stony Plain Indian Reserve] is not part of the regional board so there is no format to bring up issues for them other than contacting us directly… The Capital Region Board doesn't really approach Enoch at all. . . . It would only work if Enoch wants to be involved because they tend to not want to have anything to do with something that may impact the decisions that they make on their land . . . because right now they have free reign [over their lands]. [Indian Reserves] are not bound by the Municipal Government Act . . . so if they get involved with the CRB or some organization that brings some kind of rules for them, I don't see that they are going to like that. They may see some value in it though.* (Interviewee 2)

Interviewee 1 did state though that Indian Reserves are consulted when infrastructure (i.e. roads, utilities and pipelines) directly impacts their lands. Thus, there is potential for voluntary discussion between First Nations and the region regarding land use conflicts.

Waste Management and Recovery

Interviewees generally agreed that waste management in the Capital Region is already quite good. Still, Interviewee 3 believed that governments do not focus enough on how to reduce the amount of waste sent to regional facilities:

> *I think there are opportunities for food to have a second chance before it becomes compost through redistribution programs . . . instead of thinking that compost is just great. Also encouraging people to compost in their backyards or their communities rather than sending these trucks around and ship the compost back . . . a lot of it could be in-house. There's more that they can do.*

There is definitely room for improvement, which can be done through new partnerships, such as the one created between the City of Edmonton and Strathcona County. For instance, individual municipalities could work with food retailers to redirect unsold but edible food to food banks in the region.

4.2 Likelihood of Regional Food Policy Adoption by the Capital Region

All interviewees were asked about the likelihood that the Capital Region will adopt a regional food policy that addresses all or some of the topics discussed in Section 4.1. Probes were used to identify strengths, weaknesses, threats and opportunities for the adoption of such a policy.

In Edmonton, there is growing discussion and concern about the regional food system's sustainability, enough that the question of agricultural protection will need to be addressed in the foreseeable future. The City of Edmonton has demonstrated leadership by adopting the CWFAS with implementation starting in 2013. Despite the limited opportunity for permanent farmland within the city limits, Edmonton has sent a clear message to the region through its MDP and food strategy that it is serious about addressing food issues and that it would also like to see its neighbours join:

> *It would make a lot of sense for the region to hop on board to make it a regional issue . . .*

> *especially with not a lot of farmland saved within Edmonton. We need to start thinking about where and how to save farmland in the region. [The region] need[s] to start that discussion. I think the food policy council will help that. There would be seats designated for people in outside communities. So that would be a good way to start that conversation.* (Interviewee 3)

There is clear opportunity for a regional food policy council because it is relatively easy to establish, with little financial support by governments. The Capital Region is fortunate to have farmland outside areas that are designated for growth (although that farmland is not necessarily considered prime) so that there is still potential to limit development on these lands or create a permanent agriculture zone.

Interviewees, however, disagreed on whether or not a regional food policy would come out of this discussion. Interviewee 2 felt that the CRB already had enough mandates to handle due to limited staffing and thus would not be able to carry on any new initiatives:

> *What [regional planners] are focused on right now is the land use plan. I can't see any new initiatives coming forward that they would necessarily be supportive of and that is because there are budgeting constraints. A lot of money has to go into this land use review and [the CRB has] the housing, transit, and governance committees that need funding and there is very limited funding for the CRB. [The CRB does] not [have] many employees. . . . They have so much on their plate right now that they don't have the capacity to add anything else.*

Furthermore, since the Province currently funds the CRB but intends municipalities to eventually finance it themselves, there is uncertainty whether or not the organization will be able to afford to adopt any new mandates because smaller municipalities with limited resources may not want to contribute (Interviewee 2). On the other hand, Interviewee 3 believed that a regional food policy council would likely initiate discussion about such regional food policies anyway.

Despite improving inter-municipal relations, Interviewees 1 and 2 stated that it is quite a challenge to get all the municipalities to agree on many issues. Indeed, there have been only a few cases where all members of the board agreed to sign off on an initiative together. What will be even more difficult for inter-municipal planners, as well as

politicians, is negotiating with farmers and developers about agriculture protection (Interviewee 2). Farmers have traditionally viewed their lands as a retirement fund or legacy for their children. Lands are typically subdivided and inherited by the landowner's children, sold to a developer, or swallowed up by another farm, all of which are undesirable outcomes because these outcomes result in large farms or fragmented ownership. Thus, landowners typically "do not get too excited about [farmland preservation] because they lose their right to subdivide and make [a] profit" (Interviewee 3). Again, politicians face huge pressure from the development industry as developers have contended that agricultural land needs to be developed to sustain population growth. Consequently, as seen in Edmonton's current city council, there is a lack of political will by most municipal or county elected officials to address this issue directly. A summary of the SWOT analysis is outlined in Table 4.

Table 4: Strength, Weaknesses, Opportunities, and Threats (SWOT) related to food policy adoption in the Alberta Capital Region.

SWOT Analysis	Likelihood of Food Policy Adoption by Capital Region
Strengths	• Commitment by the City of Edmonton to a regional food policy council/charter • Improved relations between municipalities
Weaknesses	• Diverse and conflicting opinions among members • Limited capacity (staff and resources) by CRB administration to expand regional mandate
Opportunities	• Few resources required for food policy council initiation • Potential for farmland protection by various mechanisms
Threats	• Political conflict, particularly between developers and conservation groups • Uncertainty about future funding of regional initiatives

4.3 Existing Regional Governance and its Implications for Food Policy

Interviewees 1 and 2 were asked about their personal experiences and knowledge of existing regional initiatives in the Alberta Capital Region and their opinions on how they could be applied to regional food policies. Probes were used to identify strengths, weaknesses, threats and opportunities related to regional governance and food policy.

Despite the diverse, conflicting opinions and interests among board members, the municipalities in the Edmonton Region have been more cooperative under the CRB than ever before. Many municipalities have realized the benefits of this organization because it provides an opportunity for members to talk about and work with partners on common issues in a setting that did not exist before:

> *An issue comes up at the CRB and people are talking about it and you can really see around the table who would be in the same mindset as you… who would [or would not be] interested, and then you could approach that person and say: "Okay, it sounds like you are having the same kind of ideas. Is there a way we can get together and partner on this and work it together?" . . . When there was no CRB, you literally had to deal with people just right next to you, but you might not have that opportunity to talk to whomever. . . . The CRB does give opportunity. For example, . . . if [a municipality] partners with [another], . . . it could give [both municipalities] the opportunity to get more funding or money to do some projects that they could not do [alone] otherwise.* (Interviewee 2)

The format of discussion at the CRB functions essentially the same way as it does in a food policy council. This structure would be easy to replicate for a table representing various stakeholders in the regional food system. Political representatives could also have such discussions within the CRB and create partnerships on food-related initiatives without burdening the region's small administration with additional mandates.

One outstanding issue in the region's structure that Interviewees 1 and 2 identified was the lack of ownership of regional initiatives. Because the CRB is provincially mandated, plans and initiatives must be reviewed and approved by the Province. This poses two problems. The first is that the Province's interests may not align with those of the region such that the provincial government may influence regional initiatives. This phenomenon was observed when Alberta Transportation planned an ambitious regional

ring road to which most municipalities in the region were opposed (Stolte, 2011). Ring road discussions were tabled but may arise again in the future. However, proposed development plans for lands impacted by this ring road still include lands allocated for such infrastructure. Secondly, the Province's administration is often reactive, as it prefers to see finalized plans before reviewing them and has a slow response time:

> *The region is still beholden to the Province because it was provincial legislation that made them come together. It's provincial legislation that gives them their framework and it's the Province that approves the capital region growth plan and . . . no changes can be made with that without the Province's approval. We're still tied . . . that takes away ownership of the plan and it takes away the ability to react quickly. We are starting our five-year review of the plan, but it's been known for a while what the shortcomings are, what needs to be changed, what needs to be added but we just don't have that flexibility to just go in there and make those changes to make it better because everything has to be sent to the Province, you have to wait for the Province to approve it.* (Interviewee 2)

Thus, the provincial government must review any new policies directly addressing food systems and agriculture in the region. In fact, this lack of ownership by the region is a reason why the CRB did not address agriculture in the first place:

> *[Regional planners] want to wait and see what the Province is saying and [they] do not want to talk about any agricultural preservation until [they] know what the Province's approach will be to it. That was a good approach when [regional planners] thought that this land use framework was going to be done by 2014 but now that is not going to happen. [Regional planners] are in limbo with handing out policies in the capital region land use plan and there is not really any provincial regulation in the MGA that guides preservation of agricultural lands anymore so it's definitely a shortcoming and failure of the plan right now.* (Interviewee 2)

Future consultations for the North Saskatchewan Regional Plan will provide opportunities for the Province to adopt more concrete agricultural policies including farmland preservation in the future. However, interviewee 2 also identified the risk that the Province may override sub-regional plans. Effectively, it is up to the Province to make decisions on agricultural policies and whether or not the region should be included in such discussions. The summary of the SWOT analysis for this section is outlined in Table 5.

Table 5: Strength, Weaknesses, Opportunities, and Threats (SWOT) related to regional governance and food planning in the Alberta Capital Region.

SWOT Analysis	Existing Regional Governance's Implications on Food Policy
Strengths	• Successful partnerships between targeted member municipalities • Reduced competition for funding if there is agreement
Weaknesses	• Lack of ownership to regional initiatives • Slow and reactive provincial government during the approval process of regional initiatives
Opportunities	• Similarities in strengths in food policy councils and the Capital Region Board • Opportunity for farmland protection under Land Use Framework Plan
Threat	• Potential conflict of interests between Province of Alberta and the Capital Region Board

4.4 Lessons on Regional Food Policy from other Jurisdictions

Interviewee 3 was asked about personal experiences and knowledge of food systems planning and policy to provide guidance for the Capital Region. This section also includes recommendations drawn from a limited number of sources in the literature.

The topic of agricultural preservation dominated discussions in each interview. The emphasis on creating a land base for food production should definitely not be overlooked when planning for regional food systems. Still, based on experiences of the Greater Golden Horseshoe greenbelt surrounding the Greater Toronto Area, interviewee 3 cautioned that simply saving farmland is not enough because it does not save the farmers:

> *In the greenbelt, it's no longer a land investment . . . you won't be able to sell your land anyway. . . . [W]hat Toronto has realized is that there is a whole lot of programming that has to go with [agricultural preservation]: . . . farmers markets, incubation for new farmers, all kinds of business planning, etc. So land is just the first step.*

Indeed, significant challenges still exist for the farming community, and agriculture preservation is often not their first concern. Farmers are regularly aggravated with their work and often recommend to the next generation to stay away from the occupation and industry (Interviewee 3). This is because they face several burdens and financial barriers

as described in the case of Ontario:

> *There are various things like crop insurance that are a hassle. . . . With climate change, lots of rain, droughts, hailstorms, windstorms would damage fruits and vegetables and equipment. . . . With the provincial boards, they have certain regulations if a peach has a blemish . . . it's not possible to sell it. So you have to throw it out. . . . There is a lot of infrastructure missing. There needs to be a lot of rebuilding in the middle. Land is one their many concerns they have. They have many more immediate concerns and I think they're not optimistic that the next generation will farm their land.* (Interviewee 3)

Agriculture programming in the Greater Golden Horseshoe will require significant investment from regional or provincial governments to build the "middle" infrastructure, including agri-food hubs, farm incubators, and services for farmers. These elements are essential for creating a viable economic environment for new and existing farms. It is also important to consider the location of these facilities and their servicing because new utility lines, pipes and roads may provide an opportunity for development and further sprawl. During the 2003 bovine spongiform encephalopathy (BSE) crisis, which introduced a temporary ban of Albertan beef across the Canadian border, Rocky View County took the opportunity to build and expand new water infrastructure surrounding Calgary's city limits for a new beef processor to handle the excess livestock (Ghitter and Smart, 2009). The county would not normally be able to accomplish this because of limitations to its water licence. Due to the urgency of the crisis, this allowed for greenfield development without much coordination with Calgary's development plans and continues to cause regional tensions. Ideally, new facilities and services should be clustered to minimize the new development's ecological footprint.

Government outreach is also important to raise awareness among farmers and the food community about available programs and aid. This is certainly a challenge because "farmers have a mentality that they can do it themselves and there are also some trust issues [with governments]" (Interviewee 3). For instance, in Ontario and Alberta, information relating to programs and aid is only available in centralized city offices, which is difficult to access for many farmers in remote regions. As a result, Albertan farmers have expressed general frustration with the Province because they must travel long distances to receive information and support from government administration who appear to them to be removed from the groundwork of farming (personal observation in

provincial workshop). The Province of Quebec, however, shares this information through regional offices in order to provide multiple access points that are within closer reach for farmers (ibid.).

It is important to note that interviewees did not focus on economic opportunities in regional food systems. The local food market in Edmonton is almost $831 million (2012 CAD) and could potentially increase by an additional $750 million (excluding multiplier effects) if proper investments into the city's food system are made (City of Edmonton, 2012b). Most of this expansion could be allocated towards fruit and vegetable production because it could address issues related to food security and healthy eating. Greenhouses and market gardens on small-scale farms are crucial for the development of this sector.

Abma (2004) proposes the designation of an Agricultural Business Development Zone (ABDZ) within the City of Edmonton that incorporates permanent farmland with key infrastructures (e.g. research and innovation, incubators, processors, etc.) to promote farmers and food businesses in the region. This concept would be an extension of the business revitalization zone (commonly known as a business improvement district in other jurisdictions) currently employed in Albertan cities from an urban or industrial setting to a rural one. Like their urban counterparts, ABDZs need to be community-initiated and government-supported in order to be successful and would require a self-imposed business or property tax levy to finance district initiatives (ibid.). Variations of the agriculture business district concept are not new and have been employed in other cities such as Cleveland, where the municipality partnered with several organizations and businesses to develop an urban agriculture innovation zone (Taggart, 2010).

Key lessons to take from other jurisdictions suggest that economic investment is needed to sustain farms and agricultural activities. As recommended by early planners (e.g. Adams, 1917), the region must cluster infrastructure and facilities together in order to provide easy access of services and programs for farmers. However, there is also the risk of increasing the development potential of lands along new infrastructure such as water lines and roads.

5. Discussion and Conclusion

Results from the interviews highlight a wide diversity of topics that regional food policies and plans could address. The study identified six major areas of focus: farmland preservation, resolving land use conflicts, programming for farmers, infrastructure investments, social and public health programming, and education and outreach (Table 6). Other jurisdictions have provided some concrete examples and possible mechanisms on how each of these topics could be addressed at the regional level. Still, many of these initiatives are in their infancy since food systems policy and planning has only become a burgeoning field since the turn of the 21st century (Born and Purcell, 2006). Due to the complex nature of food systems, shortcomings or caveats related to these examples will likely arise and require future examination and analysis.

Table 6: Potential focus areas of a regional food policy or plan in the Alberta Capital Region and their possible mechanisms for implementation.

Focus area	Mechanisms (may overlap)
Farmland preservation	• Agriculture land reserve, conservation covenants, land trusts • Defining areas for growth (indirect)
Land Use Conflicts (with Indian Reserves in particular)	• Improve relations and dialogue between stakeholders
Programming for farmers	• Agricultural business development zone • Incubator farms
Food infrastructure investments	• Community and agri-food hubs • Incubator farms • Clustering of services for farmers
Social and public health programming	• Increasing healthy food access through community gardens, kitchens, and community food hubs
Education and outreach	• Incubator farms • Food policy council • Networking, events

The formation of a food policy council is a desirable opportunity for the Capital Region to take immediately because of the small amount of resources needed to initiate such an organization. Similar to Edmonton's first food policy council, it requires only a group of committed volunteers who are involved in the food system and are willing to meet regularly to discuss food policy and planning. The City of Edmonton's commitment to

create a regional food council and the improving relations between municipalities are both strengths that make this action likely to occur. However, limited governmental support may be needed to keep the organization afloat.

Policy-makers and politicians will have to make the difficult decision whether this body should report to the CRB, or to the Province, or remain separate from government. Regardless of the reporting structure, this food council will likely depend on provincial and federal government grants and fundraising for its programming and activities. It would thus be beneficial if the CRB had sufficient funding and the resources to support the food policy council as well. Unfortunately, under the current regional governance structure, the CRB has little capacity to expand its existing mandate and is beholden to a slow and reactive provincial administration for the approval or amendment of any regional initiative. The uncertainty in future funding for the CRB also threatens the long-term sustainability of the organization.

There are several opportunities for food initiatives to be implemented through partnerships between food council members as seen in many other city regions. Replicating the strengths of the CRB, individual organizations can work together by pooling their resources and funding without much competition. Food policy councils have the potential to allow for the execution of projects that would otherwise be too much for a single agency to handle (Schiff, 2008).

The food policy council can also act as an educator to encourage and generate public discussion on the sustainability and future of the regional food system. This organization can be an effective voice to lobby various levels of governments. A regional food policy council could potentially lead the development of a food strategy for the Capital Region. However, issues relating to land use will remain contentious and threaten to derail any discussion and progress. The Province will have to interfere in order to resolve these conflicts.

The creation of an ALR or a permanent agriculture zone is critical to a sustainable and healthy food system in the Edmonton Region. Unfortunately, in Alberta, the current provincial government has little political will to take action because these tools are deemed too controversial. For now, both the city regions of Calgary and Edmonton will have to demonstrate leadership by continuing to work on food systems policy. Consequently, the CRB and its municipalities must be proactive in their land use

decisions to prevent development on prime farmlands. For instance, the City of Calgary proposes to consider its food systems vision and principles when evaluating future annexations by the municipality (City of Calgary, 2012). The City of Edmonton is already committed to regional cooperation in terms of food policy and could incorporate food systems values when determining future areas of growth. However, there are diverse and conflicting opinions among member municipalities that can influence the feasibility of a strong regional food policy. For instance, the Town of Beaumont recently passed a resolution to begin negotiations for the annexation of twenty-four quarter sections of land in Leduc County. County politicians and planners described this decision as a "hostile land grab . . . [that] does not fit with the spirit of the Capital Regional Board" (Edmonton Journal, 2012). Such fragmented coordination of development can prevent the establishment of an effective ALR.

Further challenges exist when determining areas for development. In many cities, annexations typically imply development rather than protection. Rare exceptions include publicly owned water reservoirs in Metro Vancouver (Metro Vancouver, 2012). There is also large resistance by landowners to decrease the development potential (i.e. value) of their properties. However, the landowners expect to be compensated for the potential loss of profit from development. A municipality could definitely purchase lands if there is strong political will. For some politicians, such a purchase would seem unfavourable because it appears to be against what is traditionally thought as economic growth rather than seeing it as an economic opportunity. Another problem in the future will be determining the location of prime farmlands. Existing soil data is very out of date and proper assessment will require extensive knowledge collection from farmers. Large amounts of resources and time will have to go into this inventory and higher-level governments should conduct the research.

The greenbelt surrounding the Greater Toronto Area demonstrates that farmland protection is simply not enough to ensure food security and the prosperity of farmers. In fact, a food and farming action plan for the Greater Horseshoe Region was just recently completed because individual food plans from cities and regional municipalities were not sufficient (Greater Toronto Area Agricultural Action Committee, 2012). The plan proposes to realize economic opportunities in the greenbelt by investing in food and farming clusters, filling in infrastructure gaps, reducing regulatory barriers, educating businesses and the public, attracting investment (particularly from large food retailers and suppliers) and fostering innovation in agriculture. Further research in the future

will provide better understanding of regional food systems planning and recommendations for other jurisdictions. Similarly, once there are permanent or protected agriculture zones in the Edmonton area, municipalities in the region and the Province of Alberta should coordinate and invest in middle infrastructure and services for agricultural activities to recognize the economic potential of the local food economy.

Interviewees frequently expressed their concerns about the Province because the provincial government determines the opportunities and policy tools available for municipalities and regions to improve the food system. Although there is commitment by the Province to create a regional plan to address some agricultural concerns, the process has been incredibly slow and reactive to lower-level plans and policies. There is also a lack of leadership in the Province to prioritize food systems issues. Due to these circumstances, many planners and policy-makers second-guess whether they should develop policies and programs or wait for the Province to take action. For the time being, the CRB and Edmonton's food policy council will need to demonstrate leadership and discuss food systems issues once public consultations for the North Saskatchewan Regional Plan are initiated. The Land Use Framework plan offers a rare opportunity to discuss farmland protection as a key planning issue.

Some political reform is required to address outstanding issues of provincial influence. First, the Province should delegate authority to the CRB to amend certain regional plans and policies without provincial approval. The provincial government may still override decisions made regionally where it sees fit. However, under this arrangement, the region itself can quickly adjust plans and policies to address shortcomings provided that there is support by the double majority. Secondly, a stable funding mechanism is needed for the CRB in order to continue the operations of its existing activities and potentially expand its mandate. This may require an additional tax for member municipalities or a reallocation of taxes already collected by the Province from the municipalities to the regional body. These changes, though, will require significant lobbying by the region to the Province, perhaps in concert with other regional organizations in Alberta.

5.1 Conclusion

This study's findings demonstrate that the governance structure defines the opportunities and the challenges for the development of a regional food policy. Changes to the relationship between the CRB and the Province are necessary to ensure that the regional organization has sufficient funding, capacity and ability to support initiatives towards a more sustainable food system. In light of this, the proposed reforms will be difficult to achieve and will require time, as higher levels of government are relatively inert and respond only when there is enough demand from the public. However, the Capital Region is on the right track. The City of Edmonton and the public have accepted regional food system issues as a legitimate policy topic to be debated. It also allows for food plans and policies to be subjected to incremental upgrades in the future.

Planners and food actors will need to be proactive to create opportunities for improvement and further discussion about food systems in the future. For instance, a regional food policy council can be established immediately using relatively few resources. This simple act of providing a regular venue for a diverse set of stakeholders to talk about food issues will spur partnerships and initiatives, especially among social and public health agencies. Still, some support from the region will be required to ensure the continuity of this body. Likewise, planners need to recognize the consequences of annexations and plans for development on agricultural lands and what these actions mean for farmland preservation. Decisions favouring development are difficult to reverse because they create significant political tension. To minimize such conflict, the location of prime agricultural lands needs to be identified and updated for reference in future decisions. Secondly, all municipalities must cooperate and follow the regional growth plan. Lastly, there needs to be public investment and private sector buy-in for permanent agricultural zones in order to sustain a viable farming economy.

For a long time, food has not been addressed under the realm of planning and it is still a relatively new topic for many planners and government officials. With growing public concern about how we get our food, many municipalities and regions, as of late, have played a heightened role in the management of food systems through food policy councils, various governmental departments (e.g. planning, community services, or health), or separate food departments. However, as planners tread into this new territory, Fodor (2011) has expressed concern that planners may overcorrect and perhaps encroach on the responsibilities and roles of other actors in the food system. Planners

should instead be more supportive and enabling of non-governmental and community initiatives. Indeed, aside from issues pertaining to farmland protection, most of the recommendations from interviews and literature review involved facilitation, networking, education, and promotion rather than direct decisions made by planners.

Future research will require further discussion about how planners fit in a complex system of interrelated food actors. The food planning community is incredibly diverse and open since it includes every profession and organization that is interested in improving the food system's sustainability. Understanding the roles of responsibilities of every actor is essential for the development of a functional network of people dedicated to working together to change the conventional food system. In this system, the Capital Region can play a critical role in empowering individuals and organizations in implementing sustainable food initiatives.

6. Appendix – Interview Schedule

Preliminary Questions (information from this section will be kept confidential)

a) What is your position? How many years experience do you have with regional policy and planning?

b) What are your job duties/functions? What projects are you working on?

Please review the attached document to get familiar with the food issues that are being addressed through Edmonton's City-wide Food and Agriculture Strategy. The strategy attempts to address the food system from production, processing, distribution/sale, consumption, to waste recovery.

In the City of Edmonton's Municipal Development Plan, there is a policy stating to "work with the region to develop a regional food policy council and food charter". Please reflect how food system issues can be addressed by regional-level policies.

Research Questions

1. What could a regional-level food policy in the Edmonton Region address? Could it address the following:
   1) *Agriculture Preservation/Land Development?*
   2) *Environmentally Sustainable Agriculture?*
   3) *Agro-Economy/Industry?*
   4) *Social Equity (e.g. food deserts, protection of Indian Reserve hunting grounds from neighbouring industrial uses, etc.)?*
   5) *Regional Waste Management and Composting?*
   6) *Any other areas of focus?*

2. At its current capacity, how likely is the Capital Region to adopt such a regional food policy (as a whole or for any of the initiatives mentioned above)?
   Probes: What do you think that?
   Are there any challenges (e.g. Farmer/developer relations, municipal relations, jurisdiction issues)?
   What are the opportunities?

3. What experiences from existing regional initiatives can be applied to the development and implementation of a regional food policy?
   Probes: Strengths and weaknesses of regional planning in Edmonton (is there cooperation or coordination?)
   Examples of regional planning and policy – what were the critical factors leading to success or shortcomings?

4. Are there any examples from other regions where you can draw lessons and experiences relevant for the Edmonton Region?

5. Do you have any other comments or questions you would like to say?

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