

**Planning for a Local Food System: Assessing the Potential for Small-Scale Agriculture
in Winnipeg, Manitoba's Peri-Urban Areas**

By

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ABSTRACT

Farm consolidation is a continuing trend across Canada and within Manitoba. At the same time, there is a growing movement toward supporting local food production and consumption in Manitoba and across Canada. This major degree practicum project uses document analysis, mapping analysis, and semi-structured interviews to examine how the City of Winnipeg could better support small-scale food production, as well as to identify areas of Winnipeg's peri-urban space that could benefit from creation of a regulatory framework establishing small-scale food production. This research found that strong leadership is needed to ensure preservation of high quality agricultural lands near urban areas, policies that establish and permit a greater variety of agriculture forms and scales help to better support agriculture in cities, and there is significant opportunity for agricultural development within Winnipeg's peri-urban space. Five recommendations for action are provided including provincially mandating farmland preservation, incorporating small-scale food production and other related uses into the City of Winnipeg's zoning by-law, and creating an advocacy body for local producers.

[Keywords: *urban agriculture, small-scale food production, small-scale agriculture, peri-urban agriculture, regional planning, farmland preservation, Winnipeg*]

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TABLE OF CONTENTS

Abstract	i
Acknowledgements	ii
List of figures	iv
List of tables	v
1.0 Introduction	1
1.1 Summary.....	1
1.2 Problem Statement	1
1.3 Research Questions	4
1.4 Significance of Research.....	4
1.5 Research Approach.....	6
1.6 Outline of Chapters	6
2.0 Planning Context	8
2.1 Policy context.....	8
2.1.1 OurWinnipeg.....	8
2.1.2 Winnipeg Zoning By-Law (200/06)	10
2.1.3 Other initiatives and policies	11
2.1.4 Regional and Provincial Context	15
2.2 Farm types located within Winnipeg.....	16
3.0 Literature review	18
3.1 Urban and City-Region Food Systems: Historical Context.....	18
3.2 Urban and Peri-urban Agriculture.....	19
3.2.1 Challenges	24
3.3 Small-scale Food Production	25
3.4 Resilience Planning for Food.....	26
3.5 Emerging Planning Directions	29
3.5.1 Farmland preservation.....	30
3.5.2 Urban agriculture.....	35

4.0	Document Analysis	40
4.1	Introduction	40
4.2	Selected Documents	41
4.3	Research Methods.....	42
4.4	Results.....	43
4.4.1	Development Plan Review	45
4.4.2	Zoning By-law Review.....	49
4.4.3	Other Strategies, Policies, and Government Bodies	54
5.0	Mapping Analysis	57
5.1	Introduction	57
5.2	Research and Mapping Methods	57
5.2.1	Identifying the Project Study Area.....	59
5.2.2	Land Suitability Assessment.....	64
5.2.3	Constraints.....	66
5.3	Limitations.....	72
5.4	Results.....	72
6.0	Semi-structured Interviews	74
6.1	Introduction	74
6.2	Research Methods.....	74
6.2.1	Analysis	75
6.3	Limitations.....	76
6.4	Results.....	77
6.4.1	Urban agriculture in the prairies	78
6.4.2	Existing challenges for small-scale producers.....	79
6.4.3	Challenges to developing policy for small-scale agriculture in Winnipeg.....	80
6.4.4	Options and suggestions for small-scale agriculture policy	84
7.0	Analysis.....	88
7.1	Rural, urban, peri-urban, and small-scale agriculture.....	88
7.2	Current state of the city and region.....	88
7.3	The importance of language	90
7.4	Incorporating small-scale agriculture into planning documents	91
7.5	Integration of agriculture and environmental policies	92
7.6	Inter-municipal consistency and coordination	93
7.7	Potential areas to incorporate small-scale commercial agriculture use in Winnipeg.....	94

8.0	Conclusions	95
8.1	Summary.....	95
8.2	Addressing the Research Questions.....	97
8.3	Recommendations for Action.....	101
8.4	Limitations, Other Directions for Further Study and Closing Remarks	103
References		105
Appendix A.	Review of agricultural zoned lands within city boundaries resolution.....	114
Appendix B.	Formation of Winnipeg Food Council recommendation.....	116
Appendix C.	Study city agriculture use definitions and zone purposes	117
Appendix D.	Study city Commercial urban Food Production related zoning amendments	121
Appendix E.	Study city urban farm zoning: permitted, conditional, and not permitted uses	122
Appendix F.	Study city food charter goals and principles	124
Appendix G.	The Manitoba Food Charter	128
Appendix H.	Project Study Area, detailed image	129
Appendix I.	Policy impact on Project Study Area, detailed image.....	130
Appendix J.	Richardson airport composite noise footprint	131
Appendix K.	Constraints to residential development, detailed image.....	132
Appendix L.	Interview packages	133

LIST OF FIGURES

Figure 2.1: Farms classified by total farm area, Winnipeg, Manitoba	17
Figure 3.1: Urban, peri-urban and rural agriculture locations within the rural-urban continuum.....	21
Figure 3.2: High carbon climate change projections for Winnipeg, Manitoba	29
Figure 5.1: Process of delineating the Project Study Area	61
Figure 5.2: Project Study Area (City of Winnipeg)	62
Figure 5.3: Project Study Area overlaid on orthographic imagery	63
Figure 5.4: Policy impact on Project Study Area	66
Figure 5.5: Lands adjacent to landfills and waste treatment facilities	68
Figure 5.6: Land located outside floodway.....	69
Figure 5.7: Converting pdf data into shapefile for analysis.....	70
Figure 5.8: Converting constraints into single feature class.....	71

LIST OF TABLES

Table 2.1: Small-scale Food Manitoba working group recommendations	13
Table 3.1: Farmland preservation approaches	31
Table 3.2: Policies that support peri-urban agriculture	36
Table 4.1: Development plan and zoning by-law review keywords.....	42
Table 4.2: Policy review basic urban agriculture information.....	44
Table 4.3: Development plan keyword search results (# of occurrences)	46
Table 4.4: Zoning by-law keyword search results (# of occurrences)	49
Table 4.5: Study city zones and uses related to urban and peri-urban agricultural production	51
Table 4.6: Study city established uses related to small-scale commercial food production	53
Table 4.7: Basic information for study city food charters.....	55

1.0 INTRODUCTION

1.1 Summary

The Winnipeg Public Service was directed in 2014 to “research and analyze potential planning approaches and provide recommendations on how to best ensure that the interests of the agricultural community residing on lands zoned agriculture within the city boundaries are considered as the city continues to grow” (Executive Policy Committee, 2014). Strengthening local food production systems has many benefits for communities and is an important step in building urban resilience. In creating a supportive policy environment for urban agriculture, it is important to consider which forms are appropriate for the local context, as well as where in a city such activities might occur. This major degree practicum project examines how the City of Winnipeg could better support small-scale food production, and highlights areas of Winnipeg’s peri-urban space (areas near the city’s edge that have not been developed) that could benefit from creation of policy that sets out a regulatory framework for small-scale food production.

1.2 Problem Statement

Large-scale, intensive rural agriculture focused on export markets has been the dominant form of agricultural production in the Canadian prairie region since industrialization. Farm consolidation is increasing across Canada and within Manitoba. A Statistics Canada report, *Demographic Changes in Canadian Agriculture*, found that in the 20-year period between 1991 and 2011, the number of Canadian farm operators decreased by 24.8 percent (Statistics Canada, 2014). Over half (51.9 percent) of the farmers in Manitoba are 55 years and older, which may indicate that fewer new generations are taking over family farming operations (City of Winnipeg, 2015).

Historically, small farms existed in close proximity to urban centres. A number of factors, including changes in technology increasing the distance food could safely travel, increasing land values near urban centres, and a trend toward larger industrial agricultural operations caused many small farming operations to be swallowed. At the same time, policy and legislation restricted subdivision of agricultural lands for the purposes of small scale agriculture, meaning that as small-scale operations disappeared, there was little opportunity for new small-scale operations to be established.

Food production is an urban challenge that was generally not addressed in urban policies and planning, but has gained increasing attention in recent years (de Zeeuw and Drechsel, 2015). De Zeeuw and Drechsel suggest one reason food has not been a prominent urban issue is due to urban and rural policy having generally been approached separately (2015). Food policy has often been considered under the jurisdiction of rural policy. Food provisioning, however, has significant implications for sustainable urban development and quality of life in urban centres. Food should be understood as an important urban issue as it affects “the local economy, the environment, public health, and quality of neighbourhoods” (Pothukuchi and Kaufman, 1999, p. 217).

At the same time, there is a growing trend toward local food production in Manitoba and across Canada. The Province of Manitoba has reported that more people in the province are buying local food, and there has been an increase in the number of farmers’ markets (City of Winnipeg, 2015). However, a 2014 survey conducted by the Small-scale Food Manitoba working group, revealed that many local food processors were concerned that present regulations and food safety standards, developed for large-scale companies, would be very difficult to implement for their operations (Small-scale Food Manitoba working group, 2015). Further, prime agricultural land in Canada is a non-renewable resource threatened by urban development. Only 14 percent of the land

area of Manitoba has high potential for agricultural production, and this is often the land that is most desirable for urban development (Province of Manitoba, 2012).

The trend toward local food production will likely grow in Winnipeg as urban agriculture continues to gain traction. In May of 2014, Winnipeg's Standing Policy Committee on Property and Development passed a motion that the City of Winnipeg Public Service be directed to research and analyze potential planning approaches and provide recommendations "on how to best ensure that the interests of the agricultural community residing on lands zoned agricultural within the city boundaries are considered as the city continues to grow" (City of Winnipeg, 2015). Since this recommendation, the City has demonstrated interest in exploring opportunities to support agricultural activities within its boundaries. In February 2017, and following a recommendation of the report submitted by the Public Service, Executive Policy Committee passed a motion to develop a Winnipeg Food Council (see Appendix B). Members were appointed in June, 2017. As well, non-profit organizations such as Food Matters Manitoba and the Small-scale Food Manitoba working group have both done significant research to assess the possibilities for small-scale agriculture within and around Winnipeg.

Urban agriculture can exist in many forms. This includes forms that occur in dense central areas of the city as well as forms that occur on lower density parcels near the city's edges. Urban agriculture can exist on small or large parcels, on open land or in greenhouses. Agriculture occurring on lower density parcels near the city's edges is referred to as 'peri-urban agriculture'. In creating a supportive policy environment for urban agriculture, it is important to consider which forms are appropriate for the local context, as well as where in a city such activities might occur.

1.3 Research Questions

The following research questions guide this practicum's examination of the potential for agricultural development in Winnipeg's peri-urban areas:

1. In what ways can urban agriculture enhance urban resiliency?
2. What strategies, policies, or government bodies could help to improve opportunities for small-scale commercial agriculture and agriculture-related activities in Winnipeg's peri-urban areas?
3. Where is there undeveloped land that could be used for small-scale commercial agriculture or agriculture-related activities in Winnipeg's peri-urban areas?
 - a) Taking into consideration both capacity of the parcels and potential for land use conflicts, what types of agricultural activities would be appropriate for these parcels?
 - b) What would be the benefit of promoting or establishing these agricultural activities in these areas?

1.4 Significance of Research

Food production is an urban challenge that has been gaining attention in recent years. Food production has significant implications for sustainable urban development and quality of life in urban centres. Food should be understood as an important urban issue as it affects “the local economy, the environment, public health, and quality of neighbourhoods” (Pothukuchi and Kaufman, 1999, p. 217).

This research aligns with the City of Winnipeg's priority to support and encourage local food production. On May 5, 2014, a motion was passed that “the Winnipeg Public Service be directed to research and analyze potential planning approaches and provide recommendations on how best to

ensure that the interests of the agricultural community residing on lands zoned agricultural within the city boundaries are considered as the city continues to grow” (City of Winnipeg, 2014). The result of this research was a report, *Accommodating the Interests of Winnipeg’s Agricultural Community* (2015), which recommended that the Winnipeg Public Service:

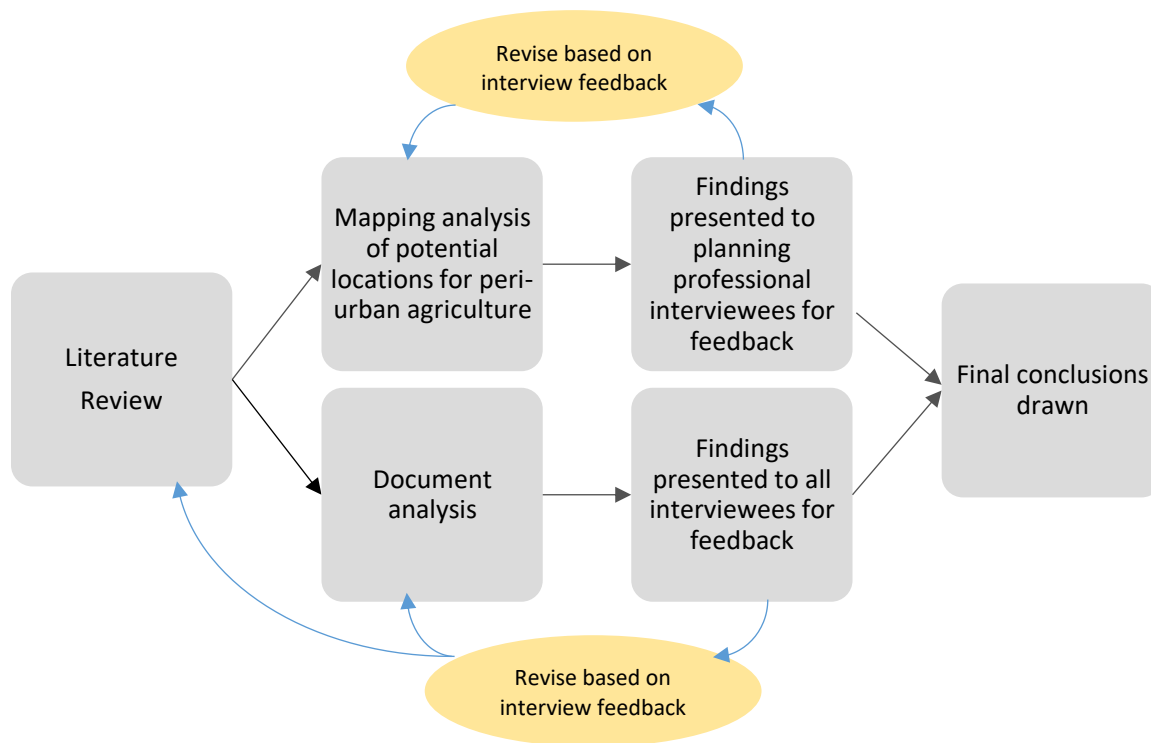
“engage key stakeholders to provide recommendations related to the formation, role and governance structure of a Winnipeg Food Council, with a mandate of providing continued advice on agriculture and food related policy, including:

1. That the Winnipeg Public Service investigate and advise as to which areas of land, if any, designated ‘Rural and Agricultural’ in *Complete Communities* that could be reserved for agricultural and compatible uses considering existing development constraints.
2. That the Winnipeg Public Service analyzes the benefits of introducing ‘Specialized Agriculture’ and ‘Market Garden’ as primary uses into the Winnipeg Zoning By-law, and make recommendations on how best the City could accommodate the establishment of these uses.
3. That the Winnipeg Public Service engage key stakeholders to investigate and provide recommendations related to the formation, role and governance structure of a Winnipeg Food Policy Council, with a mandate of providing continued advice on agricultural and food related policy, including:
 - A. Providing research and advisory support towards implementing the direction strategies related to food and agriculture outline in *OurWinnipeg* and *Complete Communities*;
 - B. Investigating barriers towards local agricultural production and exploring opportunities towards improving food production and food security;
 - C. Preparing a report with recommendations to expand the list of permissible non-invasive agricultural-related uses throughout the City of Winnipeg; and
 - D. Assisting in the creation of an Agricultural and Food Security Strategy to address local food production and security issues. This strategy would follow the policy directions for ‘Rural and Agricultural’ lands identified in *Complete Communities* and respond to food needs as identified in the *OurWinnipeg* section on ‘Vitality’” (City of Winnipeg, 2015).

A Winnipeg Food Council was formed in 2017, and local food production continues to be a priority for the City of Winnipeg. It is hoped that this research can provide some insights and make a contribution to this City of Winnipeg priority area.

1.5 Research Approach

To address the proposed research questions, the methodology followed an iterative approach diagrammed below:



1.6 Outline of Chapters

This Major Degree Project is organized in eight chapters. The current chapter provides an overview of the project by outlining the research purpose, goals and significance. Chapter 2 provides a planning and policy context for the research topic. Chapter 3 reports on a review of relevant literature including historical context, the relationship between urban agriculture and urban

resilience, an introduction to the concept of small-scale food production, and emerging policy directions.

Chapters 4, 5 and 6 report on each of the three research methods utilized for this practicum. Each chapter describes the method utilized for that section of research followed by results. Chapter 4 discusses the document analysis component of the research, Chapter 5 focuses on the spatial analysis, and Chapter 6 reports on interviews with professional planners, food policy experts and local producers. Chapter 7 synthesizes the results of chapters 3-6 in order to identify trends related to small-scale food production policy and implementation options. In Chapter 8, conclusions are drawn for the City of Winnipeg relating to policy implications for small-scale food production. This chapter summarizes the findings, connects conclusions back to the research questions, provides lessons and recommendations and, finally, suggests future areas of research.

2.0 PLANNING CONTEXT

2.1 Policy context

In May 2014, The City of Winnipeg Public Service received direction from the Standing Policy Committee for Property and Development to research and analyze potential planning approaches and provide recommendations on how to “ensure that the interests of the agricultural community residing on lands zoned agricultural within the City of Winnipeg are considered as the city continues to grow” (City of Winnipeg, 2015).

This research focused on Winnipeg’s peri-urban areas, taking into consideration land uses on immediately adjacent lands in surrounding municipalities. Existing policies supporting local food production relevant to this research are contained in Winnipeg’s Development Plan, *OurWinnipeg*, the City’s *Zoning By-Law (200/06)* and other local initiatives. Policy documents relevant to this research are introduced below.

2.1.1 OurWinnipeg

The City’s 25-year Development Plan, *OurWinnipeg*, states that local food production and connections to food are increasingly seen as part of a vital and healthy neighbourhood (see *OurWinnipeg Section 03-2*) (City of Winnipeg, 2011, pp. 79-82). *OurWinnipeg* directs the City to respond to food needs by working through community partnerships, and includes the following enabling strategies:

- Collaborate on local food opportunities that are part of community development initiatives
- Include food in planning for neighbourhood revitalization strategies
- Within the City’s mandate, pursue opportunities to support local food production,

- Develop planning tools to manage the sustainability of existing community gardens and to enable the creation of new permanent or temporary gardens, and
- Maintain an inventory of city properties suitable for food production (OurWinnipeg, 2011, p. 82).

The designations that are relevant to this research are Rural Agricultural and New Community (Precinct). These designations are described below.

Rural Agricultural

Rural Agricultural Areas are large tracts of undeveloped land that currently support a mix of agricultural and rural residential uses within city limits. Currently, these lands are not viable for development to an urban standard for the following reasons:

- Land drainage issues.
- Fragmented land holdings.
- Inability to service these areas in an economically sustainable manner, with current technology and under current servicing methods.

Our Rural Agricultural lands will be maintained as large parcels for agricultural production and compatible uses... Preventing the fragmentation of these lands allows for a well-planned, organized and efficient approach to their development for agricultural and other low intensity uses (OurWinnipeg, 2011, p. 112).

New Communities (Precincts)

New Communities are large undeveloped land areas identified for future urban development and are not currently served by a full range of municipal services. Many were previously designated as Rural Policy Areas in *Plan Winnipeg 2020*. Planning for New Communities will ensure orderly, market aligned development that should provide opportunities for a mix of uses, a range of housing types, parks, places and open spaces, employment options and transit access within walking distance of diverse residential neighbourhoods. New Communities should be developed with a supporting street network that connects residents, job and commercial services through direct and efficient active transportation, transit and automobile routes. They should integrate protected natural areas with open space and sustainable infrastructure systems (OurWinnipeg, 2011, p. 70).

The areas identified as New Communities (Precincts) in *OurWinnipeg* and *Complete Communities* contain parcels of land most commonly zoned 'A' – Agriculture and 'RR5' – Rural Residential 5. Agricultural activities on these lands are permitted to continue until a Precinct Plan has been developed to regulate the manner in which the land will be developed for urban uses. Agricultural operations existing in the New Communities designation will not be protected from encroachment of urban uses once a Precinct Plan has been created. However, even after a Precinct Plan has been created, the agricultural use may continue until an application to rezone the property for non-agricultural use has been approved (City of Winnipeg, 2015, p. 9).

Other policy directions in *OurWinnipeg* relating to local food production include the need for intergovernmental cooperation, collaboration with economic and community economic development agencies, and a commitment to sustainable long-term planning (*OurWinnipeg* pp. 50-51). Food issues also intersect with policy directions related to sustainability (*OurWinnipeg*, p. 65), inclusion and opportunity (*OurWinnipeg* pp. 75-77).

2.1.2 Winnipeg Zoning By-Law (200/06)

While the majority of food crops produced in Winnipeg are grown on land zoned class ‘A’ – Agricultural, smaller amounts of food are commonly produced for personal consumption on a variety of lands with rural zoning, designated as being within Mature Communities and Recent Communities. This includes production in backyard gardens, community gardens, and allotment gardens. Limited agricultural activities are permitted in the ‘RR5’ – Rural Residential 5 zone.

In February of 2016, the City of Winnipeg amended the *Downtown Zoning By-Law (100/2004)* to include apiaries (beekeeping) as a permitted use in downtown Winnipeg. This policy is consistent with policies in other major Canadian cities. Vancouver, Calgary, Edmonton, Saskatoon, and Toronto all allow urban beekeeping. The zones which are most relevant for the purposes of this research are ‘A’ – Agriculture and ‘RR5’ – Rural Residential 5, both described briefly below.

‘A’ – Agricultural

The ‘A’ – Agricultural district is intended for general agricultural activities.

Minimum Lot Size: 40 acres.

‘RR5’ – Rural Residential 5

The ‘RR5’ – Rural Residential 5 district is intended to provide areas for large-lot rural residential development, along with limited agricultural uses.

Minimum Lot Size: 5 acres.

2.1.3 Other initiatives and policies

Winnipeg Food Council

In May of 2014, Winnipeg’s Standing Policy Committee on Property and Development passed a motion that the City of Winnipeg be directed to research and analyze potential planning approaches and provide recommendations “on how to best ensure that the interests of the agricultural community residing on lands zoned agricultural within the city boundaries are considered as the city continues to grow” (City of Winnipeg, 2015). In February 2017, Executive Policy Committee approved a motion to develop a Winnipeg Food Council (see Appendix B). Members were appointed in June, 2017. The Food Policy Council is currently undertaking research to create a food strategy.

Food Matters Manitoba

Food Matters Manitoba is a non-profit organization that works with communities on food related issues. The organization conducts research on issues related to food security, food justice, access, equity, and local food production. Their report, *Towards a food strategy: Policy scan and recommendations*, outlines recommendations for a Winnipeg food strategy and promising practices for food policy councils.

Small-scale Food Manitoba working group

The Small-scale Food Manitoba working group was a multidisciplinary group (no longer existing) made up of food policy experts, producers, retailers, processors, and chefs, appointed by Hon. Ron Kostyshyn, former Minister of the Manitoba Department of Agriculture. One of the objectives of the working group and the report mentioned above was to lead conversations across

the province to help new, established and potential small processors and direct farm marketers to move forward (Small-scale Food Manitoba working group, 2015).

Their report, *Advancing the small-scale, local food sector in Manitoba: A path forward* (2015) is an important document outlining the operational context for small-scale food production in Manitoba at the time it was written. The report focuses on providing direction for how to support the small-scale food sector within the province. Local producers were interviewed to gain information on how to better support small-scale agriculture in the Province of Manitoba. About three quarters (73 percent) of interview participants were urban residents. About two thirds (64.1 percent) of all interview participants lived in or near Winnipeg. The report found that the following attributes best described the small-scale food sector in Manitoba:

- Focus on healthy eating and safe food
- Importance of creating a relationship with the consumer
- Being innovative and nimble
- Fostering rural development and sustainability: A deep sense of community
- Creating jobs and economic opportunities
- Preserving diversity and skills

Based on feedback from local producer interview participants, recommendations were presented for how to better support the small-scale local food sector in Manitoba. The recommendations are summarized in Table 2.1.

Table 2.1: Small-scale Food Manitoba working group recommendations

Regulatory issues
Develop a plain language guidebook to assist new entrants in the small-scale food sector and to provide an overview of what business owners need to consider
Develop/adopt training tools to explain the regulatory requirements for food safety
Develop a collaborative industry-government navigator approach to assist small-scale entrepreneurs; create a “1-800” mindset
Develop an ongoing consultative opportunity between government and the small-scale food processing sector, to problem solve early in the policy and regulation-making process
Continue to strengthen the relationship between MAFRD and Manitoba Health to further harmonize the delivery of food safety inspection services
Improve access to provincially inspected abattoirs for poultry
Explore options for small-scale producers and processors within the supply managed industries
Technical advice
Dedicate a portion of MAFRD and FDC expertise to the small-scale food sector
Promote practical certification programs for small-scale producers and processors as important delivery mechanisms for extension information
Develop and identify facilities for innovation and start-up food processors
Foster mentorship opportunities, both formal and informal.
Business and financial tools
Match the right set of business development tools to meet the goals of the individual operation
Explore ways to make crop and livestock insurance programs accessible to small-scale producers
Marketing and distribution
Foster the development of collaborative marketing models in the small-scale food sector
Clarify the terms for direct marketing and distribution through a collaborative marketing venture
Government and the food industry should continue to act together to highlight local foods
Develop local food programs and policies within public institutions wherever practical
Establish a set of metrics for measuring the impacts of the small-scale food sector.
Policy, advocacy and governance
Facilitate a process to allow small-scale producers to organize themselves.
In conjunction with stakeholders, develop a strategic policy document to advance the small-scale food sector
Strengthen government’s pivotal role in sector intelligence and strategic planning by including the small-scale food sector

Source: Small-scale Food Manitoba working group, 2015

Community Garden Policy and allotment gardens

The City has supported community gardening by creating a Community Garden Policy (City of Winnipeg, 2006). The demand for allotment gardens has been growing significantly over the last few years. In 2012, the City of Winnipeg had 161 plots with 87 percent occupancy. By 2014 the number of plots had grown to 208, with 98 percent occupancy (City of Winnipeg, 2015). As well, there has been an increased number of community groups working to develop more community orchards.

The increased interest in community and allotment gardens is representative of a broader local food movement in Manitoba and other provinces. The Province of Manitoba reports that more Manitobans are buying local food. The City of Winnipeg has also experienced an increase in the number of farmers' markets, organized through Business Improvement Zone associations and other organizations (City of Winnipeg, 2015). A national survey conducted by Farmers' Markets Canada (2009) found that farmers' markets have a number of economic benefits for participating vendors, which includes playing a key role in marketing. Fifty-five per cent of surveyed farmers reported that participation has led to the creation of between one and five jobs (Farmers' Markets Canada, 2009).

This increasing demand for locally produced goods may have the potential to create additional economic opportunities, such as niche markets, farmeries, u-pick operations and agro-tourism, for new and prospective producers. A 2006 report on agriculture in Manitoba found that "for every dollar of net income produced by primary agriculture in Manitoba, between \$1.70 and 1.90 is generated in the overall Manitoba economy" (Honey & Oleson, 2006, p. 27).

2.1.4 Regional and Provincial Context

Winnipeg Metro Region

The Winnipeg Metropolitan Region is comprised of 18 municipalities that include and surround the City of Winnipeg. The Winnipeg Metropolitan Region formed in 1998 and was legislated through the Capital Region Partnership Act in 2006. The Winnipeg Metropolitan Region provides a platform for municipalities to work on projects that cross boundaries and support inter-municipal collaboration and governance with a focus on preserving vulnerable agriculture and ecologically significant resources.

The Winnipeg Metropolitan Region has compiled a number of reports documenting information related to community assets within the metro region and on topics including land use, agricultural capability and potential, drainage, protected areas, water and wastewater, and population and demographics.

On November 8, 2019, following the release of *For the Benefit of All: Regional Competitiveness and Collaboration in the Winnipeg METRO Region*, the Government of Manitoba announced the creation of a working group for the Winnipeg Metro Region. This working group has been directed to provide policy advice and begin implementing recommendations of the report, including to:

Propose legislative and regulatory changes to the *Capital Region Partnership Act* (2006) and consequential amendments to other legislation, including the *Municipal Act*, *The Planning Act*, *Public Utilities Board*, *City of Winnipeg Charter*, and others, that would mandate regional approaches to land use planning, infrastructure, shared servicing, and economic development for the WMR member municipalities. The Working Group would consult with the WMR and its member municipalities on potential legislative revisions and report back to the Province by **January 2020** (Murray, 2019).

Province of Manitoba

'Specialized Agriculture' operations have been established by the Province of Manitoba as agriculture operations that require smaller parcels of land than is needed for most conventional

agricultural operations for their business. These operations “typically produce high value, lower volume intensively managed agricultural products and do not require the large parcel sizes associated with annual crop production and livestock operations” (Planning for Agriculture 2012). ‘Specialized agriculture’ is a term that has been adopted in policy documents at the municipal and provincial level.

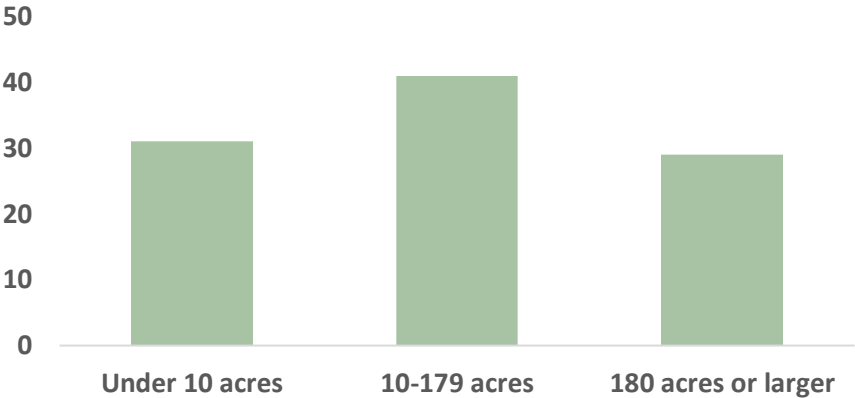
Provincial agriculture capability is based on the Canada Land Inventory, which is a 7 class rating of mineral soils based on the severity of limitations for dryland farming. This system rates soils’ capability to sustain agricultural crops based on limitations of soil properties, landscape features and climate. Class 1 soils have no limitations, whereas Class 7 soils have such severe limitations that they are not suitable for agricultural purposes (Manitoba Department of Agriculture, n.d.).

Currently, there is no directive included in the Provincial Planning Regulation to control or protect agricultural lands adjacent to municipalities. As well, there is currently no provincial direction for urban agriculture.

2.2 Farm types located within Winnipeg

Winnipeg farmers engage primarily in crop production, beekeeping, floriculture (flower) production, and limited livestock farming (City of Winnipeg, 2015). There was a large reduction in the number of farms between 2006 and 2011, from 155 in 2006 to 82 in 2011 (Census of Agriculture, 2006, 2011). In 2016 however, the total number of farms rose to 101 (Statistics Canada, 2016). Total number of farms is split somewhat evenly between small, medium and large farms. These statistics are summarized in Figure 2.1.

Figure 2.1: Farms classified by total farm area, Winnipeg, Manitoba



Source: Statistics Canada. Table 32-10-0404-01 Farms classified by total farm area

Small farms (less than 10 acres) were the only category to decrease in number between 2011 and 2016, from 31 to 27. The largest category of farm size, farms 3520 acres and over, increased from 1 to 5 (Statistics Canada, 2016).

The average farm size in Manitoba is well over 1000 acres. Peri-urban lands used for agricultural activities is usually greater than 250 acres, although it may not be contiguous. This is a larger average farm size for peri-urban space than was discussed in the literature (see Section 3.2 – *Urban and peri-urban agriculture*).

3.0 LITERATURE REVIEW

This chapter reviews literature in five thematic sections. The first section provides a brief outline of the evolution of the relationship between city-regions and food systems. The second and third sections explore how two concepts—peri-urban and small-scale production—are approached and interpreted in the literature. The second section focuses in particular on identifying some of the defining characteristics of peri-urban agriculture, and highlighting how peri-urban agriculture can be distinguished from other forms of urban agriculture and traditional rural agriculture. The third section examines the concept of small-scale production and various interpretations of the term. The fourth section explores recent literature on resiliency, and how it relates to planning for food. The final section highlights emerging planning directions related to local food production planning with a focus on themes emerging from the literature related specifically to peri-urban agriculture.

3.1 Urban and City-Region Food Systems: Historical Context

Historically, agricultural development in the city-region was an important component of the development of cities (de Zeeuw and Drechsel, 2015). With the rise of industrialization and globalization of the food system over the past 65 years, however, this connection has largely been lost. Food production is an urban challenge that until recently was generally not addressed in urban policies and urban planning, but has been gaining attention in recent years (de Zeeuw and Drechsel, 2015). One reason food has not been a prominent urban issue is due to the fact that urban and rural policy have generally been approached separately (De Zeeuw and Drechsel 2015). Food policy has often been considered under the jurisdiction of rural policy. Food provisioning, however, has significant implications for sustainable urban development and quality of life in urban centres. Food

should be understood as an important urban issue as it affects “the local economy, the environment, public health, and quality of neighbourhoods” (Pothukuchi and Kaufman, 1999, p. 217).

3.2 Urban and Peri-urban Agriculture

Urban agriculture is the growing of plants and/or the raising of animals within cities (RUAF Foundation, n.d.). Urban agriculture is integrated into the urban economic and ecological systems, and interacts with the urban ecosystem. Some of the ways urban agriculture interacts with these systems are in the use of urban residents as labourers, use of urban resources (such as waste facilities, composting, and water for irrigation), direct links with urban consumers, direct impacts on urban ecology (both positive and negative), being part of the urban food system, competing for land with other urban functions, and being influenced by urban policies and plans (RUAF Foundation, n.d.).

Urban agriculture includes agricultural activities inside cities and in peri-urban areas (RUAF Foundation, n.d.). Activities may occur on private land, public land (such as parks, conservation areas, and along roadsides, streams and railways) or semi-public land, including schoolyards and hospitals. Products grown on urban farms or agricultural lands can include crops, such as grains, root crops, vegetables, mushrooms, fruits; and non-food products such as aromatic and medicinal herbs, ornamental plants, and tree products (RUAF Foundation, n.d.). Perishable and relatively high-valued vegetables and animal products are often favoured. Production in urban agriculture tends to be more specialized than rural enterprises.

Urban agriculture occurs at many scales, from micro- and small farms, which make up the majority of urban agriculture operations, to medium-sized and large-scale operations. These agricultural enterprises include individual and family farms, group and cooperative farms, and commercial farms (RUAF Foundation, n.d.). The term gardening is generally used to refer to

growing of food for personal consumption. Farming usually refers to growing of food for sale and distribution.

Peri-urban space is the area surrounding urban centres (Brunet, 2017). In his extensive review, Iaquina and Drescher (2000) identified the following commonalities among a variety of interpretations of peri-urban:

- that peri-urban is different than urban, but they are connected,
- that peri-urban has geographic components, in that it is located near the city,
- that peri-urban has demographic components, in that it is associated with increasing populations,
- that peri-urban has temporal components, in that these spaces are experiencing continual expansion and change.

The rural-urban interface is a complex space; the impacts of growth and change in these areas has been studied extensively (Brunet, 2017).

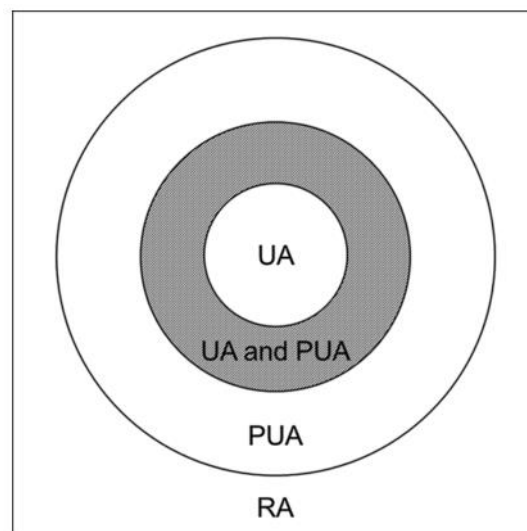
Opitz, Berges, Piore & Krikser conducted a study (2016) aimed at exploring the similarities and differences between urban and peri-urban agriculture in the Global North, and analyzing their impact on food security. Opitz et al. (2016) identify spatial, ecological, and social and economic factors that differentiate urban agriculture and peri-urban agriculture. This section will focus mainly on spatial factors, but will touch on ecological, social and economic factors as well. Spatial factors that differentiated urban agriculture from peri-urban agriculture related to location, scale of production, land use category, duration of land use contracts, legal status, and spatial adaptation strategies.

Location

Urban agriculture operations, in its various forms, are located primarily in the densely settled areas of a city (e.g. Patel, 1996; Lovell, 2010; Rosol, 2010). Peri-urban agriculture, conversely, is situated in the urban fringe and urban periphery (e.g. Piorr et al., 2011). In general, what is now peri-urban space in cities was originally rural land located outside of the city (Steel, 2009). Increasing pressure for urbanization and the decreased need to locate agriculture in close proximity to its market due to improvements in transport of perishable goods have led to urban development permeating agrarian landscapes to create peri-urban areas.

The form and pattern of urban development varies across regions and is dependent on a multitude of factors, including topographic, historical, political and economic factors (Opitz et al., 2016). Locations of urban agriculture and peri-urban agriculture, therefore, are not separated by rigid borders; there is often an overlapping zone (see Figure 3.1).

Figure 3.1: Urban, peri-urban and rural agriculture locations within the rural-urban continuum.



Source: Opitz et al., 2016

Due to the variation in location of urban and peri-urban agriculture, location cannot be the only factor required to differentiate urban and peri-urban agriculture. A number of other distinctions can be observed between urban and peri-urban agriculture, including scale, land use category, duration of land use contracts, legal status, and spatial adaption strategies.

Scale

There appears to be variation in scale of production sites for urban vs. peri-urban agriculture. Gardens and farms inside cities are often described as micro and small-scale, and have areas of less than 2000 square feet (.045 ac.) up to 12.85 acres. (Allen, 2007; Dekking et al., 2007; Rosol, 2011; Meenar and Hoover, 2012; Bendt et al., 2013; Martin et al., 2014). The most common forms of urban agriculture include community gardens, allotments, backyard gardens, rooftop gardens and urban farms (Optiz et al., 2016). Within these, there are many more variations including indoor home gardening and vertical farming.

Production operations in peri-urban areas often occurs on commercial farms ranging in size from less than five acres to 250 acres, with the majority falling in the lower end of this range (Geoffriau, 2010; Zasada, 2011; Zasada, 2012; Martin et al., 2014), as land in peri-urban areas is often fragmented. Small-scale farms in peri-urban areas exist where they can meet an urban demand for high quality and high value local produce. They are often what remained after agricultural activities were driven further away from cities (Opitz et al., 2016).

Land use category

In general, urban agriculture occurs on land that is not zoned for agriculture. Throughout the 1980s and 1990s, it was typical that most cities in the Global North did not have a specific urban agriculture category in municipal zoning plans (Pothukuchi and Kaufman, 1999). Agricultural lands in peri-urban areas, on the other hand, have historically been zoned as such in many cities' land use plans.

Zoning status in these areas, however, does not protect agricultural land from being developed for urban uses. One aspect often inhibiting protection of peri-urban agricultural areas are the unclear or changing responsibilities of various municipalities sharing the peri-urban area (Allen, 2003) which can result in a lack of coordination and planning (Zasada, 2011).

Duration of land use contracts

Urban agriculture and peri-urban agriculture both face challenges related to land rights and availability, though the challenges they face are different. Urban agriculture is threatened by development of vacant lots and issues related to limited land use and illegal land use (Opitz et al., 2016). Peri-urban agriculture faces similar problems related to development pressure on land but at a larger scale.

The market responds to development demands with increasing land prices, causing even prime agricultural lands to be used for development (Knowd et al., 2006). Many farmers do not own the land they cultivate, and peri-urban agriculture holdings often receive only short-term rental contracts (Munton, 2009). This affects farms' investment level and survival strategies (Peron and Geoffriau, 2007; Piorr et al., 2011).

Legal status

Historically, urban agriculture has functioned without legal status. Many cities, however, have more recently passed legislation permitting certain activities that would be classified as urban agriculture. Vancouver, for example, has enacted laws for keeping livestock and zoning regulations for urban agriculture (McClintock et al., 2014). Agricultural holdings in peri-urban areas, on the other hand, are legal entities (Opitz et al., 2016) that face challenges related to specific laws and rights. They are generally allowed to receive agricultural subsidies. At the same time, they are generally required to comply with legislation intended to mitigate negative environmental impacts (Oenema, 2004).

Spatial adaption strategies

Strategies to deal with scarcity of land are often required for agricultural activities to be possible at the urban scale. Such strategies include sharing space and resources for community gardens, small-scale sharecropping, shared backyard gardens, creating new spaces for food production, such as on vacant lands, on walls (vertical farming) and rooftops (rooftop farming). Similar space-related adaptations have not been found in the literature for peri-urban agriculture, and are likely in general not required in these spaces due to the lower density development characteristic of peri-urban space.

A number of other non-spatial factors differentiating urban agriculture from peri-urban agriculture were identified by Optiz et al. (2016). Ecological factors included differences in soil use, recycling management, water management, and adaption strategies to site conditions. Social and economic factors included differences in professionalism, motivation, network structures, distribution pathways, and diversification strategies.

3.2.1 Challenges

Only more recently have governments in Canadian and American cities shown interest in maintaining agricultural lands at the edges of the city that are threatened by urban expansion (Brunet, 2017). It has become more commonly recognized recently that some of the best agricultural lands lie in areas where urban expansion is likely to occur. Increased demand for suburban development at the edges of cities leads to speculative purchases of lands by absentee non-farmers who rent out the land until it is developed (Bunce, 1985). In many cities, it is common for the majority of agricultural land to be owned by investors or developers. This can have both positive and negative impacts for agriculture and agricultural producers. Because land prices rise in expectation of development, investment in agriculture decreases. As well, less farmer-owned

agricultural land leads to greater fragmentation and insecurity for agricultural producers (Brunet, 2017). At the same time, however, land rental can be inexpensive even if the price of land is high, lowering capital costs for farmers (Mann, 2002).

3.3 Small-scale Food Production

There are a number of ways in which small-scale food production operations are defined and classified. The United States Department of Agriculture Economic Research Service has defined small farms as having between \$1,000 and \$350,000 dollars in sales (Hoppe and Macdonald, 2013). At the international scale, the European Union has suggested that small-scale farms can be measured by income, size of labour force or land holdings, but stipulates that these measurements should be applied as relative comparisons within, not between each European Union country (European Commission Agriculture and Rural Development, (2011). In the Canadian context, Statistics Canada defines small-scale farms as having gross farm revenues of between \$10,000 and \$99,999 and medium sized farms as having revenues between \$100,000 and \$249,999.

In the Manitoba context, the Small-scale Manitoba working group points out that definitions of small-scale are relative. What is considered small in the North American context may be considered very large in Europe or elsewhere (2015). Some definitions suggest small-scale is related to sustainable farming practices, family-owned farms and less intensive farming. The Small-scale Manitoba working group states that while these notions may carry some initial intuitive appeal, size alone does not dictate whether farms are operated by a family, whether farming practices are sustainable, or whether land use is optimized either intensively or extensively.

The Small-scale Manitoba working group provides the following explanation of small-scale food production in Manitoba:

In the Manitoba context, a small-scale producer is not someone who simply has a rural residence with a large garden or a small pasture. Small-scale farmers are generally interested in deriving some or all of their family income from their efforts. Given there is no perfect metric, small-scale farms may be those where family members typically work on a limited land base, producing a variety of specialty food products usually marketed directly to the public within the local area (which we will consider to be the province). In some cases, farmers operate both a full scale commercial farm and a small-scale entity, which is used as an income backstop or a training ground for young members of the family (Small-scale Manitoba working group, 2015, p. 15).

3.4 Resilience Planning for Food

This portion of the literature review relates to the first research question:

Q1. In what ways can urban agriculture enhance urban resiliency?

It is predicted that by 2050, around 75 percent of the global population will live in urban environments (UNDESA, 2012). In Canada, the urban population exceeds 80 percent of the total population. This section introduces the concept of urban resiliency, outlines some challenges to urban resiliency, and explores how strengthening local food production systems can help to contribute to greater resiliency.

Resilience can be understood as the ability of a system (such as a city system) to absorb disturbance and reorganize to retain essentially the same function, structure, identity and feedback (Walker et al., 2004). Resilience refers to the capacity of an urban system, including its natural, built, social and economic elements, to respond to change, learn from challenging situations, and rebound after significant stress or shock (Pearson et al., 2014). As well, resilience refers to “the capability of individuals, social groups, or social-ecological systems including towns and cities not only to live with changes, disturbances, adversities or disasters but also to adapt, innovate and transform into new more desirable configurations” (Harrison et al., 2014, p. 2). Harrison et al. identify capacity to learn, diversity, and self-sufficiency and connectedness as guiding principles for resilience (2014).

The concept of resilience is rooted in ecological study and is inherently linked to sustainability. At the same time, it has been applied to socio-ecological systems, and is largely dependent on political dynamics (Harrison et al., 2014). Neglecting the dynamics and sustainability of food provisioning in research on sustainable urban development is a serious omission, as “feeding cities arguably has a greater social and physical impact on us and our planet than anything else we do” (Steel, 2009, cited in de Zeeuw and Drechsel, 2015, p.4).

Pressures impacting urban areas can be categorized as exogenous (external origin) and endogenous (local origin). How well a city’s long-term planning strategies, management processes, and urban system emergency response capacities are developed to address exogenous and endogenous pressures will be key indicators of local resilience (Pearson et al., 2014). Pearson et al. identify a number of exogenous and endogenous pressures on cities (2014). Exogenous pressures include constraints on resources (such as arable land), climate change, extreme events (such as prolonged drought and flooding), population change, urbanization and intensification of urban development, biosecurity, and financial uncertainty. Endogenous pressures include vulnerable infrastructure, socio-demographic change (such as an ageing population or a trend for younger generations to move out of rural areas), social and human capital, urban economic base, and urban environmental quality. This section will focus on those pressures that are most related to urban agriculture: constraints on arable land and climate change.

Arable land at the edges of cities, which is often among the most productive for agriculture, is often converted to urban uses such as residential development (Pearson et al., 2014). This is certainly the case in Winnipeg, where in general the purpose of land zoned ‘A’ – Agricultural is to preserve the land for future urban development. This has negative consequences for a number of ecosystem services, such as fresh food, biodiversity, recreational green space, air quality and heat island effects. Climate change is a growing concern and is linked to a number of challenges,

including severe and unpredictable weather events, increased incidence of both extreme heat and cold, rainfall variability, and rising sea levels (Pearson et al., 2014). Changes in weather patterns and precipitation have many direct consequences for food production. As well, cities are responsible for over 80 percent of the world's greenhouse gas emissions (Zoellick, 2011). Both low density, auto-reliant development at the edges of cities and conversion of agricultural land to urban uses contribute to this. At the same time, cities have the potential to lead the way for greenhouse gas mitigation (Newton et al., 2012).

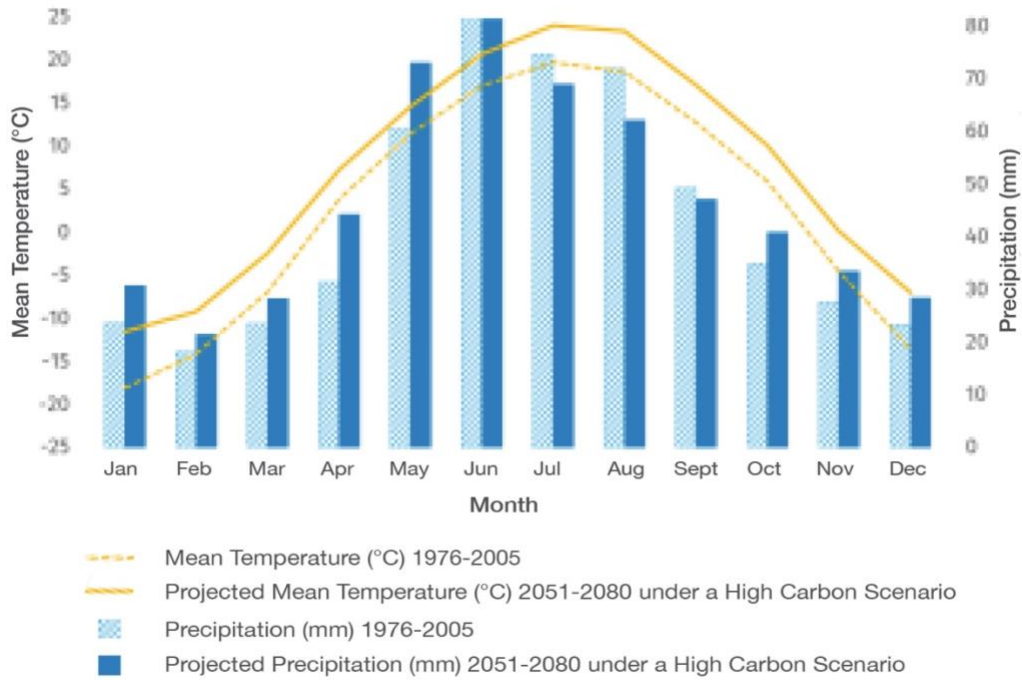
Extreme weather events include prolonged drought, flash flooding, cyclones, and storm surges, and are projected to increase under projected climate change scenarios (Pearson et al., 2014). The Prairie Climate Centre (based in Winnipeg, MB. in the University of Winnipeg) has developed a number of potential scenarios for how climate change could affect the Canadian Prairie Provinces (see [Prairie Climate Atlas and Prairie Climate Report Cards](#)).

Increasing agricultural activity in cities can help contribute to greater urban resiliency in a number of ways. Lwasa and Dubbeling list a number of opportunities for urban agriculture in the context of climate change mitigation and adaptation, including reducing the urban heat island effect, diversifying food and income sources, windstorm control benefits, runoff and flood-risk reduction, enhancing resource efficiency (i.e. closing nutrient cycles), biodiversity conservation, carbon storage and sequestration, and reducing energy use and emissions (2015).

In particular, diversifying food and income sources, and runoff and flood-risk reduction are of particular relevance in Winnipeg. The Prairie Climate Centre predicts the intensity and frequency of flood and drought events to increase in Winnipeg and the area as the climate continues to change. Figure 3.2 indicates that precipitation is expected to increase in the winter and spring, increasing flood risks, but decrease in the summer months (Prairie Climate Centre, n.d.). This combined with a

sharp increase projected increase in temperatures in the summer months, also shown on Figure 3.2, will result in a greater risk for drought in the summer months.

Figure 3.2: High carbon climate change projections for Winnipeg, Manitoba



Source: Prairie Climate Centre, n.d.(a), p. 2

The Prairie Climate Centre identifies adapting infrastructure and improving water and drought management as two ways to enhance community resilience to these changing conditions (Prairie Climate Centre, n.d.).

3.5 Emerging Planning Directions

In general, agricultural operations located in peri-urban areas occur on private land and are commercial enterprises which farm operators rely on for their livelihood. This differs from other forms of urban agriculture (such as community gardening) that may have other intended purposes

such as urban resilience, inner-city food security, capacity and community building, and providing opportunities for immigrants and newcomers. When looking at the broad spectrum of literature written on urban agriculture, much of the writing focuses on urban agriculture in the developing world. In the North American context, the bulk of literature focuses on micro-scale urban agriculture in the densest parts of the city, seeing it as a way to build community while providing solutions for food security in food deserts, as well as providing environmental benefits such as green stormwater management, reduction of food miles and the heat island effect, and maintaining urban soil quality. Writing focused on these topics is important as it highlights the many significant ways in which urban agriculture can improve the urban form, however is not the primary focus of this research.

Much less has been written on ways of supporting small-scale private and commercial agriculture in the peri-urban space. Of the literature examined on peri-urban agriculture policy in North America, much was found to fall into two categories: farmland preservation or supporting urban agriculture. The following section examines these two policy approaches in the North American context.

3.5.1 Farmland preservation

Many strategies have been proposed and implemented to preserve peri-urban farmland and agricultural activities in the North American context. Protection and maintenance of agricultural lands is dependent on the input of many stakeholders, including local, regional and provincial governance bodies, as well as land owners and agricultural producers (Brunet, 2017). Brunet (2017) has divided these strategies into two broader categories: regulatory- and incentive-based approaches, and farm-level approaches. Regulatory- and incentive-based approaches are generally implemented by governments or other agencies, whereas farm-level approaches are initiated by farmers or local

farm organizations (Brunet, 2017). This section focuses on regulatory- and incentive-based approaches to farmland preservation.

Regulatory-based approaches to farmland preservation are legislated, whereas incentive-based approaches allow individuals to choose whether or not to participate based on their circumstances and preferences. Examples of regulatory- and incentive-based approaches to farmland preservation are listed in Table 3.1 and discussed below.

Table 3.1: Farmland preservation approaches

Regulatory-based Approaches (Legislated)	Incentive-based Approaches (Voluntary)
Agricultural protection zoning	Differential tax assessment laws
Cluster zoning ¹ (also known as conservation development)	Right-to-farm laws
Mitigation policies	Conservation agreements/farmland trusts ²
	Agricultural districts
	Payment for environmental benefits

Source: Brunet, 2017

Agricultural protection zoning constrains non-agricultural development and land uses in areas designated for agriculture. This type of regulation can help to maintain farmland, protect agricultural soils, provide stability to the farming economy, and keep land affordable for farmers, as it removes the risk of having the land use changed to an urban use (Pennsylvania Land Trust Association, n.d.). Agricultural protection zoning is most common in peri-urban to rural areas. In the context of urban agriculture, agricultural protect zoning works best in municipalities where the adopted development plan has identified protection of the agricultural community as a goal, and where large areas of contiguous prime farmland exists (Pennsylvania Land Trust Association, n.d.).

¹ Although referred to most commonly as cluster zoning in the literature, this form of zoning is known as conservation development in Manitoba.

² “Conservation agreements”, “farmland trusts”, and “agricultural conservation easements” are all interchangeable terms in the literature. In Manitoba, conservation agreements are used to protect natural lands. In Ontario, farmland trusts are used to protect agricultural land.

Conservation development (or conservation subdivision) “is a form of zoning that allows or requires houses to be group together at densities that exceed the usual requirement” (Farmland Information Centre, n.d.). By clustering houses on a small portion of a larger parcel, conservation development can be used to protect open space. In the context of farmland protection, conservation development can allow or require new houses to be sited on less productive soils or in wooded areas, enabling more productive land to remain available for agricultural production (Farmland Information Centre, n.d.). *Managing Change in Rural Manitoba* (Arendt, n.d.) provides a thorough explanation of conservation subdivision in Manitoba’s policy context.

Using zoning as a tool to preserve agricultural land (either through agriculture protection zoning or cluster development), however, is impermanent nature, as it can easily be changed based on political will and development pressure. Brunet states that although there are many benefits to using zoning to preserve agricultural lands, this strategy provides little assurance that land currently used or intended for agricultural use will remain so in the near future (2017). As well, in cases where lands that would otherwise be converted to urban uses are restricted to agricultural uses, Agricultural Protection Zoning can decrease land values (Pennsylvania Land Trust Association, n.d.). This could be positive or negative, depending on the long-term goals and vision for the community.

Mitigation policies require developers to permanently protect an area of farmland for every acre of land they convert from agriculture to other uses (American Farmland Trust, 1997). This is usually achieved by restricting the change of use on agricultural land (Brunet, 2017). The permanent nature of this method can help to address some of the challenges that arise through using zoning alone as a way to preserve agricultural land. Although agricultural protection zoning has historically been the more commonly used strategy, use of mitigation policies have been growing in recent years.

Differential tax assessment laws are widespread across Canada and help to increase the viability of peri-urban farms by reducing property taxes for farmers (American Farmland Trust, 1997). Historically in Canada and the United States, agricultural land was assessed at its “highest and best use”. In urban fringe areas that usually mean urban uses. This increased taxes and forced urban fringe farms out of business (Peterson, 1982). Differential tax assessment laws require local governments to assess agricultural land at its value as agricultural land instead of its speculative value as residential land. In Ontario today, most farmers pay approximately 25 percent of what they would if their land was valued as residential use (Brunet, 2017). Manitoba also allows for a differential tax assessment on farmland at the request of landowners through “Farm Use Assessment”.

Right-to-farm laws are intended to protect farmers from nuisance lawsuits, and are found throughout Canada and the United States (Esseks et al., 2009). Right-to-farm laws can protect farmers from lawsuits filed by neighbours who moved after the agricultural operation was established, and are used to protect farmers as long as they are in compliance with the law. Right-to-farm legislation also restricts implementation of ordinances that would hinder regular agricultural activities (Brunet, 2017). In Manitoba, *The Nuisance Act*, enacted in 1974, limits the right to sue farmers for nuisance. *The Farm Practices Protection Act*, which came into force in 1994, protects farmers from liability in nuisance for any odour, noise, dust, smoke or other disturbance resulting from the agricultural operation. It also protects neighbours against any nuisances resulting from unacceptable farm practices.

Conservation agreements and farmland trusts are voluntary legal agreements between a landowner and a land trust, conservation organization or government agency (Brunet, 2017). Farmland trusts allow farmers to be paid to protect their lands from development. In this case, the farmer is usually paid the difference between the agricultural value of the land and the value of the land at its highest use (American Farmland Trust, 1997). Conservation agreements allow farmers to

be paid to preserve ecologically important feature located on their lands. Brunet notes that although conservation agreements and farmland trusts are used extensively in the United States, they are less common in Canada due to differences in land rights (2017).

Agricultural districts are areas designated to prioritize agriculture. Participation is voluntary and farmers who enroll receive a number of benefits that may include eligibility for differential tax assessments, protection from development pressures, and certain tax exemptions (Brunet, 2017). Creation of agricultural districts enables farmers and policymakers to designate special areas where agriculture is encouraged and protected collaboratively (American Farmland Trust, 1997).

Payment of environmental benefits programs are intended to pay farmers for protecting a range of environmental services and assets, such as maintaining wooded areas and buffer areas along rivers, and protecting water quality (Brunet, 2017). The purpose of these programs is to help ensure the viability of agricultural operations while protecting ecological goods and services. Alternative Land Use Services (ALUS) is a proposed environmental benefit payment program proposed in Canada. It was designed by the agricultural community as a way to address the growing environmental concerns of Canadians (Brunet, 2017) and seeks to enable farmers to act as stewards of the land by providing compensation for the environmental benefits they provide to society. According to Brunet (2017) these types of programs can promote the viability of the agricultural industry through the intersection of agriculture and ecological preservation, but alone will not ensure the protection of farmland in areas where strong pressure for development exists.

There are advantages to both regulatory- and incentive-based approaches. In general, regulatory-based approaches are a more effective approach in achieving desired outcomes, however are not always politically palatable. Incentive-based approaches offer an alternative, and can be particularly effective when used as one element in a larger strategy. As well, incentive-based approaches have lower operating costs as they do not require enforcement. It is generally accepted

that regulation of land use through agricultural protection zoning is the most common tool used for conserving agricultural land in Canada.

Large-scale farmland protection programs

In Canada, farmland protection programs were first developed in the early 1970s (Brunet, 2017). British Columbia's Agricultural Land Reserve (formed in 1973), Quebec's la Loi sur la Protection du Territoire Agricole (formed in 1978), the Greenbelt Plan (2017) and the Growth Plan for the Greater Golden Horseshoe (2005) are examples of large-scale farmland protection programs in the Canadian context. Agricultural protection zoning is foundational to these programs, however they employ many regulatory- and incentive-based approaches in seeking to protect farmland, (American Farmland Trust, 1997).

3.5.2 Urban agriculture

The list of policy tools directly or indirectly impacting urban agriculture, either positively or negatively, is vast, and there are even more ways these tools can be used in combination to help or hinder urban agriculture. Table 3.2 outlines a selection of policy options that have been proposed and/or used in North American cities in promoting urban agriculture. This list is not comprehensive, but is intended to provide brief explanations of some of the more commonly used tools.

Table 3.2: Policies that support peri-urban agriculture

Zoning for Urban Agriculture	
Defining urban agriculture	A clear and carefully considered definition for urban agriculture and any related uses and categories will help to clarify what is permitted
Urban agriculture district	This refers to creation of a zone dedicated to urban agriculture
Urban agriculture overlay	An overlay zoning district is superimposed on existing zoning districts to restrict or relax existing requirements in underlying areas
Urban agriculture use category	This refers to the addition of an urban agriculture use category or set of categories to a zoning ordinance use table. For each zoning district, each use category is identified as a permitted, conditional or restricted
Specify urban agricultural activities	In lieu of creating comprehensive urban agriculture provisions, some municipalities accommodate only specific urban agriculture related activities, such as community gardens or farmers' markets
Urban livestock	Some municipalities do not restrict livestock such as urban bees and hens through zoning. In these areas, urban livestock is controlled through permitting
Farm management plan	This refers to requirement of a farm management plan for larger farms or farms involving certain activities. These can aimed at seeking to ensure the greatest chances for success, reducing impacts on natural resources and surrounding land uses, or avoiding unwanted fragmentation of land
Other Policies and Regulations	
Nuisance control	Provides provisions intended to prevent negative impacts of urban agriculture
Right-to-farm	Right-to-farm legislation can protect farmers from lawsuits filed by neighbours who moved after the agricultural operation was established. They are used to protect farmers as long as they are in compliance with the law, and can also be used to restrict implementation of ordinances that would hinder regular agricultural activities
Soil testing requirements	Requirements to ensure soil safety and remediation when necessary

Health codes	Regulates many aspects of food production including how animals can be kept and how food is handled
Animal welfare and control	Establishes guidelines for keeping farm animals in back yards and on urban farms
Composting laws	Regulates the type, size and location of composting facilities
Subdivision regulations	Establishes standards including setback requirements and site plans
Building code	Sets out requirements for farm structures and accessory uses
Permits or licences	Required for certain agricultural uses and activities
Government Programs and Incentives	
Local food policies	Drafting food charters, establishing food policy councils, conducting food assessments, developing food plans, and creating partnerships with food related community organizations all directly or indirectly support urban agriculture
Education and awareness	May include local governments providing workshops, partnering with schools to incorporate urban agriculture curriculums into K-12 education or post-secondary education, or providing technical assistance to urban farmers in preparing farm management plans
Providing access to land	In the peri-urban context, local governments play an important role through creating land inventories, establishing programs linking farmers to owners of available land, and through brownfield to greenfield conversion programs
Developer incentives	Refers to providing incentives to developers for including urban agriculture in residential development site plans. Incentives may include bonus density, allowing flexible design, and easing subdivision standards
Infrastructure and utility incentives	May include local governments and utility companies assisting through extending water lines or finding practical solutions such as allowing farmers to use fire hydrants or ponds for irrigation, assisting with greywater processing, offering reduced rates for utilities, and offering tax credits for farms where alternative energy sources are used

Providing direct sales opportunities	May include allowing on-farm sales through zoning, providing marketing assistance, establishing farmers' markets, and developing local food procurement policies, such as farm-to-school or farm-to-institution, for buying directly from local farmers
Funding assistance/ financial incentives	May include establishing loan and grant programs in partnership with local economic development agencies, , establishing urban agriculture enterprise zones, creating urban agriculture tax credits, and waiving or reducing fee and permit costs
Reducing bureaucratic hurdles	This may include exempting urban agriculture from some regulatory procedures, expediting permit and license processing times, creating a web site to provide information on available land, labour and technical help, and establish strong communication between urban farmers and government agencies

Source: Summarized from The Maryland-National Capital Park and Planning Commission, 2012

Implementing a planning process

Implementing a planning process helps stakeholders identify priorities and determine goals and desired outcomes. This is a crucial step that will play an important role in determining how issues are approached and what tools are appropriate. De Zeeuw and Drechsel (2015) have outlined a five step planning process for local or city-region food systems. This process involves the following steps:

1. Getting started
2. Assessment of the current agro-food system in the city-region
3. Multi-stakeholder dialogue and strategic planning
4. Formalization, operationalization and institutionalization of the proposed food and agriculture policies
5. Implementation, monitoring and renewal of strategic agro-food plan in the city-region

Although this process is presented in a linear way, de Zeeuw and Drechsel stress this is not necessarily the case in practice. Certain steps may occur in tandem, or out of order, and it may resemble a more circular or iterative process at times. There may be a need to repeat certain

activities from earlier steps later in the process, and there will be many factors that will influence the process that cannot be anticipated in advance. It is therefore important to allow for adaptability in the plan and approach. The process is described as a “best practice” model, however, no two cities are alike. The way that each planning process unfolds is unique, and each city-region must develop a planning process that fits with their local conditions, needs and priorities (de Zeeuw and Drechsel, 2015).

4.0 DOCUMENT ANALYSIS

4.1 Introduction

The literature reviewed provided strong evidence that policy is one of the most effective tools planners can use in supporting urban agriculture. The purpose of this section is to examine how municipalities support urban farming through policy, with a particular focus on small-scale commercial food production, in order to help inform recommendations for supporting various forms of agriculture in Winnipeg's peri-urban space. The document analysis portion of this research relates to the second research question:

Q2. What strategies, policies, or government bodies could help to improve opportunities for small-scale commercial agriculture and agriculture-related activities in Winnipeg's peri-urban areas?

The research methodology includes a review of municipal policies and their influence on urban agriculture (ie. document analysis). This document analysis examines how municipal policies currently support urban farming. This step developed as a result of a preliminary literature review, which found that municipal policies and, in particular, zoning by-laws, are one of the more effective tools planners can use in supporting urban agriculture. This document analysis explores the influence of municipal development plans, zoning by-laws, and other strategies, policies and government bodies on urban agriculture, and seeks lessons for Winnipeg.

The design of this analysis was informed by the literature review. The literature review discussed a number of topics related to urban agriculture, including benefits, its contribution to urban resilience, the characteristics of planning and policy documents that influence the course of development and enable or hinder various agricultural activities, and which planning tools can help to protect important ecological areas located on agricultural lands. These concepts discussed in the

literature review are intended to provide initial insight into what is considered effective in supporting agricultural production and producers in the North American context.

Because this research focuses primarily on one specific type of urban agriculture, that being small-scale commercial farming in the peri-urban space, this document analysis is focused on the sections of municipal policies that address this type of urban agriculture specifically. This chapter does not intend to provide a comprehensive analysis of urban agriculture policy. Although a wide variety of urban agriculture and food related activities are important in building urban resilience, increasing food security, and strengthening city and city-region food systems, this research is focused specifically on those policies and interventions that pertain to small-scale urban farming for commercial purposes. Therefore, policies related to other forms of urban agriculture, such as community gardening, may be touched on but are not the focus of this document analysis.

In addition, although the purpose of this project is to consider how to support a variety of agricultural activities in Winnipeg's peri-urban space, it was found that considering space (peri-urban vs. urban vs. rural) was less important for the purposes of this document analysis. (Spatial factors were dealt with in-depth in Chapter 5.0: Mapping Analysis.) For this reason, there is less discussion here related to peri-urban space. Instead, it focuses more on forms of agriculture. In particular, this section examines how study city policies and regulations address small-scale commercial agriculture and conventional large-scale crop and livestock production, which are the two most common forms of agriculture occurring in peri-urban space.

4.2 Selected Documents

An initial inventory of urban agriculture was conducted. From this inventory, eight study cities (including Winnipeg) were chosen for further analysis. Cities were chosen based on factors such as location and size. Four of the selected cities (in addition to Winnipeg) are mid-sized cities located in

the prairies, with comparable climatic conditions to Winnipeg. These cities are Edmonton, Calgary, Saskatoon and Minneapolis. Vancouver and Victoria were chosen due to both cities' demonstrated strong histories of public engagement and interest in supporting and encouraging urban agriculture, and as examples of cities with well-developed policy frameworks in this area. Kamloops was chosen as a final smaller to mid-sized Canadian city to further increase the breadth of information collected.

4.3 Research Methods

First, selected documents were examined using a keyword search. The keywords were selected based on the findings of the literature review. The words selected for the keyword search were intended to highlight how policy documents address certain areas of interest relevant to the research. It was hoped that examining policy documents at this level would provide some insight into how the themes pertinent to this research area addressed in study city policies. The keywords used for the development plan and zoning by-law reviews are listed in Table 4.1.

Table 4.1: Development plan and zoning by-law review keywords

Food	small-scale
local food	commercial farm
urban food systems	extensive agriculture
urban agriculture	high-value crop
food policy council	medicinal crop
land inventory (in reference to urban agriculture)	market garden
resilience (in reference to urban agriculture)	farmers' market
ecological preservation (in reference to urban agriculture)	agritourism
conservation agreements (in reference to urban agriculture)	aquaculture
specialized farm/agriculture	urban garden
urban farm	community garden
urban indoor farm	livestock
urban outdoor farm	chickens
food production	beekeeping

These keywords were intended to bring focus to both higher-level planning visions, as well as the more bricks and mortar aspects of policy development: zoning by-law uses.

An initial scan of zoning by-laws suggested that there was little to no language related to higher-level visionary planning in these documents. This was expected, as long-range planning and visioning is generally addressed in development plans and topical strategies. For this reason, the zoning by-law review keyword search focused only on keywords related to uses and omitted keywords related to higher-level planning visions. From the list above, therefore, the first 9 keywords were omitted as these were intended to explore higher-level theoretical concepts, planning tools, and approaches to environmental protection through urban agriculture policy, and were considered beyond the intended purview of zoning by-laws.

4.4 Results

The results of the document analysis determined that there are multiple ways to address urban agriculture through municipal policy. There was significant variation in how, and to what extent, study cities addressed urban agriculture in general. There was even greater variation in how, or if, study cities addressed small-scale commercial urban agriculture. These results will be explained further in the sections below. Table 4.2 provides summary information relating to urban agriculture for each of the selected cities.

Table 4.2: Policy review basic urban agriculture information

Study City	Population (City)	Population (CMA)	Urban farming language present in Development Plan	Urban farming language present in Zoning By-law	Food policy council exists ³	Food strategy exists	Food charter exists	Urban Beekeeping	Urban Hens (permitted outside Rural/Agricultural areas)
Winnipeg	749,500	825,700	Yes	No	Yes	No (plan to develop)	Yes (provincial)	Allowed	Not Allowed
Edmonton	899,447	1,321,426	Yes	Yes	Yes	Yes	No	Allowed	Not Allowed (current pilot project allows 50 registered henkeepers)
Minneapolis	422,331	3,946,533	Yes	Yes	Yes	No (plan to submit draft to Council in 2020)	Yes	Allowed	Allowed
Vancouver	631,486	2,463,431	n/a ⁴	Yes	Yes	Yes	Yes	Allowed	Allowed
Saskatoon	271,000	315,200	No	No	Yes	No	Yes	Allowed	Not Allowed (pilot project proposal rejected)
Victoria	85,792	383,360	Yes	Yes	Yes	Yes (regional)	Yes	Allowed	Allowed
Kamloops	90,280	132,663	Yes	No	Yes	Yes	Yes	Allowed	Allowed
Calgary	1,239,220	1,392,609	Yes	Yes	Yes	Yes	No	Allowed	Not Allowed

³ Although food policy councils exist in all study cities, their level of activity varied greatly. For some, no visible activity could be identified in recent years.

In addition to providing summary information relating to urban agriculture for each of the selected cities, Table 4.2 also provides some basic information relating to general urban agriculture policy that doesn't relate specifically to small-scale commercial agriculture in peri-urban areas. For example, keeping of bees and backyard hens is included to help provide a more general indication of how urban agriculture is addressed and perceived in selected cities. "Backyard poultry" is the most divisive category included, being allowed in five cities (with Edmonton allowing some keeping of urban hens through a pilot project) and restricted in the other three.

4.4.1 Development Plan Review

A keyword search was conducted for each of the selected cities. See Table 4.1 for a list of keywords included. Search results are presented in Table 4.3. Counts for keywords related specifically to commercial urban agriculture are highlighted in yellow.

Table 4.3: Development plan keyword search results (# of occurrences)

Keyword	Winnipeg	Edmonton	Minneapolis ⁵	Vancouver ⁶	Saskatoon	Victoria	Kamloops	Calgary
Food	6	82	360	n/a		166	29	11
Local food	2	5	85	n/a		7	6	4
Food system		12	54	n/a		44	7	
Urban agriculture		15	276	n/a		4	4	2
Food policy council		5	1	n/a				
Land inventory (in reference to urban agriculture)			5	n/a				
Resilience (in reference to urban agriculture)		7		n/a				
Ecological preservation/ sustainability (in reference to urban agriculture)			6	n/a				
Conservation agreements/ easements (in reference to urban agriculture)				n/a				1
Specialized farm/agriculture	5			n/a				
Urban (indoor/outdoor) farm			23	n/a				
Food production								
Small-scale (in reference to urban agriculture)	1	1	5	n/a		4		
Commercial (farming/farm/ growing operation)	1	1	5	n/a		6		
Extensive agriculture								
High-value crop	1			n/a				
Medicinal crop	1			n/a				
Market garden			18	n/a				
Farmers' market		1	75	n/a		3	1	2
Agritourism				n/a				
Aquaculture		1	9	n/a				
Urban garden			8	n/a				
Community garden		3	142	n/a			5	10
Livestock (in reference to urban agriculture)	1		4	n/a		2		
Chickens			3	n/a				
Bees/beekeeping			4	n/a				
TOTALS	18	133	1083	n/a	0	236	52	30
	Conceptual							
	Planning tool							
	Environment							
	Commercial urban agriculture related uses							
	General urban agriculture related uses							

Source: Data compiled from study city development plans

⁵ Minneapolis' Urban Agriculture Policy Plan was used as it is considered a topical subcomponent of the more general Comprehensive Plan for Sustainable Growth.

⁶ Vancouver does not have a city-wide development plan.

Of the eight study cities that had city-wide municipal development plans, seven included content related to urban agriculture. The agriculture-related terms used in the highest number of municipal development plans from selected cities were:

- “food” (used in six of the seven study city development plans),
- “local food” (used in six of the seven study city development plans),
- “urban agriculture” (used in five of the seven study city development plans),
- “farmers’ market” (used in five of the seven study city development plans),
- “food system” (used in four of the seven study city development plans),
- “small-scale” in reference to urban agriculture (used in four of the seven study city development plans),
- “commercial” referring to a farm, agricultural operation, or farming (used in four of the seven study city development plans), and
- “community garden” (used in four of the seven study city development plans).

Although all but one of the study city development plans addressed urban agriculture to some extent, there was a high level of variance in to what extent, and in what capacity, urban agriculture was addressed. In Winnipeg’s development plan *OurWinnipeg: Complete Communities*, urban agriculture as a concept was addressed in one paragraph, comprising one fifth of a page within the larger section on rural and agricultural land. The Minneapolis development plan included an entire urban agriculture topical plan, totaling 61 pages (not including appendices) as a subcomponent of the city’s comprehensive plan. Typically when a dedicated topical plan exists, the subject was discussed less in the development plan in order to minimize redundancy. However, although Edmonton has a dedicated food strategy, a standalone document that is 86 pages length, urban agriculture is still addressed extensively in the city’s development plan (133 uses of keywords related to urban agriculture included in this keyword search). In terms of keyword usage, the Minneapolis development plan addressed concepts related to urban agriculture to the greatest extent all study cities (1083 uses of keywords related to urban agriculture included in this keyword search).

Of the seven municipal development plans that addressed urban agriculture to some extent, the Winnipeg plan was the only one that did not use the term “urban agriculture” anywhere. Edmonton and Victoria (15 and 4 uses, respectively) had chapters dedicated specifically to the food system and/or urban agriculture. The Minneapolis development plan used the term “urban agriculture” to the greatest extent (276 uses) of all the cities studied.

In regard to language used to describe commercial urban agriculture operations within the city, of the six municipal development plans that addressed urban agriculture to some extent, four study city development plans used the terms “small-scale” in reference to urban agriculture, and “commercial” in reference to farming, a farm, or a growing operation. These cities were: Winnipeg, Edmonton, Minneapolis, and Victoria. *OurWinnipeg* was the only study city development plan that referred to “specialized agriculture” to describe this form of agriculture.

The conceptual keyword category was intended to provide insight into how in depth municipal development plans addressed food related concepts at a higher level. Minneapolis, Victoria and Edmonton scored highest in this category, with the greatest number of uses for “food”, “urban agriculture”, “food system” and “local food”, respectively. There were very few instances of environment focused keywords related to local food production in study city development plans. In total, 14 uses were recorded from this category. This result suggests that the connection between food and urban resilience was not a priority in study city development plans. It is possible that this connection was prioritized in other municipal documents or through targeted programs.

4.4.2 Zoning By-law Review

A keyword search was conducted for each of the selected cities. Findings are presented in Table 4.4. The list of keywords chosen for the zoning by-law review are similar to those chosen for the development plan review but omits keywords associated with higher level concepts and planning tools, as zoning by-laws are intended to be more focused on implementation than higher-level planning concepts. Counts for keywords related specifically to commercial urban agriculture are highlighted in yellow.

Table 4.4: Zoning by-law keyword search results (# of occurrences)

Keyword	Winnipeg	Edmonton	Minneapolis	Vancouver	Saskatoon	Victoria	Kamloops	Calgary
Urban agriculture		7	2	1		13		
Specialized farm/ agriculture								
Urban (indoor/outdoor) farm		202	20	76		13		
Food production								25
Small-scale (in reference to urban agriculture)						10		4
Commercial (farming/ farm/growing operation)						13		9
Extensive agriculture								7
High-value crop								
Market garden		2	33		6			
Farmers' market	7	4	51	59				
Agritourism								
Aquaculture			7					
Urban garden		141						
Community garden		1	45					
Livestock (in reference to urban agriculture)								2
Chickens			24	1				
Bees/beekeeping			2			1		
TOTALS	7	357	184	138	6	50	4	47
	Commercial urban agriculture related uses							
	General urban agriculture related uses							

Source: Data compiled from study city zoning by-laws

This keyword search gives an indication as to what extent various forms of agriculture are addressed in study city zoning by-laws, and what language is used to describe these various forms. Of the eight cities studied, seven cities addressed agriculture in some way. Based on the results of the keyword search, Edmonton's zoning by-law addressed concepts related to urban agriculture to the greatest extent all study cities (357 uses of keywords related to urban agriculture included in this keyword search). Of the eight municipal zoning by-laws studied, four referred to "urban farm" in some capacity.

There were two main approaches study cities used to address agriculture through zoning by-laws: as a use, or as a zone. Uses are explained in the definitions section; tables show which uses are permitted, conditional and restricted in each zone. Zones have their own sections. They include a purpose, establish what uses are permitted, and include a number of other standards. When agriculture was addressed in the form of an agricultural zone, it generally focused on large-scale forms of agriculture and had large minimum lot sizes (20-160 acres). For example, Winnipeg's 'A' – Agriculture zoning district had a minimum lot size of 40 acres. Vancouver did not have a general agriculture zone, however it did have an "RA-1" – Limited Agriculture zone with a minimum lot size of 2.25 ac. Study city agriculture zones and minimum lot sizes are listed in Appendix E.

Zoning by-laws that addressed agriculture through uses were generally geared toward small-scale commercial agriculture. Calgary's zoning by-law was an exception, including uses intended to describe both small-scale and large-scale intensive agriculture. The use "food production" is intended to describe a more urban, less intensive form of agriculture, and is included as a conditional use in the city's commercial areas, whereas "extensive agriculture" and "intensive agriculture" uses are restricted in most zones. Study city urban agricultural uses are outlined in *Table 4.6*. For full definitions for study city commercial urban agriculture uses, and purposes for study city agricultural zones, see Appendix C.

Table 4.5: Study city zones and uses related to urban and peri-urban agricultural production

City	Agricultural Zone		Future Urban Development Zone			Large-lot Rural Residential Zone Permitting Limited Agricultural Activities		
	Zone Name	Minimum Lot Size	Zone Name	Minimum Lot Size	Commercial Agricultural Uses	Zone Name	Minimum Lot Size	Commercial Agricultural Uses
Winnipeg	Agricultural (A)	40 ac.	<i>none</i>	<i>n/a</i>	<i>n/a</i>	Rural Residential 5 (RR5)	5 ac.	“Agricultural cultivation” permitted in RR5
Edmonton	Agricultural (AG)	80 ac.	Urban Reserve (AGU)	20 ac.	Yes (small and large-scale)	Rural Residential (RR)	2.5 ac.	“Urban Outdoor Farm” use conditional in all residential zones except RR
Minneapolis	<i>none</i>	<i>n/a</i>	<i>none</i>	<i>n/a</i>	<i>n/a</i>	<i>none</i>	<i>n/a</i>	“Market Garden” use permitted in all residential zones
Vancouver	Limited Agriculture (RA-1)	2.25 ac.	<i>none</i>	<i>n/a</i>	<i>n/a</i>	<i>none</i>	<i>n/a</i>	Urban Farm Class A' use (small-scale commercial food production) conditional in all residential zones
Saskatoon	Agricultural (AG)	20 ac. for agricultural uses; 10 ac. for residential uses	Future Urban Development (FUD)	80 ac.	Yes (large-scale only)	<i>none</i>	<i>n/a</i>	<i>n/a</i>
Victoria	<i>none</i>	<i>n/a</i>	<i>none</i>	<i>n/a</i>	<i>n/a</i>	<i>none</i>	<i>n/a</i>	'Small-scale commercial urban agriculture' use permitted in all zones
Kamloops	Agricultural (A-1)	20 ac.	Future Development (FD)	20 ac.	Limited	Country Residential 1 (CR-1)	2 ac.	“Home-based business” and “keeping of livestock” permitted in all Country Residential zones
						Country Residential 2 (CR-2)	5 ac.	
						Country Residential 3 (CR-3)	10 ac.	
Calgary	<i>none</i>	<i>n/a</i>	Future Urban Development (S-FUD)	160 ac.	Yes (large-scale only)	<i>none</i>	<i>n/a</i>	“Food Production” permitted in Centre City, Commercial, and Mixed-use zones

Source: Data collected from study city zoning by-laws

Of the eight study cities, three had no agricultural zone (Calgary, Victoria and Minneapolis). However each of these cities has little to no large tracts of undeveloped land within their city boundaries. As well, each of these cities had established zoning uses related to urban commercial food production. Conversely, three study cities had no commercial urban food production uses (Winnipeg, Saskatoon and Kamloops). However, each of these cities has agricultural zones, all intended for large-lot conventional agriculture (minimum lot sizes >20 acres). So, although agriculture was addressed in each of the study city zoning by-laws, the results of this analysis show that, in general, agricultural zones establish standards and requirements for large-scale agriculture, whereas zoning use classes were intended to establish standards for small-scale commercial agriculture.

There was not one standard way of addressing either large- or small-scale agricultural production, however there were noticeable commonalities in language. Uses enabling large-lot conventional agricultural production activities in areas with large undeveloped tracts of land were referred to as “agricultural uses”, “agricultural cultivation”, “agricultural production”, “livestock production” and “crop production”. These uses included activities such as grain and dairy production, and feedlots in some cases. Uses related to small-scale food production (outlined in

Table 4.6) were most commonly referred to as “Urban Farm”, with many including further detail. For example, though Minneapolis’ zoning by-law included a use simply called “Urban Farm”, Edmonton’s by-law specified “Urban Indoor Farm” and “Urban Outdoor Farm”, and Vancouver’s specified “Urban Farm – Class A” and “Urban Farm – Class B”. Victoria’s zoning by-law established “Small-scale commercial urban agriculture” as a use, and Calgary, an “Extensive Agriculture” use.

There were a number of differences observed between these uses and the agricultural zones discussed above. The first is that these uses are permitted on much smaller tracts of land than are

permitted in agricultural zones. Second, uses related to urban food production were associated with direct marketing and sales strategies such as market gardens, farm stands, farmers’ markets, and community supported agriculture drop-offs and pick-ups. Finally, urban farming policies and policies related to local food systems (i.e. urban food production uses) exist only in those places where by-laws have been amended to include such provisions. In general, any policies related to urban farming and the local food system were added in recent years (since 2012). This aligns with findings from the literature review, which revealed that urban agriculture and food systems more generally had historically not been addressed through urban planning. Large-scale crop production, on the other hand, has always been accommodated through zoning. Amendment approval dates to establish urban food production uses for study cities are included in *Table 4.6*.

Table 4.6: Study city established uses related to small-scale commercial food production

Study City	Small-scale Urban Agriculture Related Use(s) Present in Zoning By-Law	Date Established	Agricultural Zone
Winnipeg	<i>none</i>	<i>n/a</i>	Yes
Edmonton	Urban Indoor Farm Urban Outdoor Farm	10/2015	Yes
Minneapolis	Urban Farm Market Garden	03/2012	No
Vancouver	Urban Farm - Class A Urban Farm - Class B	04/2016	Yes (limited)
Saskatoon	<i>none</i>	<i>n/a</i>	Yes
Victoria	Small-scale commercial urban agriculture	08/2016	No
Kamloops	<i>none</i>	<i>n/a</i>	Yes
Calgary	Extensive Agriculture Food Production	05/2017	No

Source: Data collected from study city zoning by-law amendments

Amendment text establishing zoning uses related to commercial urban food production in study cities are included in Appendix D. Appendix E lists in which zones each established small-scale commercial food production related use is permitted, conditional, and restricted for all study city zoning by-laws.

4.4.3 Other Strategies, Policies, and Government Bodies

Food Strategies

A food strategy is a document that identifies actions, both short-term and long-term, to help improve municipal or regional food systems and prepare places for growth or change. Key elements of food strategies include social justice, environmental sustainability, healthy eating, and economic and community growth. Food strategies often discuss topics such as growing, processing food, preparing food for consumption for households and food service industry, eating food and composting the remains (Greater Sudbury Food Policy Council, 2017).

Of the eight study cities, five had food strategies existing for their municipality or region. Of the five study cities that had food strategies, the food strategy existing for the Victoria area was developed at the regional, rather than the municipal scale. This aligns with the area's regional approach to food and agriculture policy.

Food Charters

A food charter is a statement of principles, values and priorities for a just and sustainable food system that will promote food security and health (Kossick, 2004). Food charters drive visions, strategies and actions and for food systems, can include policy recommendations, and represent the voices and visions of community members (Kossick, 2004). Food charters can contain several components including vision statements, goals, actions, and key principles (Kossick, 2004). Food

charters are not intended to lay out a framework for addressing food related issues, but rather to express intention to prioritize community food and agriculture related issues. It is similar to a mission statement and can be anywhere from a few words to a few paragraphs in length.

Of the eight study cities, five had food charters existing for their regions. Of the five food charters studied, two were developed for a larger region than the municipality (provincial or state level). A scan of food charters outside the study cities indicates that these documents may be developed for a municipality, region, or an entire province/state. This research found that food charters vary greatly in length, content and level of detail. In general, the food charters studied focused primarily on concepts related to food justice, food security, nutrition, culturally appropriate food choices, food availability and ecological sustainability. Table 4.7 summarizes basic information for study city food charters. For a complete list of study city food charter goals and principles see Appendix G.

Table 4.7: Basic information for study city food charters

City	Length	Area Encompassed	Key Agriculture-Related Goals/Principles
Winnipeg	1 page	Province	4
Edmonton	n/a	n/a	n/a
Minneapolis	20 pages	State	1
Vancouver	2 pages	City	6
Saskatoon	2 pages	City	4
Victoria	26 pages	City	2
Kamloops	n/a	n/a	n/a
Calgary	n/a	n/a	n/a

Source: Data collected from study city food charters

A food charter does exist for the Province of Manitoba. The Manitoba Food Charter (included in Appendix F) is one page in length.

Food Policy Councils

The role of a food policy council is to study how a given food system operates and offer actionable ideas and policy recommendations on how to improve it. Food councils are growing in popularity. The Center for a Livable Future, an interdisciplinary research centre based in the Bloomberg School of Public Health at Johns Hopkins University in Baltimore, found that there are more than 300 food policy councils in North America (Center for a Livable Future, n.d.). (A link to their directory is included in the References section.)

Food councils or food policy councils were found to exist or to have existed at some point for all eight study cities. However, there was vast range in their level of activity and capacity and the scope of their involvement. No activity could be identified for the Saskatoon Food Council, and Calgary's Food Policy Council appeared to be more of an open public group that operated primarily on Facebook as an information hub for local urban agriculture related events rather than a council that advises local governments on issues related to food and food policy. Although food councils are intended to operate as multi-stakeholder advisory bodies, the food councils identified for Saskatoon and Calgary appeared to be structured as open community groups focused on providing information on events to the public. The Capital Region Food and Agriculture Initiatives Roundtable, the Victoria region's food policy council, on the other hand, appeared to have a strong foundation with a long history in the area. The roundtable includes a diverse range of stakeholders and partners and is involved in a wide range of initiatives related to food and agriculture research, planning, and program implementation, monitoring and evaluation.

5.0 MAPPING ANALYSIS

5.1 Introduction

This chapter presents a mapping analysis identifying areas with opportunity for agriculture or agriculture-related development in Winnipeg's peri-urban space. As the results of the document analysis showed, Winnipeg has adequate zoning provisions in place to allow for conventional large-lot, intensive agriculture. However, there is a gap in how the City addresses small-scale urban agriculture. This analysis intends to identify areas of Winnipeg's peri-urban space that could benefit creation of policy intended to support small-scale commercial urban agriculture. This section of research is intended to address a portion of the third research question:

Q3. Where is there undeveloped land that could be used for small-scale commercial agriculture or agriculture-related activities in Winnipeg's peri-urban areas?

According to Mendes (2008), undertaking a land inventory is an essential first step toward the promotion of urban agriculture in planning documents and municipal policies. Paul de Graaf (2013) states the importance of this practice as well. "By mapping opportunities for urban agriculture, the municipality can help urban farmers to locate the best spaces for themselves and for the city. Good maps reflect a way of thinking and enable stakeholders to look at the city with newly informed eyes" (p. 38).

5.2 Research and Mapping Methods

This section provides a detailed explanation of the methods involved in the mapping analysis component of this project. This research utilized GIS mapping software (ESRI ArcGIS Pro) to undertake an analysis identifying areas of Winnipeg's peri-urban area that could potentially benefit

from development of policy that sets out a regulatory framework for small-scale food production. The mapping and analysis was undertaken in three parts. The first step was delineating the Project Study Area (discussed in Section 5.2.1 – *Identifying the project study area*). It was intended that the Project Study Area would encompass Winnipeg’s peri-urban area as defined for the purposes of this research. From there, the goal was to identify which areas within the Project Study Area would be appropriate to accommodate small-scale urban agriculture. This was accomplished primarily by eliminating areas that would not be suitable for various reasons.

The second step conducted a land suitability assessment (discussed in Section 5.2.2 – *Land suitability assessment*). Land deemed not appropriate for agricultural uses was eliminated. Land was deemed appropriate or not based on the City’s long-range planning vision (as expressed through *OurWinnipeg* land designations) and municipal zoning. Finally, the remaining land was examined in more detail in order to identify any constraints that could have implications for development of the land (discussed in Section 5.2.3 – *Constraints*). The purpose of this step was to identify any tracts of land that will likely never be appropriate for residential development and would therefore be particularly well suited for new or continuing agricultural uses. These findings were refined following interviews with planning professionals, food policy experts and local producers.

The following spatial data was provided by the City of Winnipeg to the University of Manitoba's

GIS Environmental Studies Library:

- Development Plan designations,
- Zoning,
- Approved precinct plans,
- Assessment parcels,
- City boundary,
- Landfills and waste treatment facilities,
- Rivers, and
- Floodway boundary.

Certain data including water lines and soil classification was unable to be obtained and was therefore not included in this analysis.

5.2.1 Identifying the Project Study Area

The first step in this analysis was to delineate a Project Study Area by identifying the area within the City of Winnipeg boundaries that would be considered peri-urban for the purposes of this research. This was accomplished by using a combination of different information sources and strategies. First, explanations of what is considered peri-urban found in the literature were examined to gain insight into the type and range of land, and development patterns, that are generally considered to be peri-urban. A detailed examination outlining characteristics of peri-urban agriculture (as opposed to urban agriculture and rural agriculture) is included in the literature review (see Section 3.2 – *Urban and peri-urban agriculture*).

Peri-urban space occurs outside of the city centre, near the fringes. It is the area surrounding urban centres (Brunet, 2017), and is sometimes referred to as the fringe, outskirts, or rural-urban transition. Opitz et al. (2016) identifies a number of criteria that differentiate peri-urban agriculture

from urban or rural agriculture. According to Opitz et al. (2016) the most obvious factor is location, however a number of other spatial, ecological, social and economic factors differentiating peri-urban agriculture are also identified. In order to define the Project Study Area (Winnipeg's peri-urban area), this theoretical information about what constitutes peri-urban was used to examine existing development patterns. In general, the outer edges of the Project Study Area boundary align with the City of Winnipeg's municipal boundary.

The process of defining the inner edges of the boundary was more complex. Inner edges of the boundary were defined by examining orthographic imagery (ArcGIS Pro's World Imagery Basemap, 2018) of the City of Winnipeg and observing existing development according to criteria highlighted in the literature related to development patterns of peri-urban space, such as location and scale. This method allowed for a nuanced and location-specific approach to identifying peri-urban space in the City of Winnipeg.

The inner edges of the Project Study Area were more difficult to define because peri-urban and urban space are not separated by rigid borders and often overlap (Opitz et al., 2016). Because peri-urban space is defined not only by proximity to the edge of the city, but also by other factors like scale and type of development, the area identified as Winnipeg's peri-urban area does not resemble a donut pattern radiating out from the centre. Rather, it takes the form of a number of tracts of land within the city, in various sizes and shapes. It is not a continuous region of the city; it is fragmented.

In some areas there is a hard boundary between urban (or suburban) and peri-urban, for example an empty field adjacent to a large residential subdivision. However, many areas do not have such drastic changes in development patterns. In many areas, development changes and increases in density are gradual. It was more difficult to define distinct boundaries in these areas. Generally, in cases where land with buildings created a natural border, buildings were left out of the identified

peri-urban area due to the overarching purpose of this research, which is to examine the land for its agricultural potential.

The literature review found that agricultural activities in peri-urban areas generally occur on land parcels ranging from less than five to 250 acres. The land suitability study portion of this research, however, does not take into account parcel size. This is because the purpose of this research is not to examine land at the scale of individual parcels, but rather to assess tracts of land.

In order to define the Project Study Area, orthographic imagery (ArcGIS Pro's World Imagery Basemap, 2018) was examined. A new layer named "Project Study Area" was created and all substantially sized tracts of outside of the dense urban centre that in general did not contain development beyond roads were included. Figure 5.1 shows an example of how land was chosen based on current land development patterns. This example pictures one portion of the Project Study Area only.

Figure 5.1: Process of delineating the Project Study Area

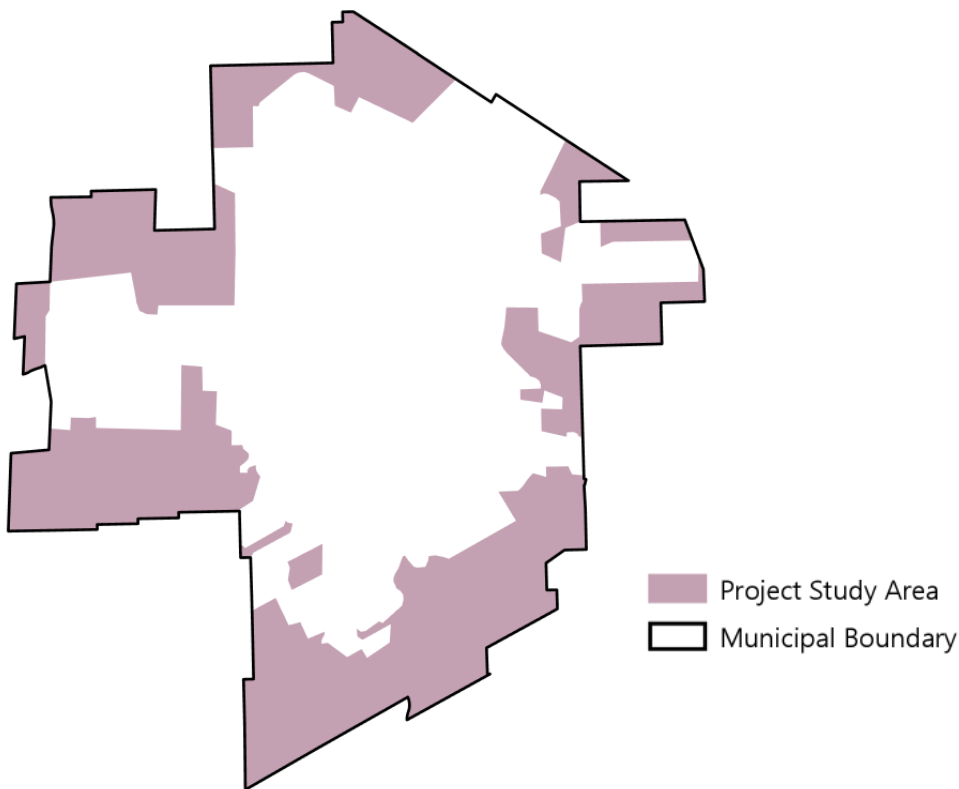


Data Source: ArcGIS Pro Basemap Layer, World Imagery, 2018;
Municipal boundary, City of Winnipeg, 2017

Data Source: ArcGIS Pro Basemap Layer, World Imagery 2018;
Municipal boundary, City of Winnipeg, 2017

All undeveloped land was included. Polygons were created in the Project Study Area layer to cover each of the selected areas. Figure 5.2 shows the full Project Study Area, City of Winnipeg.

Figure 5.2: Project Study Area (City of Winnipeg)



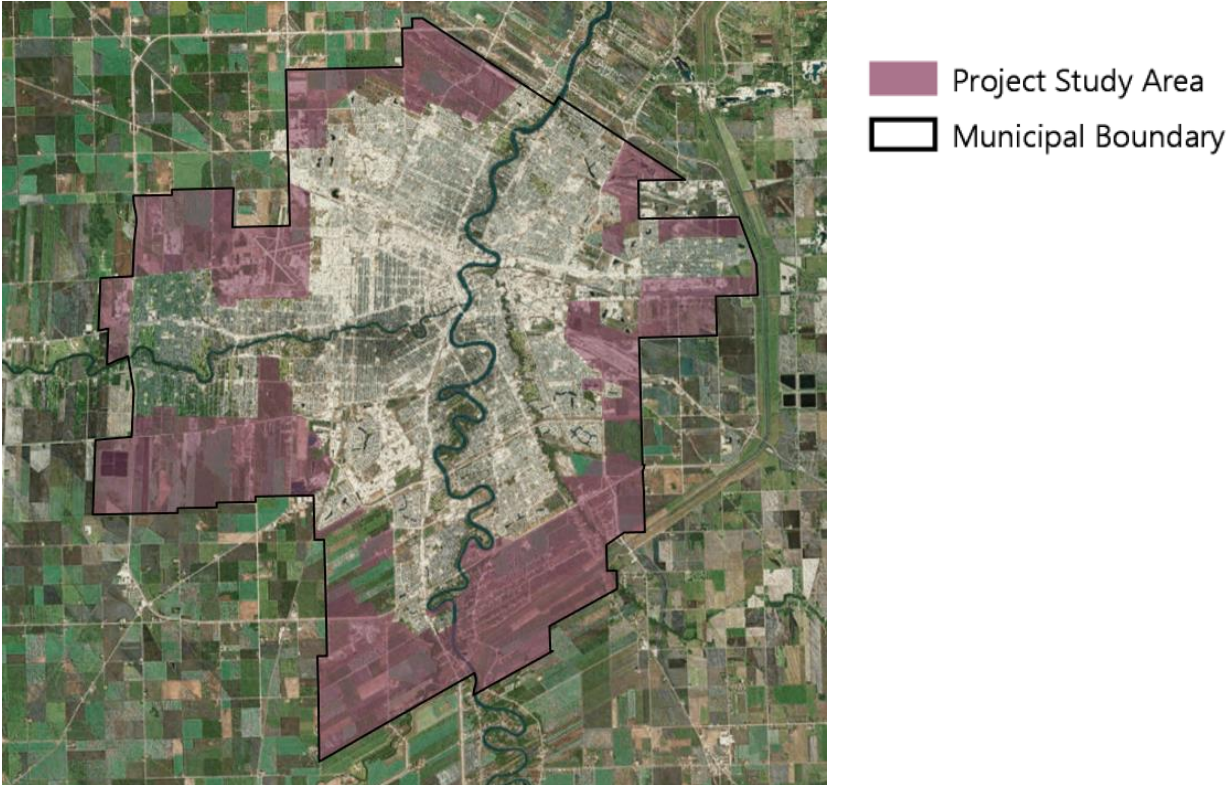
Data Source: Municipal boundary, City of Winnipeg, 2017.

Although many factors can come into play when determining what constitutes peri-urban, what emerged from the literature was that the peri-urban area of a city can be most accurately defined based on what exists on the land, rather than through land use policy and legislation. For this reason, the Project Study Area was defined by observing the existing pattern of development using orthographic imagery and did not take into account land use policy. Land use policy is incorporated into the second step of the mapping analysis (Section 5.2.2 – *Land Suitability Assessment*).

This approach was chosen in hopes that it would provide the most accurate assessment of where Winnipeg’s peri-urban areas are, as seen on the land itself. Although lower density residential development is included in some definitions of peri-urban, due to the purposes of this research, land

with existing residential development was not included in the Project Study Area. As can be seen in Figure 5.3, only undeveloped land was chosen to be included in the Project Study Area. For a full-sized image of the full Project Study Area overlaid on orthographic imagery, see Appendix G.

Figure 5.3: Project Study Area overlaid on orthographic imagery



Data Source: ArcGIS Pro Basemap Layer, World Imagery, 2018; Municipal boundary, City of Winnipeg, 2017.

5.2.2 Land Suitability Assessment

Once the Project Study Area had been defined, a process of elimination was used to remove areas that would not be suitable for urban agriculture based on current policies and legislation. The purpose of this step was not to identify potential locations for peri-urban agriculture at the parcel level, but rather to look at larger tracts of public or private land. The criteria was as follows:

- Must be located within the City of Winnipeg boundary,
- Must be located within the defined Project Study Area,
- Must be located on land designated Rural/Agricultural, New Community, or Airport Area in OurWinnipeg, and
- Must be located on land zoned one of the following: ‘A’ – Agriculture or ‘RR5’ – Rural Residential 5

Disclaimer:

Lands located within approved precinct plans (described on page 9) were not excluded from the study area in the land suitability assessment. Although these have been approved for development, many were approved in the 1970s-1990s and have not yet been developed. In some cases this is due to difficulty in servicing the lands.

Lands located in areas with approved but undeveloped precinct plans are often zoned Agricultural, and agricultural activities continue to exist, although they are not protected. This study did not assess the viability of individual precinct plans to be developed, although lands located in these areas would need to be examined more thoroughly in determining where agricultural activities will be most likely to continue in the short- and medium-term.

⁷ The initial analysis did not acknowledge that areas designated as “Precinct Areas” are already approved for development and therefore are not able to be preserved for agricultural use in the long-term. This point was highlighted through planning professional interviews. This disclaimer was incorporated for clarity.

OurWinnipeg

The City of Winnipeg's development plan designations were the first criteria used to eliminate land. To prepare this data, polygons had to be clipped in order to ensure there was no overlap. An OurWinnipeg designation map pdf was used as reference for where to clip data to ensure accuracy of designation boundaries. Each designation was sent as an individual shapefile from the University of Manitoba's GIS Environmental Studies Library, therefore isolating a single designation was straightforward. Land that was designated as 'Rural Agricultural' and 'New Community' was kept. All other land was eliminated.

Winnipeg Zoning By-Law 200/06

Spatial zoning data was included in a single geodatabase when received. Therefore, unique values were assigned for the ZONING field in order to be able to differentiate zones by colour. Lands zoned 'A' – Agriculture and 'RR5' – Rural Residential 5 were kept; the rest of the land was eliminated.

Once relevant policies had been applied to the Project Study Area, remaining areas were identified as areas that could benefit from creation of policy that sets out a regulatory framework for small-scale food production. Figure 5.4 presents these areas. For a full-sized image of the Policy impact over Project Study Area overlaid on orthographic imagery, see Appendix I.

Figure 5.4: Policy impact on Project Study Area



Data Source: Municipal boundary, City of Winnipeg, 2017

5.2.3 Constraints

Constraints to development affect how land can be used temporarily or permanently. Once land had been assessed according to the City's approved plans, policies and legislation, and land that could benefit from creation of policy for small-scale food production had been identified, constraints to development were identified. This step aimed to further narrow down what types of development would and would not be appropriate for the land on a case by case basis. The goal of this step was to determine which areas would never, or would not for the foreseeable future, be appropriate for residential development. This step was undertaken separately from the rest of the mapping analysis. Areas identified through the land suitability assessment as areas that could benefit

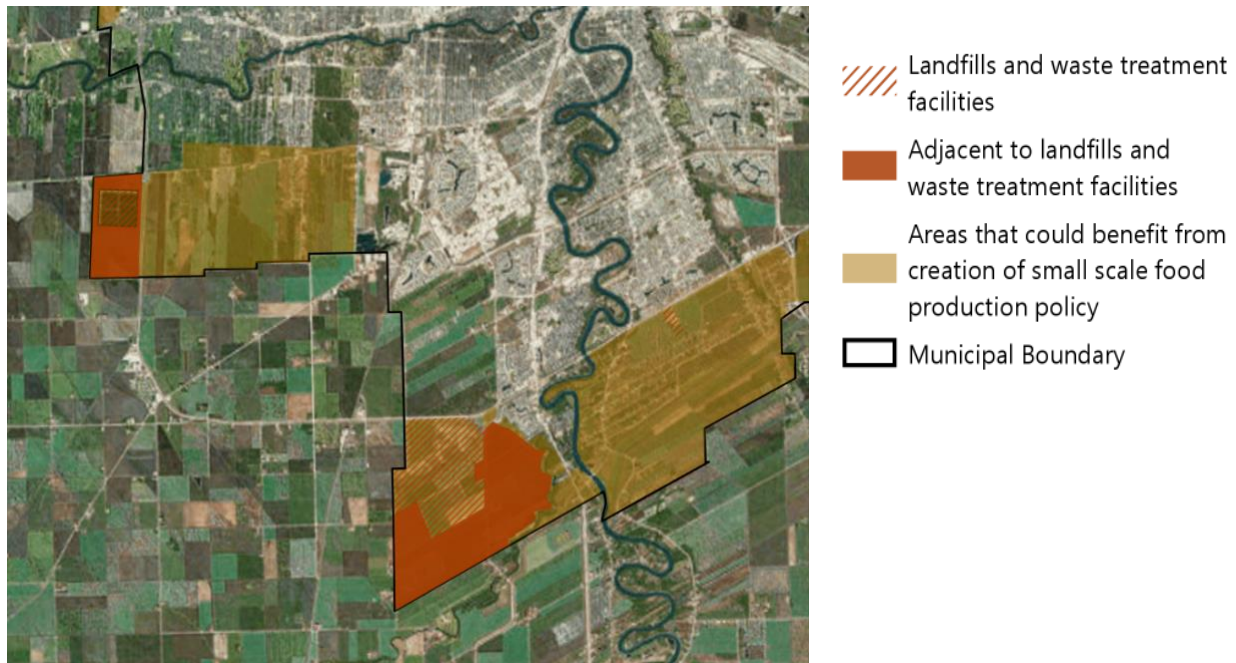
from small-scale food production policy were presented to planning professional interview participants for feedback (see Chapter 6.0 Semi-structured Interviews). Interview participants were asked to identify lands within these areas that would not be appropriate for residential development and to explain why. The constraints discussed in this section are the result of insight gained through that process.

The sites highlighted in this stage of the research were of interest because the constraints identified by interview participants made them particularly good candidates for agricultural development, due to the fact that they were unsuitable for more traditionally urban forms of development such as residential development. For this reason, these sites were considered to be best suited to agricultural uses that do not require a permanent dwelling on site. The lands that were identified as having constraints to residential development were lands that were located in close proximity to conflicting uses such as landfills and waste treatment facilities, outside of floodway, and under the Winnipeg airport flight corridor.

Proximity to landfills and waste treatment facilities

Landfill data was gained through the University of Manitoba's GIS library. The areas highlighted in this section (pictured in Figure 5.5) came out of interviews as areas that would be risky for residential development due to high potential for conflicts related to odour. It was therefore thought that these areas could be potential locations for permanent designation as agricultural lands. At the same time, there were also concerns raised about growing food on land in close proximity to landfills and waste treatment facilities. In general, it was felt that a 'Rural and Agricultural' designation for lands directly in the vicinity of these types of facilities might not be appropriate either, depending on soil quality. Soil contamination testing would be required to determine what distance would be safe for agricultural production.

Figure 5.5: Lands adjacent to landfills and waste treatment facilities



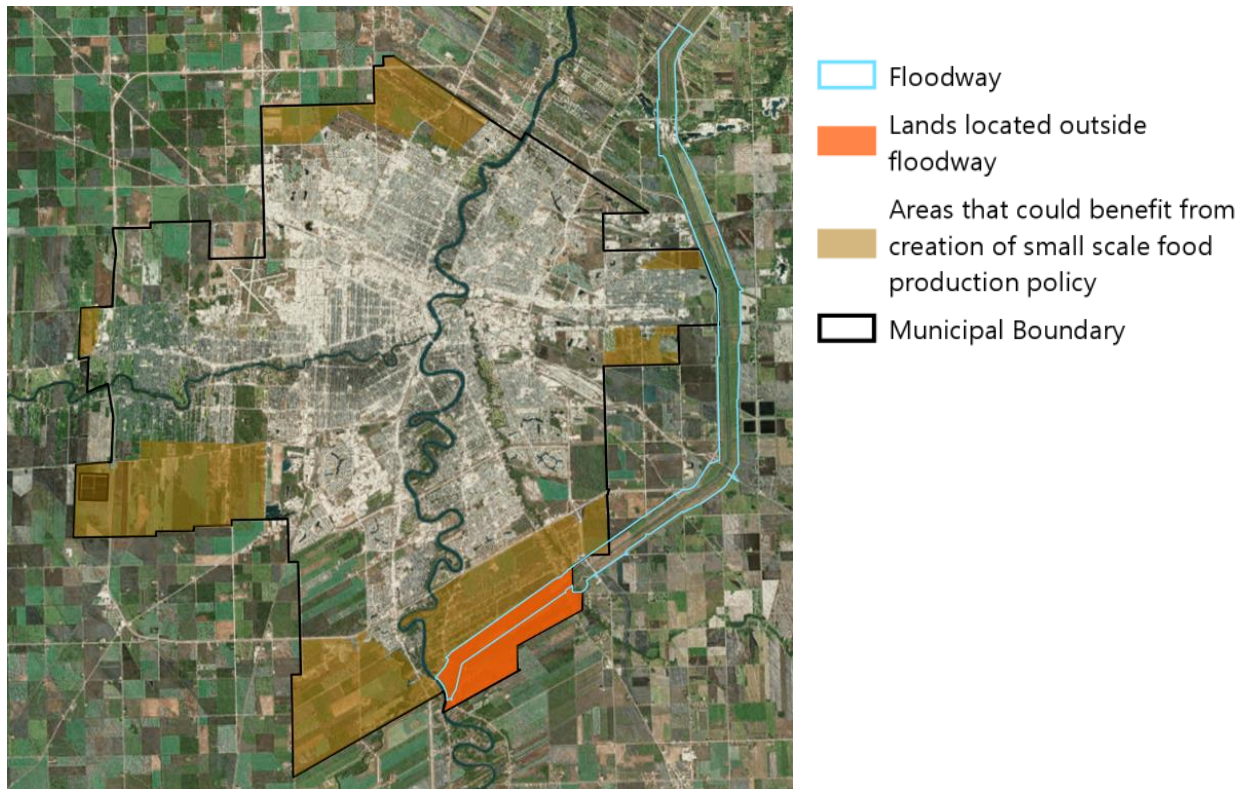
Data Source: ArcGIS Pro Basemap Layer, World Imagery, 2018; Municipal boundary, City of Winnipeg, 2017

Located outside of floodways

One tract of land was identified as being located outside of the floodway (Figure 5.6). This tract of land is prone to flooding, and should not be used for residential development.

§ It is important to note that this section of analysis is intended to highlight areas that may be ideal candidates for agricultural development due to constraints to residential development. This analysis therefore does not attempt to discover what types of agricultural activities would be possible on flood prone land, though this would be important to specify for policy and regulatory documents.

Figure 5.6: Land located outside floodway

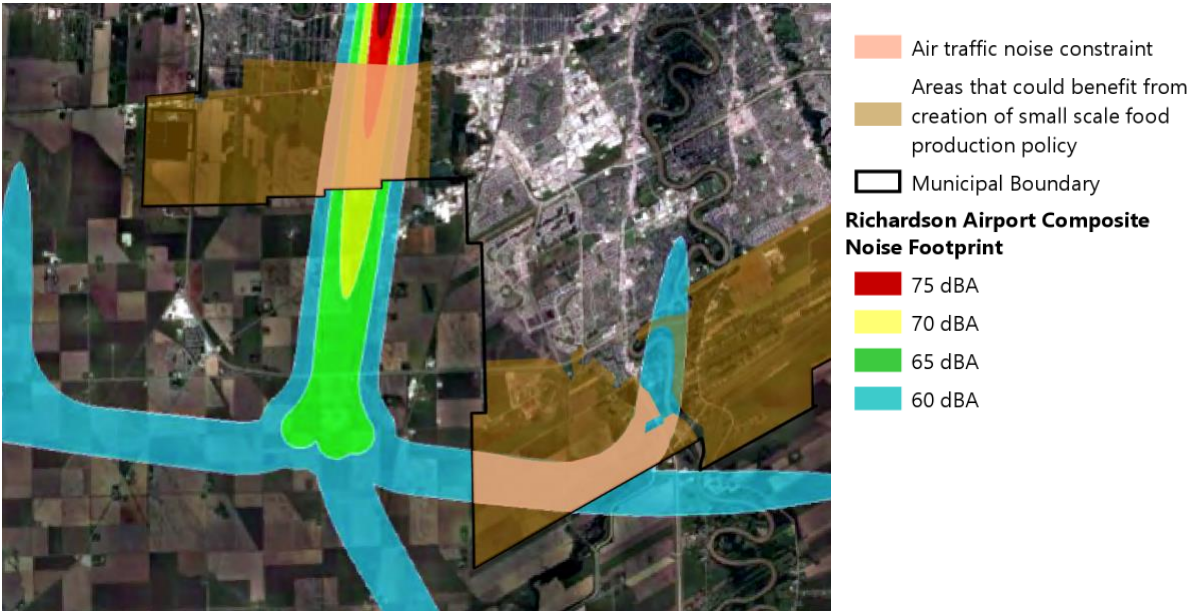


Data Source: ArcGIS Pro Basemap Layer, World Imagery, 2018; Municipal boundary, City of Winnipeg, 2017

Airport Noise Footprint

Composite noise footprints for the Winnipeg James Armstrong Richardson International Airport were imaged by Nav Canada (see Appendix J for full sized image). In order to use composite noise footprint spatial data, the pdf image was georeferenced onto the existing project orthographic imagery. From there, polygons were created over the areas of the composite noise footprint that intersected with the ‘Areas that could benefit from small-scale food production policy’ layer. This process is shown in Figure 5.7.

Figure 5.7: Converting pdf data into shapefile for analysis



Data Source: Nav Canada, 2017

In order to calculate the total area of lands that are associated with the three constraints to residential development described above, a new feature class was created in order to calculate total land area without counting overlapping areas multiple times. This process is depicted in Figure 5.8 and results are discussed in Section 5.4 - *Results*.

Figure 5.8: Converting constraints into single feature class



Data Source: Municipal boundary, City of Winnipeg, 2017; Landfills and waste treatment facilities, City of Winnipeg, 2017; Winnipeg floodway, 2017; Nav Canada, 2017

5.3 Limitations

The mapping analysis stage of research was intended to highlight areas of the city that could potentially benefit from creation of policy that sets out a regulatory framework for small-scale food production, based on existing development, municipal policies and legislation, and existing constraints to residential development. Due to limitations related to access to data, however, important factors such as soil condition and cost of municipal service connections were not included in this analysis. The results from this analysis are not intended to be conclusive. Rather they are intended to show an example the types of factors such an analysis would consider and how this could be accomplished.

This analysis examined Winnipeg's peri-urban areas at the macro level. It did not endeavour to assess land for its suitability for agriculture or agriculture-related activities at the parcel scale.

Lands located in areas with approved precinct plans have been approved for development and, in most cases, are not appropriate locations for agricultural development, as generally they are planned for residential development. Some lands located on these areas, however, are unlikely to be developed for urban uses due to high cost associated with extending municipal services to the areas or other barriers. This research did not examine lands located in areas with approved precinct plans in order to evaluate which areas were least likely to be developed for residential uses in the short- or medium-term.

5.4 Results

This section summarizes findings from the mapping analysis process described above. Preliminary findings were further developed through feedback from interview participants.

A significant portion of land area in the City of Winnipeg is currently undeveloped. The City of Winnipeg comprises a land area of approximately 464 km². The peri-urban area defined for this study (pictured in

Figure 5.2 and Appendix G), covers approximately 187 km²—about 40 percent of Winnipeg’s total land area.

The policy impact on the Project Study Area, which is encompassed in the ‘Areas that could benefit from small-scale food production policy’ layer (see Figure 5.4 and Appendix I) present possible opportunities for commercial agriculture in Winnipeg’s undeveloped peri-urban area. Approximately 109 km² (24 percent of the city’s total land area) is encompassed by this area. This finding suggests that there is a significant amount of available land that is currently undeveloped, and not yet slated for future urban development through approval of a precinct plan.

Additionally, land that may not be ideal for urban development now or in the future, due to various constraints (pictured in Appendix K), totaled 39 km². These areas were highlighted because they present potential unique opportunities for other types of development, such as agricultural, due to the fact that they are less desirable locations for residential development.

6.0 SEMI-STRUCTURED INTERVIEWS

6.1 Introduction

Although a great deal of information can be gained through examining planning and policy documents, information obtained through interviews with key informants provided greater insight and clarity into the “how” and “why”, and helped build a better understanding of how local conditions impact planning policies. Berg states interviews “are designed to elicit information using a set of predetermined questions that are expected to elicit subjects’ thoughts, opinions, and attitudes about study-related issues” (2001, p. 69). According to Zeisel (2006), interviews involve asking questions to systematically “Find out what people think, feel, do, know, believe and expect” (p. 227). Interviews help researchers gain information that cannot be obtained strictly through document analysis.

6.2 Research Methods

Interviews were carried out with the following categories of participants: food policy experts, Winnipeg neighbourhood planners, and people currently practicing small-scale farming in or near Winnipeg’s fringe areas. This research utilized an open-ended question technique in order to allow the greatest level of information to be conveyed, and to allow for greater richness of data. Such interviews allow for an unlimited number of answers, allow respondents to answer questions in detail and clarify points, allow for unanticipated findings, permit creativity and richness of detail, and reveal a respondent’s frame of reference (Newman, 2000).

Key informants were chosen based on their experience and knowledge of agriculture policy, knowledge of local conditions and planning policies, or their experience farming on agricultural lands in or near Winnipeg’s peri-urban areas. Interview schedules for each group varied slightly.

Interview questions were developed based on findings from the spatial analysis and document analysis. As well, each interview participant was provided with a briefing document in advance of the interview containing information about the research, definitions of relevant terms, explanations of various approaches to agriculture policy, and strategies and tools used in each of these approaches. Draft briefing documents and schedules of interview questions for each group are included in Appendix L. As this research method received ethics approval prior to being conducted, it was required that each participant understood the risks and benefits of participating and provide their signed consent prior to participating.

Face to face interviews were conducted when possible and, in cases where not feasible, by Skype or telephone. In total, four interviews were conducted face to face and one took place over the phone.

6.2.1 Analysis

The semi-structured interview transcripts were coded to aid in their analysis. A code is “a word or short phrase that symbolically assigns a summative, salient, [and/or] essence-capturing... attribute for a portion of language-based... data”. The act of coding can be “the ‘critical link’ between data collection and their explanation of meaning” (Saldaña, 2013, p. 3). Through coding the interview transcripts, trends and similarities between interviewees’ responses were identified. A qualitative analysis software, ATLAS.ti, was used to code interview transcripts. Using this program, a list of codes was developed to identify how often each theme came up and what was discussed, helping to identify key aspects and considerations that should be given greater attention. Three forms of coding were used to analyze the interview transcripts, as outlined below.

Holistic coding

The purpose of holistic coding is to “ ‘chunk’ [interview transcripts] into broad topic areas as a first step to seeing what is there” (Saldaña, 2013, p. 142). It is often “preparatory groundwork” for further analysis and more detailed coding (p. 142). The interview transcripts were first holistically coded before analyzed more deeply through descriptively coding, described next.

Descriptive coding

Descriptive coding “summarizes in a word or short phrase... the basic topic of a passage” (Saldaña, 2013, p. 88). This type of coding is often used in ethnographic studies to determine “what is going on here?” and “what is this a study about?” (Saldaña, 2013, p. 88). Descriptive coding is applicable to this research project as participants often identified basic vocabulary for further in-depth analysis (Saldaña, 2013, p. 88), which is a hallmark of this type of coding.

Theming

Data gathered through holistic and descriptive coding was then organized into categories or themes. Themes are “interpretive, insightful discoveries” that help the researcher understand the data and the phenomenon taking place (Saldaña, 2013, p. 176). Saldaña (2013) sees the search for themes as a “strategic choice as part of the research design that includes the primary questions, goals, [and] conceptual framework” (p. 177). Based on which question the interviewees were answering, different themes were identified.

6.3 Limitations

It was hoped that 10-12 interviews would be conducted with planning professionals, food policy experts, and local producers. Request emails were sent to a total of 24 potential participants, however the response rate was about fifty percent. A higher sample size increases the level of information gained and creates the opportunity to gain insight from a greater diversity of

perspectives. This section of the research would have benefitted from a greater number of interview participants.

6.4 Results

A total of seven people participated in six different interviews (one interview involved two participants). The interview participants were made up of two planning professionals, two food policy experts, and three local producers (one interview participant was both a food policy expert and local producer). The two planning professionals were currently working or had recently worked in the City of Winnipeg's Planning, Property and Development department. One food policy expert had worked as a policy analyst and in other positions for a Manitoba farm policy organization and currently sits as a member of the Winnipeg Food Council; the other was engaged in agriculture policy at a number of levels, including having been a member of the Small-scale Food Manitoba working group. Of the three local producers, two operated farms they would consider small-scale (less than 10 acres) in Winnipeg's peri-urban area, and two were members of the Winnipeg Food Council.

Through coding the interview transcripts, themes emerged regarding current circumstances, gaps, challenges, and successes related to small-scale commercial agriculture in the City of Winnipeg and its metropolitan area⁹. In total, 62 codes were created in eight themes. Due to the open-ended nature of the interviews, many topics came up that were not directly included in the interview

⁹ A key theme arising from interviews was that agriculture is an interjurisdictional issue. In order to look at local production for Winnipeg, it is necessary to extend the area considered beyond the boundaries of the City to include adjacent municipalities. This is discussed further in Section 6.4.3 in the subsection *Differing priorities between municipalities* (see p. 79). Because participants felt strongly that a regional approach was necessary in discussing the topic matter, this chapter will consider the entire Winnipeg Metropolitan Region.

schedules. This analysis highlights the issues and considerations that came out of these conversations through the themes discussed below.

6.4.1 Urban agriculture in the prairies

Across the board, it was generally agreed there has been less interest in urban and small-scale forms of agriculture in the prairie provinces—particularly Manitoba and Saskatchewan—compared to other regions in Canada and the U.S. Participants cited reasons related to population and geography, dominance of large-scale and export driven production (in the prairies), and cultural differences for these regional variations.

There was an overarching feeling that, due to factors related to population and geography, such as lower development pressure and greater availability of developable land, the prairies haven't felt the same need to conserve land or increase population density as has been experienced in other areas. As a result, prairie cities have seen less reason to explore small-scale food production.

Another factor noted was the importance of large-scale, export driven agriculture for prairie economies. Participants citing this as a reason for regional differences in interest toward urban agriculture and small-scale food production talked about how, because the prairies have such a strong history of large-scale, export-driven agriculture, there is a perception that these areas don't need small-scale agriculture as they are already such strong agricultural producers. For both Alberta, Saskatchewan and Manitoba, large-scale intensive agriculture is a dominant contributor to GDP.

Participants pointed to cultural differences between regions as a contributing factor to a lower level of interest in small-scale food production in prairie cities. Participants who discussed cultural differences cited a greater environmental consciousness in areas in British Columbia, the west coast and the east coast than what has historically been seen in prairie cities. As well, prairies have often been slower to adopt environmental policies. However, in considering these explanations, it is

important to note that although all three of the explanations discussed above apply equally in Alberta, Saskatchewan and Manitoba, both Edmonton and Calgary have well developed urban agriculture policy frameworks in place.

6.4.2 Existing challenges for small-scale producers

Interview participants noted a number of challenges related to policy, distribution, and feasibility for small-scale farmers in Winnipeg and the surrounding area. Issues were raised related to the policy and regulatory framework surrounding urban agriculture. As one planning professional articulated, “there’s currently a lack of policy and clear direction about trying to achieve peri-urban agriculture policy”. For example, the agriculture zone is designed for large-scale crop production destined for export markets, which is an important industry in the province, but does not address unique needs of small-scale producers selling to local markets (see Section 4.4.2 – *Zoning by-law review* for further discussion on this).

In addition to lack of zoning provisions to set out a regulatory framework for small-scale food production, many participants felt that current health and safety standards designed for large-scale producers are not feasible for small producers. (This concern was discussed in *Advancing the small-scale, local food sector in Manitoba: A path forward* (2015) as well.) As one local producer stated:

If you look at food safety, the regulations make the assumption that you’re a large producer. I don’t think they’re meant to hurt small producers, but they just aren’t noticed or considered. And a lot of the requirements are not possible for small producers. You have to have the cleanliness of a surgery room, and it’s just not how family farms operate. If you’re going to have a chicken abattoir, you have to have a complete shower room for the inspector. And that doesn’t make sense for a small-scale producer.

Although it was understood current policies and regulations were designed with large producers in mind due to the prominence and economic importance of large-scale crop and livestock production

in the province, it was felt small-scale farmers have unique needs and should have different requirements than large-scale producers. Overall, current policies do not reflect a desire by the municipality to support this style of food production.

Another challenge to small-scale producers related to distribution. Although interest in local foods has increased in the city, and some local foods are being introduced into large grocery stores, this is generally the exception. Small-scale producers are often not equipped to sell to large distributors like grocery stores. In order to sell to many distributors, you have to be a fairly large producer. As one local producer said, “If you’re going to sell to Safeway, you have to be sized like one of the Peak of the Market growers, which is a larger operation”.

Participants spoke about overall financial viability of small-scale food production as a challenge for current and potential small-scale food producers. Participants had a number of questions about how many new small-scale farms had been established in recent years, how much interest there has been in establishing small-scale farms, land prices, and overall viability of the endeavor, either as a part- or full-time job. Many people questioned whether small-scale food production was a viable business, particularly in the peri-urban areas within Winnipeg’s boundaries, where land prices may be higher than outside the city.

The general feeling was that although it is important to see a clearly stated intention from the public sector to support and encourage urban and small-scale forms of agriculture, and to ensure that regulations do not hinder small-scale producers, policy in and of itself will not be a driver for small-scale agriculture.

6.4.3 Challenges to developing policy for small-scale agriculture in Winnipeg

Interview participants identified three main challenges to creating small-scale agriculture policy in Winnipeg. These were doubts and concerns about overall viability of this style of agriculture in

this region, challenges to tackling an inherently interjurisdictional issue without higher level governance, and lack of organization between small-scale producers.

Weighing the positive and negative implications of small-scale agriculture in the Winnipeg context

Many participants felt that it would be useful to consider both the positive and negative implications associated with small-scale of agriculture in the Winnipeg context before pursuing policy development in order to determine what value it would bring. Participants spoke about many positive implications associated with urban agriculture in general, and small-scale commercial agriculture specifically. A common thread was the need to identify the benefits of this type of agriculture, particularly social benefits that can't be measured in dollar amounts. Some of the factors participants felt were important to consider were urban agriculture's contribution to increasing urban resiliency, creating a bridge between rural life and urban life and a connection between people and their food source, municipal costs associated with servicing low density residential development, and creating a new revenue source for areas in the city that, for various reasons, are not appropriate for more urban forms of development. One food policy expert articulated this as follows:

I think defining value is something that's important to look at. When governments are making decisions with respect to the policy outcomes they're hoping to achieve with the policies that they develop or the regulations they create, it's very easy to put dollar values on things.If you look the perspective of what the value is to the municipality and the people that live within the municipality of having farmers doing direct farming in that peri-urban landscape, it's not quite as tangible. And people will often try to put it in an economic context, but it would be more effective if you can find a more robust way of defining how that contributes to the overall health, wellness and prosperity for a municipality's residents.

...To me one of the most valuable parts of having direct marketing¹⁰ going on is that it creates a bridge between the rural-urban divide. It's important to for urban consumers, voters and citizens to have understanding and awareness about how agricultural systems work, because in many cases they don't understand, and yet they wield enormous influence over the agricultural systems through voting power and buying power.

Differing priorities between municipalities

One of the most spoken about issues arising from interviews was the fact that agriculture is by nature an interjurisdictional issue. The issue raised was that when agriculture policy is left to municipalities without coordination, it can produce discordant, non-contiguous development. In particular, it was felt that even if the City of Winnipeg decided to designate certain undeveloped lands for agriculture in the long term, the adjacent municipality may allow for development on their side of boundary, resulting in leapfrog development and in many ways defeating the purpose of the city's policy. One food policy expert described this as follows:

One of the issues I see is that around any major urban areas, the surrounding rural municipalities quite often adopt a different approach than what is seen in the city. So to avoid having people just moving across the municipal boundary and developing there, I think it's important to get consensus of the surrounding municipalities as to the approach, so that everybody is playing by the same rules, and you don't have this patchwork quilt. That's easier said than done, however, because they're all separate governments.

¹⁰ There is variation in how small-scale producers and food policy experts think about small-scale agriculture. Some farmers that are involved in CSAs and farmer's markets in Manitoba are large farms where the bulk of their income comes from export crops, but have small sections dedicated to smaller, higher value crops intended for local and regional markets. Many farmers who fall into this category feel that the terms "direct farming" and "direct marketing" more accurately reflect the type of activities they are talking about.

One planning professional planner gave the following example:

In thinking about preserving lands on our fringes, it's pretty hard to justify when other areas are developing. You can't have a boundary like this and not have anybody mandating that at a higher level. If we took an agricultural approach in one area and the adjacent RM doesn't, then what was achieved? Municipal strategies will never work without enforcement from the Province first, and then from the region. From a regional authority with some teeth, mandating that these things happen for the greater development of the region as a whole.

Similar to ecologically significant areas like wetlands and watersheds, agriculturally important areas do not follow municipal boundaries.

Participants felt that in order to look at local production for Winnipeg, it is necessary to extend the area to be considered beyond the boundaries of the City to include adjacent municipalities. All participants stated that in order for agriculture policy to be effective and coherent, it would require municipal coordination with strong governance by a higher level authority.

Variation in needs and lack of organization between small-scale producers

There were differences in how participants, particularly the local producers and food policy experts, described trends in small-scale agriculture in Manitoba. One participant said the term “small-scale” was not an accurate term to describe much of the activities normally described this way. It was stated that, for many of the farmers producing for local markets, this agricultural activity was only part of the farmers’ revenue source. This participant expressed the opinion that for many, their main source of revenue comes from large-scale crops and livestock intended for export, and their smaller and higher value crops that they sell direct to consumers is an extra endeavour driven out of interest, but does not provide the bulk of their income.

Other local producer participants said there were many farms that aligned well with the term “small-scale”, operating at a smaller acreage than is seen in conventional agricultural operations, with

all of their production being intended for local markets. Agricultural activities that fall into this category are extremely broad, and can include horticulture, heritage livestock and organic production. Other factors such as size and techniques (mechanization vs. manual) vary greatly as well and, as a result, the needs of small-scale farmers vary greatly.

Participants spoke about a lack of organization between small-scale farmers. Because small-scale farmers are not connected, many feel like they are on an island, and that they're needs are unique. However it is likely that many small-scale producers have more common ground with regard to the challenges they face. One food policy expert explained it as follows:

The biggest issue in the small-scale agriculture sector was that they weren't organized; they had no voice. If somebody complained, it was just an individual. Governments have a hard time dealing with individual complaints, because they don't know if it's a widespread problem or just one person's problem. Actually having an organization that can speak on behalf of its members is really how governments like to relate. There are many existing agriculture focused organizations in Manitoba. So we have all these agricultural organizations, and sometimes what one organization asks for conflicts with another, but then at least you know you're getting the grain growers opinion vs. the hog farmers opinion. And so if small-scale producers have that structure, they can be one of those voices at the table. You have some opportunity then to develop common policy asks on behalf of different people involved.Small-scale farmers didn't think that they had anything in common with each other because they were all doing something a little bit different, but they all had common problems in that they didn't know how to relate to government policy makers, they didn't know how to relate to regulation makers, they couldn't really collaborate with each other, and they couldn't promote their entire sector.

Although there are certainly differences within the small-scale agricultural community, and different perspectives about what that community looks like, important common challenges exist.

6.4.4 Options and suggestions for small-scale agriculture policy

Each interview participant was provided with a briefing document in advance of the interview containing information about the research, what is meant by “peri-urban”, key

stakeholders involved in agriculture and agriculture policy, two approaches to agriculture policy (“farmland preservation” and “supporting urban agriculture”), and strategies and tools used in each of these approaches. Participants provided feedback on the approaches, strategies and tools described in the briefing document, and described many other options not discussed in the briefing document. Participants shared their thoughts on tools, approaches, governance, and ongoing developments and possibilities specific to Winnipeg.

Leadership needed

One of the strongest themes that came out of interviews was that a leadership role would be required in order for peri-urban agriculture policy to be effective. Participants felt unanimously that an overarching governing body would be needed in order to facilitate and support policy coordination between Winnipeg and adjacent municipalities. In general, participants spoke about a need for a strong Provincial leadership role in creating an overall regional vision with unifying policies that crossed municipal boundaries, and developing a framework to require intermunicipal coordination. Others spoke about a role more focused on facilitating and bringing municipalities together to discuss and develop softer guidelines in a collaborative process.

Participants who expressed a need for a stronger approach stated that, because agricultural land preservation was often not in municipalities’ best interests from an economic standpoint, it would be unlikely that they would agree and coordinate if there was no requirement. A number of participants, who stated that a stronger approach was needed, discussed approaching farmland preservation proactively. Because it is impossible to know what challenges and crises will occur, it is important to prepare now as opposed to waiting until there is a crisis, such as sharp increases in imported food or oil prices due to changing supply or trade policies. One planning professional

compared the preservation of agricultural land to the decision to construct Winnipeg's floodway, saying,

It won't be happening until when? Usually it's the result of something crisis related or too late, which is frustrating to hear, because nobody knows what the future problems are. People didn't like the development of the floodway and they thought it was a waste of money, but what about now?

Participants who spoke about this were expressing a need to prepare for an unknown future.

Although the term resiliency was not mentioned when speaking about this need, this speaks to the concept of urban resiliency. Resilience can be understood as the ability of a system (such as a city system) to absorb disturbance and reorganize to retain essentially the same function, structure, identity and feedback (Walker et al., 2004). Self-sufficiency is a primary tenant of urban resiliency. (See Section 3.4 – *Resilience Planning for Food* for theoretical underpinning of resiliency.)

One participant stated that a softer approach would be appropriate said that agriculture is a highly local issue, and is dealt with most effectively by local governments. This participant expressed concern about the Provincial government dictating policy, saying that although the Province would need to be involved, their involvement should be to coordinate, not lead.

Strategies and tools for Winnipeg

Several suggestions were proposed for how to expand urban agriculture policy and ultimately better support various forms of urban agriculture. Many of the suggestions were not related to small-scale commercial agriculture in particular, but to other forms of urban agriculture in a broader context. These suggestions included identifying urban hold areas that could accommodate temporary agriculture uses, allowing sales on produce from community gardens, promoting backyard production, revisiting the City's urban chicken policy, and promoting an urban structure that allows for small neighbourhood corner stores.

When asked about specific areas in the city that stand out as ideal places for urban farming, planning professionals highlighted two types of locations, both due to their restrictions to residential development. The first were those areas located within the municipal boundary, but outside of the floodway. The second were those located on undeveloped lands, where costs to bring municipal services is prohibitive, or where it is expected urban development will not occur in the near or medium term future.

It was also stated that the City of Winnipeg's development plan, *OurWinnipeg*, is under review. It is possible the city's priorities for development may change as a result of this process. There are precinct plans that were approved in the 1970s, 1980s and 1990s, and designated New Communities, but never developed. These areas include very large tracts of undeveloped land. It is unlikely the City would want to develop areas furthest from service connections before inner areas are developed, meaning the lands located furthest from existing service connections may not be appropriate for development for many years or even decades. One opportunity discussed was to redesignate these areas as hold areas for urban development in the long-term future, and allowing them to accommodate temporary agricultural uses in the interim. These areas are being examined more closely through a residential land supply study, currently underway.

7.0 ANALYSIS

The following section provides an analysis of the findings presented previously. This analysis explores trends associated with small-scale agriculture in Winnipeg's peri-urban areas.

7.1 Rural, urban, peri-urban, and small-scale agriculture

Although small-scale peri-urban agriculture is considered a form of urban agriculture, it has similarities to both urban and conventional rural agriculture. Through the literature, which provided explanations for each of these forms of agriculture, it was discovered that when people think of urban agriculture, they often have in mind forms of agriculture that include inner-city community gardens, downtown rooftop gardens, or backyard chickens. Many of the forms of urban agriculture taking place in the denser and central areas of cities focus on goals such as urban resilience, inner-city food security, capacity building, community development, and providing opportunities for immigrants and newcomers.

Although small-scale urban food production can share these goals, its primary purpose is agricultural production for commercial purposes. In this way small-scale peri-urban agriculture seems closer to conventional rural agriculture.

7.2 Current state of the city and region

There is a gap in how small-scale agriculture is addressed through policy in the Winnipeg context, as there is little in terms of policy framework for small-scale agriculture. Instead, policies designed for large-scale intensive agriculture are expected to provide sufficient support for small-scale agriculture. A number of factors related to the local context impact development patterns in the City of Winnipeg and its surrounding area. Geography, growth rate, and local political and

cultural trends all impact development patterns and how agriculture is addressed within the boundaries of the City of Winnipeg and its surrounding areas.

The City of Winnipeg exists in an area that is largely unencumbered spatially by either geographic features, such as mountains or ocean, or other encroaching urban centres. As well, although the City of Winnipeg is growing at a moderate rate, there are not the population densities and growth rates observed in other study cities such as Vancouver and in Ontario's Golden Horseshoe. The City of Winnipeg and the Winnipeg Metropolitan Region therefore have not had the same immediate and urgent need to conserve land as other urban and regional areas, in spite of policy statements (provincial, regional and municipal) promoting density and conservation of productive farm land.

Finally, although there has been a shift toward increased interest in local food across North America, it was felt that Canadian prairie cities have seen a less aggressive push in this direction than in other areas. One example of this trend can be seen looking at how backyard poultry is addressed. Of the cities studied in Section 4.0 – *Document Analysis*, all study cities permitted urban hens except Winnipeg, Edmonton, Saskatoon and Calgary (although Edmonton is currently in the implementation stage of a pilot project allowing a small number of residents to keep urban hens). It is important to note however that keeping of urban hens would require increased resources for permitting, public education and enforcement of animal welfare standards. Interview participants also spoke about cultural differences related to food stands and small-scale farming between prairie and non-prairie cities.

7.3 The importance of language

Some definitions suggest small-scale is related to sustainable farming practices, family-owned farms and less intensive farming. The Small-scale Manitoba working group states that while these notions may carry some initial intuitive appeal, size alone does not dictate whether farms are operated by a family, whether farming practices are sustainable, or whether land use is optimized either intensively or extensively.

There are important differences between large- and small-scale agriculture, and those differences have implications for policy development. The terms “agricultural production”, “agricultural cultivation”, “crop production”, and “livestock production” have different implied meanings than “urban farm”, “food production”, and “small-scale agriculture”. Whereas the first set of terms is used to refer to intensive large-scale crop and livestock production intended for global export markets, the second set of terms is used to refer to production of higher-value and specialized food and other agricultural products intended for local, regional and niche markets.

Expressing intention to support urban farming at a municipal level has value in that it signals to the public that this is a recognized and encouraged activity. In establishing small-scale agriculture as a recognized and encouraged activity, it is important that municipalities distinguish between large- and small-scale agriculture. Setting out a policy framework for small-scale agriculture allows it to be defined and acts as an indicator that this type of development will be supported by governments. As well, defining these terms and establishing small-scale as different in nature to large-scale crop and livestock production helps people to better understand what types of agricultural development are permitted and encouraged in different areas. Uses related to urban agriculture found in the literature and review of urban agriculture related policy documents generally included the phrases “urban farm”, “small-scale”, and/or “food production”. The term “Specialized Agriculture” was found only in policy documents in Winnipeg and Manitoba.

7.4 Incorporating small-scale agriculture into planning documents

There is no single type of document or set of documents used to address urban agriculture across municipalities, however zoning is one of the most important ways cities either intentionally or unintentionally enable or discourage agricultural development. As well, when urban agriculture and/or the local food system is addressed in long-range planning documents such as development plans or food strategies, it sets the stage and creates a policy directive for municipalities to incorporate urban agriculture into zoning by-laws.

Zoning considerations

Urban agriculture language is generally found in zoning by-law definition sections and in bulk tables. Both are important in supporting urban agricultural activities. Including definitions for various urban agriculture related activities can help to demystify such activities and is important in helping to increase public awareness and education, as well as helping the public to better understand what type of development use is and is not permitted. In particular, including definitions for terms differentiating urban agriculture uses from large-scale rural agricultural uses is important, as this signals the city is in support of this specific activity, and sets out regulations to streamline the process.

Identifying specific permitted uses related to small-scale food production and including clearly stated lot size, parking and other requirements, and identifying which zones these uses are permitted in, is perhaps the most tangible way small-scale food production can be addressed and supported through zoning. (Findings related to this can be found in Section 4.4.2 – *Zoning by-law review*).

Decreasing minimum lot sizes in areas where small-scale agriculture is being promoted can lead to unwanted residential development as subdivision applicants may claim they intend to

develop small-scale commercial urban agriculture when in reality the land is planned for low-density, rural residential development. There are ways to minimize these risks, however, such as working with applicants throughout the application process and requiring business and site plans for the proposed area.

7.5 Integration of agriculture and environmental policies

In the documents examined for this research, there was little integration of agriculture and environmental policies. It was also found through interviews that there was limited knowledge and understanding surrounding these types of policies in the Winnipeg context.

Because agriculture lands and ecologically significant areas share similar issues and challenges related to urban development, however, there are opportunities to integrate protection policies for these types of lands. There is particular opportunity for integration of policy to protect ecologically significant areas and policies focused on small-scale agriculture. This type of food production is by nature generally less ecologically damaging than intensive, large-scale crop production in a number of ways (discussed in detail in Section 3.4 – *Resilience Planning for Food*). As well, small-scale agriculture is often associated with a consciously ecological approach to food production; many small-scale farms operate based on a commitment to ecologically sustainable food production techniques, making these policy areas well suited to integration.

Conservation agreements, an incentive-based voluntary legal agreements between a landowner and land trust, conservation organization or government agency, allow farmers to be paid to protect ecologically significant features located on their property. This is an example of a tool that could be used to integrate environmental protection in agriculture policy areas.

7.6 Inter-municipal consistency and coordination

Coordinated regional planning has not been provincially mandated for the Winnipeg Metropolitan Region as it has been in other regional centres, such as the Edmonton Metropolitan Region and the Golden Horseshoe. Unclear or changing responsibilities of municipalities sharing the peri-urban area creates uncertainty and often results in uncoordinated development. Without strong leadership from higher levels of government, the market fails in preserving prime agriculture lands. Left to its own devices, the market responds to development demands with increasing land prices, causing even prime agricultural lands to be used for development (Knowd et al., 2006). The finger plan in the Copenhagen region and the Greenbelt Plan in Ontario's Golden Horseshoe are two examples of an urban growth management strategies where municipalities collaborated to prioritize protection of agriculture in the peri-urban areas. Without a strong leadership and a mandate for regional coordination, municipalities compete for development, often resulting in discordant policies and patchwork development.

Many strategies have been proposed and implemented to preserve peri-urban farmland and agricultural activities in the North American context. Large-scale protection and maintenance of agricultural lands is dependent on the input of many stakeholders and multiple levels of government, and requires inter-municipal coordination and input from both local and provincial governments.

In the Winnipeg context, there were mixed opinions on whether large-scale protection of agricultural land through regulatory-based tools such as agricultural land reserves would be an appropriate tool for the region. For many, incentive-based tools such as farmland trusts and conservation agreements were favoured. Many farmers, especially those located in or near the City of Winnipeg, rely on being able to sell their land at a higher price for their retirement, since land slated for residential development is valued higher than agriculture land. Creation of agricultural

districts enables farmers and policymakers to designate special areas where agriculture is encouraged and protected collaboratively.

Creation of an agricultural district within the Winnipeg Metropolitan region would allow for farmers who choose to participate to receive a number of benefits that may include eligibility for differential tax assessments, protection from development pressures, and certain tax exemptions, while ultimately leaving decision making power with land owners themselves. This type of more nuanced approach to farmland protection could be achieved through provincially-mandated regional coordination such as what is seen with the Edmonton Metropolitan Region. Agricultural districts are areas designated to prioritize agriculture.

7.7 Potential areas to incorporate small-scale commercial agriculture use in Winnipeg

The mapping analysis section of this research highlighted areas that would be appropriate for policy intended to support small-scale commercial food production within the City of Winnipeg based on existing municipal policies and legislation. These locations are highlighted in Section 5.2.2 – *Land Suitability Assessment*. The lands highlighted in Section 5.2.3 – *Constraints* were of particular importance as these areas will not be appropriate for residential development for the foreseeable future. There is an opportunity for the city to take advantage of undeveloped land by promoting commercial agriculture in these areas.

8.0 CONCLUSIONS

8.1 Summary

Small-scale commercial food production is an important type of urban agriculture that can create economic, environmental, and social benefits for cities. The City of Winnipeg has identified urban agriculture as a priority. In May 2014, The City of Winnipeg Public Service received direction from the Standing Policy Committee for Property and Development to research and analyze potential planning approaches and provide recommendations on how to “ensure that the interests of the agricultural community residing on lands zoned agricultural within the City of Winnipeg are considered as the city continues to grow” (City of Winnipeg, 2015). A report came out of this research directive recommending the Winnipeg Public Service:

“engage key stakeholders to provide recommendations related to the formation, role and governance structure of a Winnipeg Food Council, with a mandate of providing continued advice on agriculture and food related policy, including:

1. That the Winnipeg Public Service investigate and advise as to which areas of land, if any, designated ‘Rural and Agricultural’ in *Complete Communities* that could be reserved for agricultural and compatible uses considering existing development constraints.
2. That the Winnipeg Public Service analyzes the benefits of introducing ‘Specialized Agriculture’ and ‘Market Garden’ as primary uses into the Winnipeg Zoning By-law, and make recommendations on how best the City could accommodate the establishment of these uses.
3. That the Winnipeg Public Service engage key stakeholders to investigate and provide recommendations related to the formation, role and governance structure of a Winnipeg Food Policy Council, with a mandate of providing continued advice on agricultural and food related policy, including:
 - A. Providing research and advisory support towards implementing the direction strategies related to food and agriculture outline in *OurWinnipeg* and *Complete Communities*;
 - B. Investigating barriers towards local agricultural production and exploring opportunities towards improving food production and food security;

- C. Preparing a report with recommendations to expand the list of permissible non-invasive agricultural-related uses throughout the City of Winnipeg; and
- D. Assisting in the creation of an Agricultural and Food Security Strategy to address local food production and security issues. This strategy would follow the policy directions for 'Rural and Agricultural' lands identified in *Complete Communities* and respond to food needs as identified in the *OurWinnipeg* section on 'Vitality'" (City of Winnipeg, 2015).

This research focused on examining opportunities to support small-scale agriculture in Winnipeg's peri-urban areas, taking into consideration land uses on immediately adjacent lands in surrounding municipalities. The conclusions of this research contributes to the above directives and recommendations. These conclusions offer options for action in some areas, and provide a foundation for further research in others. These conclusions will be discussed below.

8.2 Addressing the Research Questions

This research attempted to answer three questions. In this section I will attempt to provide some responses and thoughts on those questions.

Response to Research Question 1

Q1. In what ways can urban agriculture enhance urban resiliency?

This question was answered primarily through the literature review section of this research. Resilience refers to the capacity of an urban system, including its natural, built, social and economic elements, to respond to change, learn from challenging situations, and rebound after significant stress or shock (Pearson et al., 2014). As well, resilience refers to “the capability of individuals, social groups, or social-ecological systems including towns and cities not only to live with changes, disturbances, adversities or disasters but also to adapt, innovate and transform into new more desirable configurations”

It is predicted that by 2050, around 75 percent of the global population will live in urban environments (UNDESA, 2012). In Canada, urban populations exceed 80 percent. As well, cities are responsible for over 80 percent of the world’s greenhouse gas emissions (Zoellick, 2011). Both low density, auto-reliant development at the edges of cities and conversion of agricultural land to urban uses contribute to this.

How we feed urban populations has significant implications for our planet, and creating more ecological approaches to food production is one of the most significant ways we can mitigate our impact. Increasing agricultural activity in cities can help contribute to greater urban resiliency in a number of ways. Opportunities for urban agriculture to strengthen urban resiliency include decreasing reliance on global export markets (increasing self-sufficiency), decreasing fossil fuel use

associated with production and transportation of products, carbon storage and sequestration, windstorm control, biodiversity conservation, and enhancing resource efficiency by closing nutrient cycles. In areas where concrete is replaced with green, urban agriculture can also reduce the heat island effect and provide natural runoff control and flood-risk protection.

Response to Research Question 2

Q2. What strategies, policies, or government bodies could help to improve opportunities for agriculture and agriculture-related activities in Winnipeg's peri-urban areas?

This question was answered over the course of various research stages. Initial answers related to what strategies and policies could help to improve opportunities for agriculture and agriculture-related activities were found through review of literature. These initial findings helped to inform the design of the document analysis, which uncovered further insights related to strategies and policy documents in the Winnipeg context. Finally, interviews provided verification and expanded on these findings. Answers related to what government bodies could help to improve opportunities for agriculture and agriculture-related activities in Winnipeg's peri-urban areas were developed initially through the literature review, and then verified and brought into the Winnipeg context through interviews with planning professionals, food policy experts, and local producers.

It is important for municipal governments to identify and clearly state their goals and priorities, and ensure that their policy documents and by-laws reflect those goals and priorities. If small-scale agriculture is being supported, policy documents and by-laws should reflect that priority. Do they seek to protect and conserve agricultural lands in some areas, but simply to better facilitate the development of agricultural operations in areas that are not suitable or not slated for urban development in the short-, medium- or long-term? Both regulatory- and incentive-base approaches

are important, depending on the goal. For areas within the Winnipeg Metropolitan Region where regional coordination is required, provincially-mandated regulation is required to ensure regional development is contiguous and avoid leapfrog development. For undeveloped lands within the city where small-scale agriculture would be appropriate, simple updates to make zoning conducive to small-scale commercial agriculture can be an effective tool.

Response to Research Question 3

Q3. Where is there undeveloped land that could be used for agriculture or agriculture-related activities in Winnipeg's peri-urban areas?

- a. Taking into consideration both capacity of the parcels and potential for land use conflicts, what types of agricultural activities would be appropriate for these parcels?*
- b. What would be the benefit of promoting or establishing these agricultural activities in these areas?*

Question 3 was answered through the mapping analysis section of this research, and interviews with planning professionals. Findings were reached through a mapping analysis, and this question was posed to planning professionals to gain further information, insights, and concerns that would not have been uncovered through the mapping analysis.

A significant portion of land area in the City of Winnipeg is currently undeveloped. The City of Winnipeg has a land area of approximately 465 km². The peri-urban area defined for this study was made up of undeveloped lands located in the fringe areas of the city. This undeveloped area covers about 40 percent of Winnipeg's total land area. In particular, areas that were undeveloped and zoned and designated for agriculture made up about a quarter (109km²) of Winnipeg's land area. This is a significant amount of land, and represents an opportunity for the City to encourage agricultural development in these areas. (These areas are identified in Section 5.2.2 – *Land Suitability Assessment*.)

The literature review, document analysis, and interviews provided some partial responses to question 3(a). Potential agriculture-related activities for undeveloped parcels of land within City of Winnipeg boundaries could include market gardens, agriculturally-focused residential development (could be cohousing), growing of non-food products such as aromatic and medicinal herbs, composting operations, berry farms, orchard fruit, 'you pick' operations, greenhouses, small livestock, honey production, mushroom and microgreen growing. These are only a few examples of the types of activities that could be suited to smaller areas of land than are typically required for large-scale crop and livestock production.

The literature review identified a number of benefits of supporting agricultural in cities, and responses specific to Winnipeg were gained in interviews. Permitting a greater diversity of agricultural activities throughout the city can help build urban resiliency through climate change mitigation and adaptation, providing natural flood protection and windstorm control, biodiversity conservation, carbon storage and sequestration, reducing energy use and food-mile emissions, reducing the urban heat island effect, diversifying food and income sources, and enhancing resource efficiency (i.e. closing nutrient cycles).

Interview participants highlighted the importance of acknowledging social benefits that can't be measured in dollar amounts. Interview participants also spoke about urban agriculture's contribution to increasing urban resiliency, creating a bridge between rural life and urban life and a connection between people and their food source, municipal costs associated with servicing low density residential development, and creating a new revenue source for areas in the city that, for various reasons, are not appropriate for more urban forms of development.

8.3 Recommendations for Action

1. Provincially mandate regional farmland protection

- The Provincial Planning Regulation could be amended to include regional preservation of farmland as a legislative requirement in high growth areas such as the Winnipeg Metro Region. Mandating regional coordination for farmland preservation could be examined in the Province’s current review of the Winnipeg Metro Region’s structure, membership, governance and accountability structures. Urban agriculture directives could be included.
- A regional farmland preservation strategy should include programming to enable protection of ecologically significant areas including corridors and important habitat areas. Voluntary incentive-based programs such as conservation agreements allow for those who wish to participate to benefit from environmental stewardship.
 - Public education and marketing should be ongoing as public knowledge and understanding around incentive-based programming is essential to its uptake.
- Farmland trusts and tax sharing programs should be included in an assessment of policy tools for regional farmland preservation.

2. Incorporate small-scale agriculture language into Winnipeg’s planning and policy documents

- Directives related to specialized agriculture established in OurWinnipeg could be clarified and expanded, including consideration of language used in other Canadian and North American jurisdictions. Small-scale food production and related uses should be reflected in Winnipeg’s zoning by-laws.
- “Food production”, “small-scale food production”, “urban farm”, “market garden” and “farm stand” are examples of uses that could be included into various residential, downtown commercial, and other zoning districts in addition to agricultural zones.

3. Create advocacy body for local producers

- Local producers have some avenues to organize including Direct Farm Manitoba, however in order to develop a unified voice to be able to advocate for policy and programming, these voices should be brought together. The Winnipeg Food Council or Food Matters Manitoba could take on this task. Local producers involved with Direct Farm Manitoba and those who participated in the Small-scale Manitoba Working Group could be recruited for membership.

4. Explore models for peri-urban agricultural development

- This research identified areas within the City of Winnipeg's peri-urban space that could benefit from the creation of policies to support small-scale food production, and examined how other cities have integrated small-scale food production into their policy documents. The next step would be to examine more closely what types of agricultural activities could be supported by these lands. For example, the concept of agricultural urbanism (eg. agri-hoods) is a way to preserve agricultural land in Precinct areas where development has been approved, but provision of servicing is challenging (ie. Wilkes South). The following offer a starting point for inquiry: De la Salle, Janine (Ed.) and Holland, Mark (Ed.), 2010; Duany, Andres and Duany Plater-Zyberk & Company, 2011; and Urban Land Institute, 2018.
- Models for leasing peri-urban lands for agriculture as an interim use should be explored. Research could look to the Province of Manitoba's cropping leases auctions.

5. Conduct parcel-scale analysis of lands that would be suitable for agriculture and agriculture-related uses to identify other possible constraints

- One example is aquifer salinity, a known problem in St. Vital where some well water is too salty to water plants. Closer analysis should include parcel ownership patterns, groundwater, soils quality, drainage, water quality, water supply, and road access as suitability criteria.

8.4 Limitations, Other Directions for Further Study and Closing Remarks

Lands located within approved precinct plans (described on page 9) were not excluded from the study area in the land suitability assessment. Many lands that were approved for development in the 1970s-1990s have not yet been developed. In some cases this is due to difficulty in servicing the lands. Lands located in areas with approved but undeveloped precinct plans are often zoned Agricultural, and agricultural activities continue to exist, although they are not protected. This study did not assess the viability of individual precinct plans to be developed. Lands in areas with approved precinct plans require closer analysis. These lands should be assessed on a case by case basis to determine where agricultural activities will be most likely to continue in the short- and medium-term. As well, lands within the Airport Area and the City of Winnipeg's CentrePort area should be reassessed, and there may be lands in these areas that would be ideal for agricultural uses.

As well, current review of OurWinnipeg; designations could change. Areas currently designated as New Community may be redesignated Rural/Agricultural. Reassessment of potential locations for peri-urban agriculture would be appropriate at that time if there is a change in agriculturally designated lands.

This research focused primarily on exploring opportunities for agriculture on lands zoned for agriculture within the City of Winnipeg. This is a narrow focus in considering opportunities for agriculture in the city. Future research should explore further how agriculture can be incorporated into cities in a more holistic way, including expanding permitted uses related to food production on non-agricultural lands.

Decreasing minimum lot sizes in areas where small-scale agriculture is being promoted can lead to unwanted residential development as subdivision applicants may claim they intend to develop small-scale commercial urban agriculture when in reality the land is planned for low-density, rural residential development. Ways of minimizing this need to be studied further.

Currently, there is no direction for farmland preservation at the provincial or federal level. Future research might explore the impact of enforced legislation at higher levels of government on farmland preservation at the municipal and regional levels.

Near the time of completion of this research, the Government of Manitoba announced creation of a working group for the Winnipeg Metropolitan Region (Government of Manitoba, 2019). This creates potential for a new approach to regional planning and coordination in the Winnipeg capital region. In particular, this potential for legislative change creates new potential opportunities for a mandated regional approach to preservation of farmland and ecologically significant areas and corridors. Future research should focus on how farmland preservation and urban agriculture could be incorporated into legislation.

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APPENDIX A. REVIEW OF AGRICULTURAL ZONED LANDS WITHIN CITY BOUNDARIES RESOLUTION

Agenda – Standing Policy Committee on Property and Development – May 13, 2014

REPORTS

Item No. 26 Review of Agricultural Zoned Lands within City Boundaries

COMMUNITY COMMITTEE RECOMMENDATION:

On May 5, 2014, the Riel Community Committee recommended to the Standing Policy Committee on Property and Development that in recognition of 2014 being “The International Year of Family Farming”, the Winnipeg Public Service be directed to research and analyze potential planning approaches and provide recommendations on how best to ensure that the interests of the agricultural community residing on lands zoned agricultural within the city boundaries are considered as the city continues to grow.

Agenda – Standing Policy Committee on Property and Development – May 13, 2014

DECISION MAKING HISTORY:

On May 5, 2014, the Riel Community Committee passed the following motion:

WHEREAS the United Nations has recognized 2014 as the International Year of Family Farming;

AND WHEREAS The City of Winnipeg has substantial areas zoned as agricultural, many of these areas being family farms;

AND WHEREAS the importance of local food production is increasingly recognized as a health benefit for a community;

THEREFORE BE IT RESOLVED THAT The City of Winnipeg formally recognizes 2014 as the International Year of Family Farming;

BE IT FURTHER RESOLVED THAT in recognition of 2014 being “The International Year of Family Farming”, the Winnipeg Public Service be directed to research and analyze potential planning approaches and provide recommendations on how best to ensure that the interests of the agricultural community residing on lands zoned agricultural within the city boundaries are considered as the city continues to grow.

APPENDIX B. FORMATION OF WINNIPEG FOOD COUNCIL RECOMMENDATION

Minutes – Executive Policy Committee – February 8, 2017

REPORTS

**Item No. 7 Formation of Winnipeg Food Council – Stakeholder Engagement
Report and Recommendations**

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

The Executive Policy Committee concurred in the recommendation of the Winnipeg Public Service and recommended to Council:

1. That the creation and operationalizing of the proposed Winnipeg Food Council be authorized by approving the attached Terms of Reference document (Attachment A of this report).
2. That a budget increase of \$69,000 for the creation and operation of a Winnipeg Food Council be referred for consideration in the 2018 budget review process.
3. That the Public Service be directed to report back to Council within 120 days, with membership recommendations for Council approval.
4. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

APPENDIX C. STUDY CITY AGRICULTURE USE DEFINITIONS AND ZONE PURPOSES

Winnipeg

Zones:

Agricultural Zone (A) – The Agricultural (A) district is intended for general agricultural activities.

Rural Residential 5 Zone (RR5) – The Rural Residential 5 (RR5) district is intended to provide areas for large-lot rural residential development, along with limited agricultural uses.

Uses: None

Edmonton

Zones:

Agricultural Zone (AG) – The purpose of this zone is to conserve agricultural and rural Uses.

Urban Reserve Zone (AGU) – The purpose of this Zone is to allow for agricultural and rural Uses and a limited range of other uses, that do not prejudice the future use of these lands for urban use.

Uses:

Rural Farms means development for the primary production of farm products such as: dairy products; poultry products; cattle, hogs, sheep and other animals; wheat or other grains; and vegetables or other field crops in rural and peri-urban areas. This does not include Livestock Operations or Urban Outdoor Farms.

Urban Indoor Farms means the cultivation and harvesting of plant and animal products primarily within buildings. Accessory uses may include on-Site sales, outdoor storage, and food packaging and processing. Example activities may include vertical farms, hydroponics, aquaponics, and food distribution. This does not include Livestock Operations. (Industrial Use Class.)

Urban Outdoor Farms means the cultivation and harvesting of plant and animal products in urban areas, primarily on idle or under-used land. Accessory Uses may include on- Site sales and composting plants grown on-site, outdoor storage, and buildings for the operation of the Site and the extension of the growing season. This does not include Livestock Operations, Rural Farms or Urban Gardens. (Agricultural and Natural Resource Development Use Class.)

Minneapolis

Zones: None

Uses:

Market garden – An establishment where food or ornamental crops are grown on the ground, on a rooftop or inside a building, to be sold or donated.

Urban farm – An establishment where food or ornamental crops are grown or processed to be sold or donated that includes, but is not limited to, outdoor growing operations, indoor growing operations, vertical farms, aquaponics, aquaculture, hydroponics and rooftop farms.

Vancouver

Zones:

Limited Agriculture District (RA-1) – The intent of this Schedule is to maintain and encourage the semi-rural, equestrian and limited agricultural nature of this District, to permit one-family dwellings and in specific circumstances to permit infill one-family dwellings.

Uses:

Urban Farm Class A – These are smaller scale, integrated into the neighbourhood, likely located in front or backyards, and growing in soil. This use is conditional in residential zones only and is restricted in other zoning districts.

Urban Farm Class B – These can be small or large and include a building or greenhouse. They can sell produce from the site, and can be soil or soiless growing. This use is conditional in industrial, commercial and historical area zones, and is restricted in residential zones.

Saskatoon

Zones:

Agricultural District (AG) – The purpose of the AG District is to provide for certain large-scale specialized land uses as well as certain rural oriented uses on the periphery of the City.

Future Urban Development District (FUD) – The purpose of the FUD District is to provide for interim land uses where the future use of land or the timing of development is uncertain due to issues of servicing, transitional use or market demand.

Uses: None

Victoria

Zones: None

Uses:

Small-scale commercial urban agriculture – Small-scale commercial urban agriculture' means: (a) cultivating and harvesting plants or fungi; (b) beekeeping and harvesting honey; (c) keeping poultry to collect eggs; and (d) sorting, cleaning and packaging the items noted above for retail purposes, as well as selling and storing harvested products on the premises.

Kamloops

Zones:

Agricultural Zone (A-1) – The purpose of the A-1 zone is to preserve land designated in the Official Community Plan as "Agricultural/Resource Land" for agriculture and related land extensive uses.

Future Development Zone (FD) – The purpose of the FD zone is to identify lands for potential future development, however, only those lands designated in the Official Community Plan as Special Development Areas are expected to be developed prior to the 120,000 population horizon.

Uses: None

Calgary

Zones:

Future Urban Development District (S-FUD) – The Future Urban Development District is intended to:

- (a) be applied to lands that are awaiting urban development and utility servicing;
- (b) protect lands for future urban forms of development and density by restricting premature subdivision and development of parcels of land;
- (c) provide for a limited range of temporary uses that can easily be removed when land is redesignated to allow for urban forms of development; and
- (d) accommodate extensive agricultural uses prior to development to urban uses.

Transportation and Utility Corridor District (S-TUC) – The Transportation and Utility Corridor District is intended to:

- (a) be applied to land located within the provincial transportation and utility corridor, where the primary purpose is to provide for provincial transportation facilities and linear utilities; and

(b) accommodate select types of temporary and removable uses where there is approved access and where the use is compatible with adjacent uses and transportation facilities and linear utilities.

Uses:

Extensive Agriculture means a use:

- (i) where land is used to raise crops or graze livestock outdoors;
- (ii) where trees and shrubs are intensively grown outdoors;
- (iii) that may have ancillary agricultural buildings and structures that support the outdoor activities; and
- (iv) that may include ancillary structures for small-scale subsidiary agricultural pursuits. (Agriculture and Animal Group Use Group.)

Intensive Agriculture means a use:

- (i) where livestock or other farmed animals are continuously confined in a building or outside;
- (ii) where concentrated feeding and rearing methods are used grow, maintain and bring animals and their products to market; and
- (iii) includes feedlots, hog and poultry farms, rabbitries, fur farms and other intensive methods of feeding and raising livestock. (Direct Control Uses Group.)

Food Production means a use:

- (i) where plants are grown to produce food in a building;
- (ii) that may include hydroponics, aquaponics and vertical growing;
- (iii) where food grown on-site may be processed and packaged;
- (iv) that may include aquaculture only when the use is in the I-G or I-H Districts;
- (v) where no dust or vibration is seen or felt outside of the building containing the use; and
- (vi) where all of the processes and functions associated with the use are contained in a fully enclosed building. (General Industrial Use Group.)

APPENDIX D. STUDY CITY COMMERCIAL URBAN FOOD PRODUCTION RELATED ZONING AMENDMENTS

Winnipeg	
None	None
Edmonton	
October 2015	Established “Urban Outdoor Farms”, “Urban Indoor Farms”, and “Urban Gardens” as new land use classes; exclude cultivation of marijuana from the “Urban Indoor Farms” Use Class. Instead of “Farm” use, categorized into either “Rural Farm” or “Urban Outdoor Farm”
Minneapolis	
March 2012	Established “Urban farm” and “Market garden” as new uses
September 2014	Modified zoning code regulations pertaining to farmstands. Farmstands no longer require a Temporary Use Permit, but rather are regulated through development standards
Vancouver	
April 2016	Established “Urban farming” as a new use
Saskatoon	
None	None
Victoria	
September 2016	Established “Small-scale commercial urban agriculture” use
Kamloops	
None	None
Calgary	
May 2017	Established "Extensive Agriculture", "Intensive Agriculture" and “Food Production” as uses

APPENDIX E. STUDY CITY URBAN FARM ZONING: PERMITTED, CONDITIONAL, AND NOT PERMITTED USES

	Urban Farm Use	Permitted	Conditional	Restricted
Winnipeg	No urban farm uses	n/a	n/a	n/a
Edmonton	Urban Indoor Farm	IL, IM, P	CNC, CSC, CB1, CB2, CHY, CB3, IB, IL, IM, IH, US, CS4, AG, AGI	RF1, RSL, RF2, RPL, RF3, RF4, RMD, RF5, UCRH, RF67, RA7, RA8, RA9, RR, RMH, CO, AP, A, AN, MA, MA1, MA2, MA3, AJ, CS1, CS2, CS3, UI, AGU
	Urban Outdoor Farm	PU, UI, AG, AGU, AGI	RF1, RSL, RF2, RPL, RF3, RF4, RMD, RF5, UCRH, RF6, RA7, RA8, RA9, RMH, CNC, CSC, CB1, CB2, CHY, CO, CB3, IB, IL, IM, IH, US, D, CS1, CS3, CS4	RR, A, AN, MA, MA1, MA2, MA3, AJ, CS2
Minneapolis	Urban Farm	I1, I2	C4	R1, R1A, R2, R2B, R3, R4, R5, R6, OR1, OR2, OR3, C1, C2, C3A, C3S, I3, B4, B4S, B4C, B4N
Vancouver	Urban Farm - Class A		RS-1, RS-1A, RS-1B, RS-2, RS-3&RS-3A, RS-4, RS-5, RS-6, RS-7, RT-1, RT-2, RT-3, RT-4, RT-4A, RT-5, RT-5A, RT-6, RT-7, RT-8, RT-9, RT-10&RT-10N, RT-11&RT-11N, RM-1&RM-1N, RM-2, RM-3, RM-3A, RM-4&RM-4N, RM-5, RM-5A, RM-5B, RM-5C&RM-5D, RM-6, RM-7&TM-7N, RM-8&RM-8N, RM-9, RM-9A&RM9AN	RA, FM-1, C-1, C-2, C2-B, C-2C, C-2C1, C-3A, C-5, C-5A&C6, C-7&C-8, FC-1, MC-1&MC-2, M-1, M-1A, M-1B, M-2, IC-1&IC-2, IC-3, I-1, I-2, I-3, HA-1&HA-1A, HA-2, HA-3
	Urban Farm - Class B		C-1, C-2, C-2B, C-2C, C-2C1, C-3A, C-5, C-5A&C-6, C-7&C-8, M-1, M-1A, M-1B, M-2, IC-1&IC-2, IC-3, I-1, I-2, I-3, HA-1&HA-1A, HA-2, HA-3	RA, RS-1, RS-1A, RS-1B, RS-2, RS-3&RS-3A, RS-4, RS-5, RS-6, RS-7, RT-1, RT-2, RT-3, RT-4, RT-4A, RT-5, RT-5A, RT-6, RT-7, RT-8, RT-9, RT-10&RT-10N, RT-11&RT-11N, RM-1&RM-1N, RM-2, RM-3, RM-3A, RM-4&RM-4N, RM-5, RM-5A, RM-5B, RM-5C&RM-5D, RM-6, RM-7&TM-7N, RM-8&RM-8N, RM-9, RM-9A&RM9AN, FM-1, FC-1, MC-1&MC-2

Saskatoon	No urban farm uses	n/a	n/a	n/a
Victoria	Small-scale commercial urban agriculture	All zones	None	None
Kamloops	No urban farm uses	n/a	n/a	n/a
Calgary	Extensive Agriculture	S-FUD, S-TUC	None	R-C1L, R-C1Ls, R-C1R-C1s, R-C1N, R-C2, R-1, R-1s, R-1N, R-2, R-2M, R-MH, R-CG, R-G, R-Gm, M-CG, M-CGd#, M-C1, M-C1d#, M-C2, M-C2d#, M-G, M-Gd#, M-1, M-1d#, M-2, M-2d#, M-H1, M-H1d#, M-H2, M-H2d#, M-H3, M-H3f#h#d#, M-X1, M-X1d#, M-X1d#, M-X2, M-X2d#, C-N1, C-N2, C-C1, C-C2f#h#, C-COR1f#h#, C-COR1f#h#, C-COR2f#h#, C-COR3f#h#, C-Of#h#, C-R1f#, C-R2f#, C-R3f#h#, I-G, I-Bf#h#, I-Bf#h#, I-E, I-C, I-R, I-O, I-H, S-UN, S-SPR, S-CS, S-R, S-CI, S-CRI, S-URP, CC-MH, CC-MHX, CC-X, CC-COR, CC-ET, CC-EIR, CC-EMU, CC-EPR, CC-ERR, CC-ER, CR20-C20/R20, MU-1f#h#d#, MU-2f#h#d#
	Food Production	None	C-N1, C-N2, C-C1, C-C2f#h#, C-COR1f#h#, C-COR1f#h#, C-COR2f#h#, C-COR3f#h#, C-Of#h#, C-R1f#, C-R2f#, C-R3f#h#, CC-COR, CC-ET, CC-EIR, CC-EMU, CC-EPR, CC-ERR, CR20-C20/R20, MU-1f#h#d#, MU-2f#h#d#	R-C1L, R-C1Ls, R-C1R-C1s, R-C1N, R-C2, R-1, R-1s, R-1N, R-2, R-2M, R-MH, R-CG, R-G, R-Gm, M-CG, M-CGd#, M-C1, M-C1d#, M-C2, M-C2d#, M-G, M-Gd#, M-1, M-1d#, M-2, M-2d#, M-H1, M-H1d#, M-H2, M-H2d#, M-H3, M-H3f#h#d#, M-X1, M-X1d#, M-X1d#, M-X2, M-X2d#, I-G, I-Bf#h#, I-Bf#h#, I-E, I-C, I-R, I-O, I-H, S-UN, S-SPR, S-CS, S-R, S-CI, S-CRI, S-URP, S-FUD, S-TUC, CC-MH, CC-MHX, CC-X, CC-ER

APPENDIX F. STUDY CITY FOOD CHARTER GOALS AND PRINCIPLES

WINNIPEG - MANITOBA FOOD CHARTER

Length: 1 page

KEY GOALS AND PRINCIPLES

A just and sustainable food system in Manitoba is rooted in healthy communities, where no one is hungry and everyone has access to nutritious food. It is an economically viable, diverse and ecologically sustainable system to grow, harvest, process, transport, and distribute food while minimizing waste.

A just and sustainable food system in Manitoba means

- Farmers, fishers, harvesters, processors and distributors can generate adequate incomes and use ecologically sustainable practices*
- Respect for the traditional hunting, fishing, trapping, gathering, and conservation practices of First Nations, Inuit and Metis peoples within sustainable limits
- A sustainable balance between fair international agricultural trade and diverse vibrant production for the local market*
- Healthy relationships between producers and consumers in urban, rural and northern Manitoba communities*
- Province-wide availability of a variety of nutritious and affordable food through accessible retail outlets and food service operations and the economic means to obtain sufficient daily food for health and dignity
- Easy access to understandable accurate information about nutrition, food composition, the ways food is grown, preserved, processed, purchased, and cooked, and how to minimize waste*

EDMONTON

n/a

MINNEAPOLIS - MINNESOTA FOOD CHARTER

Length: 20 pages

KEY GOALS AND PRINCIPLES

Food Skills

- Children, youth, and young adults will understand the basics of food production, food preparation, and healthy food choices
- Adults will have the food skills they need to select and prepare healthy, culturally appropriate, affordable foods for themselves and their families
- Food service professionals will have the knowledge and skills they need to plan, prepare, and serve healthy, culturally appropriate meals within an institutional budget

Food Affordability

- Healthy food for all people regardless of income

Food Availability

- A diverse variety of healthy foods are more available, and unhealthy foods are less available in places where we work, live, learn, and play

Food Accessibility

- Stores selling healthy foods are located near all communities
- Cities and towns provide adequate, safe options to bike or walk to places where they can buy or grow healthy food
- Communities offer widely available, and more affordable public, private, and non-profit transportation and delivery options to make it easier to get healthy food

Food Infrastructure

- Create a vital, lasting food infrastructure that improves the health of Minnesota's consumers, while growing the food and farm economy*

VANCOUVER - VANCOUVER FOOD CHARTER

Length: 2 pages

KEY GOALS AND PRINCIPLES

The City of Vancouver is committed to a just and sustainable food system that

- Contributes to the economic, ecological, and social well-being of our city and region
- Encourages personal, business and government food practices that foster local production and protect our natural and human resources*
- Recognizes access to safe, sufficient, culturally appropriate and nutritious food as a basic human right for all Vancouver residents
- Reflects the dialogue between the community, government, and all sectors of the food system
- Celebrates Vancouver's multicultural food traditions

Five principles to guide our food system

- Community economic development
- Ecological health
- Social justice
- Collaboration and participation
- Celebration

To create a just and sustainable food system, we in Vancouver can

- Be leaders in municipal and regional food-related policies and programs
- Support regional farmers and food producers*
- Expand urban agriculture and food recovery opportunities*
- Promote composting and the preservation of healthy soil*
- Encourage humane treatment of animals raised for food*
- Support sustainable agriculture and preserve farm land resources*
- Improve access to healthy and affordable foods
- Increase the health of all members of our city
- Talk together and teach each other about food
- Celebrate our city's diverse food cultures

SASKATOON - SASKATOON FOOD CHARTER

Length: 2 pages

KEY GOALS AND PRINCIPLES

Basis of a Saskatoon Food Charter

- Food security and production
- Food security and justice
- Food security and health
- Food security and culture
- Food security and globalization

To develop and promote food security in our city, Saskatoon City Council will

- Champion the right of all residents to adequate amounts of nutritious, safe, accessible, culturally acceptable food
- Advocate for income, employment, housing, and transportation policies that support secure and dignified access to food
- Ensure the safety of food and drinking water
- Ensure convenient access to an affordable range of nutritious foods in city facilities
- Adopt and promote food-purchasing practices that serve as a model of health, social and environmental responsibility and that support the local rural economy*
- Promote partnerships and programs that support rural-urban food links and the availability of locally grown, healthy foods through the Farmer's Market, Good Food Box and other rural-urban initiatives*
- Protect local agricultural lands*
- Encourage community gardens, urban agriculture and the recycling of organic materials that nurture soil fertility*
- Support training and income generating programs that promote food security within a community economic development model
- Promote a yearly civic report card on how Saskatoon is achieving food security
- Foster a civic culture that inspires support for healthy food for all

VICTORIA - HEALTHY FOOD CHARTER: CREATING A VIBRANT HEALTHY EATING CULTURE

Length: 26 pages

KEY GOALS AND PRINCIPLES

Easy

- Showcase recipes that use easily accessible ingredients and equipment
- Showcase recipes that are easy to prepare
- Promote the same meals for children and adults
- Promote healthy options for purchase

Fresh

- Use seasonal fresh produce whenever possible
- Include at least one serve of fruit or vegetables in every breakfast
- Include at least two serves of vegetables in every lunch and dinner
- Include fruit or vegetables in every snack or dessert
- Understand how to store and handle fresh produce safely

Balanced

- To promote variety, create meals with at least three food groups
- Add fruits and vegetables to every snack and meal
- Promote wholemeal and wholegrains
- Promote use of legumes
- Promote dairy foods - mostly reduced fat
- Use lean meat and poultry
- Promote use of oily fish

Healthy

- Always offer water
- Limit sugar-sweetened drinks
- Practice portion control
- Promote poly- and monounsaturated fats and reduce foods containing saturated fat
- Reduce salt
- Reduce added sugars
- Choose healthy cooking methods
- Follow policies and guidelines

Connected

- Enjoy and share food
- Understand how food is grown*
- Use seasonal ingredients
- Enjoy local produce*
- Promote healthy food that is accessible to all
- Connect to diverse communities and cultures
- Reduce food waste

KAMLOOPS

n/a

CALGARY

n/a

APPENDIX G. THE MANITOBA FOOD CHARTER



The Manitoba Food Charter emerged from Manitobans' common vision for a just and sustainable food system. The Charter provides vision and principles that will guide and inform all levels of government, businesses, non-profit organizations, communities, families and individuals in planning, policy development, programs and practice in mutual effort toward food security and community development. It was drafted through broad public consultation and is to be endorsed by Manitoba food system stakeholders.

CURRENT SITUATION

Manitoba's food system has both strengths and weaknesses. Our province has a significant and diverse agricultural sector and many Manitobans can access the food that they want. However, agricultural communities are challenged by an increasingly urban and globalized economy. Many northern, inner-city, and low income women, children and men have difficulty accessing quality food. The nationally ratified Human Right to Adequate Food has not been realized. Rural, urban and northern communities are disconnected. Not all of our food is necessarily nutritious, not all information about our food is complete or accurate; and much of our food travels long distances. There has been a loss in food knowledge and skills and an increased reliance on fast and highly processed foods. There is growing interest in and widespread concern about Manitoba's food system and a desire for increased coordination and leadership on the issues facing it. The Manitoba Food Charter is testimony to Manitobans' willingness to collectively and constructively engage in meeting these challenges.

VISION

A just and sustainable food system in Manitoba is rooted in healthy communities, where no one is hungry and everyone has access to nutritious food. It is an economically viable, diverse and ecologically sustainable system to grow, harvest, process, transport, and distribute food while minimizing waste.

A just and sustainable food system in Manitoba means:

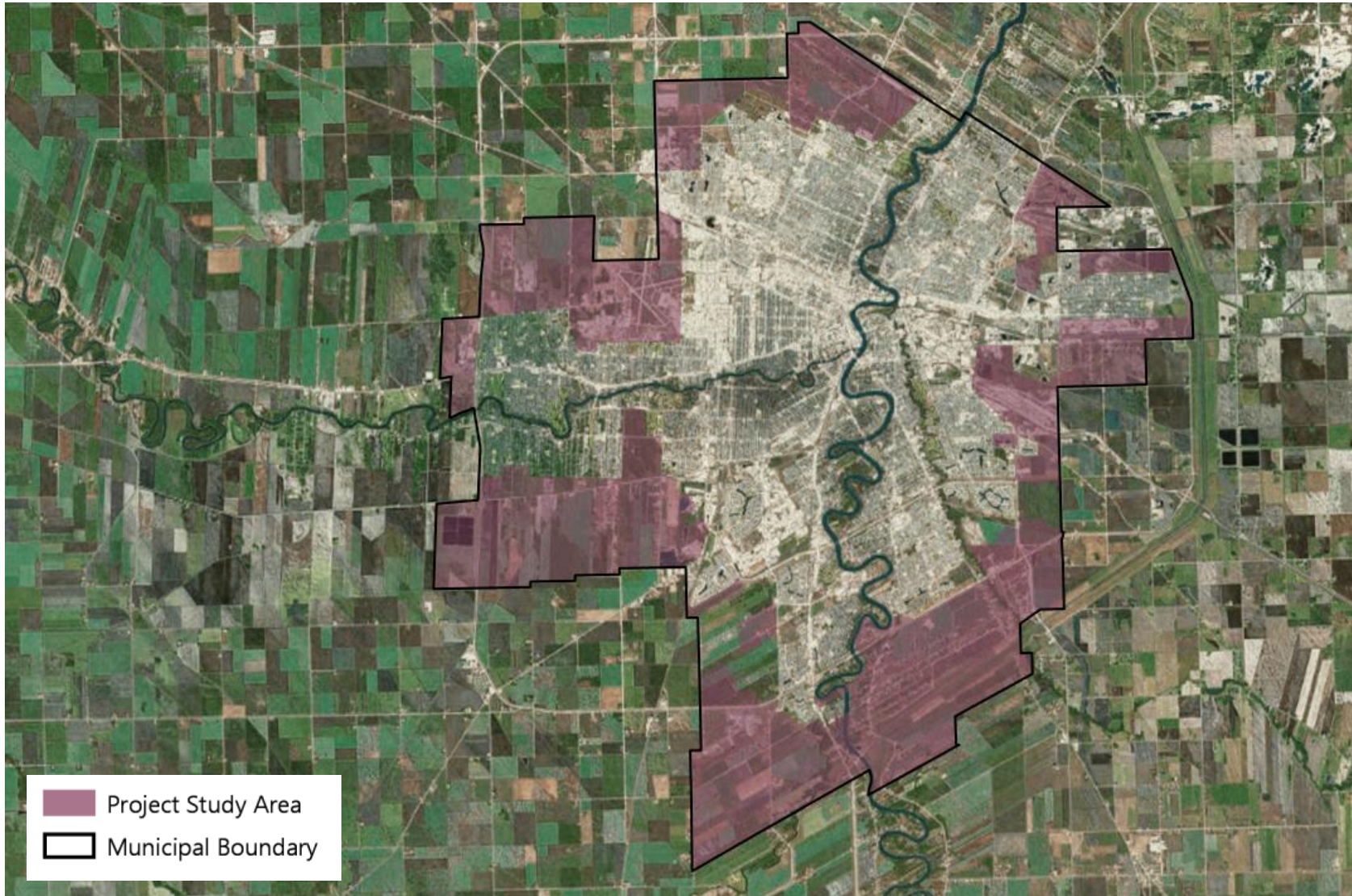
- ❖ Farmers, fishers, harvesters, processors and distributors can generate adequate incomes and use ecologically sustainable practices.
- ❖ Respect for the traditional hunting, fishing, trapping, gathering, and conservation practices of First Nations, Inuit and Metis peoples within sustainable limits;
- ❖ A sustainable balance between fair international agricultural trade and diverse vibrant production for the local market;
- ❖ Healthy relationships between producers and consumers in urban, rural and northern Manitoba communities;
- ❖ Province-wide availability of a variety of nutritious and affordable food through accessible retail outlets and food service operations and the economic means to obtain sufficient daily food for health and dignity;
- ❖ Well grounded confidence in the quality and safety of our food; and
- ❖ Easy access to understandable accurate information about nutrition, food composition, the ways food is grown, preserved, processed, purchased, and cooked, and how to minimize waste.

WE, THEREFORE, DECLARE our commitment and intent to work in partnership towards achieving a just and sustainable food system in the province of Manitoba. We recognize that this commitment has real implications for our policies, programs and practice. Our willingness to make this commitment indicates our sense of collective and personal responsibility for the present and future ecological, economic and social well-being of Manitoba.

Signature _____

<http://food.cimnet.ca>

APPENDIX H. PROJECT STUDY AREA, DETAILED IMAGE



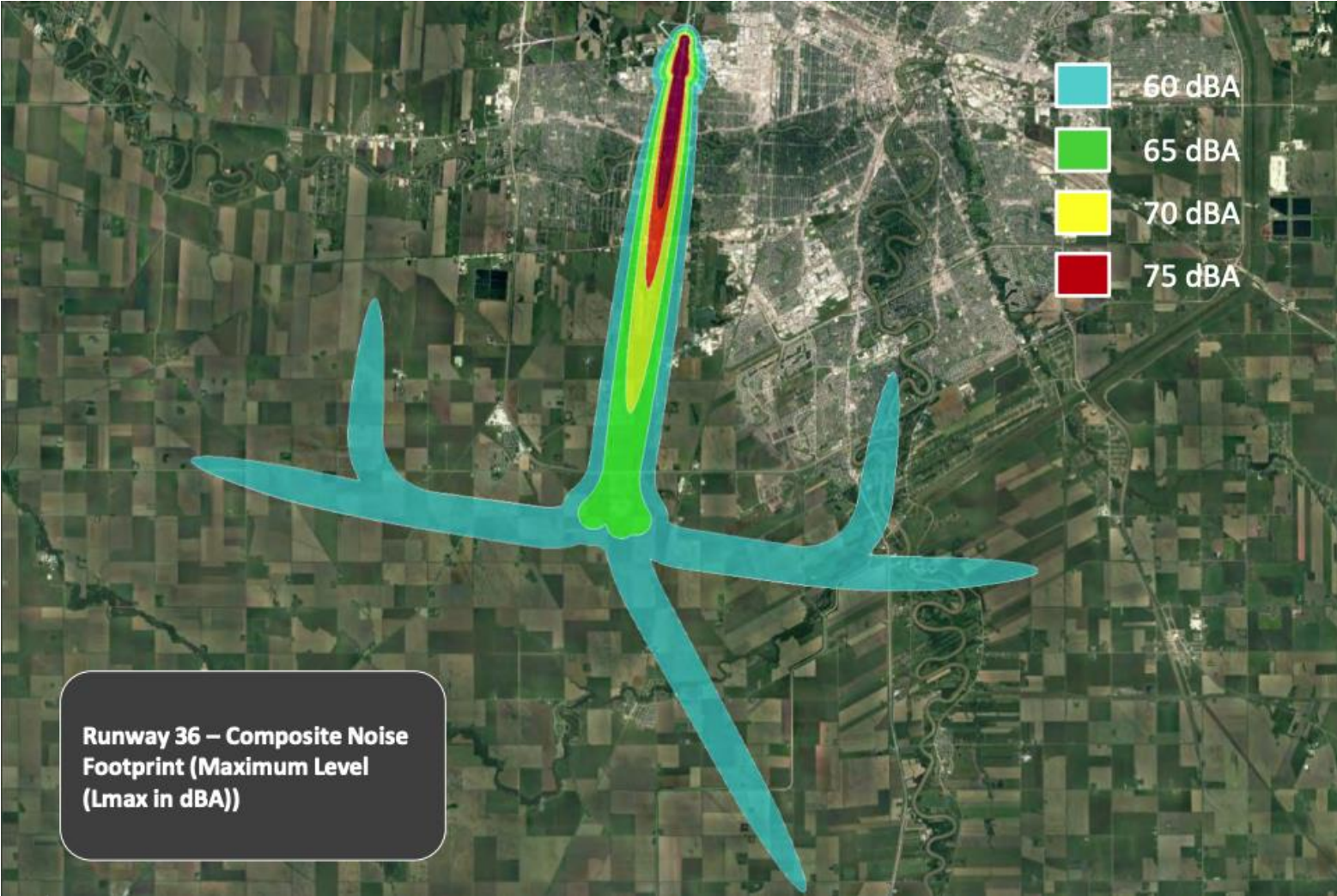
Data Source: ArcGIS Pro Basemap Layer, World Imagery (2018)

APPENDIX I. POLICY IMPACT ON PROJECT STUDY AREA, DETAILED IMAGE



Data Source: ArcGIS Pro Basemap Layer, World Imagery (2018)

APPENDIX J. RICHARDSON AIRPORT COMPOSITE NOISE FOOTPRINT



APPENDIX K. CONSTRAINTS TO RESIDENTIAL DEVELOPMENT, DETAILED IMAGE



Data Source: Nav Canada, 2017

APPENDIX L. INTERVIEW PACKAGES

Briefing Document

Major Degree Project: Planning for a Local Food System: Assessing the Potential for Peri-Urban Agriculture in Winnipeg, Manitoba

Researcher: Holly Ervick-Knote, M.C.P. Graduate Student, Faculty of Architecture, University of Manitoba

The information provided in this briefing document is to help inform interview participants about some of the contextual information required in order to answer interview questions.

Peri-Urban Agriculture

Peri-urban refers to undeveloped areas located near the edges, but still within the municipal boundary, of cities. Peri-urban agriculture can include a wide range of agricultural activities, from large-scale crop production destined for export markets, to small-scale local food production intended for distribution through local markets and direct sales.

Agriculture Policy

The preliminary stages of this research has found that there are two main approaches to agriculture policy. These approaches are:

1. Farmland preservation
2. Supporting urban agriculture

Large-scale agricultural protection programs seek to protect large tracts of prime agricultural lands threatened by urban development. Policies aimed at supporting and encouraging urban agriculture, the other hand, seek to ease regulatory barriers, create incentives to enter the market, provide information on land availability, and create markets for local food distribution. Preliminary findings from this research suggests both of these policy approaches to agriculture have implications for small-scale peri-urban agriculture. The following section will review policy approaches to farmland preservation and encouraging urban agriculture.

1. Farmland Protection

Farmland protection aims to protect high quality agricultural lands from urban development. In general, protection is focused on lands located at the fringes of large fast growing cities. As cities often formed near high-value agriculture land, these areas often have some of the highest producing soils, and are at the greatest risk of being lost to urban development.

There are a number of tools that have been used to protect agricultural lands. In general, farmland protection focuses on peri-urban and rural space. In Manitoba, there is a provincial “no net loss of agricultural land” policy. This means that land designated Rural/Agricultural must not be developed for non-agricultural uses. A selection of other policy options for protecting farmland will be described below.

Table 1: Farmland Protection Policies

Category	Policy	Explanation
Zoning for Agricultural Protection	Agricultural Protection Zoning	Agricultural protection zoning constrains non-agricultural development and land uses in areas designated for agriculture. This type of regulation can help to maintain farmland, protect agricultural soils, provide stability to the farming economy, and keep land affordable for farmers, as it removes the risk of having the land use changed to an urban use. Agricultural protection zoning is most common in rural areas. In the context of urban agriculture, agricultural protection zoning works best in municipalities where the adopted development plan has identified protection of the agricultural community as a goal, and where large areas of contiguous prime farmland exists
	Conservation Development	Conservation development (also known as conservation subdivision or cluster zoning) is a form of zoning that allows or requires houses to be group together at densities that exceed the usual requirement. By clustering houses on a small portion of a larger parcel, conservation development can be used to protect open space. In the context of farmland protection, conservation development can allow or require new houses to be sited on less productive soils or in wooded areas, enabling more productive land to remain available for agricultural production
Other Policies and Regulations	Agricultural Districts	Agricultural districts are another method used to protect farmland. Creation of agricultural districts enables farmers to designate special areas where agriculture is encouraged and protected (American Farmland Trust, 1997). Participation is voluntary and farmers who enroll receive a number of benefits that may include eligibility for differential tax assessments, protection from development pressures, and certain tax exemptions
	Urban Growth Boundaries	An urban growth boundary (UGB) is a regional boundary set in an attempt to limit suburban development at the edges of cities in order to preserve agricultural land. Because the area affected by the boundary often includes multiple jurisdictions, a special agency may be created by state or regional governments to manage the boundary
	Right-to-Farm Laws	Right-to-farm laws are intended to protect farmers from nuisance lawsuits, and are found throughout Canada and the United States. Right-to-farm laws can protect farmers from lawsuits filed by neighbours who moved after the agricultural operation was established, and are also used to protect farmers as long as they are in compliance with the law. Right-to-farm legislation also restricts implementation of ordinances that would hinder regular agricultural activities.

Government Programs and Incentives	Farmland Trusts	<p>A farmland trust is a non-profit organization created to acquire and hold farmland for community benefit and work with farm owners to protect land through farmland easement agreements (FEAs) and conservation agreements. FEAS focus preserving farmland in perpetuity, while conservation agreements focus on preserving the natural value of agricultural land. Conservation agreements allow for protection of the natural features such as natural ecosystems, fish and wildlife habitat, and plant and animal species, while still allowing private landowners to own, use, develop and sell their land. Both FEAs and conservation agreements are voluntary, legal agreements between a landowner and a conservation organization or government agency that permanently limits uses of the land in order to protect its agricultural or natural values. Restrictions are tailored to fit the particular property, interest of the landowner, and the natural features to be protected.</p>
	Differential Tax Assessment	<p>Differential tax assessment laws are widespread across Canada and help to increase the viability of peri-urban farms by reducing property taxes for farmers. Historically in Canada and the United States, agricultural land was assessed at its “highest and best use”. In urban fringe areas that usually mean urban uses. This increased taxes and forced urban fringe farms out of business. Differential tax assessment laws require local governments to assess agricultural land at its value as agricultural land instead of its speculative value as residential land. In Ontario today, most farmers pay approximately 25 percent of what they would if their land was valued as residential use.</p>
	Payment of Environmental Benefits	<p>Payment of environmental benefits programs are intended to pay farmers for providing range of services, such as maintaining wooded areas and buffer areas along rivers, and protecting water quality. The purpose of these programs is to help ensure the viability of agricultural operations while protection ecological goods and services. These types of programs can promote the viability of the agricultural industry but will not ensure the protection of farmland in areas where strong pressure for development exists</p>

2. Supporting Urban Agriculture

The list of policy tools that could directly or indirectly impact urban agriculture, either positively or negatively, is vast. There are even more ways these tools can be used in combination to enable or hinder urban agriculture. The following table outlines possible policy options that have been proposed and/or used in North American cities in promoting urban agriculture. This list is not

comprehensive, but is intended to provide brief explanations of some of the more commonly used tools.

Table 2: Urban Agriculture Policies

Zoning for Urban Agriculture	
Defining urban agriculture	A clear and carefully considered definition for urban agriculture and any related uses and categories will help to clarify what is permitted
Urban agriculture district	This refers to creation of a zone dedicated to urban agriculture
Urban agriculture overlay	An overlay zoning district is superimposed on existing zoning districts to restrict or relax existing requirements in underlying areas
Urban agriculture use category	This refers to the addition of an urban agriculture category or set of categories to a zoning ordinance use table. For each zoning district, each category is identified as a permitted, conditional or restricted use
Specifying urban agricultural activities	In lieu of creating comprehensive urban agriculture provisions, some municipalities accommodate only specific urban agriculture related activities
Urban livestock	Some municipalities do not restrict livestock such as urban bees and hens through zoning. In these areas, urban livestock is controlled through permitting
Farm management plan	This refers to requirement of a farm management plan for larger farms or farms involving certain activities. These can aimed at seeking to ensure the greatest chances for success, reducing impacts on natural resources and surrounding land uses, or avoiding unwanted fragmentation of land
Other Policies and Regulations	
Nuisance control	Provides provisions intended to prevent negative impacts of urban agriculture
Right-to-farm	Right-to-farm laws can protect farmers from lawsuits filed by neighbours who moved after the agricultural operation was established, and are also used to protect farmers as long as they are in compliance with the law. Right-to-farm legislation also restricts implementation of ordinances that would hinder regular agricultural activities
Soil testing requirements	Requirements to ensure soil safety and remediation when necessary
Health codes	Regulates many aspects of food production including how animals can be kept and how food is handled
Animal welfare and control	Establishes guidelines for keeping farm animals in back yards and on urban farms
Composting laws	Regulates the type, size and location of composting facilities

Subdivision regulations	Establishes setback requirements and site plans
Building code	Sets out requirements for farm structures and accessory uses
Permits or licences	Required for certain agricultural uses and activities
Government Programs and Incentives	
Local food policies	Drafting food charters, establishing food policy councils, conducting food assessment, developing food plans, and creating partnerships with food related community organizations all directly or indirectly support urban agriculture
Education and awareness	This may include local governments providing workshops, developing partnerships with schools to incorporate urban agriculture curriculums into K-12 education or post-secondary education, or providing technical assistance to urban farmers in preparing farm management plans
Providing access to land	In the peri-urban context, local governments play an important role through creating land inventories, establishing programs linking farmers to owners of available land, and through brownfield to greenfield conversion programs
Developer incentives	This refers to providing incentives to developers for including urban agriculture in new development site plans. The incentives may include bonus density, allowing flexible design, and easing subdivision standards.
Infrastructure and utility incentives	This may include local governments and utility companies assisting through extending water lines or finding practical solutions such as allowing farmers to use fire hydrants or ponds for irrigation, assisting with greywater processing, offering reduced rates for utilities, and offering tax credits for farms where alternative energy sources are used
Providing direct sales opportunities	This may include allowing on-farm sales through zoning, providing marketing assistance, establishing farmers' markets, and developing local food procurement policies, such as farm-to-school or farm-to-institution, for buying directly from local farmers
Funding assistance/ financial incentives	This may include establishing loan and grant programs in partnership with local economic development agencies, , establishing urban agriculture enterprise zones, creating urban agriculture tax credits, differential tax assessment, and waiving or reducing fee and permit costs
Reducing bureaucratic hurdles	This may include exempting urban agriculture from some regulatory procedures, expediting permit and license processing times, creating a web site to provide information on available land, labour and technical help, and establish strong communication between urban farmers and government agencies

Conservation easements/ Payment for environmental benefits	Voluntary legal agreements between a landowner and a land trust, conservation organization or government agency that allow farmers to be paid to protect their lands from development. Generally, landowners sell easements to government or private conservation agencies. The farmer is paid the difference between the agricultural value of the land and the value of the land at its highest use
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Key Players in Peri-Urban Agriculture

Peri-urban planning is often complex, as issues often affect multiple jurisdictions. When planning for peri-urban agriculture and considering how to best support peri-urban agriculture through policy and other planning tools, key players for undertaking policy development and implementation include municipal planning departments, adjacent municipalities, and regional and provincial authorities. In the Winnipeg context, key players include:

- The City of Winnipeg Planning, Property and Development
- The Winnipeg Metropolitan Region (WMR)
- Manitoba Department of Agriculture
- Manitoba Department of Municipal Relations
- Adjacent rural municipalities
- Local producers

Semi-Structured Interview Schedule

(Planning Professionals)

Major Degree Project: Planning for a Local Food System: Assessing the Potential for Peri-Urban Agriculture in Winnipeg, Manitoba

Researcher: Holly Ervick-Knote, M.C.P. Graduate Student, Faculty of Architecture, University of Manitoba

** Any italicized text following questions are intended as prompts/things to consider when answering the question. They do not have to be addressed individually.*

1. Please describe your current professional role.
2. How does your work relate to agriculture policy, peri-urban land use and zoning, or both?
3. What policy tools or incentives would be particularly effective in supporting small-scale food producers within the City? (This may include tools outlined in the Briefing Document.)
 - *Are there any tools not discussed in the Briefing Document that you feel should be considered?*
4. Which would not be effective and why not?
5. Which government bodies are best suited to undertake the task of policy development and implementation? You may find it useful to consider the following in response to the question.
 - *What should the role of the **Province** be in protecting agricultural lands in Winnipeg's peri-urban areas? Does the province need to take a stronger role? What policy tools would be most effective?*
 - *What about a **regional authority** (Winnipeg Metropolitan Region)? What policy tools would be most effective?*
 - *Does the **City** need to take a stronger stance on protection and conservation of agricultural lands? What policy tools would be most effective?*
6. Are there other tasks that need to be completed first?
7. What do you consider are the barriers to creating policy to support small-scale commercial agriculture in Winnipeg's peri-urban areas?
8. What opportunities exist for coordination between the City of Winnipeg and adjacent municipalities in supporting agricultural development on land near the municipal boundary?
 - *Is there potential for greater consistency and coordination in policy between Winnipeg and any adjacent municipalities?*
 - *What about the **Winnipeg Metropolitan Region**?*
 - *What about the **Province**?*

9. Is there anything else you would like to add?

Please use the map provided to answer the remaining questions. Please draw on the map and write notes.

10. Of the areas highlighted as potential locations for peri-urban agricultural development, please mark areas that would not be appropriate for this type of development and explain why.

11. Are there any highlighted areas that would be particularly difficult to develop for residential uses? Why? Please mark these areas on the map.

12. Which of the highlighted areas do you feel would be suitable for agriculture or agriculture-related development?

13. Are there any areas outside of the highlighted area that would be suitable for agriculture or agriculture-related development?

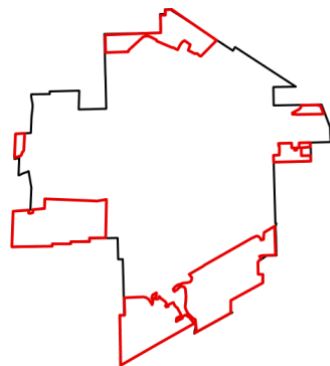
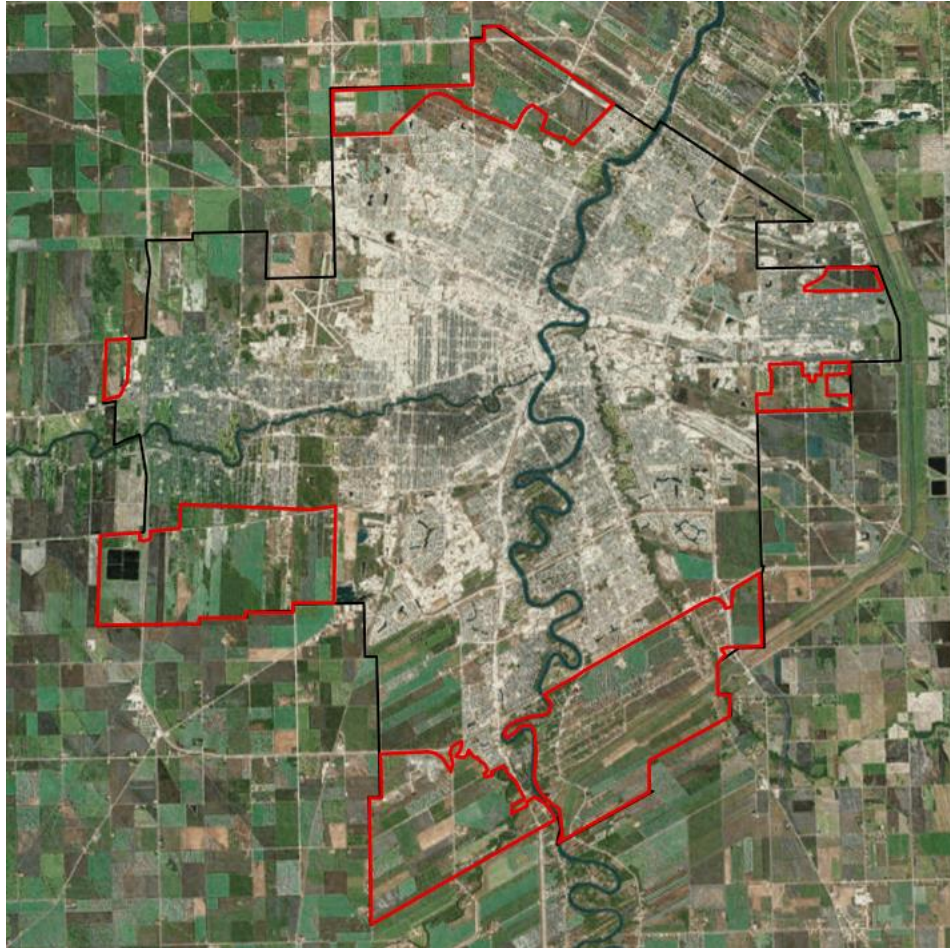
14. What examples of agricultural-related uses are you aware of that may be appropriate to consider in these areas?



a) Please take into consideration conflicting uses to residential development

15. Is there anything else you would like to add?

Potential locations for peri-urban agriculture based on zoning and development plan designations

The areas outlined in red are areas within the City of Winnipeg municipal boundary that are currently zoned either 'A' – Agricultural or 'RR5' – Rural Residential, and are designated as 'Rural and Agricultural' in *OurWinnipeg*.



-  Potential locations for agriculture (based on zoning and development plan designations)
-  Municipal Boundary

Semi-Structured Interview Schedule

(Food Policy Experts)

Major Degree Project: Planning for a Local Food System: Assessing the Potential for Peri-Urban Agriculture in Winnipeg, Manitoba

Researcher: Holly Ervick-Knote, M.C.P. Graduate Student, Faculty of Architecture, University of Manitoba

** Any italicized text following questions are intended as prompts/things to consider when answering the question. They do not have to be addressed individually.*

1. Please describe your current professional role.
2. How does your work relate to agriculture policy, peri-urban land use and zoning, or both?
3. Drawing on your professional experience, what is the current policy landscape for small-scale peri-urban agriculture
 - a) in the North American context?
 - b) in the Winnipeg context?
4. One preliminary finding of this research is that there are two main approaches to agriculture policy: farmland preservation, which has a more rural focus, and supporting urban agriculture (both are outlined in the Briefing Document). Each approach has applications in the peri-urban space.
 - a) What are the opportunities for each of these approaches for providing opportunities for small-scale commercial agriculture and agriculture-related activities in Winnipeg's peri-urban areas?
 - b) What are the drawbacks of each?
 - c) Do you feel one of these approaches would be have greater potential for this purpose? Why or why not?
5. What policy tools or incentives would be particularly effective in supporting small-scale food producers within the City? (This may include tools outlined in the Briefing Document.)
 - a) *Are there any tools not discussed in the Briefing Document that you feel should be considered?*
6. Which would not be effective and why not?
7. Which government bodies are best suited to undertake the task of policy development and implementation? You may find it useful to consider the following in response to the question.

- *What should the role of the **Province** be in protecting agricultural lands in Winnipeg's peri-urban areas? Does the province need to take a stronger role? What policy tools would be most effective?*
 - *What about a **regional authority** (Winnipeg Metropolitan Region)? What policy tools would be most effective?*
 - *Does the **City** need to take a stronger stance on protection and conservation of agricultural lands? What policy tools would be most effective?*
8. Are there other tasks that need to be completed first?
 9. What do you consider are the barriers to creating policy to support small-scale commercial agriculture in Winnipeg's peri-urban areas?
 10. What opportunities exist for coordination between the City of Winnipeg and adjacent municipalities in supporting agricultural development on land near the municipal boundary?
 - *Is there potential for greater consistency and coordination in policy between Winnipeg and any adjacent municipalities?*
 - *What about the **Winnipeg Metropolitan Region**?*
 - *What about the **Province**?*
 11. Is there anything else you would like to add?

Semi-Structured Interview Schedule

(Local Producers)

Major Degree Project: Planning for a Local Food System: Assessing the Potential for Peri-Urban Agriculture in Winnipeg, Manitoba

Researcher: Holly Ervick-Knote, M.C.P. Graduate Student, Faculty of Architecture, University of Manitoba

1. What type of agricultural production are you currently involved in within the City of Winnipeg?
 - a) Approximately what is the size of your farm?
 - b) How long have you been operating as an agricultural producer?
 - c) Are you the first generation in your family to farm?
2. What policies, incentives, resources or events currently exist that support food producers in Winnipeg?
3. A report conducted by the Food Manitoba working group in 2015 found that many of the policies and regulations intended for large-scale producers worked against small-scale producers. Do you agree? What are some of the barriers that exist to small-scale producers?
4. After reviewing the information provided in the Briefing Document on policy approaches to farmland preservation and fostering urban agriculture, what opportunities do each of these approaches offer for supporting small-scale food producers within Winnipeg?
 - a) In particular, what policy tools, incentives or events, included in the Briefing Document (see Tables 1 and 2) or otherwise, would be particularly effective in supporting small agricultural producers within the City?
5. Can you provide your thoughts on:
 - a) Addition of an urban agriculture use category to Winnipeg's zoning by-law which would allow for smaller minimum lot sizes than is currently permitted in the agriculture zone, which has a minimum lot size of 40 acres. Such a use category could be called "Urban Farm", "Specialized Agriculture", or involve a group of uses related to urban agriculture),
 - b) How regulatory and policy barriers to small-scale farmers could be minimized?
6. Is there anything else you would like to add?