Decoding Local Food Systems: Addressing Food Insecurity Through Lethbridge Alberta's Land Use Bylaw

Erica Gonzalez[1,3], Bhawana Pradhan[1,3], Breanna Little Mustache[1,3], Brie Wilson[1,3], Bruce Ascione [2,3], JD Gervais[2,3], Amy-Lee Lateeph[2,3]

[1] Prentice Institute for Global Population and Economy, University of Lethbridge

[2] Lethbridge Polytechnic,

[3] City of Lethbridge

August 2024

Author Note

Correspondence concerning this report should be addressed to: perry.stein@lethbridge.ca

Acknowledgements: This report was developed during the Prentice Institute for Global Population and Economy 2024 Summer internship program in partnership with the City of Lethbridge City Scholars program and the Lethbridge Polytechnic. This report would like to acknowledge the hosts, academic partners, and the speakers of the Policy Innovation Lab (PIL). The hosts of the PIL were Perry Stein from the City of Lethbridge, and Erica Gonzalez from the Prentice Institute. The academic partners of the PIL were Andrea Cuéllar from the Prentice Institute and Michael Granzow from Lethbridge Polytechnic.

List of Contents

List of Figures

List of Tables

Executive Summary

Summary

In preparation for the Lethbridge Land Use Bylaw (LUB) Renewal Project, this report explores how land use policies can alleviate food insecurity in Lethbridge, Alberta. The report reviews the prevalence of food insecurity at the national, provincial, and local level using data from Statistics Canada, the Government of Alberta, Lethbridge based Post-Secondary Institutions, and academic research. LUBs from other municipalities, literature on best practices, and other municipal approaches to food systems planning were also compared to Lethbridge's LUB to determine feasible ways to incorporate a food security lens to future land use planning. Nationally and provincially, renters, low-income individuals, students, newcomers, Indigenous Peoples, and Black Canadians are disproportionately food insecure. Data from local food banks showed an increased use of their services, particularly by homeowners, in recent years. Urban agriculture (UA) was identified as a primary approach to increase local food production, which in turn builds community resiliency and food chain stability. The report finds that LUBs can provide several avenues to address food insecurity by creating, adapting, and expanding upon Uses related to food production, UA, and food distribution. In addition to amendments to the LUB and planning practices, this report described how an integrated, interdepartmental, and community-driven approach to food security policy can holistically address food insecurity challenges at the municipal level.

The Land Use Bylaw Renewal Project

A LUB is a rulebook used by municipalities in Alberta to regulate the use and development of land. It does this by assigning a land use district (commonly called a "zone") to all properties in a municipality. Each district has a set of rules for how properties with that "zoning" can be developed and used – including aspects such as setbacks from property lines, the types of uses/activities that can occur on the property, the number of parking stalls that must be provided, and maximum allowable build heights and densities. LUBs do not provide a blueprint about how to build a house or building, or *generally* who may live in a home or how the operations of a business are conducted. These aspects are established in the building code and other regulations. In 1986, Lethbridge implemented the LUB (City of Lethbridge, 2023a), when Lethbridge's population was 60,310 (Government of Alberta, 1986). Since the LUB creation nearly 40 years ago, the document has yet to undergo an exhaustive assessment (City of Lethbridge, 2023a). As the years progressed, the city has undergone many changes. One being several demographic changes in Lethbridge, which includes the population increasing to 107,255 in 2023 (Government of Alberta, 2024), and a steadily increasing immigrant population between 2001 to 2021 (Statistics Canada, 2022). In the acknowledgment of changing community needs, the City of Lethbridge initiated the LUB Renewal Project in 2023. As the City of Lethbridge embarks on updating its LUB, it is seeking to include the following elements:

- Utilized fewer land use districts

- Utilize fewer definitions of land uses
- Ensure a balance between flexibility and certainty
- Ensure user-friendliness

Report Overview

This report provides background information on local food security and identifies opportunities to address food insecurity through land use policy interventions within the Land Use Bylaw Renewal Project. The report is divided into six chapters:

- Chapter One introduces the role of LUBs in shaping urban municipalities. Considering current housing and affordability challenges, revising zoning regulations to incorporate UA offers a promising avenue to improve food security and bolster community resilience. Streamlining definitions and application processes for UA within LUBs can enhance access to essential resources and support the development of local food systems.
- Chapter Two examines rising food insecurity in Canada, noting it has hit its highest level in nearly 20 years. It critiques Statistics Canada's focus on financial constraints as a measure, arguing such a focus neglects broader structural and demographic factors. The chapter highlights that food insecurity disproportionately affects marginalized groups, including Indigenous Peoples, newcomers, and individuals within the 2SLGBTQ+ community, and underscores the role of urban planning—especially through mixed-use development—in improving food access and addressing demographic disparities in food security.
- Chapter Three identifies key strengths and barriers to successful UA initiatives, emphasizing the need for collaborative, community-based approaches, and robust support structures. It highlights how supportive municipal policies can enhance local food security, community health, and social cohesion, positioning UA as a sustainable complement to global food systems. Moreover, this chapter contends that food security in Lethbridge requires a Systems Thinking approach, utilizing UA to enhance community capital and stabilize the food system. By integrating systems thinking and social capital frameworks, decision-makers can develop effective, long-term strategies to address food insecurity and strengthen urban resilience.
- Chapter Four examines potential updates to LUBs to support UA and enhance urban food systems. It reviews approaches from other Canadian municipalities highlighting how different definitions and policies impact UA practices. The chapter suggests the need for clear definitions of UA to better support community involvement and facilitate sustainable urban food solutions.
- Chapter Five explores the evolving role of municipalities in urban food policy and the increasing creation of Food Policy Councils (FPCs) to address food insecurity. Traditionally hesitant due to concerns over jurisdictional powers and the urban-rural divide, municipalities are increasingly recognizing the potential FPCs. These councils

enhance food system equity by fostering collaboration among stakeholders, coordinating policy efforts, and supporting community-based food initiatives.

- Chapter Six provides a series of recommendations for planning, research, and policy.

Chapter 1: Food Security and the Land Use Bylaw

Urban municipalities hold considerable influence over how land is utilized and valued, both economically and culturally, through Land Use Bylaws (LUBs) (Potter, 2020): "ask any local elected official what their most powerful and effective tool to shape and protect their community and most will say 'our zoning code'" (Rosenbloom & Duerksen, 2022, p. 364). Historically, municipal governments viewed planning as a method to separate perceived incompatible land uses and protect property values (Maloney, 2012; Ryan, 2002). In the 19th and 20th centuries, zoning policies emerged to separate industrial and residential areas to mitigate the negative health effects associated with industrial activities (Perdue et al., 2003). Relatedly, zoning policies encouraged or resulted in economic and racial segregation and exacerbated inequities (Shertzer et al., 2022) by placing lower income housing near industrial activities, disproportionately impacting racialized communities to this day (Maantay, 2001). As a result, marginalized urban communities are disproportionally located in environmentally degraded areas with poorer access to community assets tied to health and wellbeing; including access to healthy food options (Giang & Castellani, 2020; Hilmers et al., 2012).

Currently, the affordability and housing crisis (Tello, 2024) is prompting municipalities across Alberta to examine how LUBs impact socioeconomic conditions. For example, restrictive residential zoning — which limits housing location, design, and density — can negatively impact housing availability, in turn exacerbating transportation burdens, particularly for those living in suburban areas (Furman, 2015). In response, studies have correlated less restrictive residential zoning regulations with decreased housing prices by streamlining the development process. Unaffordable housing, whether through rent or mortgage, limits individuals' ability to afford other necessities, namely food (Canada Mortgage and Housing Corporation, 2020).

Food and the Land Use Bylaw Renewal Project

In the past, researchers have criticized zoning provisions for creating barriers to food security. For example, Haines (2018) criticizes zoning bylaws for isolating residential and commercial areas (creating food deserts), as well as "creating barriers to urban agriculture in terms of both vegetable and animal production, encouraging unhealthy food options, and harming farmland protection in rural areas and on the urban fringe" (p. 177). However, there are multiple avenues to improve food security through planning and municipal policy by integrating local food land uses with zoning bylaws (for example, allowing food related uses in residential areas) and creating municipal policies and directives to support *local food systems* (Haines, 2018; Healthy Food Policy Project, 2023). Food systems encompass all activities involving food production at all scales, including the "social, economic, political, institutional, and environmental processes and dimension" (Tendall et al., 2015, p. 18). Therefore, this report aims to holistically address food insecurity through the lenses of planning and municipal policy.

Defining Food Security

Food security is a concept with multiple definitions (Patel, 2009). Each definition frames the concept of food security from a different perspective including in relation to human rights, cultural restoration, and individual agency (Clapp et al., 2022; Patel, 2009). This report defines food security using a multidimensional framework, drawing on the Food and Agriculture Organization (FAO), the Indigenous Food System Network (IFSN), and Statistics Canada.

The FAO's definition of food security emphasizes collective well-being, stating that food security is achieved "when *all people, at all times*, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy lifestyle" (FAO (1996). The FAO clarifies that food security is not solely about individual access, but about ensuring that *all individuals* within society have the necessary means to attain and maintain adequate nutrition and health. The FAO's definition highlights the following interconnected factors as essential to achieving food security: availability, accessibility, utilization, and stability, while also affirming food access as a universal human right (Mechlem, 2004), implicating governments' moral, legal, and ethical responsibilities (Rideout et al., 2007).

Availability is often defined as having sufficient food for one's cultural and personal preference (Grochowska, 2014). However, food volume is not the core issue as the global food system produces sufficient food to feed 1.5 times the world's current population (Committee on World Food Security, 2022). Therefore, the problem of food availability lies within the policies and barriers creating limitations to food availability, particularly to economically marginalized communities (Weiler et al., 2014). Creating food accessibility is a multifaceted challenge that requires addressing food and non-food related barriers: socioeconomic inequalities and lack of purchasing power, water availability, and accessible health care, transportation accessibility, and proximity, among other factors (Swaminathan, 2016). Stability, as a pillar of food security, typically focuses on having a stable source or access to food of cultural and personal preference while utilization focuses on food preparation, processing, and consumption (Alonso et al., 2018).

The Indigenous literature exploring food security enriches this report's understanding of the issue. In Indigenous epistemology, food security is a sacred right inextricably linked to community, culture, and food sovereignty (Morrison, 2011). Food sovereignty, as the IFSN presents it, is a policy-oriented approach that seeks to achieve long-term food security. Within this context, Indigenous food sovereignty is the right to: sacred sovereignty, active participation, and self-determination (Indigenous Food Systems Network, n.d). Sacred sovereignty is the notion that food is a sacred right that is upheld by respectful relations with the land (Indigenous Food Systems Network, n.d; Morrison, 2011). Both the right to participation and for self-determination revolve around the ability to partake in cultural practices related to food systems.

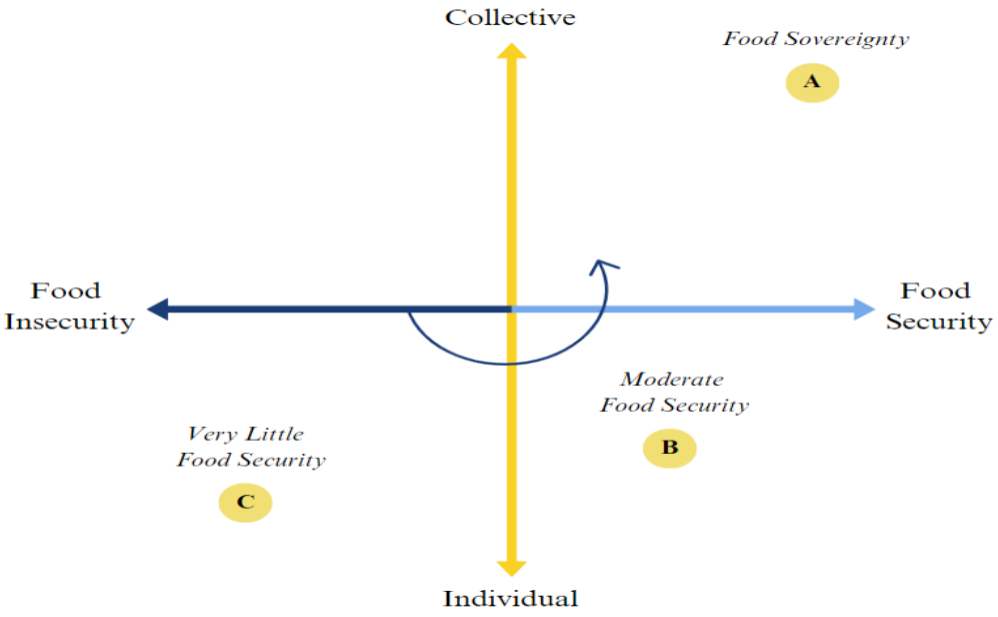
According to the FAO and the IFSN, food security is interwoven within social and cultural practices (Alonso et al., 2018). Therefore, to sustain long-term food security, it is necessary to

understand food insecurity as a multidimensional social problem. While individuals may experience food security to varying degrees, effective policies must address the structural components that influence food security and community well-being.

Currently, Statistics Canada's spectrum presents the issue of food security from a scarcity perspective—food insecurity. Statistics Canada's categories include marginal food insecurity, moderate food insecurity, and severe food insecurity. It is important to note, Statistics Canada does not have a category for food security. Conversely, the FAO and IFSN take a strength-based approach—food security. This report applies a strength-based food secure approach to Statistics Canada's spectrum, presenting food security on a spectrum.

Conceptualizing food security on a spectrum creates a basis for a nuanced discussion by municipal policymakers. Individuals experience food security to varying degrees and times in their lives, therefore, presenting food insecurity as a continuum allows for a distinction-based approach and recognizes collective and individual experiences. That in turn allows for more direct and sustainable policy interventions. Figure 1 represents the reports conceptualization of food insecurity. This report elects to not to strictly define the stages of food insecurity, out of recognition that collective and individual experiences of food insecurity vary greatly. Defining food sovereignty is out of the scope of this project, however, there are two bodies of literature, namely the Indigenous Food Systems Network (n.d), and La Via Campesina (n.d-a) discussing food sovereignty. For this reason, food sovereignty is included in Figure 1. See Appendix A through C for an illustration of the contemporary definitions and approaches to food security.

Figure 1
Integrated Food Security Spectrum



Note. The image was created by synthesizing information from *Food Insecurity Based on the Fies: What Does It Mean?* (para. 4), by Food and Agriculture Organization of the United Nations, 2024, (https://www.fao.org/hunger/en/). Copyright 2024 by Food and Agriculture Organization of the United States Nations; *Determining food security status*, by Health Canada, 2020, (https://www.canada.ca/en/health-canada/services/food-nutrition/food-nutrition-surveillance/health-nutrition-surveys/canadian-community-health-survey-cchs/household-food-insecurity-canada-overview/determining-food-security-status-food-nutrition-surveillance-health-canada.html#as). Copyright 2020 by Government of Canada; *Indigenous Food Sovereignty*, by Indigenous Food Systems Network, n. d., (https://www.indigenousfoodsystems.org/food-sovereignty). Copyright n.d. by Indigenous Food Systems Network.

Chapter 2: Food Insecurity at the National, Provincial and Local Level

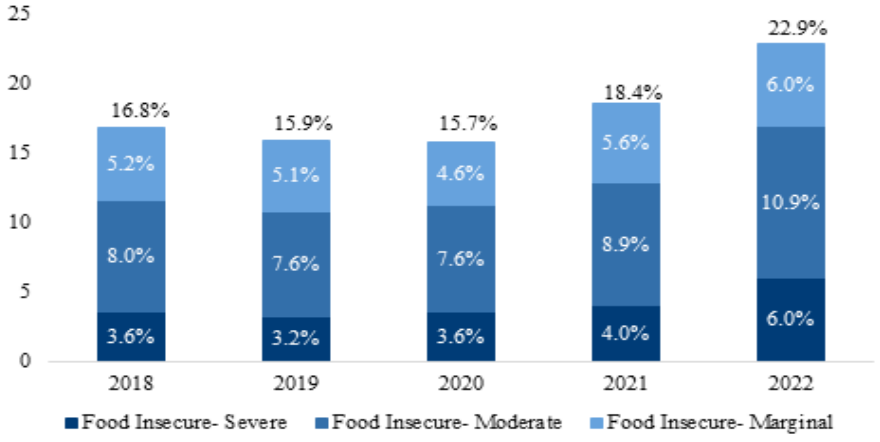
The prevalence of food insecurity in Canada is growing. In 2023, Canadians experienced the highest prevalence of food insecurity in nearly two decades (Li et al., 2023). Statistics Canada evaluates food insecurity by monitoring "inadequate or insecure access to food due to financial constraints" at the household level (Li et al., 2023, p. 6). Statistics Canada's definition of food insecurity frames the issue in terms of individual financial circumstances, rather than as the consequence of broader structural influences. Furthermore, by describing food insecurity as an outcome of financial circumstances, Statistics Canada's definition minimizes the political, geospatial, and socioeconomic factors central to achieving food security. Given the broader geospatial and socioeconomic dimensions of food insecurity, such as health disparities and social inequalities, it is evident that municipal land-use policies can be re-examined to contribute to a more resilient urban food system (Cohen, 2022). This chapter explores food insecurity using three dimensions of accessibility — economic, physical, and social — on a national, provincial, and local scale, in relation to Lethbridge's LUB.

Food Insecurity in Canada

Food insecurity is seldom monitored at the local level, reducing the ability of municipal policymakers to understand the need for, develop and subsequently evaluate policy interventions. Lethbridge is no exception, faced with no comprehensive data on local experiences of food security. Therefore, this report utilizes data from Statistics Canada, the Government of Alberta, the Lethbridge Interfaith Foodbank, and academic research to depict the dynamics of food insecurity in the city. In 2022, approximately 8.7 million Canadians were food insecure, a notable jump from 6.9 million in 2021 (Statistics Canada, 2024a). Between 2020 and 2022, rates of all three categories of food insecurity (marginal, moderate, and severe food insecurity) also increased, as presented in Figure 2.

Figure 2

Individuals Living in Food Insecure Households in the Ten Provinces, 2018-2022 (%)



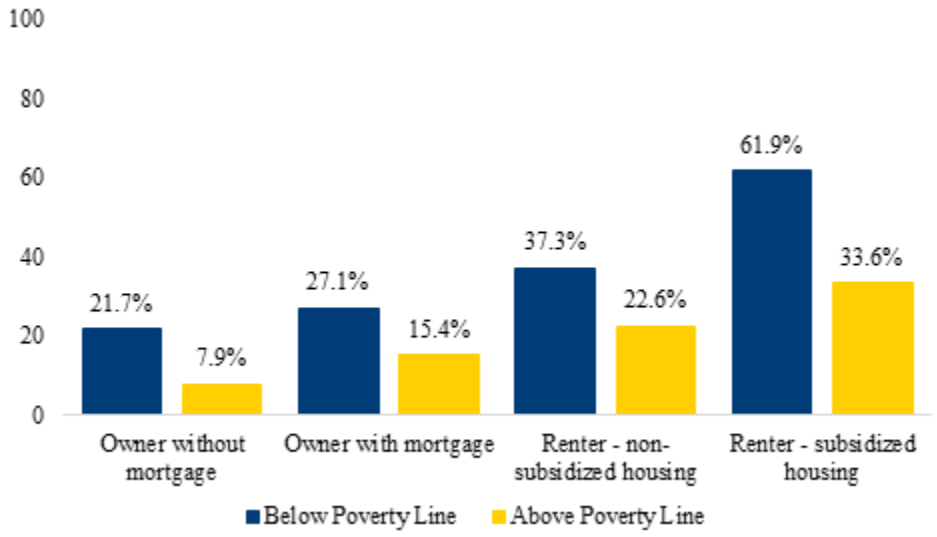
Note. Statistics Canada. (2024). *Food insecurity by economic family type* (Table 13-10-0834-01) [Data set]. Retrieved August 1, 2024, from https://doi.org/10.25318/1310083401-eng

Food Insecurity and Economic Indicators

Prior research associates financial constraints — such as the increasing cost of living and insufficient wages — with the rise of food insecurity (Li et al., 2023). According to Li et al., (2023) household income is associated with food insecurity, when other sociodemographic characteristics (province of residence, highest level of education, racial and cultural identity, immigration status, and housing tenure) are held constant. When all other sociodemographic and economic characteristics remain constant, every $1000 increase in yearly household income is associated with a 2% lower risk of food insecurity (Li et al., 2023). Food is often one of the areas where individuals can decrease their spending by skipping meals or buying lower quality items. The PROOF Household Food Insecurity Report (2023) links food insecurity to unexpected changes in income such as job loss or unexpected expenses (Li et al., 2023). However, food insecurity does not automatically equate to poverty or economic marginality. In fact, 78% of food insecure households were above the poverty line in 2021 (Uppal, 2023), revealing structural issues beyond individual or household financial constraints. For example, homeowners still face significant rates of food insecurity even if at lower rates than tenant households (see Figure 3).

Figure 3

Families that Experienced Food Insecurity Based on Home Ownership Above and Below Poverty Line, 2021 (%)



Note. Uppal, S. (2023). *Food insecurity among Canadian families*. (Catalogue no. 75-006-X) [Data set]. Retrieved August 1, 2024 from https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00013-eng.htm

Food Insecurity, Gender Identity, and Sexual Orientation

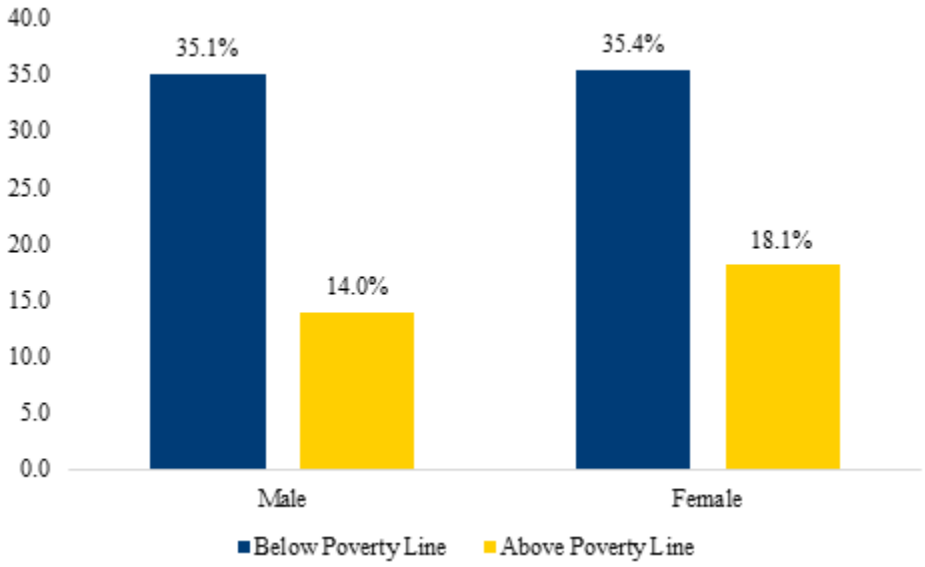
The prevalence of food insecurity among 2SLGBTQ + Canadians in unknown as the Canada Income Survey (CIS) does not include any questions about sexual orientation. However, a survey of self-identified 2SLGBTQ + people from Toronto, Canada found that 42% of respondents

experienced household food insecurity in 2021, with higher instances of food insecurity among respondents identifying as bisexual, transgender/gender diverse, and/or assigned-female-at-birth (Gibb et al., 2024). Perceived discrimination was associated with higher levels of food insecurity among 2SLGBTQ + population (Gibb et al., 2024).

In 2022, households with a major female income earner experienced higher rates of food insecurity compared to those with a male major income earner. Relatedly, households with a female major income earner reported significantly lower median annual after-tax incomes ($58,200) compared to families with a male major income earner ($76,600), reducing the ability of female major income earners to access food (Uppal, 2023). On an individual level, men, and women below the poverty line experience similar rates of food insecurity at 35.1% and 35.4%, respectively. However, women above the poverty line are 4.1% more likely to experience food insecurity than men above the poverty line, demonstrated in Figure 4.

Figure 4

Food Insecure Households Above and Below the Poverty Line by Gender, 2022 (%)



Note. Uppal, S. (2023). *Food insecurity among Canadian families.* (Catalogue no. 75-006-X) [Data set]. Retrieved August 1, 2024 from https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00013-eng.htm

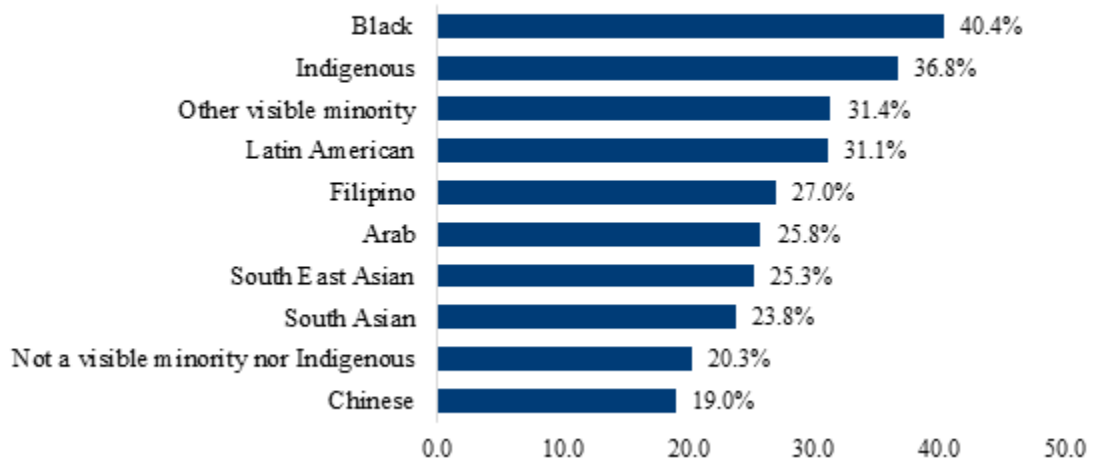
Food Insecurity and Racial Characteristics

Food insecurity is not isolated from the impacts of settler colonialism (Kepkiewicz & Rotz, 2018) and racism (Bowen et al., 2021). Black and Indigenous households are significantly more likely to experience food insecurity compared to all other racial groups, with 40.4% and 36.8% of Black and Indigenous households experiencing food insecurity, respectively (see Figure 5), compared with 20.3% of non-visible minority and non-Indigenous households. In addition, Mori

and Onyango (2023) found the inability to access culturally appropriate foods can disrupt cultural practices, which in turn impacts an individual's mental and social well-being. In some cases, the loss of access to culturally appropriate foods can worsen an individual's sense of cultural identity and increase loneliness (Mori & Onyango, 2023).

Figure 5

Individuals Living in Food-Insecure Households by Racial Identity, 2022 (%)



Note. Statistics Canada. (2024). *Food insecurity by selected demographic characteristics* (Table 13-10-0835-01) [Data set]. https://doi.org/10.25318/1310083501-eng

The rates of food insecurity among Indigenous peoples, despite being overrepresented in the food insecurity data in Canada, are likely underestimated in the Statistics Canada data. Specifically, Statistics Canada excludes those living in Reserve communities, remote areas with low-population density, people living in prisons or care facilities, and the unhoused individuals from their calculations on food insecurity (Li et al., 2023). The underrepresentation of Indigenous peoples in the data and hypothesized overrepresentation of Indigenous peoples experiencing food insecurity are tied to the structural barriers created by settler colonialism through the attempted destruction of Indigenous food systems (Matties, 2016; Robin et al., 2021), and the destabilization of sovereignty with the imposition of policies like the Indian Act (Robin et al., 2021).

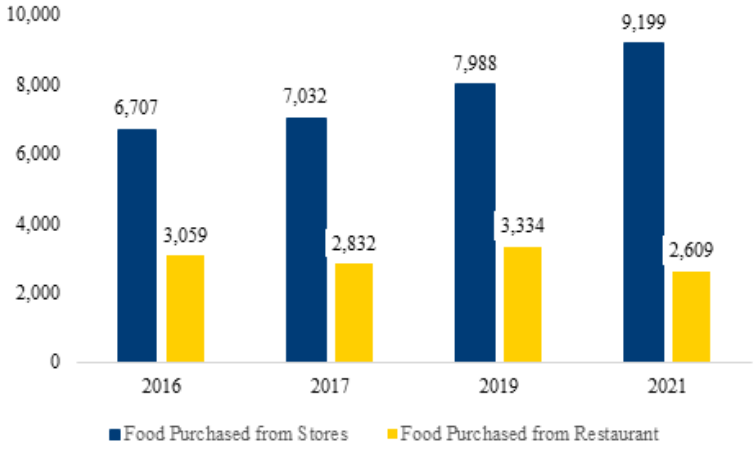
More contemporary examples of structural barriers faced by Indigenous peoples when accessing food include fishing limits on Indigenous harvesters (and not on commercial harvesters), limiting Indigenous harvesters from selling food which were hunted because of food safety regulations, and considering certain game meats (beaver, moose, etc.) to be "high risk" (Robin et al., 2021). Many Indigenous scholars and advocates have called for landscape and food system restoration (Matties, 2016; Morrison, 2011; Robin et al., 2021), as a method to retain cultural identity and thus food sovereignty (Robin et al., 2021).

Food Insecurity in Alberta

Alberta had the fourth-highest provincial rate of food insecurity in Canada, with 27.4% of households experiencing food insecurity (Statistics Canada, 2024a). Based on the detailed food spending data in Alberta from Statistics Canada (2023), there was an increase in average food expenditure from 2016 to 2021 (Figure 6); an increase that is not necessarily a result of increase in household incomes. Figure 7 illustrates how the median income of Albertans has remained relatively constant with little yearly fluctuations over the seven-year period. As such, inflation, it would appear has been a major driver for Canada's food prices (Dalhousie University et al., 2024). When adjusting for inflation, Canada's food prices have increased by 8.9% between 2013 to 2023 (Dalhousie University et al., 2024). Alberta saw an increase of 5.5% in food prices in 2023 (Dalhousie University et al., 2024).

Figure 6

*Average Food Expenditure Per Household, Alberta, 2016, 2017, 2019 and 2021 ($) **

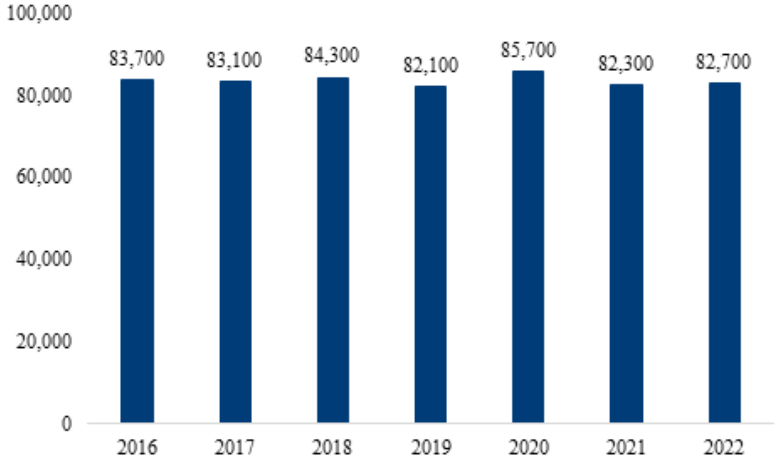


*There was no data available for 2018 and 2020

Note. Statistics Canada. (2023). *Detailed food spending, Canada, regions and provinces* (Table 11-10-0125-01) [Data set]. Retrieved August 1, 2024 from https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110012501

Figure 7

Median Income, Alberta, 2016-2022 ($)



Note. Statistics Canada. (2024). *Distribution of market, total and after-tax income by economic family type, Canada, provinces and selected census metropolitan areas (CMAs)* (Table 11-10-0237-01) [Data set]. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110023701

Food Insecurity in Lethbridge

Local food insecurity will be discussed through the three dimensions of food security: economic, physical, and social and cultural access.

Economic Access

The report takes a broad approach to examining economic access in terms of having sufficient financial means of obtaining food, followed by the impacts and challenges of complex food chains in relation to food price stability. Next, this section will examine the use of food banks as a support for food insecure individuals and the distinct economic barriers faced by one of Lethbridge's larger demographic cohorts: post-secondary student.

As previously stated, food insecurity is a complex and multifaceted problem with intertwined social, physical, and economic components. Lethbridge's 2019-2025 Municipal Housing Strategy defines affordable housing as housing where shelter costs (including utilities, mortgage or rent, etc.) amount to less than 30% of household income (City of Lethbridge, 2019b). As of 2021, 19.6% of Lethbridge households spent 30% or more of their income on shelter costs (Statistics Canada, 2021). Among other things, housing affordability impacts afford food affordability because when a larger portion of household income goes toward housing, there is inevitably less money left for other basic needs.

The relationship between housing and food access is further underscored by the influence of the LUB on housing options. LUBs regulate the types of homes that can be built in specific areas, which impacts their availability and cost. Restrictive LUBs often prioritize single detached housing types and lower densities, potentially limiting the supply of affordable housing units

(Institute for Community Prosperity, 2024). This limitation contributes to increased housing demand and inflated prices, placing additional financial strain on households. Consequently, families may be compelled to allocate more of their income towards housing costs, reducing disposable income for essential needs like food, healthcare, and education. Moreover, the impact of LUBs extends beyond housing costs alone. By influencing neighbourhood development patterns, these regulations can shape access to employment opportunities, transportation infrastructure, and community services — all of which affect household expenses and quality of life. Therefore, policies that effectively balance housing development with affordability considerations are crucial for promoting economic stability and well-being within communities like Lethbridge, thus supporting food security initiatives.

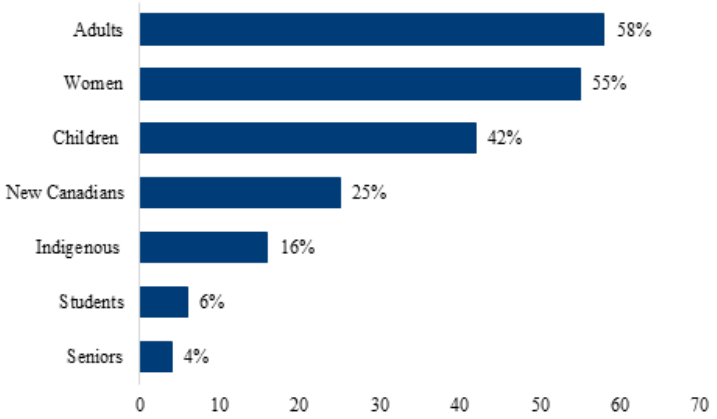
Food Insecurity Among Food Bank Users

Food banks can provide temporary support for food insecure households but are not a viable method for solving long-term, systemic food insecurity (Li et al., 2023; Tarasuk et al., 2020). While food banks are vital in providing emergency relief to food insecure individuals, there have been constant calls for policy reforms (Li et al., 2023; Rideout et al., 2007; Tarasuk et al., 2020). Since not all food insecure people use food banks for a wide range of reasons, such as usership requirements like having a home address, dietary restrictions, and social perceptions (Loopstra & Tarasuk, 2012), food banks are poor proxies for accurately determining local food security rates. That said, Lethbridge's food banks are one of very few sources available that even consider and provided data on local experiences of food security.

In total, Lethbridge has four food banks: Interfaith Food Bank Society of Lethbridge, the Lethbridge Food Bank, Lethbridge College Students' Association (LCSA) Food Bank and University of Lethbridge Students' Union (ULSU) Food Bank. The Interfaith Food Bank and Lethbridge Food Bank are organizations serving the community of Lethbridge at-large. Both have varying restrictions on access. For instance, the Interfaith Food Bank requires proof of address and income (Interfaith Food Bank Society of Lethbridge, n.d), while Lethbridge Food Bank does not require proof of address (Lethbridge Food Bank, n.d). Both the LCSA and ULSU food banks focus on student food insecurity at the Lethbridge College (now Polytechnic) and the University of Lethbridge, respectively. The specifics of who is eligible to use the LCSA and ULSU food banks is uncertain, but food bank usage is likely restricted to registered students. Student food bank usage data will be discussed in a subsequent section.

From the four food banks, only the Interfaith Food Bank provides public statistics on service usage. According to the Interfaith Food Bank Society of Lethbridge (2023), approximately 850 households accessed their services per month in 2023, showing an increase from 663 per month in 2022. Displayed in Figure 8, the largest demographic accessing their services consists of women, new Canadians, and Indigenous.

Figure 8
*Demographics of Interfaith Food Bank Users, 2023 (%)**



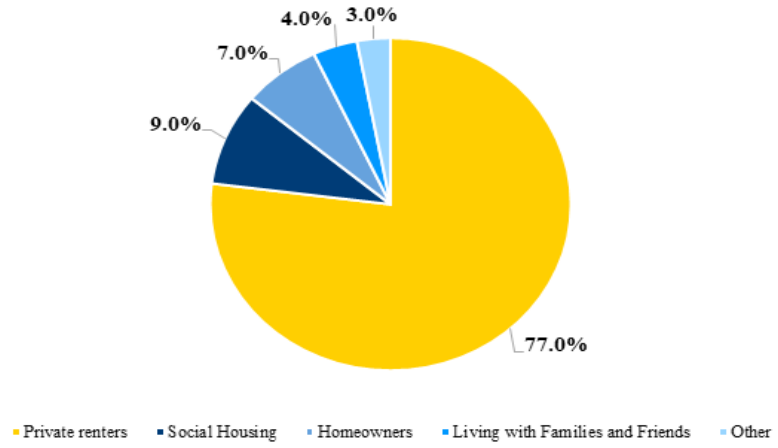
*Presented in a horizontal bar graph, this data is directly from page 9 of the 2023 Interfaith Food Bank report.

Note. Interfaith Food Bank Society of Lethbridge. (2023). *Annual report 2023.* https://interfaithfoodbank.ca/wp-content/uploads/2024/04/Annual-Report-2023.pdf

The Interfaith Food Bank also emphasizes the increase of homeowners and wage earners using their services. Figure 9 highlights the prevalence of homeowners using their services, with homeowners consisting of 7% of users, an increase from 6 % in the 2022 report (Interfaith Food Bank Society of Lethbridge, 2022, 2023). Once again, the Interfaith Food Bank's statistics only provide insight on a fraction of food insecure individuals as the organization requires their service users to provide proof of income and address.

Figure 9

Interfaith Food Bank Users by Housing Types, 2023 (%)*



*Presented in a pie chart, this data is directly from page 9 of the 2023 Interfaith Food Bank report.

Note. Interfaith Food Bank Society of Lethbridge. (2023). Annual report 2023. *https://interfaithfoodbank.ca/wp-content/uploads/2024/04/Annual-Report-2023.pdf*

Food Insecurity Among Post-Secondary Students

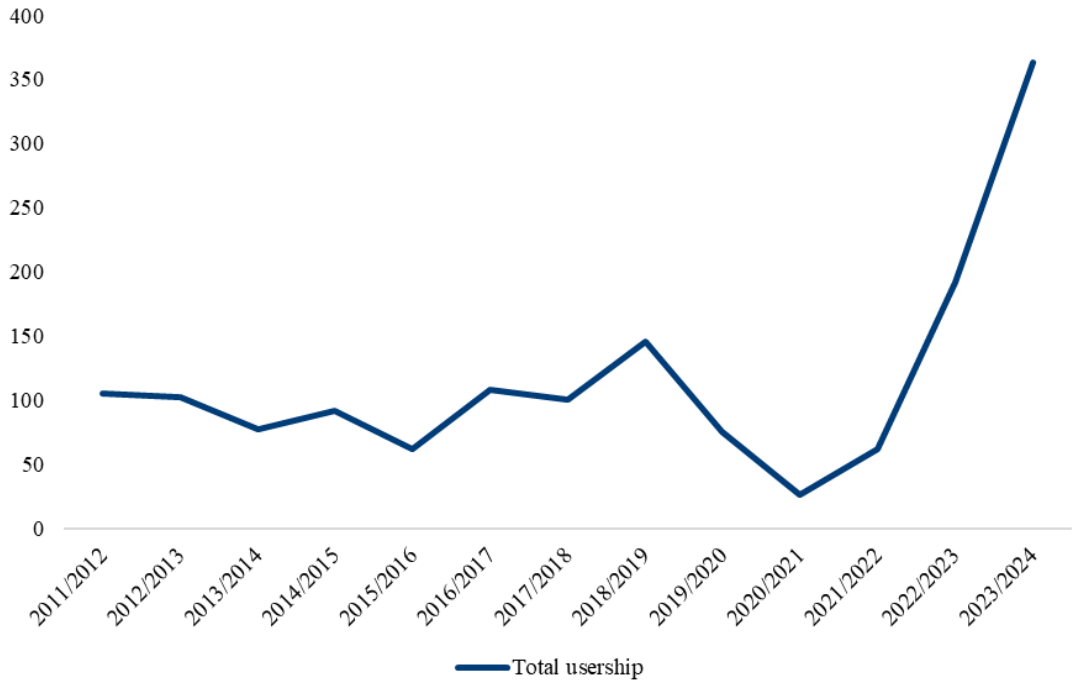
In the city, there are three post-secondary institutions: Lethbridge Polytechnic, the University of Lethbridge, and the Red Crow College. Excluding Red Crow College, as no data are available, there are approximately 14,000 students enrolled on campuses in Lethbridge (Lethbridge Polytechnic, 2019; University of Lethbridge, 2023). Currently, there is no information on the status of food insecurity on Lethbridge Polytechnic's campus, and only several older reports on the University of Lethbridge. According to the Food for Thought initiative, one in four students at the University of Lethbridge are facing food scarcity and 7.5% are facing food insecurity (Food For Thought, n.d). However, the initiative does not provide further statistical information.

According to the Meal Exchange (2021) report, the University of Lethbridge has one of the highest food insecurity rates out of thirteen campuses across Canada. Additionally, the report notes the rising tuition costs, and the cost of living are the major financial barriers for students, which often leads students to rationing meals or buying less healthy options to cut food expenses. Generally, the report found international students in Canada face higher rates of food security than their domestic peers (Meal Exchange, 2021). From the international students interviewed, around 74.5% were facing some degree of food insecurity (Meal Exchange, 2021). In comparison, 52.3% of domestic students living in their home province and 58.3% of domestic students living outside their home province were facing some degree of food insecurity (Meal Exchange, 2021).

From the two-post secondary specific food banks, the report only has data on the usership of the LCSA. Figure 10 illustrates the 14 years of food bank usage at Lethbridge Polytechnic. Although there is a decrease between 2019/2020 and 2020/2021, which is likely triggered by the COVID pandemic, there is a significant increase food bank usership in 2023/2024. However, the data provided did not have any usership demographic information to better understand which student populations are facing higher risks of food insecurity. The information and research on student food insecurity in Lethbridge requires further examination.

Figure 10

LSCA Food Bank Usership, 2011/12-2023/2024 (N)



Note. Unpublished data provided to the authors by the LSCA through personal correspondence on August 29, 2024.

Physical Access

This section explores the challenges to physically obtain food in Lethbridge. First, food deserts are discussed to provide the context of what current physical access to food looks like in Lethbridge, followed by a discussion of transportation.

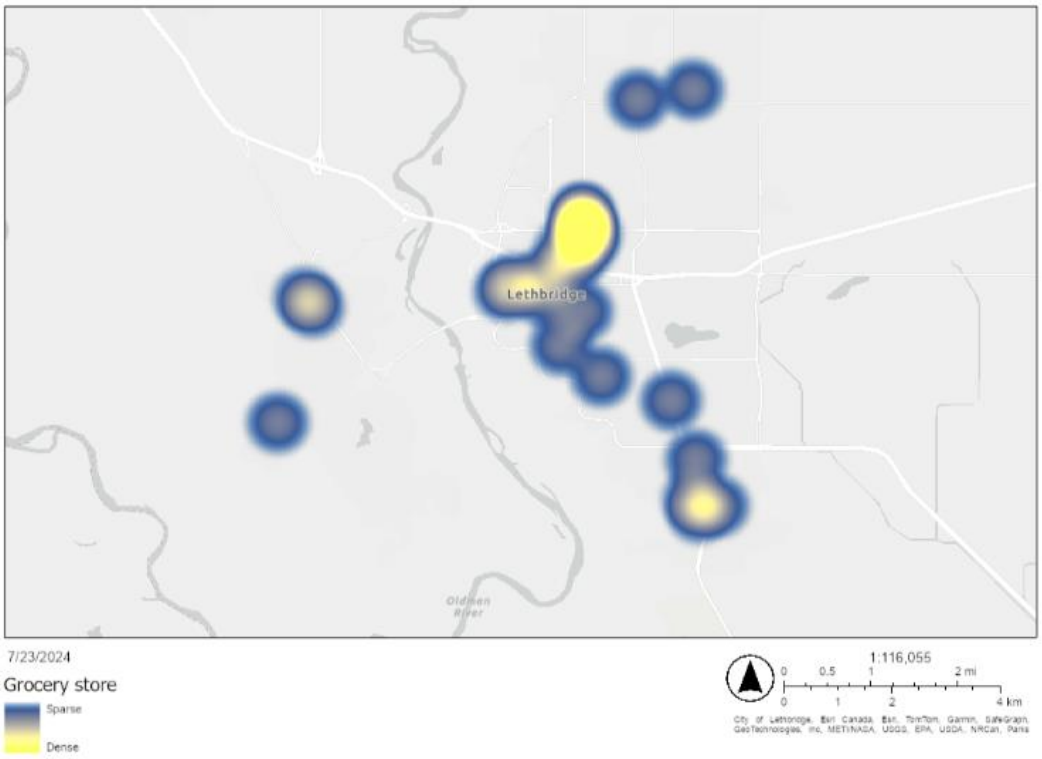
Food deserts and the additional barriers in accessing food, such as the limitations of the public transport system, limits a person's ability to access food (Crowe et al., 2018). Broadly speaking, food deserts are characterized as an area with little to no access to grocery stores or supermarkets with nutritious food within walking distance (Joassart-Marcelli et al., 2017). Planning impacts food accessibility, however, planning decisions are not solely responsible for food deserts. For example, Cummins and Macintyre (2002) cautions policymakers not to disregard the broader systematic elements that place marginalized communities away from healthy food. Crowe et al. (2018) found that city planners took a less proactive role in filling the gaps of retail grocery

stores under the presumption that economic motivators will solve food deserts despite the lack of grocery stores in lower income neighbourhoods. Therefore, policymakers need to take a more active and intentional role in addressing food inaccessibility which manifest as food deserts, rather than leaving it solely up to market forces.

Physical access to grocery stores differs depending on where people live and the transportation available to them. The report defines ‘grocery stores’ as any retail location whose aim is to predominately sell food, including whole and processed foods. In addition, the stores selected for the maps are dependent on stores identified by the term ‘grocery store’ on either Google or Bing maps. Due to these criteria, it is important to note that the lists are not exhaustive as they exclude convenience stores, pharmacies, and dollar stores. All places' people may choose to buy grocery stores. Currently, there are three grocery stores in West Lethbridge, 12 grocery stores in North Lethbridge and 12 in South Lethbridge. The grocery stores in the North and South are concentrated on 13th Street North and around Mayor Magrath Drive South. Figure 11 shows a broader heat map depicting various grocery stores in Lethbridge, while Figure 12, 13 and 14, shows stores in West, North and South Lethbridge, respectively.

Figure 11.

Heat Map of Grocery Stores Operating in Lethbridge, 2024

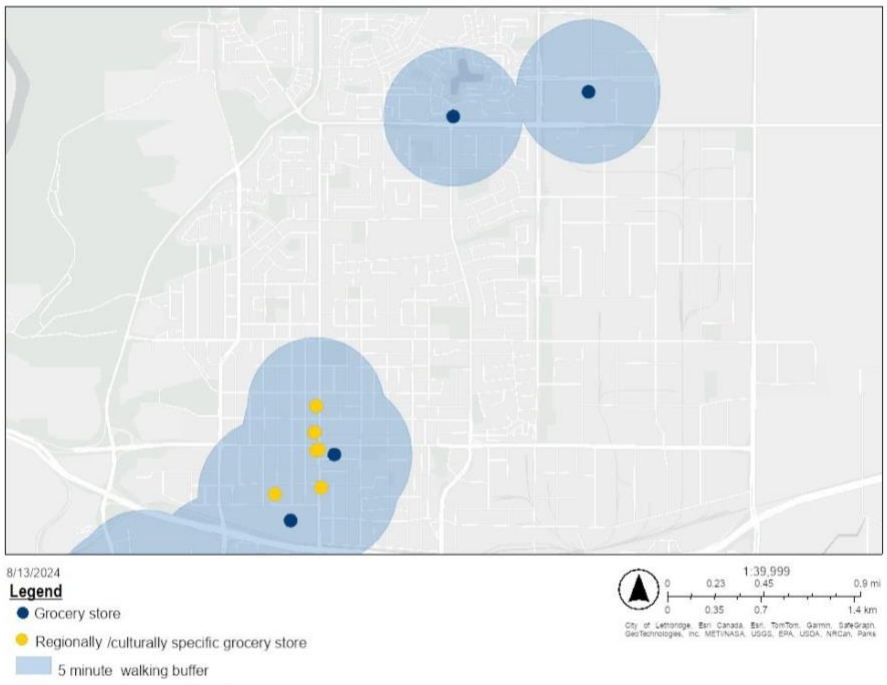


Note. Data gathered by authors on August 1, 2024.

Figure 12.
Grocery Stores Operating in West Lethbridge with a 5-minute (500meter) Walking Buffer

Note. Data gathered by authors on August 1, 2024.

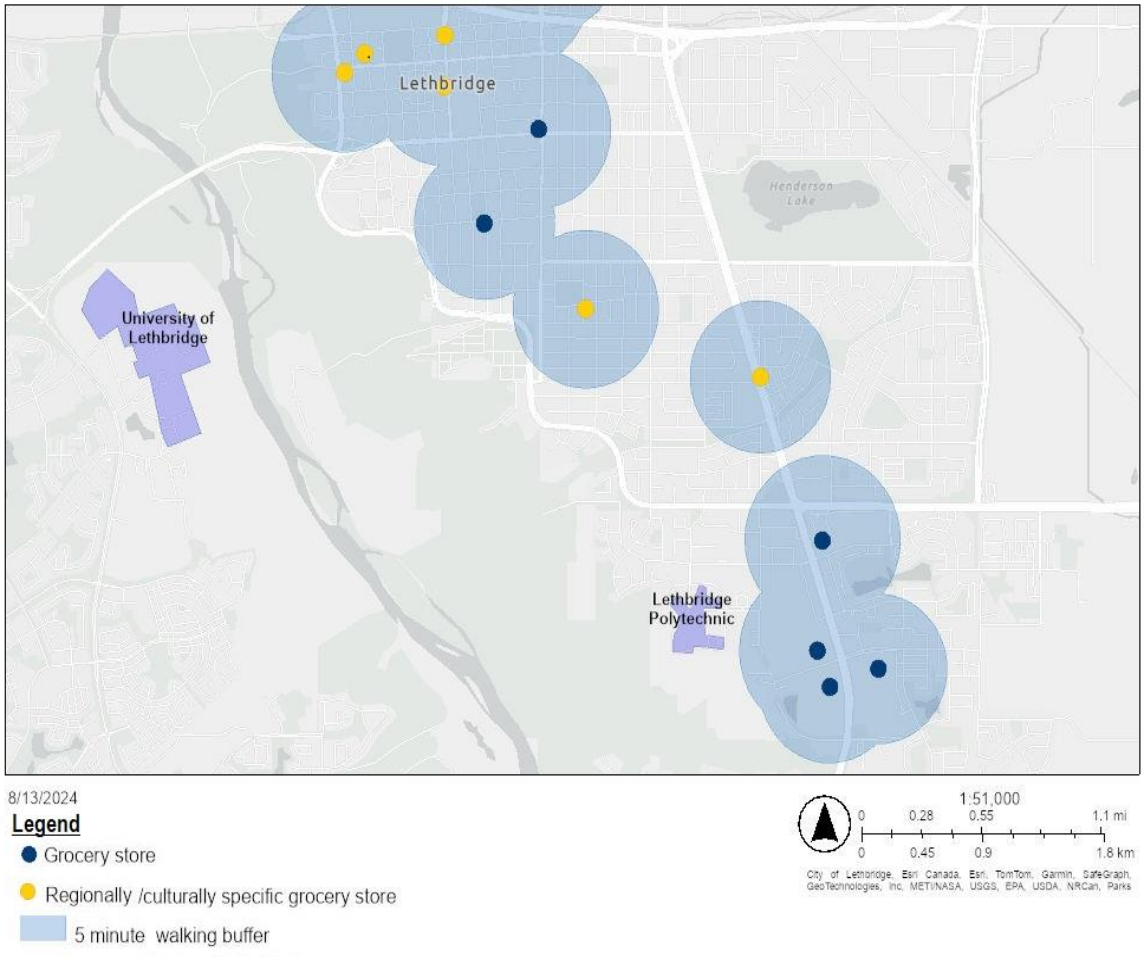
Figure 13.
*Grocery Stores Operating in North Lethbridge with a 5-minute (500meter) Walking Buffer **



*Two pairs of stores overlap which is not visible on the map
Note. Data gathered by authors on August 1, 2024.

Figure 14.

Grocery Stores Operating in South Lethbridge with a 5-minute (500meter) Walking Buffer

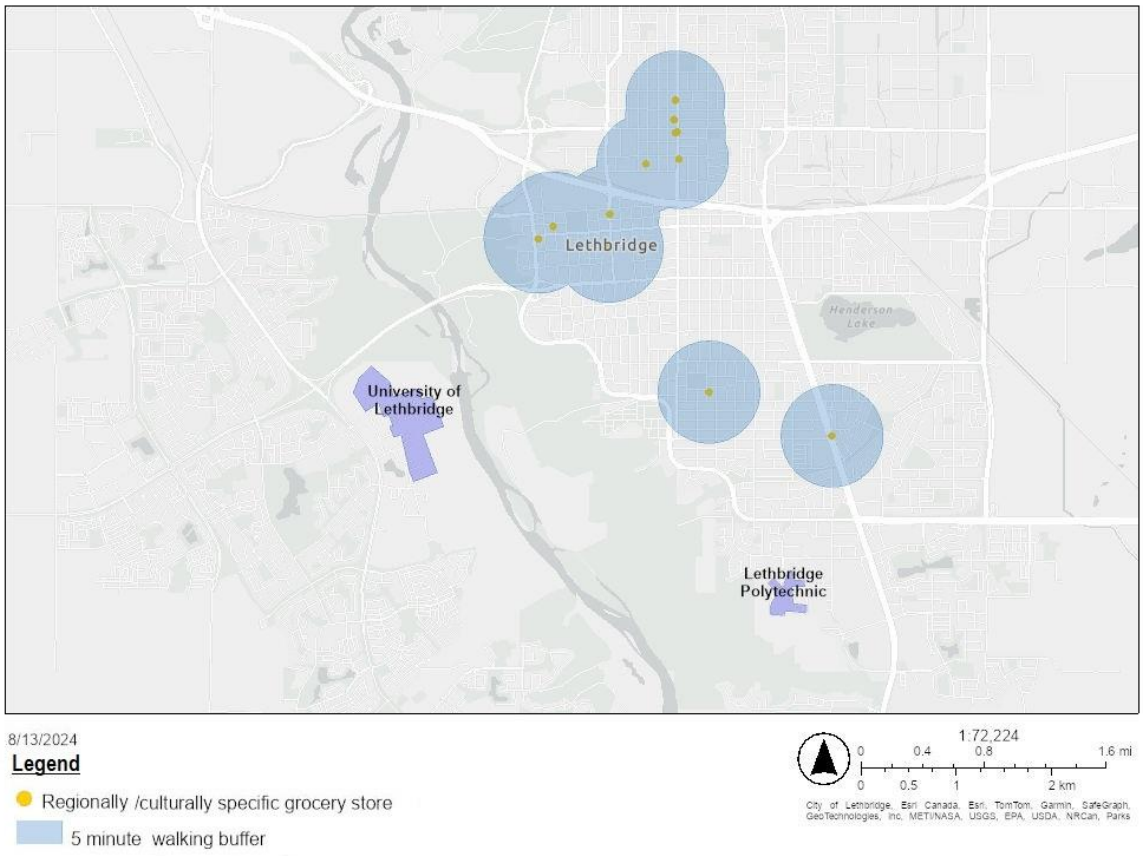


Note. Data gathered by authors on August 1, 2024.

Additionally, the diversity of food in grocery stores is often an issue for ethnic and immigrant communities attempting to retain certain culturally relevant ingredients in their diets (Alonso et al., 2018; Joassart-Marcelli et al., 2017). Most of the stores with regionally or culturally specific food are located on 13th Street North as shown in Figure 15, while other areas are often reliant on “international” or “ethnic” aisles in large chain grocery stores. This report defines regional or culturally specific grocery stores as being those which cater to a specific demographic understood to be not a part of the dominant cultural group, like stores specializing in selling products from Asia, Africa, and Eastern European countries.

Figure 15.

Map of Grocery Stores Selling Regionally or Culturally Specific Food Operating in Lethbridge, 2024

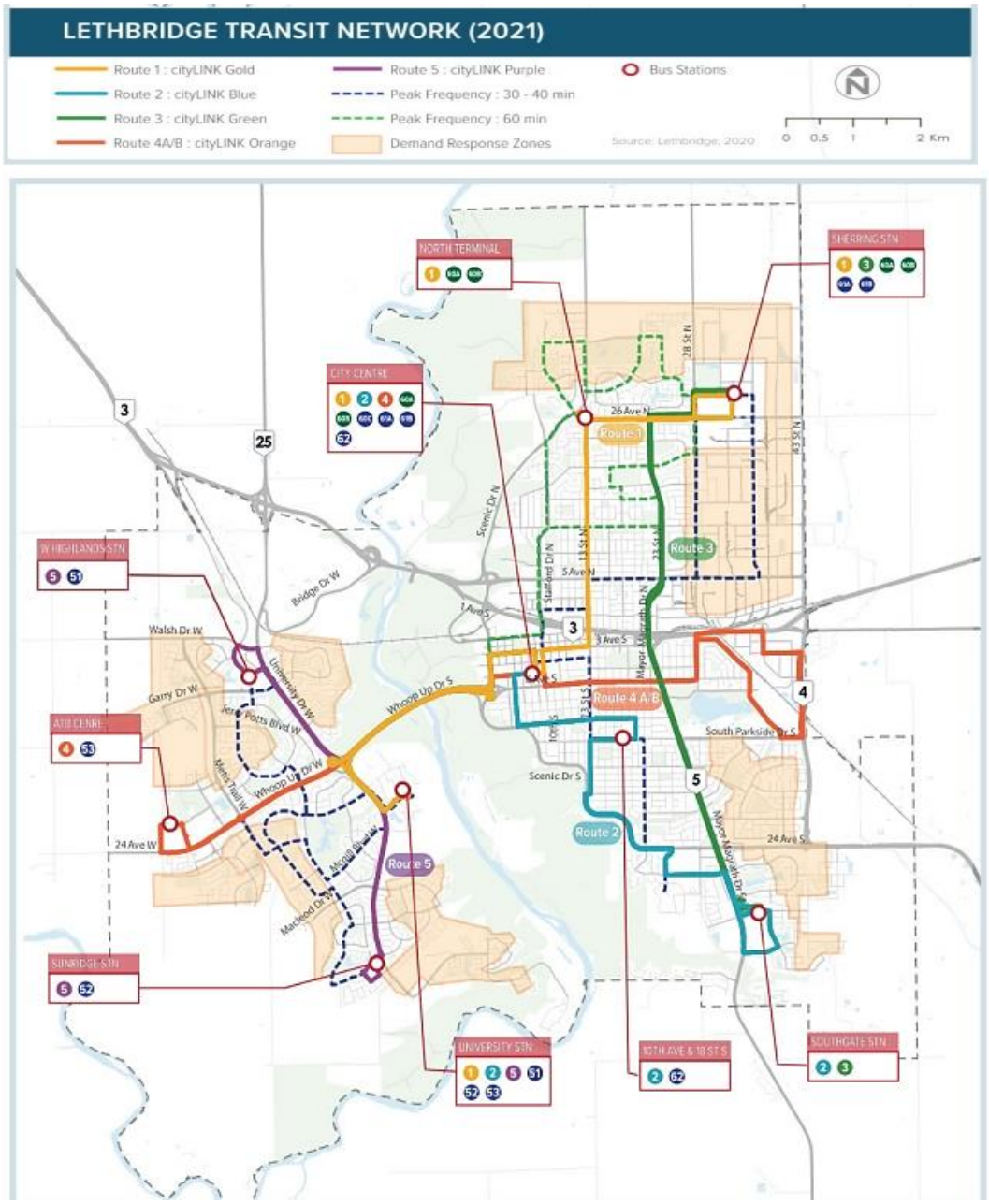


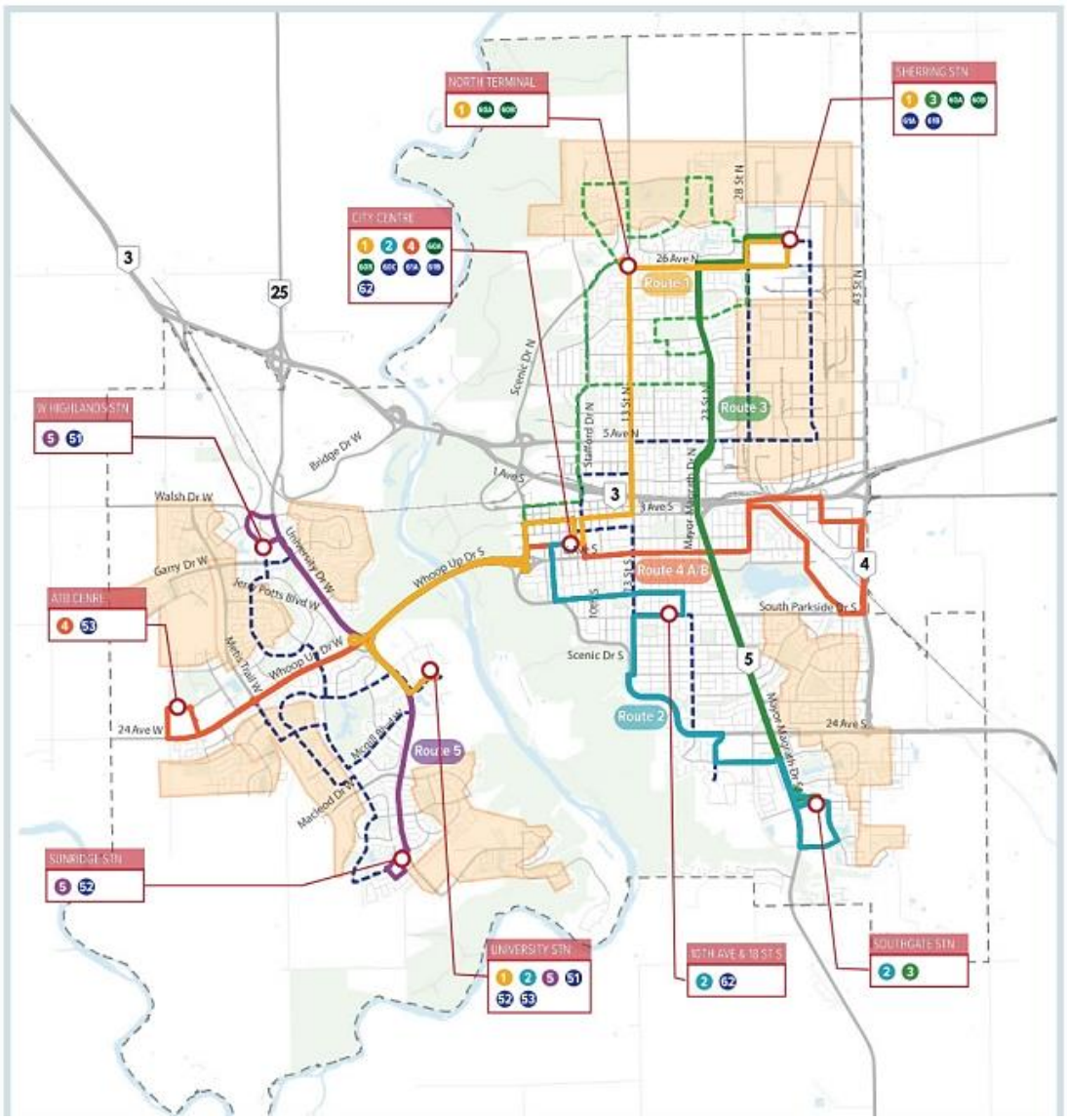
Note. Data gathered by authors on August 1, 2024.

In Lethbridge, many grocery stores are hard to access without a vehicle. In the maps above, the walkability of grocery stores appears to decrease as one moves away from the downtown area. There are pockets of grocery stores in North and South Lethbridge, however, access to these spaces may differ depending on a person's mode of transportation. In terms of public transportation, there are a total 11 fixed transit routes in the city and the ability to request transport via Access-A-Ride (City of Lethbridge, 2023b). For example, to access the larger concentration of grocery stores in North and South Lethbridge from West Lethbridge, there is only one bus route (Route 1). While Route 1 has access to the grocery stores in North Lethbridge, many of the cheaper wholesale grocery stores are located on Mayor Magrath Drive South, which in turn increases the time it takes to get to a store and return home as bus transfers may be required. Beyond just the relative physical location of grocery stores, these other barriers, such as store location, store hours, mode of transportation, and time needed to travel between stores, all compound our understanding of food accessibility within a broader urban food system

(Crowe et al., 2018; Widener et al., 2017). Similarly to other households in Lethbridge, the location of food retailers also limits students' access to food (Nugent, 2011). The spatial distribution of grocery stores and markets also disproportionately impacts communities without access to a personal vehicle to a greater extent, including newcomers, people with disabilities, seniors, mothers with young children, and people living in poverty (But, 2017).

Figure 16
Lethbridge Transit Networks, 2021


LETHBRIDGE TRANSIT NETWORK (2021)
Route 1 : cityLINK Gold
Route 2 : cityLINK Blue
Route 3 : cityLINK Green
Route 4A/B : cityLINK Orange
Route 5 : cityLINK Purple
Peak Frequency : 30 - 40 min
Peak Frequency : 60 min
Demand Response Zones
Bus Stations
Source: Lethbridge, 2020
0 0.5 1 2 Km
NORTH TERMINAL
SHERRING STN
CITY CENTRE
W HIGHLANDS STN
ATB CENTRE
SUNRIDGE STN
UNIVERSITY STN
16TH AVE & 18 ST S
SOUTHGATE STN
Route 1
Route 2
Route 3
Route 4 A/B
Route 5
26 Ave N
5 Ave N
3 Ave S
1 Ave S
Scenic Dr N
Scenic Dr S
Stafford Dr N
Mayor Magrath Dr N
Mayor Magrath Dr S
South Parkside Dr S
24 Ave S
Walsh Dr W
Garry Dr W
University Dr W
Whoop Up Dr W
Whoop Up Dr S
Metis Trail W
Macleod Dr W
24 Ave W
Bridge Dr W
28 St N
43 St N
3
25
4
5



Note. Lethbridge Transit. (2024). Routes. https://myride.lethbridge.ca/RouteMap

Social and Cultural Access

Nguyen (2018) lists cultural traditions as a primary sociocultural outcome of a sustainable food system. However, people that may not fit into the mainstream Canadian agri-food system—such as Indigenous Peoples and newcomers—experience a higher degree of social marginalization and food insecurity (Banerji et al., 2023; Moffat et al., 2017). To complicate matters further, food insecurity is largely discussed in a way that prioritizes dominant notions of food security (Power, 2008). Together, these issues perpetuate the ostracization of non-dominant identities within the Canadian food system. From a sociocultural perspective, identity is a primary dimension of food as food and food practices express a person's "emotions, status, wellness, and individual and cultural identity" (Aktaş-Polat & Polat, 2020, p. 288). Ergo, food is ingrained

within social behaviors — behaviors that produce culture, community, and a sense of belonging (Alonso et al., 2018). Thus, food is more than the intake of calories.

In Canada, access to culturally valued food remains a barrier that disproportionately impacts Indigenous Peoples (Power, 2008) and immigrants (Tarraf et al., 2017). Currently, there is lack of data on - food in Lethbridge. However, there is an increase of Indigenous Peoples and newcomers in Lethbridge (City of Lethbridge, 2019a). The relationship between food and identity is therefore an important for deciphering the nature of local food insecurity in Lethbridge. This section of the report is focused on the role of identity within food systems and food insecurity—namely, how the dominant food system marginalizes Indigenous and immigrant identities, contributing to the heightened prevalence of food insecurity within these groups.

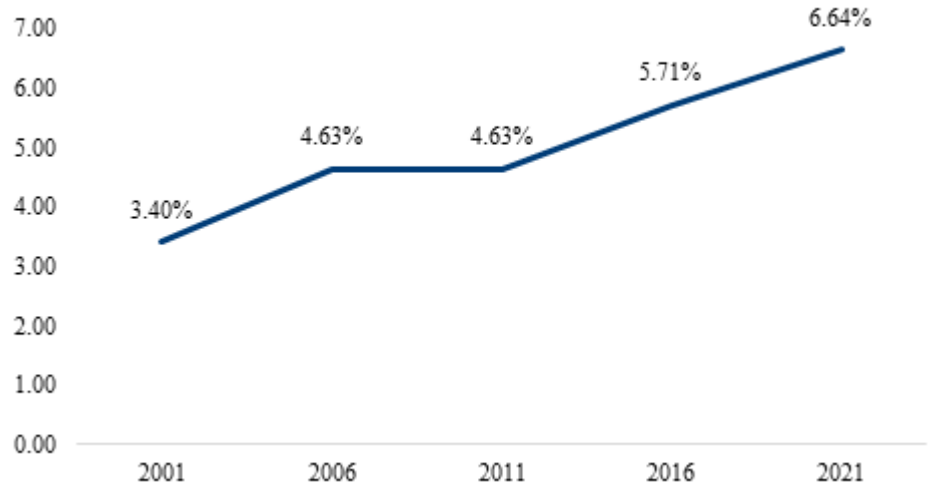
Indigenous Populations in Lethbridge

Across Canada, Indigenous Peoples face a higher prevalence of food insecurity (Li et al., 2023). Broadly speaking, this trend is the result of the structural barriers introduced by settler colonialism that are perpetuate on-going social and economic injustices targeting Indigenous Peoples (Cidro et al., 2015; Robin et al., 2021). For Indigenous Peoples, food security is inextricably tied to community, culture, and food sovereignty (Morrison, 2011; Richmond et al., 2020). For this reason, the restoration of Indigenous food systems is a critical aspect of Indigenous food security (Settee, 2020). As it stands, there are several challenges that are restricting Indigenous Peoples from restoring traditional food systems. Namely, government restrictions, climate change, and food safety (Shafiee et al., 2022).

Indigenous Peoples in urban spaces are at a higher risk of experiencing food insecurity, compared to Indigenous Peoples not living in urban spaces (Richmond et al., 2020). In Lethbridge, the population growth rate of Indigenous Peoples is outpacing that of other communities: between 2001 and 2021, the percentage of Indigenous Peoples in Lethbridge increased from 3.4% to 6.64% (Figure 17). Indigenous Peoples, in addition to social and economic barriers, also endure barriers to accessing culturally significant food. The inability to access culturally significant food (due to time, knowledge, equipment costs, etc.) causes individuals to feel as if they are being forced to “leave their culture behind” (Cidro et al., 2015, p. 31). Note that access to traditional foods is not the only factor to consider. The traditional cultural practices that are connected to food —like harvesting and cooking — are also crucial, as these permit the generational transfer of knowledge, the cultivation of community ties, and the expression of cultural identity (Cidro et al., 2015; Settee, 2020; Shafiee et al., 2022).

Figure 17

Indigenous Population Relative to Total Population in Lethbridge, 2001-2021 (%)



Note. Government of Alberta. (2023). *Lethbridge % Aboriginal population of* [Data set]. Retrieved August 1, 2024 from https://regionaldashboard.alberta.ca/region/lethbridge/percent-aboriginal-population/#/

The creation of Indigenous-owned supermarkets is one phenomenon that has emerged to reduce the degree of alienation facing Indigenous Peoples residing in urban spaces. One example is the Indigenous-owned supermarket, *Kaienthókwen*, in Québec. *Kaienthókwen* is one of the few Indigenous-owned supermarkets that is providing Indigenous Peoples access to traditional foods in Canada (Neechi, n.d). *Kaienthókwen* not only harvests and produces food locally, but also "promotes cultural preservation and economic empowerment within Indigenous communities" (Neechi, n.d). That said, there are restrictions on traditional foods—such as game meat—that create legal barriers for Indigenous food businesses to operate. Another Indigenous food security initiatives, such as the Buffalo Treaty, which is a project focusing on the restoration and conservation of the buffalo to their historical homeland (The Buffalo, n.d) (The Buffalo, n.d). In Blackfoot territory, the buffalo is interwoven into many cultural practices, including food practices, education, health, and ceremonies (The Buffalo, n.d). The Buffalo Treaty is a policy-approach to support the aspects of long-term Indigenous food insecurity as mentioned in the IFSN definition in Chapter 1.

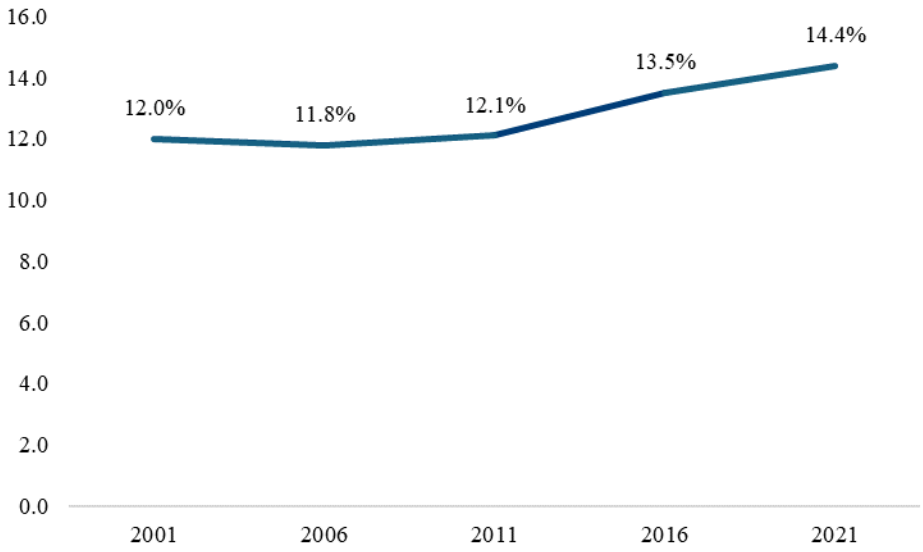
Immigrant Population in Lethbridge

Along with the Indigenous population, there is a rise in immigrant population in Lethbridge. According to the 2021 census metropolitan area (CMA) data, 3,640 immigrants arrived in Lethbridge between 2016-2021, resulting in a total of 17, 385 immigrants in Lethbridge (Statistics Canada, 2022). Among the recent immigrants in Lethbridge, the top countries of birth were the Philippines, Mexico, Syria, and India (Statistics Canada, 2022). Figure 18 shows this

increase in Lethbridge's total immigrant population relative to the total population in the last decade.

Figure 18

Immigrant Population, Lethbridge (CMA) Relative to Total Population in Lethbridge, 2001-2021 (%)



Note. Statistics Canada. (2022). *Number and percentage of the immigrant population, Lethbridge (CMA), 2001 to 2021.* Retrieved August 1, 2024 from https://www12.statcan.gc.ca/census-recensement/2021/as-sa/fogs spg/alternative.cfm?topic=9&lang=e&dguid=2021S0503810&objectId=2_1

In Lethbridge, the concentration of regionally and culturally specific food retailers, separate from international aisles in large chain grocery stores, appears on 13th street North. Retailers focusing on culturally and regionally specific foods can play an important role in supporting "emotional and physical wellbeing, developing social ties, and sustaining communities both culturally and economically" (Joassart-Marcelli et al., 2017, p. 1654). These specific food retailers can also foster feelings of belonging and community within cities, as well as provide spaces to build relationships. Both features that play a crucial role in curbing food insecurity in communities, as there is sharing of knowledge on social services and food utilization (Nosratabadi et al., 2020). Therefore, it is essential to understand food availability beyond agricultural yields and price stability to foster welcoming communities, social cohesion, and belonging.

Within Lethbridge, Indigenous and immigrant populations are experiencing rapid population growth. However, substantial structural barriers hinder these groups' access to essential cultural resources, like culturally appropriate food, which limits their ability to maintain cultural resilience and overall well-being. The marginalization of regionally/culturally specific retailers, or ethnic markets, in urban setting is commonly seen a result of land use restriction, social stigma, and lease prices (land use regulations also impact lease prices) (Joassart-Marcelli et al.,

2017). Concentrating ethnic groceries in a few areas can limit accessibility and convenience for diverse communities throughout the city, reducing the cultural integration and mutual understanding that arises from diverse, mixed-use neighbourhoods. Additionally, most regionally or culturally specific grocery stores are locally owned and operated. Therefore, the stores can face many economic challenges to keeping their doors open, including barriers to owning their building rather than renting.

Current Context: Local Food Systems and the Land Use Bylaw

The sociopolitical discourse surrounding food security often frames the issue from a global and national perspective with little focus on local food systems (Kirwan & Maye, 2013). Although global and national forces are integral to the structure of food systems, most individuals do not engage directly with the global and national food systems in their everyday lives. Instead, people engage with the food system in their immediate environment by navigating their local communities, gardens and green spaces, neighbourhoods, and markets. Therefore, this is a local issue that requires local solutions, despite the global influences at play. Consequently, it may be beneficial to tailor community planning initiatives to the unique cultural, economic, and social contexts of Lethbridge by leveraging local resources, knowledge, and networks.

Community planning with food security initiatives in-mind can support the creation of a more resilient food system (Steenkamp et al., 2021; Zhong et al., 2021). For example, Chapter 5 provides an overview of food-related definitions in other LUBs that are not contemplated in Lethbridge. Figure 19 outlines food systems-related uses in LUB 6300.

Figure 19.
Land Use Bylaw 6300 Definitions Relevant to Local Food Systems

Food Production:

1. **Farm** means Development, the primary Use of which is for the production of agricultural products such as dairy products, livestock or field crops or undeveloped land, on a Parcel equivalent in size to an Unsubdivided Quarter Section, as defined in the Subdivision and Development Regulations.
2. **Second Farm Dwelling on a Less Than 32.4 Hectare Parcel** means Development consisting of a second Single Detached Dwelling or Manufactured Home/Tiny Home developed in accordance with Section 99(8) of this Bylaw, occupied by a person who is engaged on a full-time basis for at least 6 months each year in an agricultural pursuit and located on a Parcel of land less than 32.4 hectares in area in existence at the date of passage of this Bylaw, the primary Use of which is for the production of Farm products such as dairy products, livestock or field crops.
3. **Greenhouse** means Development for the growing, storage and wholesale distribution of garden, Household and ornamental plants and trees. Retail sale of plants and trees may be incorporated as an Accessory Use. Garden Centre is a separate Use.

Food Processing:

4. **Manufacturing, Specialty or Specialty Manufacturing** means Development for small-scale on-site production of goods. Storage, display and retail sales area for the manufactured goods which together occupy a maximum of 50% of the gross floor area may be incorporated as an Accessory Use. This Use may include sign manufacturing and the sale of associated products of own manufacture at the discretion of the Development Authority. This term refers to Uses such as bakeries, specialty food production, pottery, sculpture studios and furniture makers.

Food Access:

6. **Food Bank** means Development that provides for the charitable distribution of groceries and supplies to people in need. Soup Kitchen, Drop-in Centre and Resource Centre are separate Uses.
7. **Neighbourhood Grocery Store** means Development providing groceries and everyday Household supplies to the surrounding neighbourhood. **
8. **Neighbourhood Facility** means Development which provides a gathering space for members of the surrounding neighbourhood and is typically operated by community members and/or a community organization and may offer or host a variety of community activities and events. The facility may include one or more classrooms or assembly/meeting spaces, a kitchen, Offices, storage areas and washrooms. The facility may be leased for private events.
9. **Neighbourhood Take-out Foods** means Development for the on-site preparation and sale of made-to-order foods that are intended to be consumed off-site. Commercial-scale deep-fat fryers shall not be used in the food preparation. Ventilation and extraction systems must comply with relevant Building Code requirements. No drive-through operation is permitted. *
10. **Restaurant** means Development where food and beverages are prepared and served and includes supplementary alcoholic beverage service and supplementary on or off-premises catering services and may include supplementary drive-through service. This term refers to Uses such as Restaurants, cafés, lunch and tea rooms, ice cream parlours, banquet facilities, take-out Restaurants and eating areas for more than ten Persons within Retail Stores. Entertainment Establishment and Business Support Service are separate Uses.
11. **Retail Store** means Development for the retail sale or rental of merchandise, including hardware, from within an enclosed Building, and includes supplementary postal services, film processing, repair of merchandise sold or rented by the store, and food consumption areas with a maximum capacity of ten Persons. This term includes drycleaners, tailors, liquor sales and photographic studios. Garden Centre, Vehicle Sales, Rental, and Equipment Sales, Rental, Service are separate Uses.

12. **Retail Store, Convenience or Convenience Retail Store** means a Retail Store which does not exceed 280.0m2 in gross floor area.
13. **Soup Kitchen** means Development that provides for the charitable provision of meals, consumed on-site, to people in need. Food Bank, Drop-in Centre, Restaurant and Resource Centre are separate Uses.

Other Related Definitions:

14. **Landscaping** means the enhancement of outdoor areas, typically for environmental, aesthetic and privacy reasons, primarily by using organic materials such as grass, perennials and annuals, shrubs, trees and organic mulch and may incorporate, typically as subsidiary elements, inorganic materials such as brick, stone, concrete or tile for hard-scaping such as Walkways, retaining walls and patios as well as inorganic mulch. Landscaping may include features such as play equipment, plazas, courtyards, fountains, sculpture and art installations, fences, pergolas and privacy screens. Landscaping does not include areas intended for vehicle parking.
15. **Park** means Development of land for recreational activities of the general public which do not require major Buildings or facilities and includes supplementary picnic areas, playgrounds, pedestrian and bicycle trails and paths, landscaped areas, parking lots and public washrooms. *

* Use is only allowed in the Low Density Flexible Residential (R-LF) District as a home occupation.

** In practice, parks do not need a development permit to have a community garden. However, when discussing community gardens with a stakeholder in preparation of this report, it was noted that attempts to establish community gardens in parks were discouraged by City officials due to a lack of clarity around operational ownership and responsibility between the City and community groups. While not including any specific definition of community garden may, in theory, allow for more flexible interpretations of the LUB, City staff and bylaw enforcement officials may benefit from some policy guidance. For example, it may be challenging to reconcile urban agricultural activities with the LUB's current definition of 'park,' which is largely based on 'recreational activities,' potentially causing officials to view activities associated with community gardening as destructive.

Strengthening Food Security and Complete Neighborhoods

Figure 20
Food-Related Uses in Lethbridge's Land Use Districts

Food Related Use	District [1]										
	C-D	C-G	C-H	C-L	C-N	C-S	I-B	I-G	P-B	P-R	R[5]
Farm	N[2]	N	N	N	N	N	N	N	N	N	N
Food Bank	D[3]	D	D	N	N	D	D	N	D	N	N
Greenhouse	N	N	N	N	N	N	P	D	N	N	N
Specialty manufacturing	P[4]	P	P	N	D	P	P	D	N	N	N
Neighbourhood facility	N	D	D	N	D	N	N	N	P	N	N
Neighbourhood grocery store	N	N	N	N	N	N	N	N	N	N	N
Neighbourhood take-out	N	N	N	N	N	N	N	N	N	N	N
Park	P	N	N	N	N	N	N	N	P	P	N
Restaurant	P	P	P	N	P	P	D	N	N	N	N
Retail store	P	P	P	N	P	P	N	N	N	N	N
Retail store, convenience	P	P	P	P	P	P	N	N	N	N	N
Second farm dwelling	N	N	N	N	N	N	N	N	N	N	N
Soup Kitchen	D	D	D	N	N	N	D	N	D	N	N

[1] **Districts Referenced:** C-D (Downtown Commercial); C-G (General Commercial); C-H (Highway Commercial); C-L (Local Commercial); C-N Neighbourhood Commercial); C-S (Shopping Mall Commercial); I-B (Industrial Business); I-G (Industrial General); P-B (Public Building); P-R (Parks and Recreation);
[2] D = Discretionary Use
[3] P = Permitted Use
[4] N = Neither Discretionary Nor Permitted
[5] R refers to all residential districts

Most permitted food-uses are related to food distribution (restaurant, retail store, convenience stores), whereas uses related to food production (farm, secondary farm dwelling) were not referenced in any of the above districts. While there are specific Uses for neighbourhood grocery

stores and take-out businesses, those Uses are not contemplated in the LUB. In the current LUB, ‘residential’ and ‘commercial’ uses are mutually exclusive: there are no mixed-use districts in the LUB. The separation of residential and commercial uses and areas is a distinctively North American urban model, which naturalizes the notion of pure residential and commercial spaces, deviating from the historical pattern of urban systems (Hirt, 2012).

There is significant room to permit mixed use developments that allow for both commercial, residential, and other uses on a parcel. At the parcel level, mixed-use zoning can make underdeveloped parcels more attractive to developers as the parcel can now be developed flexibly to serve several functions (Nelson, 2012). At the neighbourhood level, horizontal mixed-use development (co-locating uses in a designated area, ensuring neighbourhoods offer residential, commercial, and civic uses within walking distance) provides a variety of economic, environmental, social, and health benefits to the entire neighbourhood (Pena & Shah, 2022).

Mixed use development contributes to the creation of ‘complete neighbourhoods’ which allow all residents within their immediate community to access their basic needs through integrated land use planning, transportation planning, and community design. Complete neighbourhoods aim to re-imagine the denser, grid-style mixed-use areas of the past to emphasize sustainability and access to commercial goods by increasing transportation options for consumers and employees (Federation of Canadian Municipalities, n.d).

Urban planners can designate zones where residential, commercial, institutional, and civic uses are integrated, preferably near transit. This approach encourages a mix of activities within a compact area, reducing the need for extensive travel and promoting local economic activities. For instance, zoning that allows for both housing and local markets can increase food access and availability. Incorporating parks, green spaces, and recreational and cultural facilities into neighbourhood designs enhances the quality of life for residents. These spaces can also support community gardens or urban agriculture initiatives, which provide opportunities for local food production and education on sustainable food practices. Finally, planning for complete neighbourhoods involves planning for future infrastructure such as food distribution networks, food storage facilities, and community kitchens which can support local food systems and improve access to affordable, healthy foods. These investments can be targeted in underserved areas to address food deserts and enhance food security.

Chapter 3: Urban Agriculture

The practice of UA is a feature of human settlements predating the global commercialization of food systems (Corrêa et al., 2020). The existence of UA can be traced back to the earliest human cities, in which green communities produced a sustainable amount of food through "the grouping of domestic gardens, which collectively amounted to farms for food production" (Corrêa et al., 2020, para. 14). Today, cities are experiencing novel challenges to food security that are arising from rapid urbanization (United Nations, 2018) and globalization (Grewal & Grewal, 2012). In response to the large volume of people migrating to cities and the accompanying pressure on urban food systems, the FAO introduced the *Milan Urban Food Policy Pact* (MUFPP) in 2015. The MUFPP is a framework that aims to assist cities in addressing food insecurity, an issue that is becoming increasingly 'urbanized' (FAO et al., n.d). The MUFPP recommends UA, and access to land for UA, as a strategy to increase the security of urban food systems (Milan Urban Food Policy Pact, 2020a). UA initiatives are largely governed by policies at the municipal level by municipal policies controlling land use (FAO et al., 2018). Accordingly, the City of Lethbridge (having authority over land use regulations) can encourage and shape the opportunity for UA in Lethbridge.

In Canada, there is a growing interest in UA practices that can build local food sovereignty and decrease social isolation (Music et al., 2022). When it comes to UA, however, there are two factors that are inseparable from local food security: access to land and tenure security (FAO, 2018). For this reason, the viability of UA in cities, such as Lethbridge, relies on the ability of land-use policies to protect urban producers. The local ability to rely on industrial food chains does not negate the benefits of UA. In fact, UA practices, in addition to the benefits noted above, can counteract some of the negative ecological consequences created by the global food economy, such as reducing greenhouse gas emissions (Cleveland et al., 2017). It is important to note this report does not suggest UA as a replacement for the industrial food system, but rather as a tool to manage the risk associated with the volatility of said system, as well as a tool to enhance broader community outcomes like health, wellness and belonging. This section aims to first, describe UA and how UA can be evaluated; second, to discuss the potential benefits and challenges of implementing UA initiatives in Lethbridge; and third, provide a brief overview of some of the current UA projects in Canada.

What Is Urban Agriculture?

Several municipalities across Canada are exploring UA as a tool to facilitate planning objectives such as urban regeneration (Tapia et al., 2021), social innovation (Sanyé-Mengual et al., 2019), and land use multifunctionality (Langemeyer et al., 2021). It is important to note that the definitions and practices associated with UA vary depending on "the location, type, scope and scale of activities included and by the intended use of agricultural products" (Quon, 1999, p. 7). Nevertheless, each definition of UA can be generalized to refer to all aspects of food production within an urban area (Opitz et al., 2016; Skar et al., 2019).

More broadly, UA refers to "the production, processing and marketing of food on all types of publicly and privately held land and water bodies dispersed throughout urban and peri-urban areas, mostly destined to consumers residing in these areas" (Payen et al., 2022, p. 2). Under this definition, UA initiatives would include community and private gardens, edible landscapes, orchards and fruit trees, animal husbandry, small-scale market-farming and farmers' markets, bee-keeping, and small-scale aquaculture (Skar et al., 2019). See Appendix D for a description of popular UA initiatives and examples of how they can be integrated into a LUB. Each of these practices can be adapted to fit the demands and structure of the Lethbridge community. The following sections will explore the advantages and disadvantages of UA.

Evaluation of Urban Agriculture

UA is not a new concept in Lethbridge. The Interfaith Food Bank Learning Garden, the University's Campus Roots community garden, and various fruit trees are examples of forms of UA in Lethbridge. By implementing UA friendly policies into the LUB, the City of Lethbridge can create room for the far-reaching benefits of UA, such as urban resiliency and sustainability. Hence, this report advocates for UA on a larger and more collaborative scale, wherein the City creates policies and a regulatory environment within which UA can emerge across the community. The evaluation of UA initiatives is crucial; however, many initiatives in North America are either un-evaluated or the evaluation is not publicly accessible. For this reason, this report evaluates UA initiatives by first addressing the current research literature, and second, investigating what factors contribute to the success of existing UA programs. The Lethbridge community can utilize this information to evaluate and localize UA initiatives that have the potential to improve community resilience.

Benefits and Opportunities of Urban Agriculture

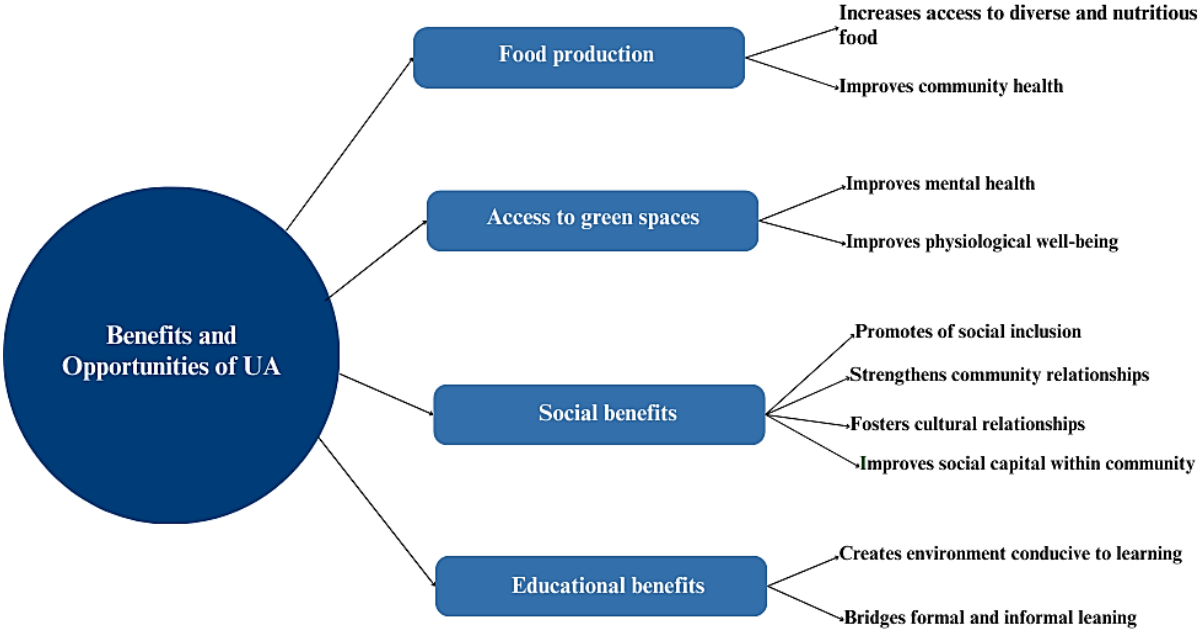
Inquiry into the physical, mental, and social benefits of UA in Canadian communities is a decades-long area of study (Fairholm, 1999). Today, the commonly discussed benefit of UA is its contribution to food security within the community, especially in low-income communities by increasing access to diverse and nutritious food (Orsini et al., 2013). Namely, UA contributes to the reduction of food expenditure (Orsini et al., 2013) and improves community health by mitigating obesity and other diet related health concerns (Ilieva et al., 2022). Additionally, access to green spaces, such as parks and community gardens, are often associated with reduced levels of stress, anxiety, and depression, contributing to improved mental (Thompson, 2018) and physiological well-being (Dona et al., 2021).

UA activities such as gardening can create an environment conducive to learning. For many households and their children, UA practices, like community gardens, can be a lively learning opportunity to bridge formal and informal education (Datta, 2016). UA initiatives can provide space for sharing individual experiences and expertise on the topic. Therefore, the space created by UA contributes to a widened knowledge of nutrition, garden skills, and local expertise (Ayeop et al., 2018).

An additional benefit of UA is the promotion of social inclusion (Orsini et al., 2013). Through UA initiatives, interaction, cooperation, and friendship among neighbours may arise and create a greater sense of community between individuals (Gallaher et al., 2013). For instance, community gardens can provide a space to foster social and cultural relationships through the cultivation of traditional foods and strengthening community relationships (Diekmann et al., 2020). For example, researchers in Nairobi, Kenya, found a greater level of social capital in those who participated in UA than those who did not (Gallaher et al., 2013). Finally, UA can improve a community's social capital by creating spatial social networks for families, neighbours, and people of different backgrounds to interact (Caldas & Christopoulos, 2023).

Figure 21

Benefits and Opportunities of UA



Challenges and Barriers of Urban Agriculture

In a review of unsuccessful UA initiatives in North America, Napawan (2016) identifies three issues that harm program success: lack of interest, community up-take, and waning support from local leadership. The success of UA relies on the ability of community members and urban farmers to share resources and provide mutual support (Kanosvamhira & Tevera, 2019). As such, any successful UA program prompted by the City will require planners and policymakers to initiate UA plans and policies that are based on existing structures of social capital. Therefore, collaborating with existing knowledge holders and community leaders, such as Blackfoot and Metis elders, and the Southern Alberta Ethnic Association is a necessary step in initiating UA in the city. Likewise, the collaboration of other established non-governmental organizations, such as the food banks, Environment Lethbridge, and post-secondary institutions, is necessary to build

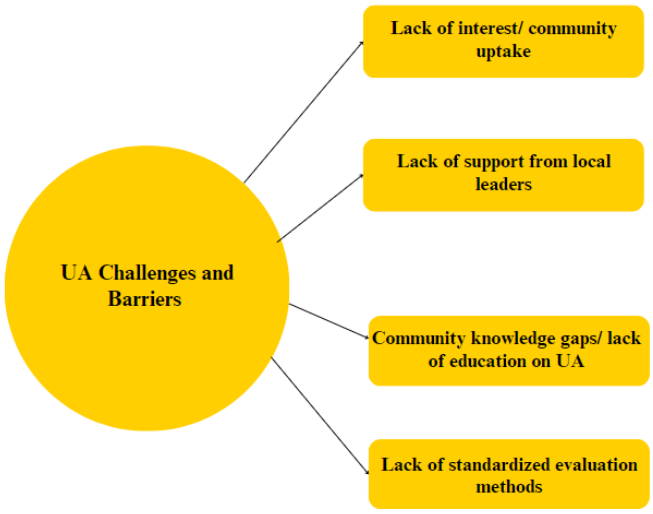
successful urban agricultural programs as they can provide help with knowledge and infrastructure.

A top-down approach to institutionalize gardening programs by municipalities can lead to poor community uptake due to lack of clarity in guiding values and the lack of shared understanding of urban agriculture (Napawan, 2016). By including community stakeholders, project needs such as access to compost, tools, educational programming, and accessible processing/distribution infrastructure are more readily identifiable. Addressing the practical challenges related to UA using existing community knowledge may mitigate poor agricultural activities such as heavy metal transferring into the food chain through soil pollution and lessen the use of large quantities of pesticides and fertilizers (Tixier & De Bon, 2006). Therefore, the identification of community knowledge gaps contributing to poor agricultural activities can be managed through gardening education programs.

The final barrier this chapter will discuss, is the absence of a standardized method for analyzing the outcomes, feasibility, and visibility of urban agricultural initiatives (Tapia et al., 2021). The lack of a standardized evaluation frameworks for UA initiatives poses a challenge in persuading policymakers to support UA initiatives (Teitel-Payne et al., 2016). Even in the creation of this report, the lack of project evaluations creates a gap in understanding how to support the longevity of UA initiatives within municipalities. From the literature, the two key elements for the longevity of UA initiatives are support of local governments and public viability (Dona et al., 2021), as public viability is likely to foster more public engagement and program support.

Figure 22

Challenges and Barriers of UA



Urban Agriculture Case Studies

Many municipalities have implemented UA programs and initiatives. The case studies provided below are examples of relevant urban agricultural activities taking place in other Canadian and

American municipalities of varying sizes. These case studies are gathered to show other municipal approaches to urban agriculture and what could be possible in Lethbridge if adaptations are made to the LUB.

City of Pittsburgh

Program Title: Adopt-A-Lot Program

Description: The City of Pittsburgh runs the Adopt-A-Lot Program as a part of the Vacant Lot Toolkit. The program's aim is to tackle the problem of unused city-owned lots by creating a structured process where community members can apply to utilize the vacant lots for gardening. Within the first two years, the program has transformed 114 vacant lots or a total of 10 acres into valuable community assets (The City of Pittsburgh, n.d). In addition to food security, the program provides community members a space to "foster neighborhood interaction", "re-imagine the potential of vacant lots" and "encourage environment awareness" (The City of Pittsburgh, n.d, para. 2)

Relevancy to Lethbridge: Adopt-A-Lot programs can both increase food production and land use efficiency on underutilized City-owned parcels. If the LUB were to (1) include a definition related to UA, (2) make UA-related Uses discretionary in all districts, and (3) create a pre-determined application form to allow community groups to apply to temporarily utilize City owned parcels for UA initiatives, the City can support UA without directly implementing programs.

Figure 23

Photo of an Adopt A-Lot Garden Plot in Pittsburgh

Note. From "Pittsburgh Vacant Lot Toolkit", by Asakura Robinson, 2015. (https://asakurarobinson.com/projects/pittsburgh-vacant-lot-toolkit/).

City of Edmonton

Program Title: Pop-Up Community Gardens Program

Description: Pop-Up Community Gardens is a low-risk city-led program where temporary raised beds are provided to a group of community members on an annual basis, which in turn serves as a method for determining the feasibility of a permanent community garden. The City provides the gardens with starter kits consisting of planters, soil, compost, and water tanks. From 2020, the City has awarded 114 Pop-Up Gardens and allocated 1,419 planter boxes (City of Edmonton, n.d-b). According to the City of Edmonton (n.d-b), the goal of the Pop-Up Community Garden Program is to increase access to fresh foods, reduce barriers to local growing spaces, and promote community gardens in communities with limited access to gardens.

Relevancy to Lethbridge: Adopting a program such as the Pop-Up Community Gardens Program is a great way that the City of Lethbridge can initiate incremental change toward an urban food system. By having a low-risk city led program, the city can investigate what areas of the city will be more receptive to the UA. To allow a Pop-Up Community Gardens style program in Lethbridge, the LUB definition for park requires modifications to include either raised beds, community gardens or other forms of agriculture to the definition.

Figure 24
Photo of Edmonton's Pop-Up Community Gardens

Note. From "Pop-Up Community Gardens Program" by City of Edmonton. n.d. (https://www.edmonton.ca/programs_services/landscaping_gardening/pop-up-community-gardens)

Program Title: Urban Hens Program

Description: The Urban Hens Program launched in Edmonton as part of the Edmonton's Food and Agriculture Strategy, which seeks to create a more resilient food system. The urban hen program contains several steps for residents to have backyard hens, which includes a licencing process, the approval of coops and its location (City of Edmonton, n.d-c). As of July 2024, the City has issued around 232 licenses and has around 1,100 hens within city limits (City of Edmonton, n.d-c). The program was implemented with little changes to their current Zoning and Animal Licensing Bylaw (City of Edmonton, 2016).

Relevancy to Lethbridge: The implementation of a backyard hen program within Lethbridge could support the creation of a more resilient food system by increasing the agency of households to produce their own food. If Lethbridge chooses to implement an urban hens program, several bylaws may need to be amended, specifically 'the Wild or Domestic Animal Bylaw,' since bylaw explicitly prohibits 'poultry'(City of Lethbridge, 1983). Additionally, amendments to the LUB would be necessary for further regulating the number of hens permitted within a land parcel to protect animal welfare.

Figure 25
Photo of Urban Hens in Edmonton'

Note. "Urban Hens Program" by City of Edmonton. (n.d).
(https://www.edmonton.ca/city_government/initiatives_innovation/food_and_agriculture/urban-hens-project).

City of Grande Prairie

Program Title: Community Orchards

Description: Community orchards are a part of Grande Prairie's Edible Landscapes initiative, which aims to provide the community with food sources by enhancing landscaping requirements in parks. The main initiative is planting various fruit trees (haskaps, plums, rhubarb, goji berries and pears) in neighbourhood parks. To promote harvesting, the City supplements the initiative by providing an online interactive map of information regarding the location, types of fruit, when to harvest and its best uses (City of Grande Prairie, n.d). According to the City, the Community orchards initiative does not only increase sustainable food sources but also promotes community ties within neighbourhoods (City of Grande Prairie, n.d).

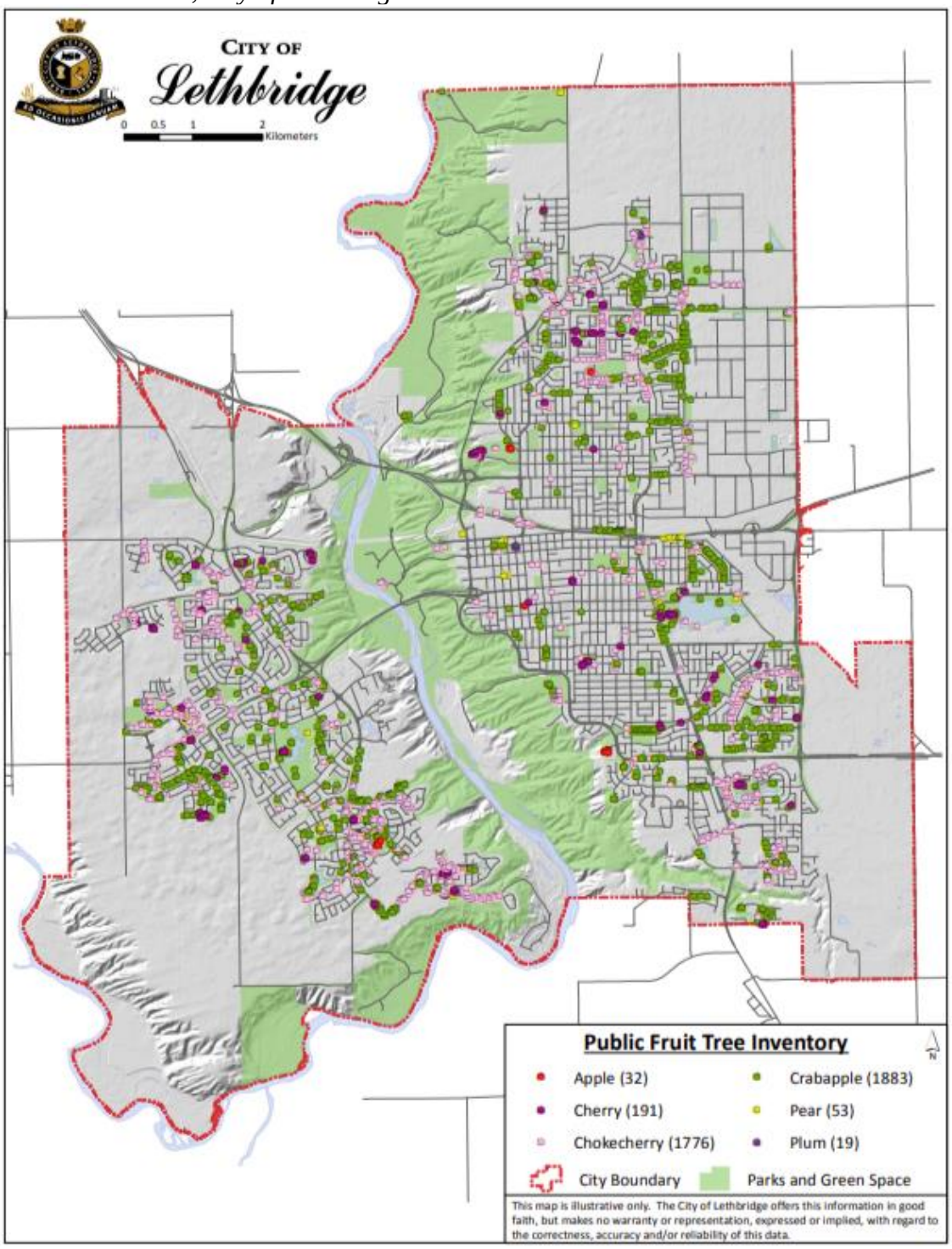
Relevancy to Lethbridge: Applying a similar strategy to parks and fruit trees is applicable to Lethbridge, as there are already established fruit trees in some areas of the city, in addition to the map of the trees. However, the visibility and knowledge of the location and harvesting times of these trees are not readily accessible to potentially interested community members. Therefore, implementation of a community orchards initiative will require more centralized planning for fruit trees and a strategy for outreach for harvesting. As it stands, many of Lethbridge's fruit trees are spread out along busy streets rather than organized as a collection of fruit trees, or orchards, in parks and neighbourhoods, as demonstrated in Figure 23. Therefore, to maximize the utilization and accessibility of fruit trees, the definition of Landscape should be revaluated to allow community orchards or other forms of edible landscapes in busier neighbourhoods and parks.

Figure 26.
Photo of Community Orchard in Grande Prairie

Note. From "Community Orchard", by the City of Grande Prairie, n.d. (https://cityofgp.com/parks-recreation/parks-trails/community-orchards).

Figure 27

Public Fruit Trees, City of Lethbridge



Note. From Environment Lethbridge. (2017). *Public fruit tree inventory*. https://www.environmentlethbridge.ca/wp-content/uploads/2017/07/PublicFruitTrees.pdf

City of Denver

Program Title: Police station community garden

Description: The creation of the Denver's police station community garden is a collaboration between the station, a non-profit, and volunteers to produce food for community members in need (Braithwaite, 2023). To achieve their goals, the project uses vacant lots around the station, and the non-profit and volunteers manage the space. Once the food is grown, anyone is welcome to pick the produce, and the remaining food is donated back to community members. Aside from being a food security initiative, the gardens provide space for the police, and other municipal employees, to build stronger relationships with the community.

Relevancy to Lethbridge: Implementing a similar program in Lethbridge can be accomplished by permitting UA-related uses in public service districts. For instance, to implement community gardens in police stations, the LUB will require (1) a definition of UA and add (2) UA-related Uses as an accessory use to Protected Services Uses.

Figure 28

Photo of Police Denver, Colorado Working on Community Garden

*Note. From "Denver police team up with The Table Urban Farm to plant garden, "share food back to the community"", by Helen H. Richardson, Denver Posts, 2023. (*https://www.denverpost.com/2023/09/22/denver-police-table-urban-farm-community-garden/).

Justification for Urban Agriculture in Lethbridge

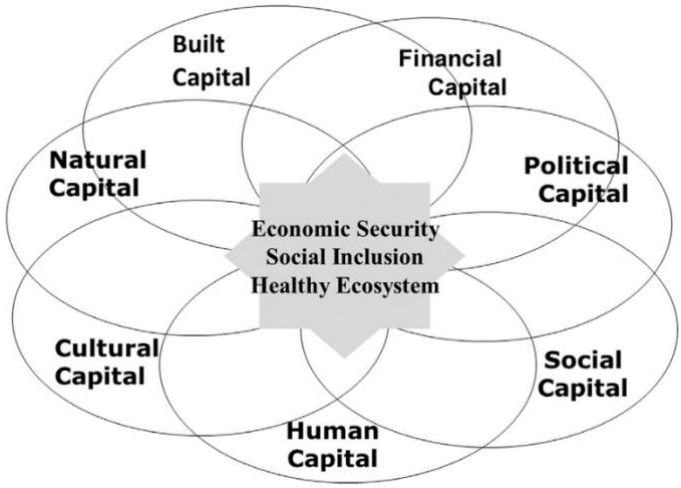
This report acknowledges that UA alone is not a sufficient measure to solve food insecurity in Lethbridge—given that local food insecurity is entangled within larger, systemic structures within the broader food system. The City of Lethbridge can, however, foster the development of community resiliency to food insecurity by creating and supporting UA initiatives. Namely, by

encouraging policy changes that support UA practices in Lethbridge from a Systems Thinking (ST) approach—in this case, the Community Capitals Framework (CCF).

Planning with the Community Capitals Framework

The CCF is a "values-based approach" to municipal policy and planning that is designed to permit "practical applications" that allows the municipality to "mobilize a community's various assets" (Collins & Flora, 2012, p. 315). The CCF conceptualizes and measures community well-being as an outcome of seven interrelated capitals: natural, cultural, human, social, political, financial, and built (Emery & Flora, 2006). Each capital interacts with one another in constructive and reciprocal ways (Daniel et al., 2021; Pigg et al., 2013; Thompson & Lopez Barrera, 2019) making each form of capital equally significant. The CCF provides guidance in the development of bottom-up, community-led UA initiatives, such as public art projects that generate advocacy and awareness for UA practices. By encouraging social changes on a community level in Lethbridge, UA can increase the overall responsiveness of our current food system to local food insecurity in new ways that traditional economic solutions cannot.

Figure 29
The Community Capital Framework



Note. From "Collaborative community-supported agriculture: balancing community capitals for producers and consumers," by C. B. Flora & C. Bregendahl, 2012, International Journal of Sociology of Agriculture and Food, 19(3), p. 333 (https://doi.org/10.48416/ijsaf.v19i3.20). Copyright 2012 by the Research Committee of Agriculture and Food of the International Sociological Association.

Food Security Requires Systems Thinking

If the ultimate function of a food system is food security (OECD, n.d), then the presence of food insecurity in Lethbridge indicates that current food practices are insufficient to support the needs of the Lethbridge community. UA practices can strengthen urban food systems that are struggling with food insecurity by increasing community capital (Nosratabadi et al., 2020). For

this reason, UA practices lead to greater food system stability—a critical element of collective and individual food security (FAO, 1996; Mohd Salleh et al., 2020). By using the CCF, decisionmakers in Lethbridge can address food insecurity by creating a working-model that manages community resources in a way that is incorporating local principles and ST.

Using Systems Thinking to Address the Roots of Food Insecurity in Lethbridge

ST is a path to accurately deciphering, and effectively acting on, food insecurity in Lethbridge. Researchers are utilizing ST across several areas of research (Arnold & Wade, 2015), including food insecurity (Metta et al., 2021; Roggio, 2018) and urban agriculture (Kasper et al., 2017; Loker & Francis, 2020). Broadly speaking, ST refers to a "*system of thinking about systems*" (Arnold & Wade, 2015, p. 670). In other words, ST is a structured approach to understanding and analyzing complex systems by focusing on the relationships and interactions between components within the system. Health sciences employ the use of ST to strengthen "perceptions of the whole, its parts, and the interactions within and between levels" (Peters, 2014, p. 1). By understanding local food insecurity from a ST approach, policymakers in Lethbridge can design critical, long-term, community-based UA strategies that synthesize SC by way of the CCF.

Taking a ST approach, such as the CCF, to problem-solving and policy making has several benefits, including strengthening organizational collaboration, informing decision making, and encouraging holism (Nguyen et al., 2023). In the literature on food security, ST is further associated with community-level priority-making and community-led interventions (Healy et al., 2023), collaborative and complex problem-solving (Worosz et al., 2020), and resiliency in urban food systems (Ballamingie et al., 2020). Additionally, a ST approach is useful when data is not readily available to policymakers (Nguyen et al., 2023), which is the situation in Lethbridge. Therefore, by utilizing a ST based framework, like CCF, to develop policies, the City of Lethbridge can strengthen the resiliency of Lethbridge's food system by providing a guide to policy-making that is asset-based and place-specific.

ST is a critical component of responding to the deeper causes of food insecurity (Roggio, 2018). On the surface, food insecurity and insufficient earnings create a direct link to each other (Korzun & Barak, 2023). . From a ST perspective, however, food insecurity requires one to "look at the quantifiable distribution of resources among specific social groups, and how it changes" (Bolton, 2010, pp. 5-6).". The reason being that social inequalities such as food insecurity are difficult to discern both on an individual level (Bolton, 2010) and from economic factors alone (Barak et al., 2023; Bolton, 2010). Thus, food insecurity is best understood as the consequence of organizational and structural factors that direct the flow of community resources by way of social interactions. The CCF can provide Lethbridge policymakers with a ST strategy that supports UA projects that can build social capital within the Lethbridge community.

On the surface, food insecurity and insufficient earnings create a direct link to each other (Korzun & Barak, 2023). From a ST perspective, however, food insecurity requires one to "look at the quantifiable distribution of resources among specific social groups, and how it changes"

(CITE). The reason being that social inequalities such as food insecurity are difficult to discern both on an individual level (Bolton, 2010) and from economic factors alone (Barak et al., 2023; Bolton, 2010) and from economic factors alone (Barak et al., 2023). Thus, food insecurity is best understood as the consequence of organizational and structural factors that direct the flow of community resources by way of social interactions. The CCF can provide Lethbridge policymakers with a ST strategy that supports UA projects that can build social capital within the Lethbridge community. Thus, food insecurity is best understood as the consequence of organizational and structural factors that direct the flow of community resources by way of social interactions. The CCF can provide Lethbridge policymakers with a ST strategy that supports UA projects that can build social capital within the Lethbridge community.

ST provides a comprehensive framework for urban planning by highlighting the interconnectedness of various urban components. In addressing food insecurity and promoting UA in Lethbridge, ST encourages a holistic view of the urban environment, considering how factors like land availability, transportation networks, housing, greenspaces, and food market access interact and impact food security. By identifying and understanding these interactions and feedback loops, ST helps planners develop integrated strategies that align housing, transportation, and agricultural needs, such as designing zoning policies that support urban agriculture while accommodating residential and commercial activities. Furthermore, ST contributes to sustainability and resilience by integrating green spaces and agriculture into urban planning, fostering long-term food security and environmental health. It also emphasizes the importance of involving community members in the planning process to tailor strategies to local needs and adapt based on feedback. Tools like causal loop diagrams and system dynamics models can be utilized to visualize and simulate the effects of different planning decisions, leading to more effective and resilient solutions for food insecurity.

Inventing Urban Agriculture: Placemaking and Public Art

UA and food production are evolving into a permanent fixture in urban spaces and city life (Viljoen & Bohn, 2014). The long-term success of UA requires more than access to land. Specifically, urban food production requires “purpose-built, food-focused interconnections between its productive urban landscape and its food-producing population” (Bohn & Viljoen, 2015, p. 391). Simply put, sustainable UA projects require a community to establish relationships between inhabitants and food production. The pursuit of UA can present several social obstacles, such as weak support, short-lived interest, and poor reception (Wesener et al., 2020). One strategy for reducing these barriers within Lethbridge is to synthesize UA initiatives into placemaking projects—namely, public art. This section explores the role of placemaking and public art within food security policymaking.

Public Art and Urban Agriculture

The intersection between public art and UA is a growing form of expression within cities. Aside from fact the UA often falls outside the realm of traditional art mediums, the draw towards UA

or specifically gardens is the “collaborative and multidisciplinary nature of the work” (Gilbert & Raviv, 2011, p. 386). Although public art installations are often defined by the “central visual,” the ‘art’ of UA themed installations is the social interaction and community engagement involved in garden work (Gilbert & Raviv, 2011).

In essence, there are several layers to UA theme public art installations: the visual created by the artist, the physical act of growing and maintaining the plants, the community interaction with the arts, and the transformation of space. For instance, Christina Kelly, whose installation is shown in Figure 30, merged historical storytelling, visual art, and social commentary in her public art installation the ‘Maize Field’ (Gilbert & Raviv, 2011). The ‘Maize Field’ are three planter boxes in Boerum Hill and Canarsie, Brooklyn on the location of known historical Native maize growing sites (Gilbert & Raviv, 2011); in the planter boxes, Kelly grew corn, beans, and squash (the three sisters) to bring attention to the Lenape and Haudenosaunee heritage in Brooklyn (Christina Kelly, n.d). Additionally, Kelly states the ‘Maize Field’ gardens showcase the "continual change that defines the city by highlighting a historical past then integrating that history back into the present landscape” (Christina Kelly, n.d, para. 2). Within this example, the PA installations involve more than growing plants and typically the aim of the PA involves reshaping public spaces (Gilbert & Raviv, 2011).

The City of Lethbridge, in both the MDP (Municipal Development Plan) and the Indigenous Placemaking Strategy, suggests public art as a means of placemaking (City of Lethbridge, 2021, 2022). Public art also serves as a tool for non-institutionalized teaching (Schuermans et al., 2012), therefore UA themed public art installations can work towards the cities' goal in place-making.

Figure 30

Example of a Community Garden Being Utilized as a Site of Social Connection

Note. From “Space to Grow: Women, art, and the urban agriculture movement” by Christina Kelly, Maize Field, 2010 as cited in Gilber & Raviv, 2011, Women & Performance: A Journal of Feminist Theory, 21(3), p. 392. (https://doi.org/10.1080/0740770X.2011.625715).

Placemaking and Public Art

The concept of urban placemaking has some origins in the desire to create *place,* rather than *space,* within cities (Friedmann, 2010). In a city setting, place can be defined as "a small, three-dimensional urban space that is cherished by the people who inhabit it" (Friedmann, 2010, p. 154). Friedmann (2010) argues that the following four criteria are a significant aspect of the forming of place in city space:

1. Having areas of "habitual encounter" where spontaneous and unplanned interactions occur between people. These areas are the spaces that generate familiarity, over time, between people during the motions of day-to-day life;
2. Having people living in an area—excluding temporary dwellings such as spaces for working, visiting, and shopping;
3. Having people form a tangible, or intangible, attachment to an area. This attachment transforms space into *place*;
4. Having "central" areas of gathering or encountering. These areas are not limited by corporeal boundaries—in some cases, taking the form of landscapes and social networks.

Rather than profit-driven, macro urban planning, Friedmann (2010) encourages decisionmakers to consider the "small spaces of the city." In doing so, city planners are creating an opportunity to collaborate with residents in a "joint search for genuine betterment in the physical conditions of neighborhood life" (Friedmann, 2010, p. 162). Place—and the contingent, *sense of place*—is a critical element of community connection. On balance, placemaking in Lethbridge can improve the local quality of life. Creating *place* in Lethbridge requires not only careful planning from city officials, but also *space* for people to form networks by way of attachment.

The City of Lethbridge (2021) identifies placemaking as a strategy aiming "to make the physical, cultural, and social identities that define a place tangible and visible" (p. 82). In the MDP, the City names placemaking as a technique to achieve the following two policies:

- MDP 40: PROMOTE opportunities for connection and understanding between residents to eliminate misconceptions and stereotypes" (City of Lethbridge, 2021, p. 113).
- MDP 57: PROMOTE safety and security for all residents in public spaces to celebrate one's culture and heritage without fear of discrimination (City of Lethbridge, 2021, p. 118).

In addition to this, in 2021, the City of Lethbridge approved the *Indigenous Placemaking Strategy.* This strategy aims to, by way of Indigenous placemaking, support the transformation of Lethbridge into a community wherein Indigenous residents, "feel more...connected, safe, and welcomed" (City of Lethbridge, 2022, p. 4). In brief, placemaking is a strategy that can create place in Lethbridge—and by extension, create a community with a strong sense of belonging.

Placemaking and Community Planning

Community gardens are often heralded as a solution to urban food insecurity, but their long-term success is heavily contingent upon the community's commitment to mutual support and collaboration—essentially, its community capital and resilience. A community garden does not thrive simply because land is allocated, and seeds are planted; its effectiveness and sustainability hinge on the strength of the social networks and the collective dedication of the community to nurture and maintain the garden.

Placemaking and public art play significant roles in this context. Placemaking transforms spaces into meaningful places by involving the community in the design and use of urban spaces. Public art can enhance community gardens by reflecting local culture and values, thereby deepening residents' connection to the space. Artistic elements and thoughtful design foster a sense of ownership and pride, encouraging ongoing involvement and support.

Communities with high resilience—those that can adapt to challenges and recover from setback—are more likely to sustain and improve their gardens. Such communities effectively leverage their collective strengths and problem-solving capabilities. In urban planning, integrating community gardens with placemaking and public art can create vibrant, inclusive spaces that not only address food insecurity but also strengthen community bonds and ensure the garden's long-term success.

Chapter 4: Potential Changes to the LUB

In the pursuit of productive and sustainable urban landscapes, cities are increasingly evaluating how land is being used (Viljoen & Bohn, 2014). UA is increasingly gaining popularity as a strategy to increase equity within urban food systems (Viljoen & Bohn, 2014). Bohn and Viljoen (2014) emphasize that UA must be understood as being both "a part of an urban food system (or systems) and as part of a wider open urban space strategy" (p. 252). Simply put, UA is best understood as part-and-parcel of a municipality's means to achieve local food security. It is important to note that the success of open urban spaces, like UA projects, are ultimately determined by community involvement (Francis et al., 2003). So, an open space must be designed in a manner that responds to community needs. This chapter explores UA and land use policy by examining the following cities—Beaumont, Calgary, Edmonton, Guelph, and Toronto—and how each City defines and regulates UA.

Other Municipal Approaches to Definition in Land Use Polices

Beyond the case studies of UA practices, it is crucial to further explore the current land use definitions and their role in restricting or facilitating UA projects. The following is a list of case studies from other Canadian municipalities on their approaches to facilitating urban agriculture through land use policy.

City of Beaumont

Current definitions related to UA: *Agriculture- Urban; Landscaped Area, Park*

Interesting to note:

- *Agriculture-Urban* is defined as a "community oriented, small-scale agriculture" rather than individual initiative. Specific examples of permittable UA initiatives are, but not limited to, "community gardens, edible landscaping, and rooftop gardens" (Beaumont, 2024, pp. 191-192).
    - The use of community oriented in the definition of Agriculture-Urban could help to facilitate a variety of UA initiative in a way that is flexible to the unique needs of community organizations and neighbourhoods.
    - *Agriculture-Urban* is permitted in all districts: agricultural holding districts (AH), conventional neighbourhood districts (CN), integrated neighbourhood districts (IN), mature neighbourhood districts (MN), main street districts, (MS), commercial districts (C), and business light industrial districts (BLI).
- A *Landscaped Area* definition in Beaumont includes trees, shrubs or other vegetation, without specifying whether edible vegetation is permitted.

    - The inclusion of vegetation differs from the City of Lethbridge's definition of landscaping, which defines landscaping as "typically for environmental, aesthetic and privacy reasons " (Beaumont, 2024, p. 11).
- Does not have a definition of Park, but rather defines recreation – active (leisure uses that requires development), and recreation – passive (leisure uses that require little to no development) separate from Agriculture- Urban Uses.

City of Calgary

Current definitions related to UA: *Landscaped areas; Local food sales; Park; Urban Agriculture*

Interesting to note:

- *Urban Agriculture* is defined as a "means a use where plants are grown outdoors for a commercial purpose" and may include "raised beds, cold frames and temporary hoop enclosures that are 1.5 metres or less in height, and which are used only to extend the growing season" and may include local food sales of food grown on site (City of Calgary, 2007, p. 269).
- *Landscaped areas* may include Urban Agriculture.
- Local food sales "means the temporary sale of locally grown and made food that does not include permanent structures" (City of Calgary, 2007, p. 21).
    - This definition provides a method to sell locally grown food.
- *Park* may include raised beds.
    - Including raised beds in the use of park allows for urban agriculture within parks.

City of Edmonton

Current definitions related to UA: *Green Roof; Landscaping; Parks; Urban Agriculture*

Interesting to note:

- *Urban Agriculture* is defined as "a development that involves growing fruits, vegetables, plants, or raising chickens or bees in urban areas for use beyond personal consumption. This activity may include the sale of agricultural products raised or grown on-Site. This Use does not include Cannabis Production and Distribution." (City of Edmonton, n.d.).
    - Three new land use classes (Urban Outdoor Farms, Urban Indoor Farms, and Urban Garden) were creation to support *Urban Agriculture.*
    - *Urban Agriculture* is a permitted Use in small scale residential, small-medium scale transition residential, medium scale residential, neighbourhood mixed use,

mixed use, neighbourhood commercial, general commercial, business commercial, business employment, medium industrial, neighbourhood parks and services, parks and services, public utility, urban facilities, urban institutions, and future urban development zones.

- *Green Roof* is defined as an "installation of vegetated roofs and site/building systems that either reduce the amount of stormwater runoff and/or reuse stormwater on-Site or within buildings"(City of Edmonton, n.d.).
    - Developers and landowners are encouraged to use roof space efficiently (e.g. in several commercial and higher density, mixed-use districts a minimum percentage of roof space must designated for amenity Uses-namely, *Green Roofs, Solar Collectors, patios,* or *private or public open spaces*).
    - *Landscaping* is defined as "the preservation or modification of the natural features of a Site through the placement or addition of any or a combination of the following: a., soft landscaping elements such as trees, shrubs, plants, lawns, gardens, and ornamental plantings; b., decorative Hard Surfacing elements in the form of patios, Pathways, and paths consisting of materials such as bricks, pavers, shale, crushed rock, or other suitable materials, excluding monolithic concrete and asphalt" (City of Edmonton, n.d.).
        - Gardens are included in the definition of landscaping.
    - Permits for community gardens involve two tiers: basic and intermediate (City of Edmonton, 2023).
        - The basic permit involves individual or small group projects and does not allow semi-permanent or permanent structures. The basic permit term is two years.
        - The intermediate involves established community organizations or developers. The permit term is 5 years and involves construction of structures.
- *Park* is defined as "a development where land is publicly accessible and used for active or passive recreation. These may include facilities, playing fields, buildings and other structures that serve a recreational purpose of the park" (City of Edmonton, n.d.).
    - Similarly to Lethbridge, the definition of park does not include the uses of UA or vegetation.
    - The City of Edmonton's LUB features zones that are specific to key parks (e.g. Fort Edmonton Park, Muttart Conservatory, etc.). A number of community, commercial (including food and drink services), and agricultural Uses are

permitted in these zones directly in the LUB. Edmonton's River Valley zone permits some community and commercial uses in its LUB.

- These regulations are different in Lethbridge as the permitted Uses in Lethbridge's Valley district, as described in the River Valley Area Redevelopment Plan, do not mention food sales.

City of Guelph

Current Definitions related to UA: Agricultural Produce Market; Agriculture, Livestock Based; Agriculture, Vegetation Based; Park

Interesting to note:

- *Urban Agriculture* is defined as the "growing of crops for food at a small scale, including community gardens and backyard chickens and includes small-scale sales of urban agricultural products"(City of Guelph, 2023, p. 30).
    - Urban Agriculture is permitted in all zones except natural heritage system zones.
- *Urban Agriculture* is a separate Use from *Agriculture, Livestock Based* and *Agriculture, Vegetation Based*. *Agriculture, Livestock Based* and *Agriculture, Vegetation Based* related uses are defined, but not permitted in any districts.
    - *Agriculture, Livestock Based* is defined as "a premises where the grazing, breeding, raising, boarding or training of animals, insects or birds occurs and includes any agricultural use from which animal, insect or bird products are derived" (City of Guelph, 2023, p. 7).
    - *Agriculture, Vegetation Based* is defined as "a premises where soil is tilled, or where vegetables, fruits, field crops, berries, trees, mushrooms, flowers, landscaping materials, woodlots, and forest trees are grown and harvested, and includes the packaging, treating, or storage of goods produced on the land, excluding agriculture, livestock based" (City of Guelph, 2023, p. 7).
- *Agricultural Produce Market* is defined as "a premises where agricultural products are displayed for sale or sold" (City of Guelph, 2023, p. 7).
- *Park* is defined as "an area of public land consisting of landscaped open space or other open areas which is used for active or passive recreation" (City of Guelph, 2023).

City of Toronto

Current Definitions related to UA: Green roof; Market Garden; Park; landscaping

Interesting to note:

- *Green Roof* is defined as “an extension to a building's roof that allows vegetation to grow in a growing medium” (City of Toronto, 2024, p. 386).
- *Landscaping* is defined as “an area used for trees, plants, decorative stonework, retaining walls, walkways, or other landscape or architectural elements. Driveways and areas for loading, parking or storing of vehicles are not landscaping” (City of Toronto, 2024, p. 387).
- *Market Garden* is defined as “premises used for growing and harvesting vegetables, fruits, flowers, shrubs, trees or other horticultural products for the purpose of sale” (City of Toronto, 2024, p. 388).
    - Inclusion of Market Garden as a definition demonstrates the transition of urban food production to urban food systems.
- *Park* is defined as “a premise used for conservation, horticulture, or municipally operated public recreation” (City of Toronto, 2024, p. 389).
    - This approach of adding horticulture in the definition can facilitate food production within the premise of parks.

Potential Changes to Explore in Lethbridge

Municipalities have begun to re-evaluate their LUBs to allow and support UA initiatives. In the case studies, there appears to be three approaches to amendments to permitting UA. The first is to not define or specifically address UA initiatives in the land-use definition (the approach taken by Lethbridge and Toronto’s LUB). The second is to provide broad definitions for UA practices in the LUB (the approach taken in Calgary). The third is to provide specific and detailed definitions related to UA and possible practices (the approach taken in Beaumont, Edmonton, and Guelph). Beaumont took one of the most permissive approaches to UA by creating Agricultural Holding Districts to encourage rural agricultural practices within City limits on underdeveloped land. In contrast, Calgary’s approach to UA was more strict and limited UA activity based on regulations on the type and size of the enclosure.

The Current Approach to UA within Lethbridge

Currently, Lethbridge’s approach to UA is to not provide specific definitions or examples within the LUB. Although Lethbridge’s LUB has definitions for *Parks* and *Landscaping*, the perimeters around those land-use definitions are restrictive. The ambiguity surrounding the permissibility of UA activities within the LUB can “intentionally make urban agriculture difficult” (Maloney, 2012, p. 2572). If an individual or organization wishes to apply for a discretionary use permit for a community garden in a park, the permit would be financially restrictive with no guarantee of receiving that permit as the permitting process often involves the application being reviewed by the City Council. In addition to the long permitting process and fees, the application process is not straightforward for undefined land-uses. Therefore, if cities wish to create a sustainable,

accessible, and lively urban food system, the municipalities should define and re-evaluate key land use definitions (Maloney, 2012; Viljoen & Bohn, 2014).

Alternative Municipal Approaches

Cities can support UA by altering or adding UA definitions in LUB as well as Uses that support UA initiatives. The case studies above demonstrate that municipalities, by adding a definition for *Urban Agriculture* in LUB, enables the municipal regulating, approving, and supporting of UA initiatives. For instance, in the City of Calgary, creating an UA Use is intended to loosen some of the restrictions that hamper the permitting and approval process (City of Calgary, 2019). It is important to note that planning approaches to UA vary from one city to another. The City of Beaumont, for example, has a short and concise LUB, so in theory the Beaumont LUB can remain more responsive to changing community needs. Unlike the City of Lethbridge, which has thirty-three districts (City of Lethbridge, 2021), Beaumont has only seven (Beaumont, 2024).

In the case studies above, the municipalities defined UA to serve many purposes. The City of Calgary defines UA as a commercial activity, whereas the City of Beaumont specifically defines UA as a community-oriented activity. Moreover, some cities are aiming to integrate UA into the urban food system by including uses that support the sale of UA products. For example, the City of Guelph created an *Agricultural Produce Market* Use (City of Guelph, 2023), and the City of Toronto created a *Market Garden* Use to grow produce intended to for sale (City of Toronto, 2024). Guelph's agricultural garden Use allows developers to establish *permanent* agricultural produce markets, in contrast to Lethbridge's LUB, which allows for permit contingent, *Temporary Farmer's Markets* (City of Lethbridge, 2021). On that note, *Garden Markets* and *green roofs* are also appearing in LUBs—enabling urban farmers to produce (thus reducing the emissions associated with importing produce).

Urban Agriculture and the Land Use Bylaw Renewal Project

The LUB renewal project has three key objectives: to reduce the number of land use districts and definitions, balance flexibility and certainty, and increase user-friendliness. Achieving these objectives involves careful consideration and strategic planning, particularly in defining and integrating UA into the bylaw. One approach to achieving these objectives is by providing a broad definition for UA-related Uses and adding it as a permitted or discretionary use to preexisting land-use districts.

Discretionary Urban Agriculture Uses

This approach aligns with the City's goals for the new LUB, which include reducing the number of land use districts and use definitions while creating a more user-friendly LUB by balancing flexibility and certainty. However, these objectives are not necessarily mutually exclusive. The literature reveals an ongoing debate about whether to define urban agriculture. On the one hand, creating definitions and districts can limit some of the theoretical possibilities of UA (Maloney,

2012). On the other hand, in practical applications, UA initiatives can benefit from clear definitions and examples of permissible uses (Maloney, 2012).

Despite seeming incompatibility with the current LUB renewal project's aims, this report argues that creating specific UA definitions will increase user-friendliness and engagement. Research and case studies from other municipalities suggest that creating a UA district that permits various UA-related activities—such as green roofing, gardens, and orchards—may encourage a variety of UA activities. This approach may reduce hesitancy and lack of community engagement. Additionally, the absence of clear delineation may decrease user-friendliness by creating a lack of direction on how and where the community can implement UA activities.

To prevent hesitancy and uncertainty, providing a clear, yet broad, UA definition may be the best way to increase user confidence in participating in or beginning UA projects in the city. Regardless of the method the City chooses to adopt, the goal of facilitating food security through UA in the LUB requires careful consideration to select an effective approach. By incorporating UA into the LUB, planners must consider the long-term impacts on urban development, community engagement, and environmental sustainability. Planning for UA requires a holistic approach that considers the social, economic, and environmental benefits of integrating agriculture into urban settings. This includes assessing the potential for green spaces, community gardens, rooftop gardens, and other forms of UA that can enhance urban living.

To further streamline the process and foster mutual understanding, it is crucial to develop practical tools, such as a pre-made online form for applying to use land for community gardens. This would help development officers and permit technicians to better understand and support UA, facilitating a smoother application process and enhancing community involvement. By incorporating UA into the LUB, planners must consider its long-term impacts on urban development, community engagement, and environmental sustainability, ensuring a holistic approach that maximizes the benefits of integrating agriculture into urban settings.

Chapter 5: Municipal Approaches to Food Security

Older research studies suggest that municipalities and urban planners have a history of hesitancy for policy making on regulating urban food systems, citing concerns about the distribution of legislative powers and beliefs about urban/rural dichotomies (Pothukuchi & Kaufman, 1999). However, the recent research literature indicates that these agents are increasingly involved in urban food planning, from addressing the weaknesses of urban food systems to re-evaluating the municipal role in food-related policies (Cohen, 2022; Maye et al., 2022). The 2015 MUFPP emphasizes the "strategic role" that cities can have in the contemporary challenges facing urban food systems (Milan Urban Food Policy Pact, 2015, p. 1). To date, several cities across North America have adopted the MUFPP framework for governance (Milan Urban Food Policy Pact, 2020b), including Vancouver. Milan Urban Food Policy Pact (2015) recognizes that city policies can create the conditions that allow for constructive action, such as converting recommendations into applicable projects and strategies.

The creation of food councils and food policy are suggested actions in the MUFPP framework for governance (FAO et al., 2018). Municipalities are already supporting and enabling food councils, or committees, as an additional way to foster a more equitable food system (Trudeau et al., 2021) and enact food policies in collaboration with various stakeholders (Maye et al., 2022). Chapter 5 introduces urban food policies (FP), and more specifically food policy councils (FPC) as additional methods to address food insecurity challenges not directly relevant to the LUB. Under the umbrella of FP, FPCs are beneficial in addressing issues within local food systems beyond production. In this section, the report advocates for the consideration of all food policies, but specifically FPC to support potential UA initiatives, among others, potentially in the future. Therefore, Chapter 5 addresses the following: what are food policies, what are FPCs, and how do they promote food security.

Food Policies

Municipal governments are becoming increasingly pivotal to foster and advance public interventions through the creation of urban FPs (Matacena, 2016). The term urban FP is often not defined within the literature. Raja et al. (2008) as cited by Filippini et al. (2019) defines them as "comprehensive plans [to] provide a roadmap for the future growth of a community" (p. 2). FPCs emerge to counteract the food inequality and insecurity in the current food systems through policy interventions (Matacena, 2016).

There are many forms of FPs, exemplified in Figure 26. FPs aim to address the structural and systemic issues of the local food system through a coordinated effort (Matacena, 2016). In addition to addressing food insecurity, good food policies can also improve social security, education, health, the environment, and producing economic growth (Smith, 2016). The report chooses to focus on FPCs as a form of FP for a recommendation for the City of Lethbridge and will focus on FPC for the remainder of this report. Moreover, FPs can influence land use policies and recommend best practices.

Table 1
List of Food Policies from Alberta and British Columbia

Municipality	Food Policy	Planning Directives Derived from Urban Food Policies
City of Calgary	Calgary Eats! Food System Assessment and Action Plan	• Conduct a detailed agronomic analysis of the region. • Integrate the Food System Assessment and Action Plan into land use policy decisions. • Include these elements in the Growth Management Framework for future planning.
City of Edmonton	Food and Urban Agriculture Strategy (*fresh)*	• Adopt an integrated planning approach in Edmonton that aligns economic, infrastructure, growth, land use, housing, municipal operations, transportation, parks, waste management, and educational resources to support the goals of the Food and Urban Agriculture Strategy.
City of North Vancouver	Food Strategy and Action Plan	• Review and update bylaws to support urban agriculture by allowing rooftop beekeeping and chicken keeping, aligning with practices in other cities and adjusting related zoning and nuisance regulations.
City of Revelstoke	Food Security Strategy	• Includes the following planning initiative: Enhance land use planning to preserve regional farmlands and optimize arable land for food production, addressing the challenges of development pressure and limited agricultural land by incorporating innovative urban agriculture practices.
City of Vancouver	Food Strategy	• Integrate a food perspective into City activities and community planning through system-wide tools, such as guidelines for food-friendly neighbourhoods and a developer toolkit for sustainable food system elements.

Sources: City of Calgary (2012); City of Edmonton (2012); City of North Vancouver (2012); City of Vancouver (2013); Selkirk Planning & Design (2014)

Food Policy Councils

FPC initially began as an effort to promote collaboration between governmental and non-governmental organizations, who were previously working independently on food system

initiatives (Harper et al., 2009). By collaborating across various sectors, the potential for proposing effective FPs that support or build food security initiatives increases (Scherb et al., 2012). While there is no standard organization or implementation for an FPC within municipalities, generally FPC have four integrated functions (Harper et al., 2009, p. 2), to:

- "serve as forums for discussing food issues"
- "foster coordination between sectors in the food system"
- "evaluate and influence policy"
- "launch or support programs and services that address local needs"

How Food Policy Councils Support Food Security Initiatives?

FPCs support food security initiatives by "establish[ing] platforms for coordinating action at the local level" (Harper et al., 2009, p. 2), and bringing together stakeholders. In creating a platform where action and changes can occur, FPCs can better facilitate initiatives and foster collaboration for tackling urban food insecurity. Additionally, FPCs encourage the practice of "food democracy" (Harper et al., 2009, p. 44) by ensuring various community voices are heard including vulnerable communities and government officials. By strengthening relations between government organizations and the community, FPCs can aid in informing the public and policymakers about local food systems and policies as well as make recommendations for future FPs (Harper et al., 2009).

One of the main aims of FPCs is to further economic development and enhance the food system to be more "environmentally sustainable and socially just" (Harper et al., 2009. p.2) by including diverse voices. Therefore, moving away from understanding food insecurity from a ST approach rather than an individual problem is critical. Overall, the platform FPCs provide are an opportunity to develop a local food policy set on reducing food insecurity and promoting community initiatives.

Case Studies of Food Policy Councils

FPCs can take many forms with its purposes and objectives based on the community's unique geographic, social, political, and economic dimensions (Fox, 2010). While a food council may be novel to Lethbridge, food councils have existed in Canada for decades, such as Toronto's Food Policy Council that was established in 1991 (Stahlbrand & Roberts, 2022). The following case studies provides an overview of what food councils could look like, noting that successful food councils are place-based and responsive to *local* needs (Fox, 2010).

City of Edmonton

Organization Name: Edmonton Food Council

Description: The Edmonton Food Council is a City committee consisting of 15 volunteers (City of Edmonton, n.d-a). The Edmonton Food Council supports a larger municipal FP: Edmonton's Food and Agriculture Strategy or *fresh*. As such, the Edmonton Food Council's focus is on issues related to urban agriculture and food, as outlined in *fresh*, by facilitating collaboration between various stakeholders like the City, local businesses, and the community members (City of Edmonton, n.d-a).

Points of Interest: Edmonton Food Council provides an example of how food councils or food policy councils are formed and operationalized within a municipality, in support of a common FP. Having volunteers support and evaluate municipal food policies allows for a level of objectivity and civic participation that may not be possible if a policy is unilaterally led by the City.

City of Toronto

Organization Name: Toronto Food Policy Council

Description: In 1991, the Toronto Food Council became a subcommittee of the Toronto Board of Health and later the Council became a reference group for the City (Food Action Cities, n.d). The aim of the Toronto Food Council is to make policy recommendations and provide authoritative input on food related affairs such as food education, food distribution, environmental issues, social justice, urban design, and urban development (Blay-Palmer, 2009). Some of the Toronto Food Council's notable contributions are the Toronto Food Strategy, the Toronto Youth Food Policy Council (Toronto Food Policy Council, n.d), and shifting the dialogue of food security towards food sovereignty (Blay-Palmer, 2009).

Points of Interest: The Toronto Food Council's operation differs from Edmonton's in two ways. First, the council members consist of two City Councillors, a member from the Board of Health and citizen volunteers appointed by the Board (Toronto Food Policy Council, n.d), rather than solely volunteers. The Toronto FPC contributes to the broader City's food strategies by advocating for change, initiating community outreach, and evaluating of policies (Food Action Cities, n.d).

What Does this Mean for Lethbridge?

Increasingly, municipalities are becoming responsible for several issues previously thought to be under provincial and federal jurisdiction, namely agriculture and food security (Rural Municipalities of Alberta, 2022). However, jurisdictional power and financial resources are still concentrated at the federal and provincial levels (Rural Municipalities of Alberta, 2022), complicating municipal responses to food insecurity. Municipal planners are also somewhat limited in their ability to directly advocate for UA through land use policies, as LUBs are primarily tools to permit or prohibit what kind of building or activity can take place on private

property and outlines the process for issuing Development Permits rather than directly advocate for or funding UA initiatives. Consequently, cities are overcoming these obstacles by advocating to federal and provincial governments and engaging with the community and the private and public sectors to create a shared strategy to create an inclusive urban food system (Wekerle, 2004).

FP initiatives, such as FPCs, are enabling municipal governments to adopt stronger proactive and longitudinal approaches to planning (Cooper, 2018). FPCs help bridge the gap between community, city, and higher levels of government. In practice, FPCs can be used for gathering a diverse set of voices, providing a method and platform for research, and creating a collective community vision for urban food systems (Scherb et al., 2012). Additionally, FPCs can also aid in policy development, public communication, and project piloting efforts. Most of all, the distance between community-driven FPs—namely FPCs—and City government enables municipalities to engage with community members in a novel and open manner. In this way, FPCs are a critical step for cities that are seeking to evaluate measures directed towards food insecurity. The following three objectives relate broadly to increasing community engagement and the availability of healthy food options outlined in the Lethbridge MDP that can be fulfilled by a community-driven FPC:

- MDP policy 41: “Promote the organisation of community activities by residents, community organisations, and City departments in efforts to foster a sense of belonging in the community” (City of Lethbridge, 2021, p. 113)
- MDP policy 45: “Promote community-focused service and program delivery by strengthening the City’s understanding of community needs, trends, and issues impacting wellbeing in Lethbridge” (City of Lethbridge, 2021, p. 115).
- MDP policy 48: “Support the availability of healthy and accessible food options, by exploring community-driven, innovative food security initiatives as well as healthy food choices” (City of Lethbridge, 2021, p. 116).

Chapter 6: Recommendations

This report was written to provide background information on local food security and identify opportunities to address food insecurity through land use policy interventions within the Land Use Bylaw Renewal Project. With this goal in mind, the lack of data on the state of food insecurity in Lethbridge remains one of the largest challenges to investigating potential solutions within the municipality. Through research and discussions of how food insecurity can be addressed through the LUB, this report advocates for UA initiatives conceptualized through a ST lens. UA was chosen for its ability to address food insecurity through production, land use, and the building of community capital.

This report finds that food insecurity cannot be addressed in its entirety through the amendments of the LUB alone. Even so, amending the LUB could facilitate UA practices and encourage mixed usages and accessibility. Therefore, this report also makes recommendations for research and policy, outside the scope of the LUB for the purpose of building food security by addressing its multidimensional nature.

Planning Recommendations

Recommendation 1

That the City of Lethbridge consider the following changes to the LUB to foster the creation of community gardens and other forms of urban agriculture.

i. Consider creating additional definitions of community gardens, green roofs, market garden, and urban agriculture.
ii. Consider creating an agricultural district designation to allow for a mix of the above uses.
iii. Make amendments to the definition of parks and landscape to explicitly permit various forms of UA, including edible landscaping, in public areas.
iv. Consider creating guidelines to permit urban hens within City limits by reviewing the LUB in collaboration with other relevant departments (e.g. bylaw services) and community partners (e.g., Alberta Health Services).
v. Examine options for urban farmers to conduct direct sales of produce from their farms (farm gate sales), incorporating suitable restrictions and mitigation measures.

Recommendation 2

Explore different approaches to planning and urban design such as form-based coding and permitting mixed usages to contribute to the creation of complete neighborhoods that foster local food systems. For example, designing neighbourhoods with local commercial districts and/or agricultural districts embedded in key spots to facilitate food production and access within one's immediate community.

Recommendation 3

As a preliminary step towards any UA project, this report recommends the City audits publicly owned lands to ensure the feasibility of UA with respect to infrastructural requirements (access to water, drainage, access, etc.).

Recommendation 4

Enhance the accessibility and clarity of application processes for starting or community gardens, pop-up gardens, and other UA-related initiatives. The City should consider creating a fillable form to help development officers/ permit technicians understand and approve urban agriculture projects. Help should be available to aid underserved communities who may have more difficulty navigating the application process.

Research Recommendations

Recommendation 5

This report recommends conducting a study on food deserts and the prevalence/impact of food insecurity on residents in Lethbridge to better understand the community needs and challenges. We recommend that the City of Lethbridge collaborate with the following to close the existing research gap on food insecurity in the Lethbridge area:

i. Local post-secondary institutions.
ii. Local food banks and poverty-reduction non-profits.
iii. Cultural groups and neighbourhood associations.

Recommendation 6

Establish standardized mechanisms to assess the social, economic, and environmental benefits of UA projects. Future policies and programs could then be built and evaluated according to the identified measurement mechanism to understand potential successes and challenges. Lethbridge benefits from strong social services and research sectors, sectors of which can help efficiently measure program success from a third-party perspective.

Policy Recommendations

Recommendation 7

That the City of Lethbridge establish a municipal FP and FPC that incorporates the following principles:

i. Utilize the Community Capitals Framework (CCF) as discussed in Chapter 3.
ii. Incorporate a holistic, interdepartmental, and interjurisdictional approach that targets food insecurity through a number of avenues, including planning and design, parks and recreation, waste management, and partner services, among others.
iii. Revitalize local Indigenous food systems by working with Blackfoot and Metis elders and community groups.

iv. Incorporate the voices from communities experiencing higher rates of food insecurity, as identified in Chapter 2: racialized individuals, individuals with disabilities, newcomers and refugees, the 2SLGBTQ + community, women and families, and students. Work with these populations to co-create a socio-culturally appropriate understanding of food security.

Recommendation 8

That the City of Lethbridge explore tax incentive programs to encourage UA development, especially on underutilized land. At the municipal level, property tax incentives for UA should be tailored to relevant parcels by using "Current Use" assessments to value land based on its agricultural use, rather than its highest potential market value. This strategy helps support urban farming while ensuring that incentives are applied only to land designated for agricultural purposes while to encouraging the maintenance of UA related uses rather than converting land for higher-profit developments(The New England Land Access Policy Project, 2016).

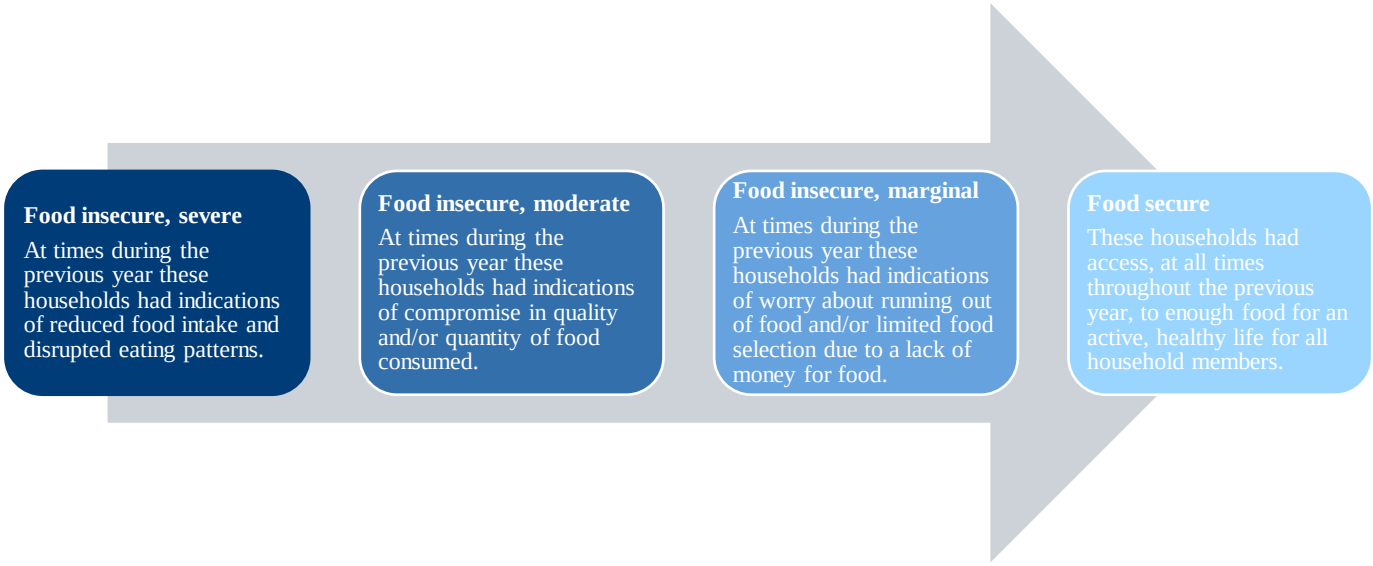
Recommendation 9

That the City of Lethbridge partner with existing organizations to raise community awareness of local food insecurity and to promote cooperation towards ameliorating it. This would include:

i. Creating initiatives for public art projects.
ii. Engaging and facilitating community dialogues.

Appendix A

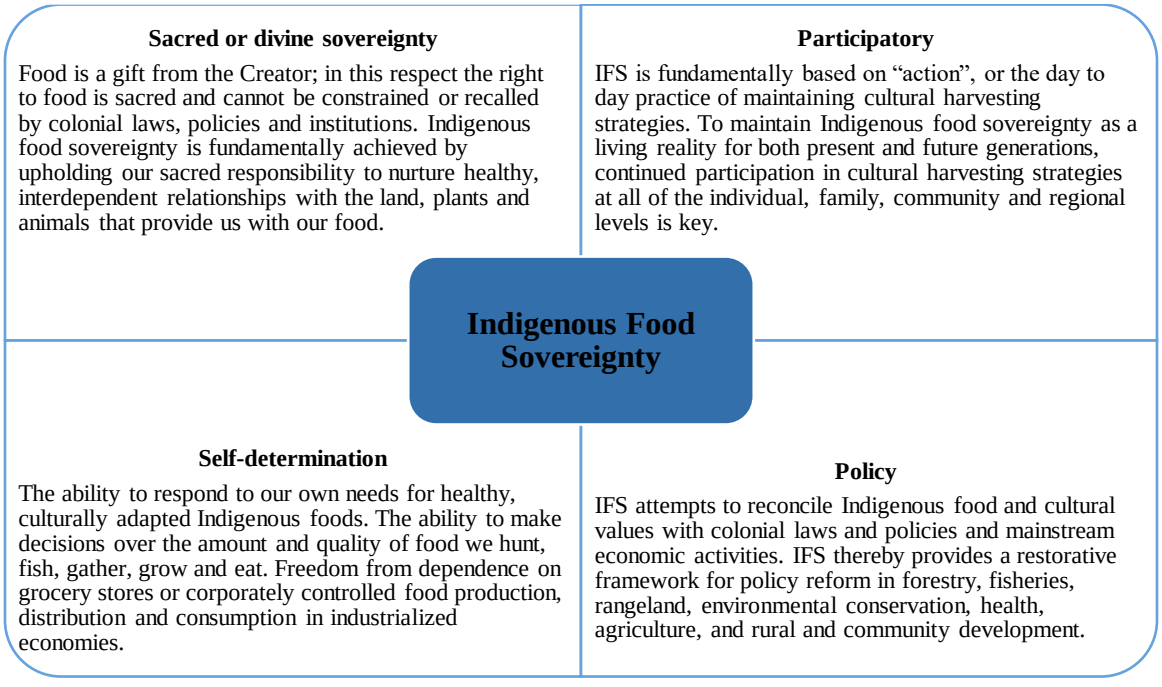
Statistic Canada's Categories of Food Security Status



Note:(Statistics Canada, 2024b)

Appendix B

Indigenous Food Systems Network (IFSN) Definition of Food Sovereignty



Note: (Indigenous Food Systems Network, n.d)

Appendix C

La Via Campesina Definition of Food Sovereignty

> "Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers and users."

Note: (La Via Campesina, n.d-b)

Appendix D

UA activities definitions

UA Activity	Definition	How UA activities could be included in LUB
Rooftop gardening	"Cultivating plants on building rooftops" (Rout et al., 2024, p. 2018). Rooftop gardening can also mitigate the urban heat island effect.	If rooftop gardens gain popularity in the future, installing a roof top garden may significantly impact several aspects of a building. Rooftop gardening and vertical gardening may be explored in relation to the landscaping provisions for different districts in the LUB to ensure responsible development.
Community and allotment gardens	Allotment gardens are "garden plots rented out to individuals..." (City of Calgary, 2016, p. 53).	Develop specific land use categories or modify existing ones to explicitly permit activities such as gardening, composting, educational workshops, the sale of products, and community gatherings within gardens in parks or on public building property.
Community Orchards	Community orchards are "plantings of fruit and/or nut trees that are managed by a group of individuals who consider themselves a community" (Lovell et al., 2021, p. 1).	Zoning regulations can be tailored to support community orchards by designating specific zones, such as "community agriculture" or "urban agriculture," where orchards are permitted without additional approvals. Adjustments to setback and parcel size requirements can optimize land use for productive agriculture while ensuring compatibility with surrounding areas.
Brownfield Gardens	"A formerly contaminated commercial or industrial property that has been remediated and abandoned or underused but now is in use for food production, usually from raised beds" (City of Calgary, 2016, p. 53).	Urban agriculture- related uses could be explored as potential uses as in commercial and industrial zones. For example, the City could explore allowing urban agriculture in low intensity industrial and commercial zones if an environmental assessment of the parcel is completed. *

Institutional gardens	"A garden operated by institutions such as schools, hospitals, universities, municipalities, prisons, restaurants, hotels and day cares, for the purposes of supporting residents and providing education and recreation opportunities as well as food production" (City of Calgary, 2016, p. 228).	Urban agriculture may be added as a permitted use in P-B Public Building districts. Alternatively, Uses related to vegetation based urban agriculture could be added as an accessory use to relevant institutional uses such as Educational Facilities, Childcare facilities, Senior Citizen housing, etc. Additional provisions may be made to ensure a UA activities are properly scaled to the size of the parcel.
Edible Landscapes	"Using food-bearing plants for landscaping purposes in place of... ornamental plants, including fruit and nut trees, berry bushes, vegetables, herbs and edible flowers"(City of Vancouver, 2013, p. 63).	Provisions to the definition of landscaping may be made to clarify that both ornamental and edible plants are allowed.
Livestock: poultry	Keeping chickens in urban or suburban areas, typically within residential neighbourhoods or city limits.	Backyard hens may or may not be legislated in the LUB: municipalities like Edmonton and Red Deer have separate provisions about backyard/hobby/personal use hens related to animal control bylaws. In other LUBs, backyard hens may be defined as livestock, hens, or poultry (Cowichan Valley). If necessary, provisions in the LUB may be made to limit which districts backyard hens can be kept, and how many poultry units may be allowed based on the size of the parcel.
Hobby beekeeping	The keeping of honeybees in the city.	Beekeeping is not referenced in Lethbridge's LUB. In Vancouver, hobby beekeeping is limited to "One- and Two-Family Dwelling Districts (RS- and RT-) (maximum of 2 beehives); or Agricultural Districts (RA-1) on sites containing a one- or two-family dwelling; or A site containing a community garden; or A site where beekeeping will form part of an

		educational program" (City of Vancouver, 2013, p. 66).
Community Kitchens	"Publicly accessible facilities where anyone can cook or process food – with programs that share knowledge on canning, drying, winter food preserves etc" (City of Calgary, 2016, p. 108).	Modify or create land use categories that explicitly allow for community kitchens within certain zones or properties. This includes specifying the types of activities permitted, such as food preparation, cooking classes, and community meals, allowing flexibility in the LUB to accommodate different types of community kitchens, including those operated by nonprofits, educational institutions, or private entities focused on community service.

References

Aktaş-Polat, S., & Polat, S. (2020). A theoretical analysis of food meaning in anthropology and sociology. *Tourism: An International Interdisciplinary Journal*, *68*(3), 278-293. https://hrcak.srce.hr/file/350359

Alonso, B. E., Cockx, L., & Swinnen, J. (2018). Culture and food security. *Global Food Security*, *17*, 113-127. https://doi.org/10.1016/j.gfs.2018.02.002

Arnold, R. D., & Wade, J. P. (2015). A definition of systems thinking: A systems approach. *Procedia Computer Science*, *44*, 669-678. https://doi.org/10.1016/j.procs.2015.03.050

Ayeop, S. M. A., Zainol, H., & Hussain, N. H. M. (2018). The components of social dimension for community gardens in housing residential. *Environment-Behaviour Proceedings Journal*, *3*(7), 209-218. https://doi.org/10.21834/e-bpj.v3i7.1253

Ballamingie, P., Blay-Palmer, A., Knezevic, I., Lacerda, A., Nimmo, E., Stahlbrand, L., & Ayalon, R. (2020). Integrating a food systems lens into discussions of urban resilience: A policy analysis. *Journal of Agriculture, Food Systems, and Community Development*, *9*(3), 227-243. https://doi.org/10.5304/jafscd.2020.093.021

Banerji, A., Pelletier, V. A., Haring, R., Irvine, J., Bresnahan, A., & Lavallee, B. (2023). Food insecurity and its consequences in indigenous children and youth in Canada. *PLOS Global Public Health*, *3*(9), e0002406. https://doi.org/10.1371/journal.pgph.0002406

Barak, F., scientist, R., School of Human, N., McGill, U., Korzun, M., McCain Foundation Postdoctoral Fellow at Faculty of, A., & University, D. (2023, 03/09/

). Food prices are not the only obstacle to achieving food security: Root causes include systemic barriers. *The Canadian Press*. https://login.uleth.idm.oclc.org/login?url=https://www.proquest.com/wire-feeds/food-prices-are-not-only-obstacle-achieving/docview/2785687582/se-2?accountid=12063

http://FG2FY8YH7D.search.serialssolutions.com/directLink?&atitle=Food+prices+are+not+the+only+obstacle+to+achieving+food+security%3A+Root+causes+include+systemic+barriers&author=Barak%2C+Farzaneh%3Bscientist%2C+Research%3BSchool+of+Human+Nutrition%3BMcGill+University%3BKorzun%2C+Monika%3BMcCain+Foundation+Postdoctoral+Fellow+at+Faculty+of+Agriculture%3BUniversity%2C+Dalhousie&issn=&title=The+Canadian+Press&volume=&issue=&date=2023-03-09&spage=&id=doi:&sid=ProQ_ss&genre=article

Bylaw 944-19, (2024). https://www.beaumont.ab.ca/DocumentCenter/View/3143/Bylaw-944-19

Blay-Palmer, A. (2009). The Canadian pioneer: The genesis of urban food policy in Toronto. *International Planning Studies*, *14*(4), 401-416. https://doi.org/10.1080/13563471003642837

Bohn, K., & Viljoen, A. (2015). Second Nature and urban agriculture: A cultural framework for emerging food policies. In localizing urban food strategies: Farming cities and performing rurality: 7th International AESOP Sustainable Food Planning Conference Proceedings (pp. 391-398).

Bolton, K. C. (2010). *The urban and regional dimensions of economic inequality in Canada, 1996 - 2006* [M.A., McGill University]. ProQuest Dissertations & Theses A&I. Quebec, CA. https://login.uleth.idm.oclc.org/login?url=https://www.proquest.com/dissertations-

theses/urban-regional-dimensions-economic-inequality/docview/868862742/se-2?accountid=12063

http://FG2FY8YH7D.search.serialssolutions.com/directLink?&atitle=The+urban+and+regional+dimensions+of+economic+inequality+in+Canada%2C+1996+-+2006&author=Bolton%2C+Kenyon+C.&issn=&title=The+urban+and+regional+dimensions+of+economic+inequality+in+Canada%2C+1996+-+2006&volume=&issue=&date=2010-01-01&spage=&id=doi:&sid=ProQ_ss&genre=article

Bowen, S., Elliott, S., & Hardison-Moody, A. (2021). The structural roots of food insecurity: How racism is a fundamental cause of food insecurity. *Sociology Compass*, *15*(7), e12846. https://doi.org/10.1111/soc4.12846

Braithwaite, M. (2023). *Denver police team up with the Table Urban Farm to plant garden, "share food back to the community"*. The Denver Post. https://www.denverpost.com/2023/09/22/denver-police-table-urban-farm-community-garden/

But, I. (2017). *The role of small grocers in neighbourhood food access*. https://sustain.ubc.ca/sites/default/files/2017-47_Green%20Grocers%20in%20Neighbourhood%20Food%20Access_But.pdf

Caldas, L. C., & Christopoulos, T. P. (2023). Social capital in urban agriculture initiatives. *Revista de Gestao*, *30*(1), 92-105. https://doi.org/10.1108/rege-03-2021-0043

Canada Mortgage and Housing Corporation. (2020). *Introducing the housing hardship concept*. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/housing-needs/research-insight-introducing-housing-hardship-concept

Christina Kelly. (n.d). Maize Field. https://www.discobikini.com/maize-field/

Cidro, J., Adekunle, B., Peters, E., & Martens, T. (2015). Beyond food security: understanding access to cultural food for urban Indigenous people in Winnipeg as Indigenous food sovereignty. *Canadian Journal of Urban Research*, *24*(1), 24-43. https://winnspace.uwinnipeg.ca/bitstream/handle/10680/1924/Beyond%20Food%20Security.pdf

Land Use Bylaw 1P2007, (2007). https://www.calgary.ca/planning/land-use.html

City of Calgary. (2012). *City of Calgary Food Action Plan – Calgary Eats!* . https://www.calgary.ca/environment/policies/food-action-plan.html

City of Calgary. (2019). *Land Use Bylaw amendments: food growing, processing and distribution*. Retrieved July 31 from https://www.calgary.ca/planning/land-use/food-amendments.html

City of Edmonton. (2012). *Edmonton's Food & Urban Agriculture Strategy (fresh)*. https://www.edmonton.ca/sites/default/files/public-files/documents/FRESH_October_2012.pdf?cb=1722535856

City of Edmonton. (2016). Community services committee agenda. In *Urban Hens Pilot Evaluation*.

City of Edmonton. (2023). *Community Garden Guidelines: A handbook for developing a community garden (and edible landscaping) in Edmonton*. https://www.edmonton.ca/sites/default/files/public-files/Community_Garden_Guidelines.pdf?cb=1722357102

City of Edmonton. (n.d-a). *Edmonton food council*. https://www.edmonton.ca/city_government/initiatives_innovation/food_and_agriculture/edmonton-food-council

City of Edmonton. (n.d-b). Pop-up community gardens program. https://www.edmonton.ca/programs_services/landscaping_gardening/pop-up-community-gardens

City of Edmonton. (n.d-c). *Urban Hens Program*. https://www.edmonton.ca/city_government/initiatives_innovation/food_and_agriculture/urban-hens-project

City of Edmonton. (n.d.). *Zoning Bylaw 20001*. Retrieved June 30 from https://zoningbylaw.edmonton.ca/part-8-definitions/810-use-definitions

City of Grande Prairie. (n.d). *Community orchards*. https://cityofgp.com/parks-recreation/parks-trails/community-orchards

Zoning By-law (20790), (2023). https://guelph.ca/wp-content/uploads/Guelph-Zoning-Bylaw-2023.pdf

City of Lethbridge. (1983). *Consolidation of a by-law or the City of Lethbridge to regulate the keeping of wild or domestic animals within the City of Lethbridge*. Retrieved from https://www.lethbridge.ca/media/umva0fdh/3383-wild-or-domestic-animals.pdf

City of Lethbridge. (2019a). *Lethbridge community wellbeing*. Retrieved from https://www.lethbridge.ca/media/cbggovit/community-wellbeing-needs-assessment-executive-summary.pdf

City of Lethbridge. (2019b). *Municipal housing strategy 2019-2025*. Retrieved from https://www.lethbridge.ca/media/gyha0elq/mhs-housing-needs-assessment_2019-2025.pdf

City of Lethbridge. (2021). *Municipal Development Plan*. Retrieved from https://ecom.lethbridge.ca/mycity/planningDocuments/MDP_Final.pdf

City of Lethbridge. (2022). *City of Lethbridge Indigenous placemaking strategy & public realm audit*. Retrieved from https://agendas.lethbridge.ca/AgendaOnline/Documents/ViewDocument/2022-09-15_INDIGENOUS_PLACEMAKING_STRATEGY_AND_PUBLIC_REALM_AUDIT_FINAL_REPORT.PDF?meetingId=3648&documentType=Minutes&itemId=92558&publishId=76999&isSection=false

City of Lethbridge. (2023a). *Land use bylaw renewal; Project primer*. Retrieved from https://getinvolvedlethbridge.ca/lub#:~:text=From%202023%2D2026%2C%20the%20City,for%20new%20buildings%20and%20activities.

City of Lethbridge. (2023b). *Transportation master plan*. Retrieved from https://www.lethbridge.ca/media/iehpetkc/2023-transportation-master-plan.pdf

City of North Vancouver. (2012). *City of North Vancouver Food Strategy and Action Plan*. Kwantlen Polytechnic University. Retrieved July from https://www.kpu.ca/isfs/foodpolicydatabase/city-north-vancouver-food-strategy-and-action-plan

Zoning By-law no. 569-2013 (2024). https://www.toronto.ca/wp-content/uploads/2018/07/97ec-City-Planning-Zoning-Zoning-By-law-Part-1.pdf

City of Vancouver. (2013). *What feeds us: Vancouver Food Strategy*. https://vancouver.ca/files/cov/vancouver-food-strategy-final.PDF

Clapp, J., Moseley, W. G., Burlingame, B., & Termine, P. (2022). The case for a six-dimensional food security framework. *Food Policy*, *106*, 102164. https://doi.org/10.1016/j.foodpol.2021.102164

Cleveland, D. A., Phares, N., Nightingale, K. D., Weatherby, R. L., Radis, W., Ballard, J., Campagna, M., Kurtz, D., Livingston, K., Riechers, G., & Wilkins, K. (2017). The potential for urban household vegetable gardens to reduce greenhouse gas emissions. *Landscape and urban planning*, *157*, 365-374. https://doi.org/https://doi.org/10.1016/j.landurbplan.2016.07.008

Cohen, N. (2022). Roles of Cities in Creating Healthful Food Systems. *Annual Review of Public Health*, *43*, 419-437. https://doi.org/10.1146/annurev-publhealth-052220-021059

Collins, T., & Flora, C. (2012). The community capitals framework: A systemic approach to environmental leadership. In (pp. 315-327). https://doi.org/10.4135/9781452218601.n34

Committee on World Food Security. (2022). *Keynote address by CFS Chair to the community of Portuguese speaking countries*. https://www.fao.org/cfs/resources/detail/en/c/1609703/

Cooper, C. (2018). The rise of food policy councils in Canada. https://policyoptions.irpp.org/magazines/february-2018/the-rise-of-food-policy-councils-in-canada/

Corrêa, C. J. P., Tonello, K. C., Nnadi, E., & Rosa, A. G. (2020). Seeding the city: History and current affairs of urban agriculture. *Ambiente & Sociedade*, *23*, e00751. https://doi.org/10.1590/1809-4422asoc20180075r1vu2020L1AO

Crowe, J., Lacy, C., & Columbus, Y. (2018). Barriers to food security and community stress in an urban food desert. *Urban Science*, *2*(2), 46. https://doi.org/10.3390/urbansci2020046

Cummins, S., & Macintyre, S. (2002). "Food deserts"—evidence and assumption in health policy making. *Bmj*, *325*(7361), 436-438. https://doi.org/10.1136/bmj.325.7361.436

Dalhousie University, University of Guelph, University of Saskatchewan, & University of Birtish Columbia. (2024). *Canada's food price report 2024*. https://canadianbudgetbinder.com/wp-content/uploads/2023/12/14th-Edition-Canadas-Food-Price-Report-2024-English.pdf

Daniel, L., Mazumder, R. K., Enderami, S. A., Sutley, E. J., & Lequesne, R. D. (2021). Community capitals framework for linking buildings and organizations for enhancing community resilience through the built environment. *Journal of Infrastructure Systems*, *28*(1), 04021053. https://doi.org/doi:10.1061/(ASCE)IS.1943-555X.0000668

Datta, R. (2016). Community garden: A bridging program between formal and informal learning. *Cogent Education*, *3*(1), 1177154. https://doi.org/10.1080/2331186X.2016.1177154

Diekmann, L. O., Gray, L. C., & Thai, C. L. (2020). More than food: The social benefits of localized urban food systems. *Frontiers in Sustainable Food Systems*, *4*, 534219. https://doi.org/10.3389/fsufs.2020.534219

Dona, C. G. W., Mohan, G., & Fukushi, K. (2021). Promoting urban agriculture and its opportunities and challenges—a global review. *Sustainability*, *13*(17), 9609. https://doi.org/10.3390/su13179609

Emery, M., & Flora, C. (2006). Spiraling-up: Mapping community transformation with community capitals framework. *Community Development*, *37*(1), 19-35. https://doi.org/10.1080/15575330609490152

Fairholm, J. (1999). Urban agriculture and food security initiatives in Canada: A survey of Canadian non-governmental organizations. *Cities feeding people series; rept. 25*.

https://idl-bnc-idrc.dspacedirect.org/server/api/core/bitstreams/fdbd7524-0cc7-4d5d-bfa6-9273e238d305/content

FAO. (1996). *Report of the World Food Summit*. https://www.fao.org/4/w3548e/w3548e00.htm

FAO. (2018). *Milan Urban Food Policy Pact Monitoring Framework* https://openknowledge.fao.org/server/api/core/bitstreams/979176e6-cb7a-48fb-983f-7e3c0f11ec5e/content

FAO, MUFPP, & RUAF. (2018). *Milan Urban Food Policy Pact monitoring framework*. https://openknowledge.fao.org/server/api/core/bitstreams/979176e6-cb7a-48fb-983f-7e3c0f11ec5e/content

FAO, MUFPP, & RUAF. (n.d). *The Milan Urban Food Policy Pact; Monitoring Framework*. https://openknowledge.fao.org/server/api/core/bitstreams/d394b597-51e0-44b2-a3dc-dac8c1a51e91/content

Federation of Canadian Municipalities. (n.d). *A guide to catalyzing a circular economy in your community*. https://media.fcm.ca/documents/programs/gmf/a-guide-to-catalyzing-a-circular-economy-in-your-community_vy24x4.pdf

Filippini, R., Mazzocchi, C., & Corsi, S. (2019). The contribution of Urban Food Policies toward food security in developing and developed countries: A network analysis approach. *Sustainable Cities and Society*, *47*, 101506.

Food Action Cities. (n.d). *Toronto Food Policy Council- Toronto, Canada*. https://foodactioncities.org/case-studies/toronto-food-policy-council/

Food For Thought. (n.d). *About*. University of Lethbridge. https://www.ulethbridge.ca/food-for-thought/about

Fox, C. (2010). Food policy councils: Innovations in democratic governance for a sustainable and equitable food system. *Los Angeles Food Policy Task Force*. https://goodfoodlosangeles.wordpress.com/wp-content/uploads/2011/01/fpc_final_dist-5-indd.pdf

Francis, C., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood, R., Salomonsson, L., Helenius, J., Rickerl, D., Salvador, R., Wiedenhoeft, M., Simmons, S., Allen, P., Altieri, M., Flora, C., & Poincelot, R. (2003). Agroecology: The ecology of food systems. *Journal of Sustainable Agriculture, 22*(3), 99-118. https://doi.org/10.1300/J064v22n03_10

Friedmann, J. (2010). Place and place-making in cities: A global perspective. *Planning Theory & Practice, 11*(2), 149-165. https://doi.org/10.1080/14649351003759573

Furman, J. (2015). Barriers to shared growth: The case of land use regulation and economic rents. *Remarks delivered at the Urban Institute, Washington, DC, November*, *20*, 33. https://obamawhitehouse.archives.gov/sites/default/files/page/files/20151120_barriers_shared_growth_land_use_regulation_and_economic_rents.pdf

Gallaher, C. M., Kerr, J. M., Njenga, M., Karanja, N. K., & WinklerPrins, A. M. (2013). Urban agriculture, social capital, and food security in the Kibera slums of Nairobi, Kenya. *Agriculture and human values*, *30*, 389-404. https://doi.org/10.1007/s10460-013-9425-y

Giang, A., & Castellani, K. (2020). Cumulative air pollution indicators highlight unique patterns of injustice in urban Canada. *Environmental Research Letters*, *15*(12), 124063. https://doi.org/10.1088/1748-9326/abcac5

Gibb, J. K., Williams, S., Mikelsteins, K., Charles, J., McKinnon, L., Beach, L., McKerracher, L., & Fields, J. (2024). Queering food security research: A critical analysis of

2SLGBTQ+ People's experiences of food insecurity in Toronto during the COVID-19 pandemic. *Soc Sci Med*, *345*, 116709. https://doi.org/10.1016/j.socscimed.2024.116709

Gilbert, A., & Raviv, Y. (2011). Space to grow: Women, art, and the urban agriculture movement. *Women & Performance: a journal of feminist theory*, *21*(3), 385-395. https://doi.org/10.1080/0740770X.2011.625715

Government of Alberta. (1986). *Alberta municipal affairs local government advisory branch information support services 1986 official population*. Retrieved from http://www.municipalaffairs.alberta.ca/documents/ms/1986population.pdf

Government of Alberta. (2024). *Lethbridge- population; Estimates of the number of people living in a municipality, including Canadian citizens and immigrants as well as non permanents residents*. https://regionaldashboard.alberta.ca/region/lethbridge/population/#/?from=2014&to=2023

Grewal, S. S., & Grewal, P. S. (2012). Can cities become self-reliant in food? *Cities*, *29*(1), 1-11. https://doi.org/https://doi.org/10.1016/j.cities.2011.06.003

Grochowska, R. (2014). Specificity of food security concept as a wicked problem. *Journal of Agricultural Science and Technology B*, *4*(2014), 823-831. https://www.researchgate.net/profile/Renata-Grochowska/publication/276982491_Specificity_of_Food_Security_Concept_as_a_Wicked_Problem/links/57c0222e08aeda1ec386cf25/Specificity-of-Food-Security-Concept-as-a-Wicked-Problem.pdf

Haines, A. L. (2018). What does zoning have to do with local food systems? *Journal of Agriculture, Food Systems, and Community Development*, *8*(B), 175-190. https://doi.org/10.5304/jafscd.2018.08B.007

Harper, A., Shattuck, A., Holt-Giménez, E., Alkon, A., & Lambrick, F. (2009). *Food policy councils: Lessons learned*. Citeseer. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=f9422fb233a874af4a137daeb7f71b18080aefcd

Healthy Food Policy Project. (2023). *Local policy to promote healthy food access; A food systems framework*. https://healthyfoodpolicyproject.org/framework

Healy, T., Callihoo, C., & Booth, A. L. (2023). Who's at the table: An exploration of community-based food security initiatives and structures in a north-central Canadian context. *Community Development Journal*. https://doi.org/10.1093/cdj/bsad013

Hilmers, A., Hilmers, D. C., & Dave, J. (2012). Neighborhood disparities in access to healthy foods and their effects on environmental justice. *American journal of public health*, *102*(9), 1644-1654. https://doi.org/10.2105/AJPH.2012.300865

Hirt, S. (2012). Mixed use by default: How the Europeans (don't) zone. *Journal of planning literature*, *27*(4), 375-393. https://doi.org/10.1177/0885412212451029

Ilieva, R. T., Cohen, N., Israel, M., Specht, K., Fox-Kämper, R., Fargue-Lelièvre, A., Poniży, L., Schoen, V., Caputo, S., & Kirby, C. K. (2022). The socio-cultural benefits of urban agriculture: a review of the literature. *Land*, *11*(5), 622. https://doi.org/10.3390/land11050622

Indigenous Food Systems Network. (n.d). *Indigenous Food Systems Network*. https://www.indigenousfoodsystems.org/

Institute for Community Prosperity. (2024). *Unpacking the affordable housing crisis*. Mount Royal University.

https://www.mtroyal.ca/nonprofit/InstituteforCommunityProsperity/Happenings/Unpacking-the-affordable-housing-crisis-ICP.htm
Interfaith Food Bank Society of Lethbridge. (2022). *Annual report 2022*. https://interfaithfoodbank.ca/wp-content/uploads/2023/05/Annual-Report-2022.pdf
Interfaith Food Bank Society of Lethbridge. (2023). *Annual Report 2023*. https://interfaithfoodbank.ca/wp-content/uploads/2024/04/Annual-Report-2023.pdf
Interfaith Food Bank Society of Lethbridge. (n.d). *Who can use the food bank?* https://interfaithfoodbank.ca/programs-services/food-services/who-is-eligible/
Joassart-Marcelli, P., Rossiter, J. S., & Bosco, F. J. (2017). Ethnic markets and community food security in an urban "food desert". *Environment and Planning a*, *49*(7), 1642-1663. https://doi.org/10.1177/0308518X17700394
Kanosvamhira, T. P., & Tevera, D. (2019). Urban agriculture as a source of social capital in the Cape Flats of Cape Town. *African Geographical Review*, *39*(2), 175-187. https://doi.org/10.1080/19376812.2019.1665555
Kasper, C., Brandt, J., Lindschulte, K., & Giseke, U. (2017). The urban food system approach: Thinking in spatialized systems. *Agroecology and Sustainable Food Systems*, *41*(8), 1009-1025. https://doi.org/10.1080/21683565.2017.1334737
Kepkiewicz, L., & Rotz, S. (2018). Toward anti-colonial food policy in Canada? (Im)possibilities within the settler state. *Canadian Food Studies / La Revue canadienne des études sur l'alimentation*, *5*(2), 13-24. https://doi.org/10.15353/cfs-rcea.v5i2.202
Kirwan, J., & Maye, D. (2013). Food security framings within the UK and the integration of local food systems. *Journal of Rural Studies*, *29*, 91-100. https://doi.org/10.1016/j.jrurstud.2012.03.002
Korzun, M., & Barak, F. (2023, 03/11/

2023 Mar 11). Systemic barriers are among root causes of food insecurity in Canada: Study *Chronicle - Herald*. https://login.uleth.idm.oclc.org/login?url=https://www.proquest.com/newspapers/systemic-barriers-are-among-root-causes-food/docview/2890414159/se-2?accountid=12063

http://FG2FY8YH7D.search.serialssolutions.com/directLink?&atitle=Systemic+barriers+are+among+root+causes+of+food+insecurity+in+Canada&author=MONIKA+KORZUN+FARZANEH+BARAK&issn=08281807&title=Chronicle+-+Herald&volume=&issue=&date=2023-03-11&spage=D4&id=doi:&sid=ProQ_ss&genre=article
La Via Campesina. (n.d-a). The right to produce and acess to land. In.
La Via Campesina. (n.d-b). *What is food sovereignty*. https://viacampesina.org/en/what-is-food-sovereignty/
Langemeyer, J., Madrid-Lopez, C., Beltran, A. M., & Mendez, G. V. (2021). Urban agriculture—A necessary pathway towards urban resilience and global sustainability? *Landscape and urban planning*, *210*, 104055. https://doi.org/10.1016/j.landurbplan.2021.104055
Lethbridge Food Bank. (n.d). *Guidelines for accessing Lethbridge Food Bank services*. https://lethbridgefoodbank.ca/services/
Lethbridge Polytechnic. (2019). *Another big jump in Lethbridge College enrolment*. https://lethpolytech.ca/news/campus-news/another-big-jump-lethbridge-college-enrolment

Li, T., Fafard St-Germain, A., & Tarasuk , V. (2023). *Household food insecurity in Canada, 2022*. Toronto: Research to identify policy options to reduce food insecurity (PROOF). https://proof.utoronto.ca/

Loker, A., & Francis, C. (2020). Urban food sovereignty: urgent need for agroecology and systems thinking in a post-COVID-19 future. *Agroecology and Sustainable Food Systems*, *44*(9), 1118-1123. https://doi.org/10.1080/21683565.2020.1775752

Loopstra, R., & Tarasuk, V. (2012). The relationship between food banks and household food insecurity among low-income Toronto families. *Canadian Public Policy*, *38*(4), 497-514. https://doi.org/10.3138/CPP.38.4.497

Lovell, S. T., Hayman, J., Hemmelgarn, H., Hunter, A. A., & Taylor, J. R. (2021). Community Orchards for Food Sovereignty, Human Health, and Climate Resilience: Indigenous Roots and Contemporary Applications. *Forests*, *12*(11), 1533. https://www.mdpi.com/1999-4907/12/11/1533

Maantay, J. (2001). Zoning, equity, and public health. *American journal of public health*, *91*(7), 1033. https://doi.org/10.2105/ajph.91.7.1033

Maloney, S. A. (2012). Putting paradise in the parking lot: Using zoning to promote urban agriculture. *Notre Dame L. Rev.*, *88*, 2551. https://doi.org/https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/tndl88&id=2610&men_tab=srchresults

Matacena, R. (2016). Linking alternative food networks and urban food policy: A step forward in the transition towards a sustainable and equitable food system. *International Review of Social Research*, *6*(1), 49-58.

Matties, Z. (2016). Unsettling settler food movements: Food sovereignty and decolonization in Canada. *Cuizine*, *7*(2). https://doi.org/10.7202/1038478ar

Maye, D., Swagemakers, P., Wiskerke, J. S., Moschitz, H., Kirwan, J., & Jahrl, I. (2022). Transformative potential from the ground up: Sustainable innovation journeys, soft change and alignment of interests in urban food initiatives. *European Urban and Regional Studies*, *29*(2), 222-237. https://doi.org/10.1177/09697764211028887

Meal Exchange. (2021). *2021 National Student Food Insecurity Report.* https://static1.squarespace.com/static/5fa8521696a5fd2ab92d32e6/t/6318b24f068ccf1571675884/1662562897883/2021+national+student+food+insecurity+report+-3.pdf

Mechlem, K. (2004). Food security and the right to food in the discourse of the United Nations. *European Law Journal*, *10*(5), 631-648. https://doi.org/10.1111/j.1468-0386.2004.00235.x

Metta, K., Olabisi, L., & Wallace, R. (2021). A system dynamics approach to examining household food insecurity. *Journal of Agriculture, Food Systems, and Community Development*, *10*(2), 455–472. https://doi.org/10.5304/jafscd.2021.102.028

Milan Urban Food Policy Pact. (2015). Milan Urban Food Policy Pact. In.

Milan Urban Food Policy Pact. (2020a). *Food Production*. https://www.milanurbanfoodpolicypact.org/framework-for-action/food-production/

Milan Urban Food Policy Pact. (2020b). *Our cities*. https://www.milanurbanfoodpolicypact.org/our-cities/

Moffat, T., Mohammed, C., & Newbold, K. B. (2017). Cultural simensions of food insecurity among immigrants and refugees. *Human Organization*, *76*(1), 15-27. https://doi.org/10.17730/0018-7259.76.1.15

Mohd Salleh, A., Harun, N. Z., & Abdul Halim, S. (2020). Urban Agriculture as a Community Resilience Strategy against Urban Food Insecurity. *Environment-Behaviour Proceedings Journal*, *5*(13), 369-376. https://doi.org/10.21834/e-bpj.v5i13.2047

Mori, K., & Onyango, E. (2023). Intersections of race, COVID-19 pandemic, and food security in Black identifying Canadian households: A scoping review. *Canadian Food Studies / La Revue canadienne des études sur l'alimentation*, *10*(3), 3-34. https://doi.org/10.15353/cfs-rcea.v10i3.630

Morrison, D. (2011). Indigenous food sovereignity. In H. Wittman, A. A. Desmarais, & N. Wiebe (Eds.), *Food sovereignty: Creating just and sustainable food systems* (pp. 97-113).

Music, J., Mullins, L., Charlebois, S., Large, C., & Mayhew, K. (2022). Seeds and the city: a review of municipal home food gardening programs in Canada in response to the COVID-19 pandemic. *Humanities and Social Sciences Communications*, *9*(1), 1-12. https://doi.org/10.1057/s41599-022-01301-6

Napawan, N. C. (2016). Complexity in urban agriculture: The role of landscape typologies in promoting urban agriculture's growth. *Journal of Urbanism: International Research on placemaking and urban sustainability*, *9*(1), 19-38. https://doi.org/10.1080/17549175.2014.950317

Neechi. (n.d). *5 must-visit Indigenous stores in Canada: food, craft & more*. https://neechi.ca/

Nelson, K. (2012). *Essential smart growth for rural planning, zoning, development codes*. United States Environmental Protection Agency, Retrieved from https://www.epa.gov/sites/default/files/documents/essential_smart_growth_fixes_rural_0.pdf

Nguyen, H. (2018). Sustainable food systems: Concept and framework.

Nguyen, L.-K.-N., Kumar, C., Jiang, B., & Zimmermann, N. (2023). Implementation of systems thinking in public policy: A systematic review. *Systems*, *11*(2), 64. https://www.mdpi.com/2079-8954/11/2/64

Nosratabadi, S., Khazami, N., Abdallah, M. B., Lackner, Z., S. Band, S., Mosavi, A., & Mako, C. (2020). Social capital contributions to food security: A comprehensive literature review. *Foods*, *9*(11), 1650. https://doi.org/10.3390/foods9111650

Nugent, M. A. (2011). *Journeys to the food bank: exploring the experience of food insecurity among postsecondary students* Lethbridge, Alta.: University of Lethbridge, Faculty of Health Sciences, c2011]. https://hdl.handle.net/10133/3228

OECD. (n.d). *Food systems*. https://www.oecd.org/en/topics/policy-issues/food-systems.html

Opitz, I., Berges, R., Piorr, A., & Krikser, T. (2016). Contributing to food security in urban areas: differences between urban agriculture and peri-urban agriculture in the Global North. *Agriculture and human values*, *33*, 341-358. https://doi.org/10.1007/s10460-015-9610-2

Orsini, F., Kahane, R., Nono-Womdim, R., & Gianquinto, G. (2013). Urban agriculture in the developing world: a review. *Agronomy for Sustainable Development*, *33*(4), 695-720. https://doi.org/10.1007/s13593-013-0143-z

Patel, R. (2009). Food sovereignty. *The Journal of Peasant Studies*, *36*(3), 663-706. https://doi.org/10.1080/03066150903143079

Payen, F. T., Evans, D. L., Falagán, N., Hardman, C. A., Kourmpetli, S., Liu, L., Marshall, R., Mead, B. R., & Davies, J. A. C. (2022). How much food can we grow in urban areas? Food production and crop yields of urban agriculture: A meta-analysis. *Earth's Future*, *10*(8), e2022EF002748. https://doi.org/10.1029/2022EF002748

Pena, J., & Shah, S. (2022). Supporting active living through mixed-use developments. *American Planning Association,, 28*. https://www.planning.org/blog/9227408/supporting-active-living-through-mixed-use-developments/

Perdue, W. C., Stone, L. A., & Gostin, L. O. (2003). The built environment and its relationship to the public's health: the legal framework. *American journal of public health*, *93*(9), 1390-1394. https://doi.org/10.2105/ajph.93.9.1390

Peters, D. H. (2014). The application of systems thinking in health: why use systems thinking? *Health Research Policy and Systems*, *12*(1), 51. https://doi.org/10.1186/1478-4505-12-51

Pigg, K., Gasteyer, S. P., Martin, K. E., Keating, K., & Apaliyah, G. P. (2013). The Community Capitals Framework: an empirical examination of internal relationships. *Community Development*, *44*(4), 492-502. https://doi.org/10.1080/15575330.2013.814698

Pothukuchi, K., & Kaufman, J. L. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and human values*, *16*(2), 213-224. https://doi.org/10.1023/A:1007558805953

Potter, E. (2020). Contesting imaginaries in the Australian city: Urban planning, public storytelling and the implications for climate change. *Urban studies*, *57*(7), 1536-1552. https://doi.org/10.1177/0042098018821304

Power, E. M. (2008). Conceptualizing food security for Aboriginal People in Canada. *Canadian Journal of Public Health*, *99*(2), 95-97. https://doi.org/10.1007/BF03405452

Quon, S. (1999). Planning for urban agriculture: A review of tools and strategies for urban planners. Cities Feeding People Report (28). *International Development Research Centre, Ottawa, Canada*. https://idl-bnc-idrc.dspacedirect.org/server/api/core/bitstreams/c556be21-36a7-4500-b5a1-05e9f1fe5731/content

Richmond, C., Steckley, M., Neufeld, H., Kerr, R. B., Wilson, K., & Dokis, B. (2020). First Nations food environments: Exploring the role of place, income, and social connection. *Current Developments in Nutrition*, *4*(8), nzaa108. https://doi.org/10.1093/cdn/nzaa108

Rideout, K., Riches, G., Ostry, A., Buckingham, D., & MacRae, R. (2007). Bringing home the right to food in Canada: challenges and possibilities for achieving food security. *Public Health Nutrition*, *10*(6), 566-573. https://doi.org/10.1017/S1368980007246622

Robin, T., Burnett, K., Parker, B., & Skinner, K. (2021). Safe food, dangerous lands? Traditional foods and Indigenous Peoples in Canada [Conceptual Analysis]. *Frontiers in Communication*, *6*. https://doi.org/10.3389/fcomm.2021.749944

Roggio, A. M. (2018). A systems thinking approach to the integration of food insecurity policy. *Journal of Public Affairs*, *19*(3), e1862. https://doi.org/10.1002/pa.1862

Rosenbloom, J., & Duerksen, C. (2022). Saving the World Through Zoning: The Sustainable Development Code, Regeneration, and Beyond. *JCULP*, *5*, 363.

Rout, S., Sahoo, D., Khuntia, S., Singh, A., Dalei, A., Sahoo, B., & Sahoo, J. (2024). *Rooftop Gardening: The Future of Urban Agriculture*. https://doi.org/10.13140/RG.2.2.29792.70406

Rural Municipalities of Alberta. (2022). *Municipal Structures: An Alterative Dialouge for Municipalities in Alberta*. https://rmalberta.com/wp-content/uploads/2022/10/Municipal-Structures-An-Alternative-Dialogue-FULL.pdf`

Ryan, E. (2002). Zoning, taking, and dealing: The problems and promise of bargaining in land use planning conflicts. *Harv. Negot. L. Rev.*, *7*, 337.

https://heinonline.org/HOL/Page?handle=hein.journals/haneg7&div=13&g_sent=1&casa_token=&collection=journals

Sanyé-Mengual, E., Specht, K., Grapsa, E., Orsini, F., & Gianquinto, G. (2019). How can innovation in urban agriculture contribute to sustainability? A characterization and evaluation study from five Western European cities. *Sustainability*, *11*(15), 4221. https://www.mdpi.com/2071-1050/11/15/4221

Scherb, A., Palmer, A., Frattaroli, S., & Pollack, K. (2012). Exploring food system policy: A survey of food policy councils in the United States. *Journal of Agriculture, Food Systems, and Community Development*, *2*(4), 3-14. https://doi.org/10.5304/jafscd.2012.024.007

Schuermans, N., Loopmans, M. P. J., & Vandenabeele, J. (2012). Public space, public art and public pedagogy. *Social & Cultural Geography*, *13*(7), 675-682. https://doi.org/10.1080/14649365.2012.728007

Selkirk Planning & Design, H. R. (2014). Revelstoke Food Security Strategy. http://datacat.cbrdi.ca/sites/default/files/attachments/revesltoke-Food-Security-Strategy-2014%5B1%5D.pdf

Settee, P. (2020). The impact of climate change on Indigenous food sovereignty. *Indigenous food systems: Concepts, cases, and conversations*, 211-228.

Shafiee, M., Keshavarz, P., Lane, G., Pahwa, P., Szafron, M., Jennings, D., & Vatanparast, H. (2022). Food security status of Indigenous Peoples in Canada according to the 4 pillars of food security: A scoping review. *Advances in Nutrition*, *13*(6), 2537-2558. https://doi.org/10.1093/advances/nmac081

Shertzer, A., Twinam, T., & Walsh, R. P. (2022). Zoning and segregation in urban economic history. *Regional Science and Urban Economics*, *94*, 103652. https://doi.org/10.1016/j.regsciurbeco.2021.103652

Skar, S. L. G., Pineda-Martos, R., Timpe, A., Pölling, B., Bohn, K., Külvik, M., Delgado, C., Pedras, C. M. G., Paço, T. A., Ćujić, M., Tzortzakis, N., Chrysargyris, A., Peticila, A., Alencikiene, G., Monsees, H., & Junge, R. (2019). Urban agriculture as a keystone contribution towards securing sustainable and healthy development for cities in the future. *Blue-Green Systems*, *2*(1), 1-27. https://doi.org/10.2166/bgs.2019.931

Smith, N. W. (2016). Food policy. In *Reference Module in Food Science*. Elsevier. https://doi.org/10.1016/B978-0-08-100596-5.03428-4

Stahlbrand, L., & Roberts, W. (2022). Critical food guidance in action: The history of the Toronto Food Policy Council. *Canadian Food Studies*, *9*(1), 69-86. https://doi.org/10.15353/cfs-rcea.v9i1.505

Statistics Canada. (2021). *Census profile, 2021 census of population.* (https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?LANG=E&GENDERlist=1,2,3&STATISTIClist=1,4&DGUIDlist=2021S0503810&HEADERlist=20&SearchText=lethbridge

Statistics Canada. (2022). *Focus on geography series, 2021 census of population*. https://www12.statcan.gc.ca/census-recensement/2021/as-sa/fogs-spg/Page.cfm?lang=e&topic=9&dguid=2021S0503810

Statistics Canada. (2023). *Detailed food spending, Canada, regions and provinces* (https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110012501&pickMembers%5B0%5D=1.12&cubeTimeFrame.startYear=2010&cubeTimeFrame.endYear=2021&referencePeriods=20100101%2C20210101

Statistics Canada. (2024a). *Food insecurity by economic familiy type*. https://www150.statcan.gc.ca/t1/tbl1/en/cv!recreate.action?pid=1310083401&selectedNodeIds=3D2,3D6,4D1&checkedLevels=0D1,1D1,2D3&refPeriods=20180101,20220101&dimensionLayouts=layout3,layout3,layout3,layout3,layout2&vectorDisplay=false

Statistics Canada. (2024b). *Food security*. https://www160.statcan.gc.ca/prosperity-prosperite/food-security-securite-alimentaire-eng.htm

Steenkamp, J., Cilliers, E. J., Cilliers, S. S., & Lategan, L. (2021). Food for thought: Addressing urban food security risks through urban agriculture. *Sustainability*, *13*(3), 1267. https://www.mdpi.com/2071-1050/13/3/1267

Swaminathan, M. S. (2016). *Combating hunger and achieving food security*. Cambridge University Press.

Tapia, C., Randall, L., Wang, S., & Borges, L. A. (2021). Monitoring the contribution of urban agriculture to urban sustainability: an indicator-based framework. *Sustainable Cities and Society*, *74*, 103130. https://doi.org/10.1016/j.scs.2021.103130

Tarasuk, V., Fafard St-Germain, A.-A., & Loopstra, R. (2020). The relationship between food banks and food insecurity: Insights from Canada. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, *31*(5), 841-852. https://doi.org/10.1007/s11266-019-00092-w

Tarraf, D., Sanou, D., Giroux, I., & Muenstermann, I. (2017). Immigration and food insecurity: the Canadian experience–a literature review. *Peoples Movements in the 21st Century–Risks, Challenges and Benefits*, 37-46. https://doi.org/10.5772/66824

Teitel-Payne, R., Kuhns, J., & Nasr, J. (2016). Indicators for Urban Agriculture in Toronto: a scoping analysis. *Toronto Urban Growers: Toronto, ON, Canada*. https://torontourbangrowers.org/img/upload/indicators.pdf

Tello, S. (2024). *Canada's housing crisis: the differing impact on municipalities and what they can do about it*. MNP. https://www.mnp.ca/en/insights/directory/canada-housing-crisis-impact-municipalities-can-do-about-it

Tendall, D. M., Joerin, J., Kopainsky, B., Edwards, P., Shreck, A., Le, Q. B., Kruetli, P., Grant, M., & Six, J. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17-23. https://doi.org/10.1016/j.gfs.2015.08.001

The Buffalo. (n.d). *Treaty*. https://www.buffalotreaty.com/treaty

The City of Pittsburgh. (n.d). *Adopt-a-lot program*. https://pittsburghpa.gov/dcp/adopt-a-lot

The New England Land Access Policy Project. (2016). *Current Use Valuation and Tax Incentives for Urban Areas: State Law Comparisons and Possible Applications in New England States*. https://landforgood.org/wp-content/uploads/LAPP-Current-Use-Valuation-and-Tax-Incentives-for-Urban-Areas.pdf

Thompson, D., & Lopez Barrera, S. (2019). Community resilience and collective agency under significant changes in the natural and built environment: a community capitals framework approach. *Local Environment*, *24*(12), 1156-1177. https://doi.org/10.1080/13549839.2019.1683723

Thompson, R. (2018). Gardening for health: a regular dose of gardening. *Clinical Medicine*, *18*(3), 201-205. https://doi.org/10.7861/clinmedicine.18-3-201

Tixier, P., & De Bon, H. (2006). Urban Horticulture. In René van Veenhuizen (Ed.), *Cities Farming for the Future*. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=49c1712a846523ce33033168dd68e5c143a19e77#page=401

Toronto Food Policy Council. (n.d). *Overview of the accomplishments of the Toronto Food Policy Council*. https://www.toronto.ca/legdocs/mmis/2011/hl/bgrd/backgroundfile-37694.pdf

United Nations. (2018). 68% of the world population projected to live in urban areas by 2050, says UN. *Department of Economic and Social Affairs*. https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html

University of Lethbridge. (2023). *Ulethbridge quick facts*. https://www.ulethbridge.ca/about/facts

Uppal, S. (2023). *Food insecurity among Canadian families*. Statistics Canada. https://www150.statcan.gc.ca/n1/pub/75-006-x/2023001/article/00013-eng.htm

Viljoen, A., & Bohn, K. (2014). *Second nature urban agriculture: Designing productive cities*. Routledge.

Weiler, A. M., Hergesheimer, C., Brisbois, B., Wittman, H., Yassi, A., & Spiegel, J. M. (2014). Food sovereignty, food security and health equity: a meta-narrative mapping exercise. *Health Policy and Planning*, *30*(8), 1078-1092. https://doi.org/10.1093/heapol/czu109

Wekerle, G. R. (2004). Food justice movements: Policy, planning, and networks. *Journal of Planning Education and Research*, *23*(4), 378-386. https://doi.org/10.1177/0739456x04264886

Wesener, A., Fox-Kämper, R., Sondermann, M., & Münderlein, D. (2020). Placemaking in action: Factors that support or obstruct the development of urban community gardens. *Sustainability*, *12*(2), 657. https://www.mdpi.com/2071-1050/12/2/657

Widener, M. J., Minaker, L., Farber, S., Allen, J., Vitali, B., Coleman, P. C., & Cook, B. (2017). How do changes in the daily food and transportation environments affect grocery store accessibility? *Applied Geography*, *83*, 46-62. https://doi.org/10.1016/j.apgeog.2017.03.018

Worosz, M. R., Farrell, B., & Jenda, C. A. (2020). Teaching critical thinking via the" wicked problem" of food insecurity. *portal: Libraries and the Academy*, *20*(4), 621-653.

Zhong, T., Si, Z., Scott, S., Crush, J., Yang, K., & Huang, X. (2021). Comprehensive food system planning for urban food security in Nanjing, China. *Land*, *10*(10), 1090. https://doi.org/10.3390/land10101090