

CALGARY EATS!

A Food System Assessment and Action Plan for Calgary



THE CITY OF
CALGARY



THE CALGARY
FOUNDATION
FOR CALGARY FOREVER

The Vision: to create a sustainable and resilient food system for the Calgary region

so that every Calgarian has access to local, healthy and environmentally friendly food

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Calgary Food Committee

The Calgary Food Committee (CFC) is a multi-sector stakeholder group with representatives from each element of Calgary's food system who united to provide information and guidance in completion of this Food System Assessment and Action Plan. Members have dedicated significant amounts of time and expertise to this project, and continue to support and deliver on the vision for a sustainable food system for Calgary through their individual businesses and programs. CFC members include:

- Carolyn Bowen (City of Calgary, Office of Sustainability)
- Amanda Brownlie (City of Calgary, Environmental & Safety Management)
- Adrian Buckley (Big Sky Permaculture & Sierra Club Chinook Chapter)
- Suzanne Galesloot (Alberta Health Services)
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- Janet Henderson (Slow Food Calgary) – CFC Co-Chair
- Andrew Hewson (SAIT)
- Dawn Johnston (University of Calgary)
- Gabrielle Kaufmann (Calgary Horticultural Society)
- Sara Klimes (United Nations Canada)
- Penny Marshall (Highwood Crossing Foods Ltd.)
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- Evan Woolley (City of Calgary, Office of Sustainability) – CFC Engagement

Consultants

Serecon Management Consulting, supported by Altus Group.

Speakers & Event Sponsors

The CFC showcased many of the producers, processors, distributors, chefs, program managers and educators amongst others who form part of Calgary's food system at several of our stakeholder and citizen engagement events. Vendors are named on our website at www.yycfood.com and sponsors and speakers included:

- Ald. Druh Farrell
- Ald. Gian-Carlo Carra
- Andrew Hewson, Culinary Instructor in SAIT Polytechnic's School of Hospitality and Tourism



- Paul McGreavy, Chef CRAFT Beer Market
- The Calgary Foundation
- Cam Dobranski, Chef Owner Winebar Kensington, Brasserie Kensington, AKA Winebar and Muse Restaurant
- Chelsea Pratchett, My Voice Calgary
- Cinda Chavich, food author and journalist
- Community Natural Foods
- Connie de Sousa, Co-Chef and Co-owner CHARCUT Roast House
- The Cookbook Company
- Fratello coffee
- Higher Ground Coffee
- Hotel Arts
- Jennifer Cockrall-King, food author
- Julie van Rosendaal, food author and journalist
- Marilyn Gunn, CEO and founder of Community Kitchen Program
- Saffron Professional Chef Services
- Salt Food Photography
- Sidewalk Citizen Bakery
- Sunnyside Natural Market
- Sunterra
- Tim Hoven, Hoven Farms & Market
- Tony Marshall, Highwood Crossing Foods Ltd
- REAP – Respect For All Earth and All People

Stakeholders & Stories

The passion and drive of many individuals, groups and businesses is moving Calgary forward in the sustainable food agenda. The CFC has captured many stories of success and challenges within this food system assessment, but clearly these do not do sufficient justice to the great work and achievements of those players in our regional food system. The CFC engaged more than 360 organizations and over 1400 citizens in the completion of this work, yet inevitably there will be organizations and success stories that were not captured in the time available and within the pages of this document. The CFC recognizes that the success of our food system relies heavily upon collaboration and the CFC was fortunate that these many and diverse stakeholders were so willing to share their experiences, participate in engagement and provide input and feedback to this report. Thank you for your work and for moving us towards a sustainable food system for Calgary.



EXECUTIVE SUMMARY

A food system in its simplest form is a network connecting food production, processing, distribution, access, preparation, consumption and food waste recovery. In a city where approximately four million meals are eaten every day and the average household spends \$8,544 on food a year it is clear that the food system has a large role to play in Calgary. This report presents a food system assessment and action plan for Calgary. The purpose of the assessment was to:

1. outline a vision for a sustainable food system for Calgary and the region;
2. develop a comprehensive baseline and framework of Calgary's current food system to include an understanding of issues, opportunities and practices from other jurisdictions;
3. provide a gap analysis between the current state and the vision; and
4. create a community action plan identifying implementable and locally appropriate recommendations to address Calgary's food system issues.

The Calgary Food System Assessment and Action Plan has been completed in response to growing citizen demand and community awareness of the value of a sustainable food system. This resulted in a direction from Council to complete this assessment. The Calgary Food Committee (CFC) was established to guide and direct the development of the Food System Assessment and Action Plan, of which the outcome has been a collaborative effort, engaging many stakeholders.

The assessment provides a profile of Calgary and then addresses each element of the food system including production, processing, distribution, access, consumption and food waste recovery. This includes baseline data, maps, issues, opportunities, practices from other jurisdictions and a gap analysis showing the distance between the current system and imagineCALGARY targets.

The findings from the assessment indicated that there is a gap between Calgary's current state and the vision and targets for a sustainable food system as identified in imagineCALGARY. In addition to gaps and resulting recommendations within each element, one of the biggest challenges identified was the absence of data to establish baselines, develop indicators and measure progress toward the targets. This is the first time there has been a consolidated effort to look at the food system as a whole and the resulting high-level action plan identifies what needs to be done and by whom to close the gaps and collect the appropriate data.

The action plan is developed around a framework that identifies the intervention points that connect through each element of the food system for actions to take place. The actions that relate to regulation, legislation and advocacy, planning and land use, and transportation and logistics generally focus on the provincial and municipal governments leading with support from other stakeholders. Actions related to environmental considerations, economic development, community and education programs impact all sectors of the food system. Various stakeholders were identified to take leading roles on the actions including stakeholders in the market, community, charitable and institutional food sectors. The governance and on-going stewardship and coordination of the action plan will be led by the CFC to ensure alignment with imagineCALGARY.

This document provides a condensed summary of the assessment. It should be read in conjunction with the complete Calgary Food System Assessment and Action Plan where references, data, maps, stories, inventories and additional analysis can be found, available online at:

<http://www.calgary.ca/CA/cmo/Pages/Calgary-Food-System-Assessment-and-Action-Plan.aspx>.



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1.0 INTRODUCTION

1.1 VALUE OF A SUSTAINABLE FOOD SYSTEM

Food is a key part of our daily lives. It plays an important role in supporting community economic development, promoting health, conserving the environment and building strong, resilient and diverse communities. Throughout the world, individuals are making personal choices to support local producers and grow their own food; farmers' markets, community gardens and local food initiatives are on the rise and municipalities are taking on significant roles within their food system, often partnering with community organizations as they pursue sustainability.

The food chain is a fragile system dealing with products that often have a limited shelf life and is reliant on basic inputs such as electricity, water and transportation. In the average North American home, ingredients for a small meal usually travel between 1,500 kilometres (herein km) and 4,000km to get to our plates¹. This not only impacts our ecological footprint, 16 per cent (herein %) of which was attributed to food consumption in Calgary in 2010², but also impacts our resiliency. Stocks of fresh food in supermarkets are typically limited to a three day supply, making a city's food supply vulnerable to a wide range of possible disruptions including transportation, extreme weather, rising fuel prices and loss of agricultural land. In parallel, there is increasing evidence of rising health issues directly and indirectly linked to nutrition and our food system; currently three million Canadians have diabetes and an additional six million have pre-diabetes, which was estimated to cost Canada \$12 billion in 2010 from health care costs³.

A food system in its simplest form is a network connecting food production, processing, distribution, access & preparation, consumption and food waste recovery. In a city where approximately four million meals are eaten every day⁴ and the average household spends \$8,544 on food a year (third to shelter and transportation)⁵ it is clear that the food system has a large role to play in Calgary. In recent years, awareness and action related to food has increased in Calgary:

- The City of Calgary's community garden program has grown since its initiation in 2009 to a total of 36 food gardens on City-owned land with further demand and waiting lists for additional sites;
- Between 2004 and 2008 there was a 30% increase in spending in Alberta farmer's markets⁶ and there are now four permanent farmers' markets in Calgary with eight seasonal markets in the city and surrounding areas; and
- There are seven community supported agriculture (CSA) operations in the Calgary region, which allow Calgarians to buy produce directly from farmers;
- In a recent poll, 78% of Calgarians said they were willing to buy food grown locally to reduce their ecological footprint⁷.

¹ City of Calgary (2012) Environment & Safety Management

² City of Calgary (2010) Consumption Land Use Matrix

³ Hume (2010) *The Local Food Revolution*, Municipal Knowledge Series

⁴ City of Calgary, Calgary & Region Economic Outlook: 2011-2021, Vol 2. Based upon 1,365,200 population and 3 meals a day.

⁵ Based upon Stats Canada 2009 household expenditures <http://www40.statcan.ca/l01/cst01/famil10f-eng.htm>

⁶ Alberta Agriculture & Rural Development (2008)

⁷ Ipsos Reid (2008)



A focus on food not only represents opportunities for enhancing citizens' quality of life, but also acts as a lever for achieving many goals and objectives of municipalities, including those related to complete communities, transportation, mobility, economic development, waste management, greenhouse gas (GHG) emissions, cost of living, health, community wellbeing and liveability. Therefore, promoting a sustainable food system can support The City of Calgary goals, objectives and targets outlined in City policies (Municipal Development Plan, Calgary Transportation Plan, Community Greenhouse Gas Plan etc), Council's Fiscal Plan for Calgary⁸ and The City's 2020 Sustainability Direction⁹. Notably, it contributes to the achievement of the six imagineCALGARY Long Range Urban Sustainability Plan¹⁰ targets related to food:

- By 2036, Calgarians support local food production.
- By 2036, Calgary maintains access to reliable and quality food sources.
- By 2036, 100 % of Calgary's food supply derives from sources that practice sustainable food production.
- By 2010, 100 % of Calgarians have access to nutritious foods.
- By 2036, sustainable urban food production increases to 5%.
- By 2036, the consumption of urban and regionally produced food by Calgarians increases to 30%.

1.2 ROLE OF MUNICIPALITIES

There are numerous municipalities, other levels of government and organizations around the world exploring ways to support local food systems and implement identified actions. These formal and informal local food initiatives are gaining momentum. Municipalities are increasingly working with community organizations to assist these systems in becoming more sustainable. Municipalities may not produce food or create jobs, but they do have a significant role and responsibility in creating the kind of communities in which people will want to live, work, play, start a business and where those stakeholders in the food system can thrive and succeed. While local municipalities are only one player within the system, they are responsible for a number of areas that either affect or are affected by the food system.

At the national level, Resetting the Table: A People's Food Policy for Canada¹¹ was launched in April 2011 collaboration with Food Secure Canada, the voice of the food movement in Canada, uniting groups and individuals working towards a food system that is healthy, ecological, and fair for producers and consumers.

In November 2009, The City of Calgary Administration was directed by Council to produce a report examining The City's role in the local food system and identifying the roles of community partners and other orders of government. This was completed by the Office of Sustainability with support from stakeholders. This work resulted in the report, "Examining Roles in Calgary's Food System"¹², which was presented to Council in June 2010. The report found that no order of government has an overseeing role for the whole food system but each plays a part, including municipalities. The roles of various orders of government as they relate to the Calgary Food System are outlined in Appendix A. The City already

⁸ The City of Calgary (2011) Council's Fiscal Plan for Calgary, available at www.calgary.ca

⁹ The City of Calgary (2011) The 2020 Sustainability Direction, available at www.calgary.ca

¹⁰ imagineCALGARY Plan for Long Range Urban Sustainability, 2006, available at www.imaginecalgary.ca

¹¹ People's Food Policy Project (2011) Resetting the Table: A People's Food Policy for Canada, available at www.peoplesfoodpolicy.ca

¹² Available at www.yycfood.com



participates in the food system via a regulatory role, manifested through bylaws such as those relating to water, composting, gardening, animal care and land use and development. In addition, The City has a non-regulatory role over food related activities, for instance through the provision of infrastructure, planning policy, community garden and orchard initiatives, composting programs, eco-footprint and energy actions, education programs and support to food assistance agencies. The City of Calgary's roles in relation to the food system are outlined in Appendix B. Research and engagement demonstrated that there are existing barriers and further opportunities for The City and stakeholders to work together to realize the multiple benefits of a sustainable food system for Calgary. As is the case with many municipalities across North America it was recognized that conducting a food system assessment was an ideal starting point for pursuing this and for achieving principles and establishing priorities related to food.

More specifically, the report identified that a comprehensive baseline and framework were not currently in place to provide direction towards a sustainable food system and to achieve the imagineCALGARY targets. While there are a multitude of stakeholders involved in various aspects of the food system, an assessment would allow all stakeholders to better understand each other's contributions, connections and priorities. The need was identified for a cross-sectional analysis of Calgary's food system, providing comprehensive baseline data to clearly identify the strengths and weaknesses of each component of Calgary's food system. This would enable the creation of a community action plan identifying implementable and locally appropriate recommendations to address Calgary's food system issues.

Municipalities and communities across Canada and the United States have undertaken food system assessments of various scales in recent years, often with a specific focus such as health, environmental impact or poverty. Many of these have been reviewed to assist with the development of the Calgary Food System Assessment and Action Plan to identify common issues, opportunities, potential action items and best practices. Specific details are featured throughout this report and a summary is provided in Appendix C. Generally, each of the assessments reviewed examine the range of community food issues, barriers and existing assets, and provides information to identify the connections and gaps within the food system. The assessments often include a land inventory that identifies sites with potential for urban agriculture/food production combined with an action plan.

Urban Agriculture is generally defined as the raising, growing, processing and distribution of food and non-food products within and around cities. It is important to recognize the value of all products and by-products associated with urban agriculture, not only food but also products like wool, leather, bone and compost, or oils to produce bio-fuels, soaps, etc. This ensures the sustainability of the food system by recognising the value of each product and by-product throughout the food chain. However, for the purposes of food assessments and action plans, these focus on only the food and composting products of the food system.

Key common findings relating to the role of the municipality in these assessments include:

1. Municipalities, citizens and food system stakeholders must all be involved and play a major role in visioning the food system;
2. An overarching food policy is developed that will support and coordinate food system initiatives for implementing the sustainable food system vision;
3. Food assessments are completed to identify problems and weaknesses in the jurisdiction's food system and stakeholders and the municipality agree on a set of actions to overcome these challenges;



4. Many municipal departments will need to participate in the development of the food assessment and actions and there is no one department where responsibility for the food agenda will reside;
5. Municipal bylaws and policies may need to be harmonised to support the policy and implementation of the actions; and
6. A key role for the municipality may be as facilitator, advocate and partner to the many organizations, jurisdictions and initiatives that are already active in changing the food system.

1.3 CALGARY FOOD SYSTEM ASSESSMENT & ACTION PLAN

The Calgary Food System Assessment and Action Plan is a result of the combined efforts of the Calgary Food Committee (CFC) and key stakeholders. The CFC is a multi-sector stakeholder group from across Calgary and the region united to provide information and guidance in completion of this Food System Assessment and Action Plan. Members include City of Calgary staff, regional food producers, local businesses related to food, chefs, educators, industry experts, members of Alberta Agriculture and Rural Development, Alberta Health Services and other key players in the food system. The CFC was supported by Serecon Management Consulting and Altus Group for data collection and analysis in completion of the final plan.

The complexity of food systems has become clear throughout the development of this assessment and associated stakeholder engagement. The range of markets, stakeholders, issues, programs and opportunities is extremely diverse, further complicated by the national and international contexts in which the system operates. This assessment has addressed each element of the food system and how they are integrated and, as such, is limited in the level of detail provided. It provides a foundation of information for the whole Calgary food system, which would be supported by future analysis and further investigation.

The following chapters outline a vision for a sustainable food system for Calgary and the region; the Calgary profile; baseline data, maps, issues, opportunities and practices from other jurisdictions; gap analysis and the resulting community action plan. The assessment is supported by Geographic Information System (GIS) Analysis and mapping of a land inventory identifying City-owned sites with the potential for urban agriculture/food production. The maps associated with each chapter are located at the end of each chapter. Given the breadth of the Calgary food system, the diverse stakeholders, along with resource and data limitations, this assessment is not fully comprehensive but provides a basis for an action plan and ongoing work to move Calgary forwards in its vision for a sustainable food system.



2.0 VISION AND APPROACH

This chapter outlines the vision for a sustainable Calgary food system and the approach taken in completion of the system assessment and action plan.

2.1 VISION

The Vision: to create a sustainable and resilient food system
for the Calgary region

*so that every Calgarian has access to local, healthy and
environmentally friendly food*

A sustainable food system is a collaborative network that integrates several components in order to enhance a community's environmental, economic and social well-being. It is built on principles that further the ecological, social and economic values of a community and region. A sustainable food system is one that¹³:

- Is secure, and therefore reliable and resilient to change (including climate change, rising energy prices, etc)
- Is accessible and affordable to all members of society;
- Is energy efficient;
- Is an economic generator for farmers, whole communities and regions;
- Is healthy and safe;
- Is environmentally beneficial or benign;
- Uses creative water reclamation and conservation strategies for agricultural irrigation;
- Balances food imports with local capacity;
- Adopts regionally-appropriate agricultural practices and crop choices;
- Works towards organic farming;
- Contributes to both community and ecological health;
- Builds soil quality and farmland through the recycling of organic waste;
- Supports multiple forms of urban as well as rural food production;
- Ensures that food processing facilities are available to farmers and processors;
- Is celebrated through community events, markets, restaurants, etc;
- Preserves biodiversity in agro-ecosystems as well as in crop selection;
- Has a strong educational focus to create awareness of food and agricultural issues; and
- Is fairly traded by providing a fair wage to producers and processors locally and abroad.

2.1.1 A Systems Approach

The general components of a sustainable food system are outlined in Figure 2.1.

¹³ based upon Pothukuchi, K. and Jufman, J.L., 1999

FIGURE 2.1: SUSTAINABLE FOOD SYSTEM COMPONENTS

Production: refers to the planting, growing, raising and harvesting of food, including urban and rural agriculture.

Processing: refers to the process of altering raw food stuffs to create a different, more refined product. Examples include preserving, cooking, baking, preparation, meat processing, grain milling and other value-adding operations at a variety of scales. All these changes require the use of energy and natural resources. Reasons for processing include the need to manage harvests, reduce waste, keep food safe and protect public health, improve palatability, feed large urban populations and feed rural and remote communities.

Distribution: refers to the distribution and storage of both raw and processed food and the retailing, wholesaling and purchasing of food products. This takes place from farms to grocery stores, markets and restaurants. Energy and natural resources are used both in the packaging process and in the transport of both the food and the packaging materials to the places where packaging is completed.

Access: refers to the accessibility and affordability of food in addition to the preparation of both raw and processed food products. This takes place from the farm to grocery stores, to farmers markets, to restaurants, to communities and households. People purchase food based on family need, accessibility, food preferences, cultural background, religion, nutrition, values, attitudes and beliefs related to food and food advertising. Food choices are made within certain constraints such as money available to buy food, time available to shop for food, time available to prepare and cook food, skill and confidence in food preparation and cooking, facilities available in the home and access to shops and transport, likes, dislikes, allergies and cultural factors. Choices are also limited by the food supply.

Consumption: refers to the act of consumption and enjoyment of food. This can include food-related events and eating in both the public and private realms. Being able to select, prepare and cook minimally processed food from low in the food chain enables families to enjoy making healthy food choices, achieve good nutritional value for money, increase control over what they eat, understand where food comes from, begin to appreciate the important role of food producers in our society and contribute to protecting the environment. Preparing and sharing food also plays an important role in developing family and community relationships.

Food Waste Recovery: refers to the diversion, management, and utilization of organic waste e.g. as an energy source and fertilizer using recycled nutrients. Recycling and reusing of food matter provides a valuable resource when considering food choices within the framework of the food system.





2.1.2 Principles

The principles of the assessment were based on the imagineCALGARY targets that relate to food. These targets were developed through the engagement of over 18,000 citizens and specialists in 2005 in the creation of Calgary's Long Range Urban Sustainability Plan. These targets illustrate issues Calgarians believe are important to address in achieving a vibrant and sustainable city. However, imagineCALGARY does not contain detailed definitions, baseline or methodology to be able to assess progress towards these targets over time. Through stakeholder input, data collection and analysis, definitions and interpretations of each of these targets were developed and are outlined below:

1 LOCAL

Products made, baked, grown, processed and sold in Alberta are supported, balanced in the context of national and international markets.

Target: By 2036, Calgarians support local food production.

Target: By 2036, the consumption of urban and regionally produced food by Calgarians increases to 30 %

*Source: Alberta Agriculture and Rural Development,
[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/apa2577](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/apa2577)*

Agriculture and Agri-Food Canada¹⁴ distinguishes four ways of defining a 'local' area; geographic distance (calculated in units of distance), temporal distance (calculated in units of time from source to plate), political and administrative boundaries and bio-regions.

Smith & MacKinnon¹⁵ developed the idea of the '100-mile diet'. This concept was used for one Calgary study completed as part of a student employment program in 2009 and explored the ability of current food production within 100 miles of the city centre to meet the nutritional needs of Calgary. Results are outlined to complement the analysis in Chapter 4: Production. However, there are limitations regarding this approach. Primarily, it is harder to address the jurisdictional roles and relationships at the municipal, regional and provincial level and the integration between production, processing and distribution within the provincial framework. Alberta Agriculture and Rural Development (AARD) are developing policy for a robust local food system in Alberta. Although there are additional and specific considerations at the city level, the Calgary food system is ingrained within the provincial legislative context and as such the term '**local**' for this assessment refers to Alberta. The analysis is based around city, regional and provincial boundaries, recognizing national and international markets, climatic conditions and cultural/personal taste amongst other considerations. The intent of 'local' is to consider this principle within the global and national context of food production and imports which represent the majority of the existing food system.

2 ACCESSIBLE

All people, at all times, have physical, social and economic access to sufficient, safe, healthy and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Target: By 2036, Calgary maintains access to reliable and quality food sources.

*Source: Agriculture and Agri-food Canada Canada's action plan for food security (1998),
http://www.agr.gc.ca/index_e.php?s1=misb&s2=fsec-seca&page=action*

¹⁴ Chinnakonda & Telford 2007

¹⁵ Smith & MacKinnon (2007)



The term 'sufficient', relates to the supply of food that meets the demand by Calgarians. 'Safe' food is defined by Alberta Health Services Is food which is free from pathogens that could cause food borne illness. 'Healthy' and 'nutritious' are defined below.

3 SECURE SUPPLY

There is a consistent supply of sufficient, safe, healthy and nutritious food that is not vulnerable to fluctuations such as high fuel prices and natural disasters.

Target: By 2036, the consumption of urban and regionally produced food by Calgarians increases to 30 %

Source: developed through literature review by The Calgary Food Committee

4 ENVIRONMENTALLY SUSTAINABLE

The Calgary food system ensures the protection of air, land and water, critical for achieving healthy ecosystems by minimizing greenhouse gas emissions, potable water use and waste and maximising efficient use of land, air quality, water quality and biodiversity.

Target: By 2036, 100 % of Calgary's food supply derives from sources that practice sustainable food production.

Source: The City of Calgary (2011) The 2020 Sustainability Direction.

5 HEALTHY

Food and beverages listed in *Eating Well with Canada's Food Guide* which emphasizes vegetable, fruits, whole grains, legumes, nuts, seeds, dairy, meats, fish and poultry. These foods are prepared and served in a way that supports national and provincial recommendations for sugar, sodium and fat.

Target: By 2010, 100 % of Calgarians have access to nutritious foods

*Source: Alberta Health Services <http://www.albertahealthservices.ca/Policies/ahs-pol-healthy-eating.pdf>. *Eating Well with Canada's Food Guide* available at: <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/basics-base/index-eng.php>*

6 COMMUNITY DEVELOPMENT

The food system supports community development and action taken locally to create economic opportunities in the community on a sustainable and inclusive basis.

Target: By 2036, sustainable urban food production increases to five %

Source: Momentum: http://www.desnoyers-schuler.com/downloads/Thrive_Brochure_V4.pdf



2.2 METHODOLOGY

2.2.1 Step 1: Environmental Scan

The food assessment was initiated with a broad based environmental scan. This included secondary research, literature review, data collection, stakeholder interviews and workshops in order to provide information on data sources, identify the key issues and opportunities specific to Calgary's context and examine approaches and initiatives from other jurisdictions. This information was then used to categorise stakeholders, characterise Calgary's food system in both quantitative and qualitative terms and then develop a framework to present and prioritize actions for the action plan.

STAKEHOLDERS

The environmental scan highlighted the existence of a diverse range of stakeholder organizations, all of which play important roles in the Calgary food system. Each organization or stakeholder has different priorities and the diversity of these priorities is reflected in the imagineCALGARY targets relating to food. The primary focus of an organization was used as a basis for the following categorisation, which has been refined through stakeholder input:

Market Food Sector

- Refers to the conventional food supply chain through which the majority of food is purchased by consumers, including:
 - the retail food sector
 - the food service sector supplying restaurants and non-public cafeterias

Examples: supermarkets, convenience stores, restaurants

Institutional Food Service Sector (focused on the public sector)

- Provides food service in institutional cafeterias
- In this environment, minimizing costs is likely to be a stronger motivation than consumer choice

Examples: hospital and school cafeterias

Community Food Sector

- Primarily addresses the principles of local, environmentally sustainable and community development, serving a broader population than the charitable food sector
- Provides resources intended to increase the long-term food production and food preparation capacities of participants, by providing opportunities to grow their own food, prepare their own food and support local farmers

Examples: community kitchens, community gardens, farmers' markets, good food boxes

Charitable Food Sector

- Addresses food insecurity by providing short-term remedies for severe food insecurity

Examples: food distribution programs, meal programs, food banks, soup kitchens

Government Sector

- Pertains to all orders of government –federal, provincial and municipal governments and their roles within the food system; primarily legislative, regulatory and advocacy.



Organizations may have more than one focus area and there is overlap between categories. For instance, Calgary's Community Kitchen Program (CKP) works to facilitate initiatives that reduce hunger but also works to enhance the capacity of participants to acquire skills in preparing affordable meals. Therefore, the CKP contributes both to the Community Food Sector and to the Charitable Food Sector. All four sectors have an interest in the six principles and associated imagineCALGARY targets, but their priorities are different. This is presented in Figure 2.2 below.

FIGURE 2.2: STAKEHOLDER PRIORITY DISTRIBUTION

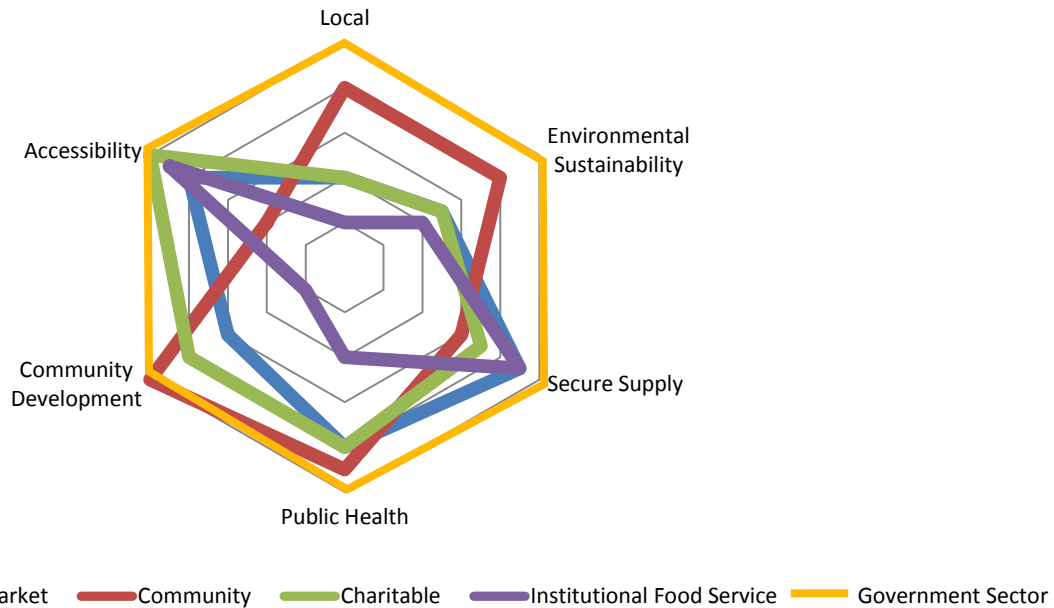


Table 2.1 provides a description of the various stakeholder sub-categories engaged in the Calgary food system. It should be noted that the content of this table is not comprehensive but provides examples of some organizations within the identified sectors.

TABLE 2.1: CALGARY FOOD SYSTEM STAKEHOLDER CATEGORIES

Stakeholder Subcategories	Description
Market Food Sector	
Wholesalers	Warehouse and major distribution point for retail sector e.g. Loblaw/ National Grocers, McDonald’s Consolidated, Federated Co-op, Saskatoon, Associated Grocers
Major Retailers	Large supermarkets and food retailers, e.g. Superstore, Canada Safeway, Calgary Co-op, Wal-Mart, Sobey’s, Costco, IGA, Save On
Food service Distributors	Distribute food primarily to the food service sector (approximately equal volume to the retail sector), e.g. Wallace and Carey, Sysco, Gordon
Major Convenience Stores	Convenience stores (major chains), e.g. 7-Eleven, Mac's, Shell
Institutional Food Service Sector	



Stakeholder Subcategories	Description
Institutional Food Producers	Food gardens and small scale production associated with various institutions and provided on-site or roof-top e.g. school gardening programs, hospitals, universities, municipality/provincial buildings, prisons, restaurants/hotels
Institutional Food Service Distributors	Suppliers to institutional food service providers e.g. hospitals, schools, institutional cafeterias
Community Food Sector	
Households and Citizens	Home food production; inside, frontyard, backyard, rooftop, balcony, or vertical gardening
Community Gardens	Pieces of land used by community groups and institutions to produce food and flowers for the personal use of garden members
Small-scale commercial & semi-commercial and large scale agro-enterprises	Land used for the raising, growing, processing and distribution of food within city boundaries such as small scale commercial & semi commercial (e.g. spin farming) and large scale agro-enterprises
Farmers' Markets (Provincially Approved or Public)	Enable local producers to connect directly with consumers, increase markets for healthy and locally grown foods
Community Kitchens/Collective kitchens / Group Cooking Programs	Shared costs by buying in bulk, groups meet to plan and cook meals, usually once or twice a month. Food subsidies or donated food is sometimes available
Community-Supported /Shared Agriculture Operations (CSA's)	Clients buy subscriptions annually before planting and become virtual partners. They receive a set share of harvest on a weekly basis directly from farmers
Food Co-Operatives/Buying Clubs/Urban Delivery/Food Boxes	Link consumers and producers, produce is sometimes delivered to a neighbourhood depot where participants can pick it up, having paid for it before hand
Centralized Purchasing and Warehousing	Bulk food buying and distribution; food distribution to agencies and community groups servicing vulnerable populations
Food Advocacy Organizations	Groups advocating for various aspects of a sustainable food system
Charitable Food Sector	
Food Banks	Food distribution centres, food broker for charitable groups ¹⁶
Meal Programs	Free and low-cost meals, community/agency based and school based
Shelters with Meals	Provide shelter and meals for the homeless
Food Recovery Programs	Food donations from suppliers, farmers' markets, etc are distributed
"Social Enterprise/Social Economy"	More strategic approaches interlinking with the market economy; specific initiatives engage the hungry (and their advocates) to address specific needs
Government Sector – see Section 1.2 and Appendix C	

¹⁶ Multiple agencies partner with the Calgary Food Bank and the sharing of food across Calgary



2.2.2 Step 2: Quantitative Assessment of Food System

A quantitative analysis for Calgary's food system was completed in order to develop a baseline for each goal and food target. This analysis was completed within limitations associated with data availability, time and resource. The approach is outlined below and the results are contained within Chapter 10; Results and Gap Analysis:

PRINCIPLES: LOCAL, SECURE & COMMUNITY DEVELOPMENT

The first part of the analysis assessed the availability of local food relative to total food available including exports and imports. This addressed how much local food is *currently* being consumed within Calgary as a % of total food consumed and then how much of this local food *could* be consumed based upon % of total food consumed in the future.

The second part of the analysis assessed the potential for food production within Calgary city limits, in terms of the area and quality of land available and suitable for food production in a land inventory.

The third part of the analysis involved estimating the food supply gap i.e. the gap between the local food production capability and total food consumption needs. A future food supply gap was also estimated, using projected demand for food by the year 2020.

PRINCIPLES: ENVIRONMENTALLY SUSTAINABLE

This analysis reviewed the amount of organic production. Organic production is one indicator of many that contributes to environmentally sustainable agriculture. It also provided qualitative review in each element of previous quantitative research associated with the ecological footprint of the food system.

PRINCIPLES: ACCESSIBLE & HEALTHY

This analysis assessed food security in terms of issues encountered by Calgarians in the process of gaining access to food, including the location of food retail outlets, health status and poverty. Using GIS analysis to establish geospatial relationships between food outlets and specific vulnerable populations, this part of the analysis looked for gaps between the amount of food nominally available in the city of Calgary and the actual access to food.

2.2.3 Step 3: Results, Gap Analysis & Action Plan

The environmental scan and quantitative assessment of the food system provided the basis for a gap analysis to identify actions needed to support a sustainable food system. This also identified where information and data was missing that would be needed to measure progress towards the imagineCALGARY targets and principles moving forward.

A framework was developed with key stakeholder input in order to evaluate and prioritize potential actions in terms of the principles they are intended to help achieve. This framework highlights the value of actions in delivering against multiple principles, how the principles are integrated and the ability to leverage resources from various stakeholders through collaboration. The framework is outlined in Figure 2.3.



FIGURE 2.3: ACTION PLAN FRAMEWORK

		Action	Lead	Stakeholders	Alignment to Principles ¹⁷					
					L	A	SS	ES	H	CD
Potential Area for Intervention	Regulation, Legislation & Advocacy									
	Planning & Land use									
	Transportation									
	Environment									
	Economic Development									
	Community Programs									
	Education Programs									
	Governance									

Several underlying principles apply to all actions that might be considered within the framework. These represent minimum requirements that must be addressed:

- Food Safety – all actions ensure food safety; food which is free from pathogens that could cause food borne illness,¹⁸
- Synergies – the action item is in alignment with existing programs and involves collaboration across groups; and
- Financial viability – each action has the ability to secure funding and be financially sustainable.

¹⁷ L= Local, A = Accessible, SS = Secure Supply, ES = Environmentally Sustainable, H = Healthy, CD = Community Development

¹⁸ Alberta Health Services



3.0 CALGARY FOOD SYSTEM PROFILE

This chapter provides an overview of the Calgary food system profile related to its history, demographics, environment, economy, vulnerable populations, growth and demand for food.

3.1 HISTORY

Calgary is located in a transition zone between the Canadian prairies and the Rocky Mountains and has a rich and varied agricultural history. Its importance as an agricultural centre was established in 1883 when the Canadian Pacific Railway transformed the community into a grain and livestock transportation hub. Around this time the government started leasing grazing land for minimal cost through the Dominion Lands Act (1872) resulting in large ranching operations around the city which in turn supported the development of a strong meat packing industry. Ranching emerged as a major industry in south western Alberta and beef became an important export item.

Settlers continued to move to Calgary and the surrounding region over the next 30 years in order to access free homestead land, establishing agriculture as the key economic driver of the local community. As the agricultural frontier developed, transportation lines intended to carry local grain to markets from Calgary grew and the city became the region's agricultural headquarters. The world famous Calgary Stampede was started in 1912 as a small agricultural show and has since grown into a major annual world agricultural showcase.

The completion of the Canadian Pacific Railway in 1883 also boosted the emerging coal industry. This along with the discovery of oil, which coincided with an agricultural recession, eventually attracted labourers and farmers away from agriculture and permanently shifted the economic structure of the province. Following World War II, increased labour shortage and cheaper farm machinery drove larger more intensive farming practices. The expanded food distribution network meant Alberta's cities did not need to rely on local food sources and agricultural production in Alberta became largely export-oriented. The economic decline in the mid 1980's, low agricultural prices due to world grain surpluses and increasing drought further impacted the agricultural economy.

Calgary's agricultural heritage has been a key driver to the success of the city and Alberta still has one of the world's most productive agricultural economies. However, energy has become the main driver of the current economy. Despite this, agriculture remains a strong influence on the city, not only as a renewable sector of the economy but also as part of Calgary's world renowned heritage and identity.

3.2 DEMOGRAPHICS

Calgary is the third largest city in Canada, located within the province of Alberta, covering a total of 825.29 km² and sitting at over 1,000 metres above sea level. It is home to two major river systems; the Bow and the Elbow. The city is surrounded by two rural municipal districts with Rocky View County to the northwest and east, and the MD of Foothills to the south, and is a member of the Calgary Regional Partnership (CRP) (Map 3.1).

Calgary has a population of 1,096,000 people and has a population density of 1,329/km². The greater metropolitan area is the fifth largest in Canada with an area of 5,107 km² and over 1,214,839 people. The city continues to grow quickly with an estimated increase of 1.8% since 2010. Calgary is a very



young city with an average age of 35.7 years (approximately four years younger than the average Canadian)¹⁹.

There is a high level of cultural diversity within the city. English (26.22%), Scottish (19.72%), German (16.11%) and Irish (16.03%) represent the largest non-visible minority groups and Chinese (6.7%), South Asian (5.7%), Filipino (2.5%), Aboriginal (2.5%) and African Canadians (2.1%) represent the largest visible minority groups²⁰.

FUTURE PROJECTIONS

Calgary's population is expected to continue to grow at a moderate pace, increasing by 5.7 % to 1,174,065 by 2016. In the longer term, Alberta's population is expected to reach 6.0 million people in 2050 with Calgary and the surrounding area²¹ accounting for approximately 40% of this population²². The majority of this increase is expected to come from immigration. Calgary's demographics are shifting and the population is ageing. The number of seniors (age 65+) is projected to increase by 25% over the next five years, accounting for 11% of the population²³.

Population increases will influence the demand for food. The changing demographics may also influence the type of food demanded and the methods of distribution and supply. For instance, a more senior population may have difficulty with accessibility and affordability and additional immigration may impact food types based upon cultural choices or increase the need for education regarding 'western diets' and understanding of the influence of media.

3.3 GROWTH MANAGEMENT

Alberta has transitioned from a largely rural to an urban population with 82% of Albertans now living in an urban setting and 65% within the Metropolitan areas of Calgary and Edmonton alone²⁴. There are three areas of concern regarding land use and farmland protection: conversion of farmland to other uses, fragmentation of the farmland base and the right to farm.

Between the mid 1970's to the early 2000's Alberta lost a very small percentage of farmland on a net basis due to land brought into production. However, much of the agricultural land converted to other uses was of high capability for annual cropping and horticulture, whereas most of the land that came into production was of lower quality, better suited to forage and pasture production²⁵. Between 1996 and 2009, 222,900 hectares of farmland were converted or fragmented in Alberta representing a loss of 39,336 acres or 15,922 hectares annually.

Residential and commercial development surrounding urban centers has fragmented the farmland base and resulted in high speculative land values beyond agricultural productivity values, particularly within the corridors between Edmonton to Calgary and Calgary to Canmore. Country residential development in these areas leads to fragmentation of land, an increase in traffic volume and speed, nuisance

¹⁹ Population and dwelling counts for census metropolitan areas, 2011 census" Statistics Canada. 2012-02-08.

<http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/pl/Table-Tableau.cfm?Lang=Eng&T=205&S=3&RPP=50>.

²⁰ Population and dwelling counts for census metropolitan areas, 2011 census" Statistics Canada. 2012-02-08.

<http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/hlt-fst/pl/Table-Tableau.cfm?Lang=Eng&T=205&S=3&RPP=50>.

²¹ Census Division Number 6 (CD6), which includes Calgary and surrounding cities, towns, villages, municipal districts and Indian reserves, available from Statistics Canada www.statcan.gc.ca

²² Government of Alberta – Finance and Enterprise (2010) Alberta Population Projections 2011-2050 by Census Division.

²³ City of Calgary (2011) Calgary & Region Volume 3: Social Outlook 2011-2016

²⁴ Statistics Canada

²⁵ Alberta Agriculture, Food & Rural Development (2002) Loss and Fragmentation of Farmland



complaints from neighbours who object to smells, noise etc and make it difficult to perform some farming operations such as moving farm equipment or cattle along local roads. The option to subdivide or sell a portion of their land is considered a right that many in the farm community would oppose if the option were removed²⁶. However, this country residential development and urban sprawl impact agricultural production and there is a concern that acreage owners, without a farming background or understanding of farming practices are influencing policy and decision making within municipalities.²⁷

Urban growth, associated annexation and suburban development have not only resulted in permanent loss of farmland and associated impact to the local agricultural economy but have also challenged cities' abilities to address community needs. This has been an important motivator to develop sound land-use strategies and policies at the provincial, regional and municipal levels.

Alberta's current Land-Use Framework (LUF)²⁸ guides future land-use decision making and includes strategies related to the development of initiatives that will reduce the fragmentation and conversion of agricultural land. The land-use framework defines conservation as "the responsible preservation, management and care of our land and of our natural and cultural resources." The related concept of stewardship is defined as "an ethic whereby citizens, industry, communities and governments work together to responsibly care for and manage Alberta's natural resources and environment."

As directed through the LUF, the CRP developed the Calgary Metropolitan Plan²⁹ to present a shared vision for the future supporting the desired outcomes of the region and province and including suitable strategies on common interests. This is planning without boundaries for an additional 1.7 million people and 800,000 jobs over the long term (2076). The plan identifies five key natural systems and a growth framework which aims to reduce the impact on these systems compared with previous development standards so that our natural areas and agricultural lands are protected by an approach of development intensification.

The Calgary Municipal Development Plan (MDP) and Calgary Transportation Plan (CTP) came into effect in 2010 and 2009 respectively. They provide a 60-year integrated development and transportation plan setting out the direction for sustainable growth to accommodate the 1.3 million additional people expected in the next 60 years. Driven by the 11 Sustainability Principles for Land Use & Mobility adopted by council, the MDP acts as the filter for all regional and local policy plans within The City of Calgary. Despite these principles focusing on the delivery of strategic intensification and complete communities, Calgary's population growth continues to be accommodated in new suburbs, with 92% of the city's growth in 2011 in new greenfield communities³⁰.

The MDP calls for a new approach to growth management and a Corporate Framework for Growth and Change is currently in development to assist with the delivery of these principles. This will include a system of prioritization, which allows The City to establish the sequence of City investments necessary to facilitate development and redevelopment, and accommodate growth within The City's funding constraints. Although the preservation of agricultural lands is not explicitly addressed at this stage, it is indirectly recognized through the inclusion of environmental preservation criteria associated with the framework. In itself, the implementation of a growth management framework that achieves strategic intensification should reduce the need to annex lands and fragment/develop agricultural land

²⁶ Ibid

²⁷ Ibid

²⁸ Government of Alberta (2008) *Land Use Framework*, available at: https://www.landuse.alberta.ca/Documents/LUF_Land-use_Framework_Report-2008-12.pdf

²⁹ Calgary Regional Partnership (2009) *Calgary Metropolitan Plan*, available at <http://www.calgaryregion.ca/crp/>

³⁰ City of Calgary (2011) *Calgary & Region Volume 3: Social Outlook 2011-2016*



surrounding the city in the future. However, collaboration with our neighbouring Municipal Districts, towns and municipalities will be critical for this to be done in a manner that is supportive to agriculture and food production in the future.

There are a broad number of planning and land use tools and practices that can be used for the conservation and stewardship of agricultural land, some of which are also outlined in the local frameworks. These include, but are not limited to, identification of priority growth areas, funding prioritisation, the use of greenbelts and agricultural preserves, minimum density standards, land budgeting, urban growth boundaries and urban service areas, conservation easements, conservation offsets, conservation directives, transfer of development credits, changes to the eco-gifts tax credit, tradable disturbance permits and tenure incentives. It is important that all of these options be considered by the appropriate bodies, orders of government or through collaboration in order to achieve a sustainable food system.

3.4 ENVIRONMENT

Calgary's climate is dry, similar to other parts of the Great Plains, with relative humidity averaging 55% in winter and 45% in summer. Calgary receives 413mm of precipitation annually, with most occurring between May and August. Calgary averages more than 22 days per year with thunderstorms and lies on the edge of Alberta's hailstorm alley, experiencing damaging hailstorms almost every year. Winters are long, cold and dry, but highly variable and temperatures fall below -30°C (degrees Celsius) on approximately five days annually. Summers are short and moderately warm with cool nights, owing to Calgary's high elevation and dryness.

The local climate varies across Calgary with the northwest tending to be cooler than the southeast, and likely more prone to damaging hail. As with other cities, temperatures are higher near the city centre and wind speeds are influenced by the presence of tall buildings. Chinooks, warm dry winds, are common and present rapid weather changes caused by the juxtaposition of Arctic and southern American air masses or moist Pacific systems where temperatures can range significantly within a very short period of time. Only one month (January 1950) has failed to witness a thaw in the past 100 years.

Foothills Fescue is the primary Natural Sub-Region within Calgary, together with Foothills Parkland and Central Parkland within the northwestern parts of the city³¹ (Figure 3.1). Orthic Black Chernozems are the dominant soils of this sub-region and Dark Brown Chernozems occur on exposed southern slopes and in the wind-eroded farmlands of the Pincher Creek area. There are some saline soils on the irrigated plains and Humic Gleysols are associated with wetlands. Approximately 50% of the Foothills Fescue Natural Subregion is cultivated.

The actual productivity of the region reflects a range of growing conditions (soils and local climates) conducive to specific crops and is also due to the widespread use of advanced irrigation technologies. Primary crops are grains and oilseeds including canola, wheat and feed barley. There is also a significant amount of forage crops including native and tame pasture. Further information relating to the productive capacity within Calgary, the region and the province is contained within Chapter 4.

³¹ Natural Regions Committee (2006) *Natural Regions and Subregions of Alberta*. Compiled by D.J. Downing and W.W. Pettapiece. Government of Alberta. Pub. No. T/852.



FUTURE PROJECTIONS

Calgary is expected to experience an annual temperature increase between 1.3 and 2.8°C by the year 2050, depending on the climate change scenario selected³². These temperature increases have implications for the expected number of hot days each year (those days where the temperature exceeds 30°C). Between 1971 and 2000, Calgary experienced 5.4 hot days annually and this is anticipated to increase to 12 hot days annually between 2021 and 2040, 19 hot days annually between 2041 and 2060, and 28 hot days between 2081 and 2100³³.

Calgary's annual precipitation from 1971 to 2000 was 411.9 mm. Although this is also expected to increase by between 4.5-6.4% by 2080 depending on the climate change scenario selected, this will likely take the form of increased flooding in winter months and drought in summer months. From 1967 to 1996, annual river flows decreased throughout most of Alberta, and mean annual discharges are expected to continue to decrease in Southern and Central Alberta. Most scenarios indicate higher flows in winter and spring, based on projected precipitation increases during these seasons. However, flows are predicted to fall during the summer season, when demands on surface water are highest³⁴.

Canada has experienced an increase in frequency and intensity of extreme events over the last 50-60 years. These include extreme heat days, extreme precipitation, flooding, wind, hail and ice storms. As outlined above, the frequency of these extreme events is projected to increase in Canada in the future. All of these extreme events impact Calgary's food system for instance through damaged crops, reduced or increased productivity of certain food types, increased demand for irrigation, delayed distribution to market and resulting loss of revenues. This will have implications for the resiliency of the food system and the associated infrastructure and strategies required to address climate change impacts in future years.

In summary, although Calgary and the region benefit from high sunlight levels and areas of nutrient rich soils, the topography and hydrology create difficult growing conditions with a relatively short growing season. This means that the city is dependent on imported fresh produce for many months of the year.

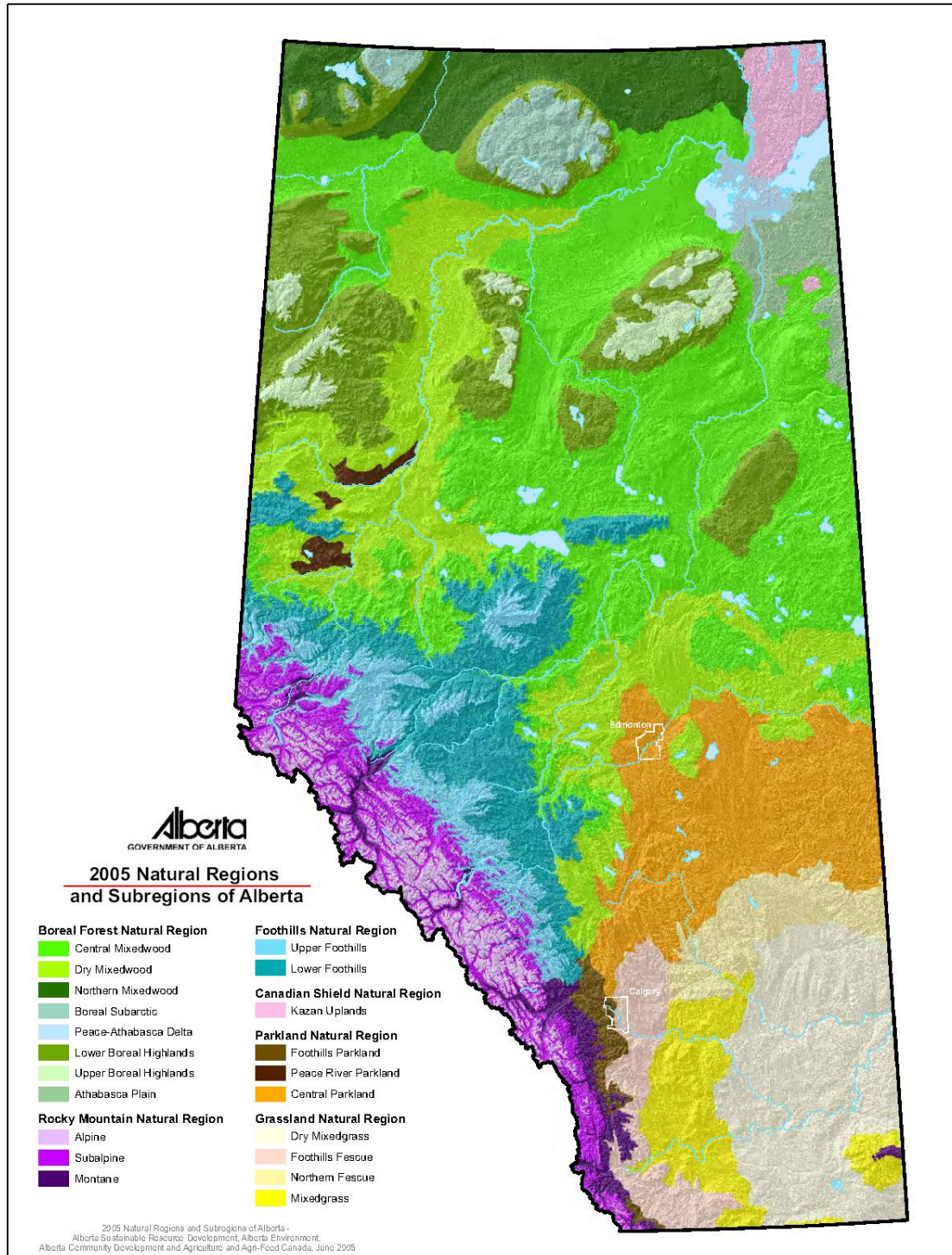
Producers at all scales must deal with some droughts and mounting water stress and extreme weather conditions. However, the variation in climatic conditions and agronomic limitations is not unique to Calgary. Every environment has native species of plants that flourish in the given geography and cities and regions within similar climates employ strategies to address these conditions. The food assessment and associated actions reflect this reality and set expectations appropriately.

³² Milestone Two and the Science of Climate Change: Climate Data for Calgary, Alberta, Report generated by ICLEI Canada, April 27, 2011

³³ Ibid

³⁴ Ibid

FIGURE 3.1: 2005 NATURAL REGIONS AND SUBREGIONS OF ALBERTA³⁵



³⁵ 2005 Natural Regions and Subregions of Alberta - Alberta Sustainable Resource Development, Alberta Environment, Alberta Community Development and Agriculture and Agri-Food Canada, June 2005



3.5 ECONOMY

Relative to the rest of Canada, Calgary has high average personal income, low unemployment and a high Gross Domestic Product (GDP) per capita. Its role in the energy industry and its location in the Calgary-Edmonton corridor make it one of the fastest growing areas in the country. In 2010, there was a labour force of over 618,000 people (74.6% participation rate) and a 6.8% unemployment rate. Although this unemployment rate has increased by 3.2% from 2006 it remains one of the lowest in the Country.

Average annual earnings for individuals over 15 years of age was significantly higher than other Canadian cities at \$48,878 in comparison to \$39,901 for Edmonton, \$40,704 for Toronto and \$36,123 for Vancouver³⁶. A high average income impacts food demand since the percentage of food expenditure declines as a percentage of income, making the demand for food less elastic i.e. not as responsive to price.

Three sectors; construction, retail trade, and other services accounted for over 61% of the total increase in employment in the Calgary Region between 2003 and 2008. This has corresponded with a decline in the number of people who are employed in traditional industries such as agriculture, forestry, fishing and hunting, arts, entertainment and recreation, and manufacturing. Total employment in Agriculture, Forestry, Fishing and Hunting Industries has declined by 14% between 2004 and 2011 while employment in 'All Industries' has increased by almost 20%. However, food manufacturing in Calgary and surrounding area³⁷ accounted for 730 (20%) establishments, employed almost 14,000 (31%) people and generated over \$7 billion (55%) in sales.

Calgary has a significant number of national and international chains and franchises. However, there are an increasing number of organizations and programs dedicated to the support of local, community economic development (ced) e.g. Calgary Economic Development, REAP (Respect for All Earth and All People), Momentum, Business Revitalization Zones, our Chamber of Commerce and a variety of social enterprises and businesses employing ced principles e.g. EthniCity, Mountain Equipment Coop, Community Natural Foods etc. This trend is based upon a growing body of research that confirms the value to communities of their locally owned businesses.

For example, in a study conducted by the Maine Centre for Economic Policy, on a dollar-for-dollar basis, the local economic impact of independently owned businesses in Portland is significantly greater than that of national chains. Every \$100 spent at locally owned businesses contributes an additional \$58 to the local economy. By comparison, \$100 spent at a representative national chain store in Portland yields just \$33 in local economic impact³⁸. Fleming and Goetz present one of the first nationwide studies showing that local ownership truly matters. This peer-reviewed statistical analysis shows a positive correlation between locally owned small to medium-sized businesses and increasing community wealth, as measured by per capita income growth. In comparison, larger firms, especially when they are not locally owned have a negative link to local community wealth³⁹. A study in Midcoast Maine found that locally owned businesses spent 44.6% of their revenue within the surrounding two counties, and another 8.7% elsewhere in Maine, largely on wages and benefits paid to local employees, goods and services purchased from other local businesses, profits that accrued to local owners, and taxes paid to local and state government. Big-box retailers return an estimated 14.1% of their revenue to the local

³⁶ Source: Statistics Canada, Census of Population: last modified: 2009-10-15.

³⁷ Census Division Number 6 - Calgary, Foothills M.D. 31, Mountain View County 17, and Rocky View M.D. 44

³⁸ Going Local: Quantifying the Economic Impacts of Buying from Locally Owned Businesses in Portland, Maine, December 2011, by the Maine Center for Economic Policy

³⁹ Does Local Ownership Matter?, April 2011, by David A. Fleming and Stephan J. Goetz, *Economic Development Quarterly*



economy, mostly as payroll. The rest left the state, flowing to out-of-state suppliers and back to corporate headquarters⁴⁰. For every \$100 in consumer spending at a national chain bookstore in Austin, Texas, the local economic impact was \$13. The same amount spent at locally based bookstores yielded \$45, or more than three times the local economic impact⁴¹. A study in Barnstable, Massachusetts, compared the tax revenue generated by different kinds of residential and commercial development with the actual cost of providing public services for each land use. Big-box retail generates a net annual deficit of \$468 per 1,000 square feet, shopping centers a deficit of \$314, and fast-food restaurants a deficit of \$5,168 per 1,000 square feet. In contrast, the study found that specialty retail, which includes small-scale businesses, has a positive impact on public revenue (i.e., it generates more tax revenue than it costs to service). Specialty retail produces a net annual return of \$326 per 1,000 square feet⁴².

The Business Alliance for Local Living Economies (BALLE) is a North American network of socially responsible businesses, comprised of over 80 community networks in 30 U.S. states and Canadian provinces representing approximately 22,000 independent business members across the U.S. and Canada. BALLE networks connect the dots between the building blocks of a local living economy including sustainable local food systems, green building, energy efficiency and renewable energy, local zero waste manufacturing, community capital, within the context of their local economies. Sustainable local communities and economies are based on the systemic relationship between these building blocks. Many BALLE networks begin by building deep programs in one or more building blocks. REAP Business Association is the coordinator of Calgary's BALLE network in collaboration with many social finance and business organizations; hosting events and sponsoring programs that support the local economic development aspect of Calgary's local food system. They have highlighted the value of several tools e.g. the New Economics Foundation (NEF) Community Tools for Measuring the Local Multiplier⁴³ for Calgary. Plugging the Leaks is a community-led economic development strategy tool that enables a community to identify the economic resources in their local economy and determine ways to use them more effectively. Local Multiplier 3 is an impact measurement tool that measures how income is spent and re-spent in the local economy. The purpose of tracking and measuring this spending is to identify opportunities to strengthen linkages in the local economy so that efforts can be made to keep money circulating locally.

ECONOMIC VULNERABILITY

While there is a significant amount of wealth in Calgary, there is also significant variation in its distribution. Neighbourhood inequality has increased since 1980 throughout Canada but has been most significant in Calgary⁴⁴. The richest 5% of neighbourhoods in Calgary have an average after tax income that is 2.9 times higher than those neighbourhoods in the bottom 5%. This measure of inequality has risen by 81% between 1980 and 2005, 32% higher than any other city in the study.

This economic segregation has a significant impact on both the perceived need for and the design and delivery of social programs. The reality is that although the average Calgarian has access to a reliable food supply there are a number of vulnerable communities, families or individuals in Calgary

⁴⁰ The Economic Impact of Locally Owned Businesses vs. Chains: A Case Study in Mid-Coast Maine - September 2003, by Institute for Local Self-Reliance.

⁴¹ Economic Impact Analysis: Local Merchants vs. Chain Retailers, December 2002, by Civic Economics, Austin IBA

⁴² Fiscal Impact Analysis of Residential and Non residential Land Use Prototypes, July 2002, by Tischler Bise

⁴³ Local Multiplier Effect refers to the greater local economic return generated by money spent at locally-owned independent businesses compared to corporate chains or other absentee-owned businesses

⁴⁴ Chen, W., Myles, J., and Picot, G. (2011) Why Have Poorer Neighborhoods Stagnated Economically while the Richer Have Flourished?: Neighborhood Income Inequality in Canadian Cities. *Urban Studies* 1-32.



experiencing food insecurity. *Income-related household food insecurity* is the term used to describe a household's financial ability to access adequate food. The prevalence of household food insecurity in Canada is measured in population surveys using a tool called the Household Food Security Survey Module. This survey tool measures household food insecurity on a continuum from 1) feeling anxious about lack of food; 2) compromising on the quality of the foods by choosing less expensive options; 3) insufficient amounts of food and 4) not eating at all. All survey questions are clarified with the reason for uncertain, insufficient or inadequate food access, availability and utilization being due to limited financial resources⁴⁵.

Data on the extent of poverty in Calgary clearly outlines a number of specific areas where the average household income is at or below the poverty line (communities where more than 30% of the income is spent on rent or communities where average family income is within 105% of the poverty line) Map 3.1 shows low-income households by neighbourhood of Calgary and provides an overview of the variation of wealth across the city. In 2009, 21% of Calgarians reported that they were concerned about not having enough money for food, with 9% reporting that they were "very concerned". At the same time, more than 35% were concerned about not eating healthy food⁴⁶.

In summary, employment data and information on average earnings can be misleading; it does not necessarily mean every Calgarian has access to food. Albeit Calgary has low unemployment and a high Gross Domestic Product (GDP) per capita and the *average* Calgarian has a high personal income, the extensive income inequality means food insecurity exists in Calgary.

3.6 FOOD SAFETY

Food Safety is extremely important to Canadians to prevent food borne illness and ensure public health. There are two levels of government that regulate food safety; provincial and federal.

At a provincial level, Alberta Agriculture and Rural Development (AARD) is responsible for products including meat and dairy; from on farm sales through to manufacturing processors. Alberta Health Services (AHS) provides the inspection services to all other facilities that are not covered by AARD and the Canadian Food Inspection Agency (CFIA). This includes restaurants, food stores and manufacturing facilities. Public Health Inspectors operate under the Alberta Public Health Act to ensure compliance with the province's Food Regulation. AHS also investigates all food borne illness cases and outbreaks.

At a federal level, Health Canada sets policies, administers the Food and Drug Act and promotes safe food handling. CFIA provides all federal inspection services related to food and enforces the food safety and nutritional quality standards established by Health Canada. The CFIA is responsible for the delivery of all federally mandated programs for food inspection, plant and animal health products and production systems, and consumer protection as it relates to food.

Often overlooked as a food safety issue is ingredient labelling. For instance, people with food allergies have their health compromised when food handlers cross-contaminate otherwise safe food, when food servers incorrectly identify an item as safe when it isn't, and if ingredients are missing or misidentified on labels or menus. Specific community organizations, charities and non-profits are active in raising awareness about such food safety issues e.g. The Celiac Society.

⁴⁵ Canadian Community Health Survey, Cycle 2.2 Nutrition (2004); Income-related Household Food Insecurity in Canada http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/income_food_sec-sec_alim-eng.php

⁴⁶ City of Calgary (2011) Calgary & Region Volume 3: Social Outlook 2011-2016



Oversight of food production and distribution also extends into the private sector through the implementation of a significant number of private standards. These programs range from the primary production sectors (On-Farm Food Safety Systems) through the processing and distribution networks to retailers. Given the retail sector is very concentrated (the top five retailers encompass more than 80% of the market)⁴⁷, consumers are now heavily invested in private standards as part of their food safety system. Over 65% of all members of the food supply chain have at least one third-party program⁴⁸.

While food system regulation is complex, the basic activities can be grouped into four main categories⁴⁹:

1. Limit the amount of harmful inputs and/or ingredients that are allowed as part of the food system;
2. Ensure that food production systems are safe;
3. Set standards for grading, composition, and packaging;
4. Define what companies can claim to consumers

These regulatory structures are designed for the benefit of public health. However, stakeholder engagement indicated that they can create a high level of confusion and frustration and are perceived to impact the financial viability of some agricultural or community based food businesses.

3.7 FOOD EDUCATION & AWARENESS

An increasing number of Calgarians are thinking about all aspects of food. This curiosity includes an increased desire in meeting our farmers, learning how to grow our own food, finding out how our food is processed, taking an interest in our chefs and their menu choices, understanding what ingredients are in our food, knowing the farming methods used to produce our food and taking lessons in food preparation. A number of niche markets in the food business have developed to satisfy this interest: organic, fair trade, local, environmentally conscious etc. This has also led to an increase in the number of food education and awareness programs and organizations.

Education and awareness take many forms and use many strategies. The objectives will also vary depending upon the audience and provider, ranging from brochures and websites linking citizens to farmers to chef presentations to school children; from hands on growing and cooking experience in gardens and kitchens to university and college certificates with a culinary and food focus. One example is Olds College, Alberta's comprehensive applied agricultural, horticultural, land and environmental learning organization founded in 1913. Embedding sustainability principles, Olds College offers short and online courses, distance learning and evening classes in addition to their core programs focusing on agriculture, animal sciences, business, horticulture, land & environment and trade and technology.

Education about food and cooking is a huge part of building a local food system. As communities strive to be more sustainable there is a need to train people of all generations on basic food knowledge, preparation and also growing. Learning to cook is a life skill that generally has been lost over the last several decades. There is a shifting paradigm for food education within our city and our education system e.g. at the University of Calgary and SAIT. Within only the past five years teaching has shifted from purely focusing on fundamental skills and techniques of the trade to include sustainability issues that face the food industry. As students learn about "food", not just cooking, and all its social, economic

⁴⁷ Roukhkian and Bardouniotis (2011), *The Canadian Food Retail Sector*. Toronto: Swiss Business Hub.

⁴⁸ Conference Board of Canada (Feb 2012) *All Together Now: Regulation and Food Industry Performance*.

⁴⁹ Conference Board of Canada (May 2010) *Valuing Food: The Economic Contribution of Canada's Food Sector*.



and environmental contexts we are creating new leaders who will make a positive, sustainable change to the industry.

The Alberta Rural Development Network (ARDN) is a not-for-profit partnership of Alberta's 21 public colleges, universities, and technical institutes. ARDN members work together to support and enhance the well-being of individuals and the vibrancy of communities. It draws on the strengths of rural communities, post-secondary institutions, and community based organizations to assist in the development of rural Alberta through education, research, collaboration and networking. ARDN is currently managing approximately 80 projects finishing off their 4th year of funding from the Rural Alberta Development Fund this year. Eco-Tone is one project which brings ranchers and artists together to communicate their sustainable agriculture story⁵⁰.

In addition to educational institutions, many community organizations, non-profit groups and passionate individuals are raising awareness about food from holistic discussions regarding food policy for the whole food system and the fundamental right to food held by the Calgary Food Policy Council, to specific aspects such as square foot gardening courses held by the Calgary Horticultural Society. Many organizations and programs raising awareness and providing educational opportunities specific to different elements of the food system are discussed in more detail throughout this assessment. Part of any food action plan is the ability to educate stakeholders about the system in which they operate and the options that are available to them. The existing programs, groups and initiatives both within Calgary and other cities should highlight areas for further support or additional work.

SAVVY STUDENTS WITH A HUNGER FOR KNOWLEDGE

Photo & Story Courtesy of Dawn Johnston, PhD

As a faculty member at the University of Calgary teaching several senior-level courses on Food Culture and Food Politics, I have seen an incredible shift in the knowledge base and interest of my students in the last few years. Students are savvy about food now; they know that conventional food production is problematic. They are interested in questions of organic, local, and ethically produced food. More than anything else, they want to know where their food comes from. The increasing attention to the culture and politics of food in media and popular culture is creating a generation of eaters who want to be knowledgeable, responsible consumers. It is crucial that our education system, from primary all the way through to post-secondary, cultivates and supports this interest.



3.8 DEMAND FOR FOOD

An understanding of the demand for food is valuable to analyse what can be sourced and produced locally to supply this demand. However, there is a clear lack of information that is geographically specific and consistent over time for determining demand for food in Calgary. This issue extends to the consideration of demand by cultural background and specific market category. The concentration of retail vendors has significantly reduced the value of traditional sources of information (e.g. ACNielsen's 2005 Annual Canada Consumer Expenditure Study) in determining demand since many of the major

⁵⁰ More information available at www.ardn.ca



retail vendors do not report this information. There is also limited information on sales by category through the non-traditional, more community orientated outlets (e.g. farmers' markets).

However, it is possible to obtain estimates of total food sales from retail outlets for Alberta. This information is provided in significant detail with over 400 item classes which can be grouped into 25 main categories. When this information is broken down on a per capita basis, it can then be aggregated to estimate the food demand from Calgarians.

Using this approach, it is estimated that the residents of Calgary consumed over \$1.94 billion in retail food sales in 2010⁵¹. Total perishables accounted for approximately 65% and dry grocery items accounted for the remaining 35%. The perishables category includes baked goods (7%), dairy/refrigerated (19%), frozen foods (9%), fresh produce (14%) and fresh and cured meat and poultry (15%). The largest categories in the dry goods area include snacks (5%), condiments (4%) and candy/chewing gum (4%). Given limited data available for the quantity of food demand, Canada's Food Guide was used to estimate demand in tonnes for different food types as outlined in Table 3.1.

TABLE 3.1: ESTIMATED FOOD DEMAND FOR CALGARY

Units	Estimated Demand for Men (19-50)	Estimated Demand for Women (19-50)	Total Demand (Tonnes)
Protein	11,242 tonnes	9,235 tonnes	20,477 tonnes
Fat	3,130 tonnes	2,430 tonnes	5,560 tonnes
Carbohydrate	26,100 tonnes	26,100 tonnes	52,200 tonnes
Dietary Fibre	6,022 tonnes	4216 tonnes	10,238 tonnes
Vitamin C	18 tonnes	15 tonnes	33 tonnes

Assumptions:

Calgary Population of 1,100,000, 50% male, 50% female, all aged 19-50

Analysis based upon Recommended Dietary Allowance (RDA) in grams per day for food units in Canada's Food Guide

DEMAND FOR ORGANIC FOOD

Given that organic production is more distinct in its classification than other categories, more information exists on the demand for organic food. While Calgary specific information is not available, the total value of organic food products sold in Canada was approximately \$2 billion in 2009. This represents approximately 2.5% of total sales and a 66% increase since 2006.⁵² The categories with the most significant penetration of organic production include tea, coffee, baby food, pasta, yogurt products, ready to eat cereals, spices, milk, soup and snack foods or prepared foods (21.7%), refrigerated food and beverages (19.13%) and dairy (17.73%).

Assuming this trend applies to Calgary, sales of organic food products would be approximately \$49 million and would be predicted to increase to approximately \$100 million in just over four years. Given that the food categories used in the study was not consistent with traditional retail categories, a more detailed analysis could not be conducted.

⁵¹ Nielsen MarketTrack, Alberta All Channels, 52 weeks ending December 18th, 2010.

⁵² AAFC The Canadian Organic Sector, *Trade Data and Retail Sales in 2008*



3.9 SUMMARY

Calgary has a culturally diverse population with over a million people but relatively low population density. Population will continue to rise, primarily through immigration, with a shift to an older and more culturally diverse demographic.

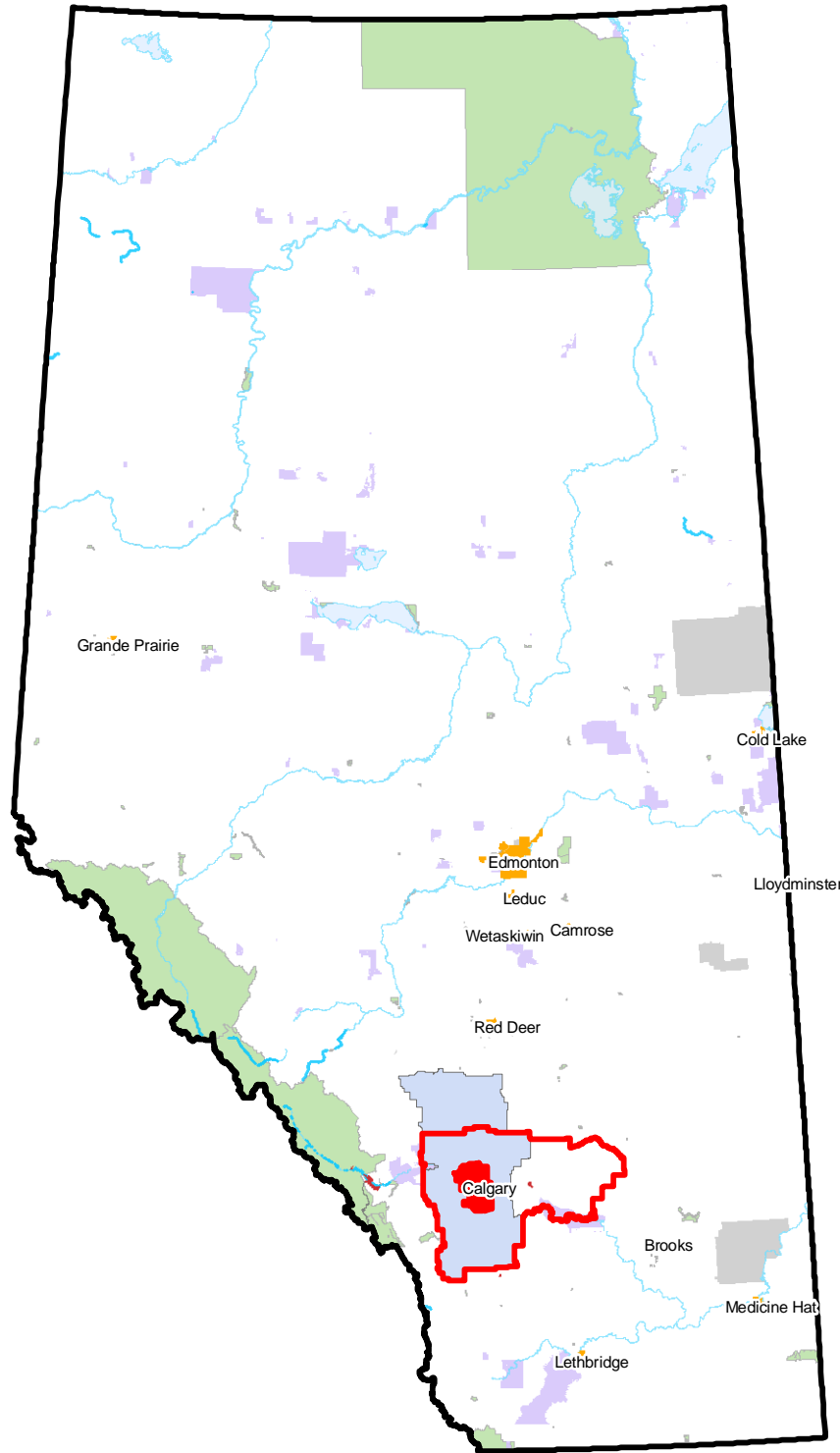
An increasing number of Calgarians are thinking about all aspects of food, beyond a basic assumption of food safety. This curiosity includes an increased desire in meeting our farmers, learning how to grow our own food, finding out how our food is processed, taking an interest in our chefs and their menu choices, understanding what ingredients are in our food, knowing the farming methods used to produce our food and taking lessons in food preparation. A number of niche markets in the food business have developed to satisfy this interest: organic, fair trade, local, environmentally conscious etc.

Although Calgary and the region benefit from high sunlight levels and areas of nutrient rich soils, the topography and hydrology create difficult growing conditions with a relatively short growing season. Producers at all scales must deal with some droughts and mounting water stress and extreme weather conditions. However, the variation in climatic conditions and agronomic limitations is not unique to Calgary and every environment has native species of plants that flourish in the given geography.

Calgary's agricultural heritage has been a key driver to the success of the city and Alberta still has one of the world's most productive agricultural economies. However, energy has become the main driver of the current economy. Albeit Calgary has low unemployment and a high Gross Domestic Product (GDP) per capita and the *average* Calgarian has a high personal income, extensive income inequality exists and results in food insecurity exists in Calgary.

Urban growth, associated annexation and suburban development have not only resulted in permanent loss of farmland and associated impact to the local agricultural economy but have also challenged cities' abilities to address community needs. Country residential and commercial development surrounding urban centers have fragmented the farmland base and resulted in high speculative land values beyond agricultural productivity values. The MDP calls for a new approach to growth management and a Corporate Framework for Growth and Change is currently in development to assist with consideration of these issues. There are also a broad number of planning and land use tools and practices that can be used for the conservation and stewardship of agricultural land.

The food system is fragile, reliant on basic inputs such as fuel, water and transportation and dealing with products that often have a limited shelf life and are typically limited to a three day supply. This makes a city's food supply vulnerable to a wide range of possible disruptions including climate change and associated extreme weather events; rising fuel prices that impact cost of production, processing and transportation; loss of agricultural land; and food-borne pathogens and global pandemics. In parallel, there is increasing evidence of rising health issues directly and indirectly linked to nutrition and our food system. Calgary's history, pattern of neighbourhood development, demographic profile and climate have influenced the evolution of the food system in Calgary and add to this vulnerability.

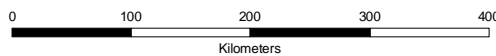


Legend

- Calgary
- Census Division 6
- Calgary Metropolitan Plan (CMP) Area
- Calgary Regional Partnership Towns and Villages
- Cities and Towns
- Native Reserves
- Military Reserves
- Parks
- Province

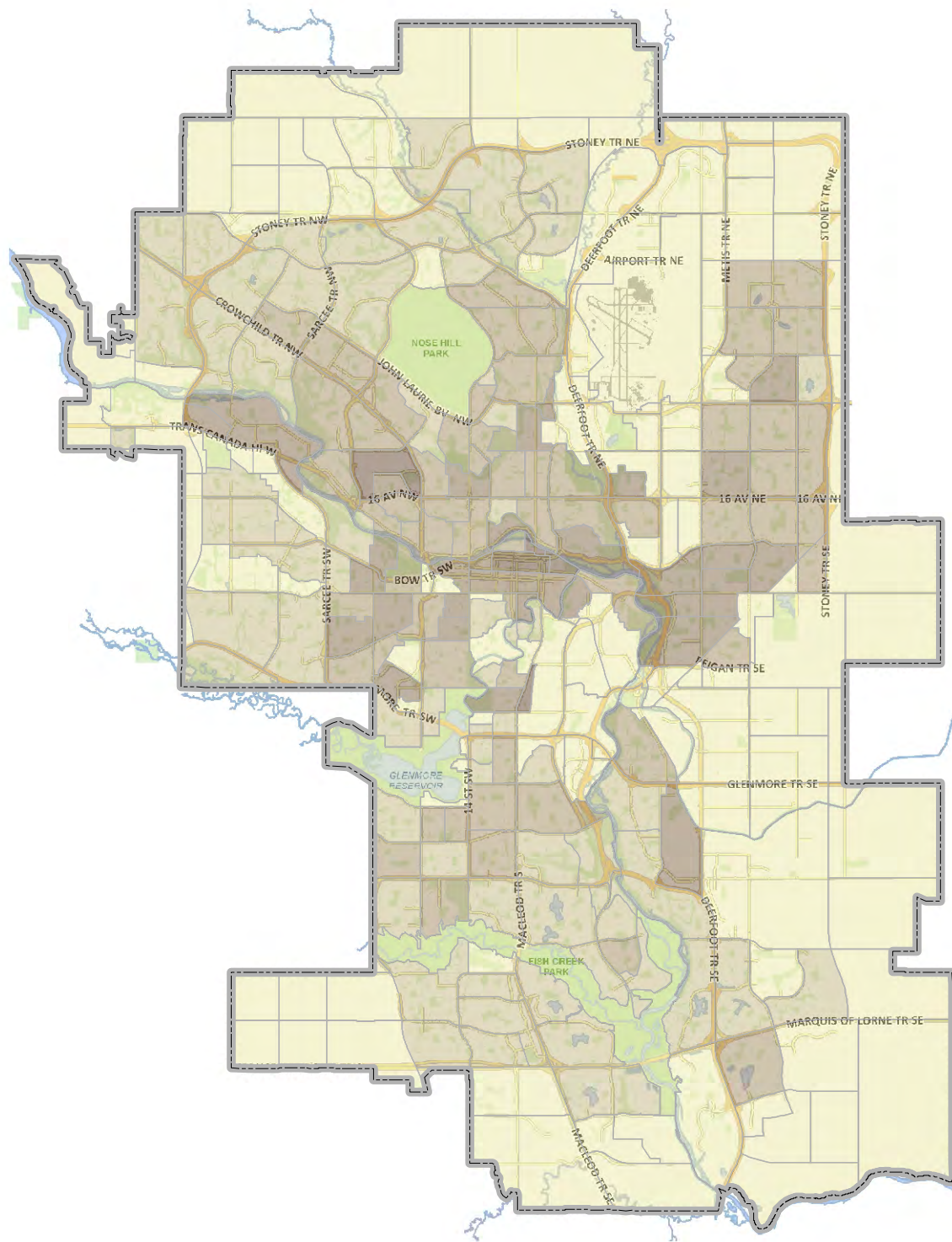
ALBERTA

Map 3.1 - Calgary in the Regional and Provincial Context



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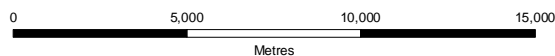
Date Printed: May 10, 2012



Legend

- % Low Income Households
- 0 - 4
- 4.0 - 11.8
- 11.8 - 21.3
- 21.3 - 34.0
- 34.0 - 56.2
- Community Boundary
- Calgary City Limits 2012

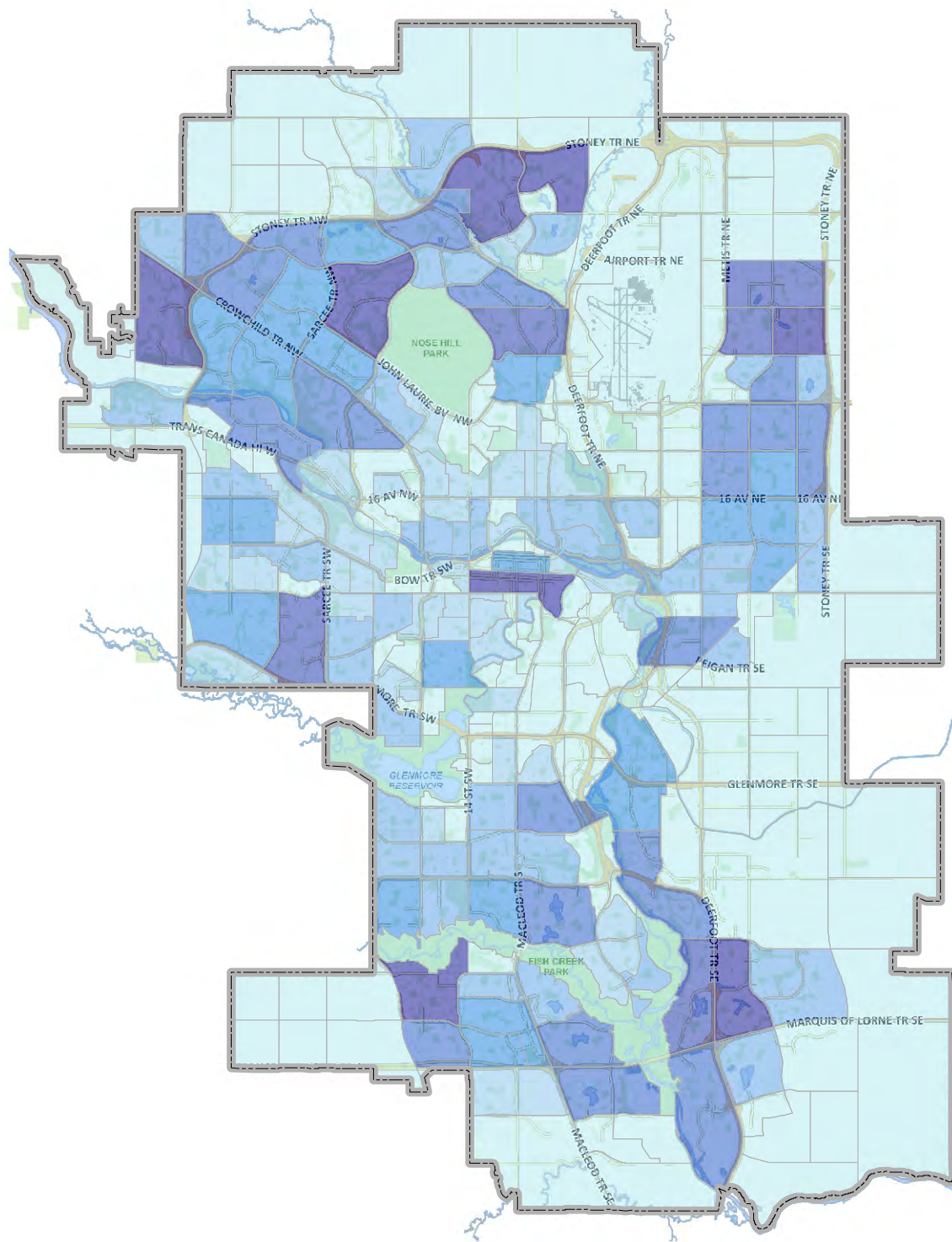
City of Calgary
Map 3.2 - Percent of Low Income Households by Community



Data: City of Calgary Community Social Statistics
 Source: Statistics Canada, 2006 Census of Canada

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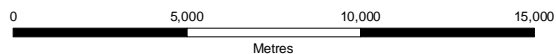
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Number of People

- < 2500
- 2500 - 5000
- 5000 - 7500
- 7500 - 10000
- 10000 - 12500
- 12500 - 15000
- > 15000

- Community Boundary
- Calgary_City_Limits_2012

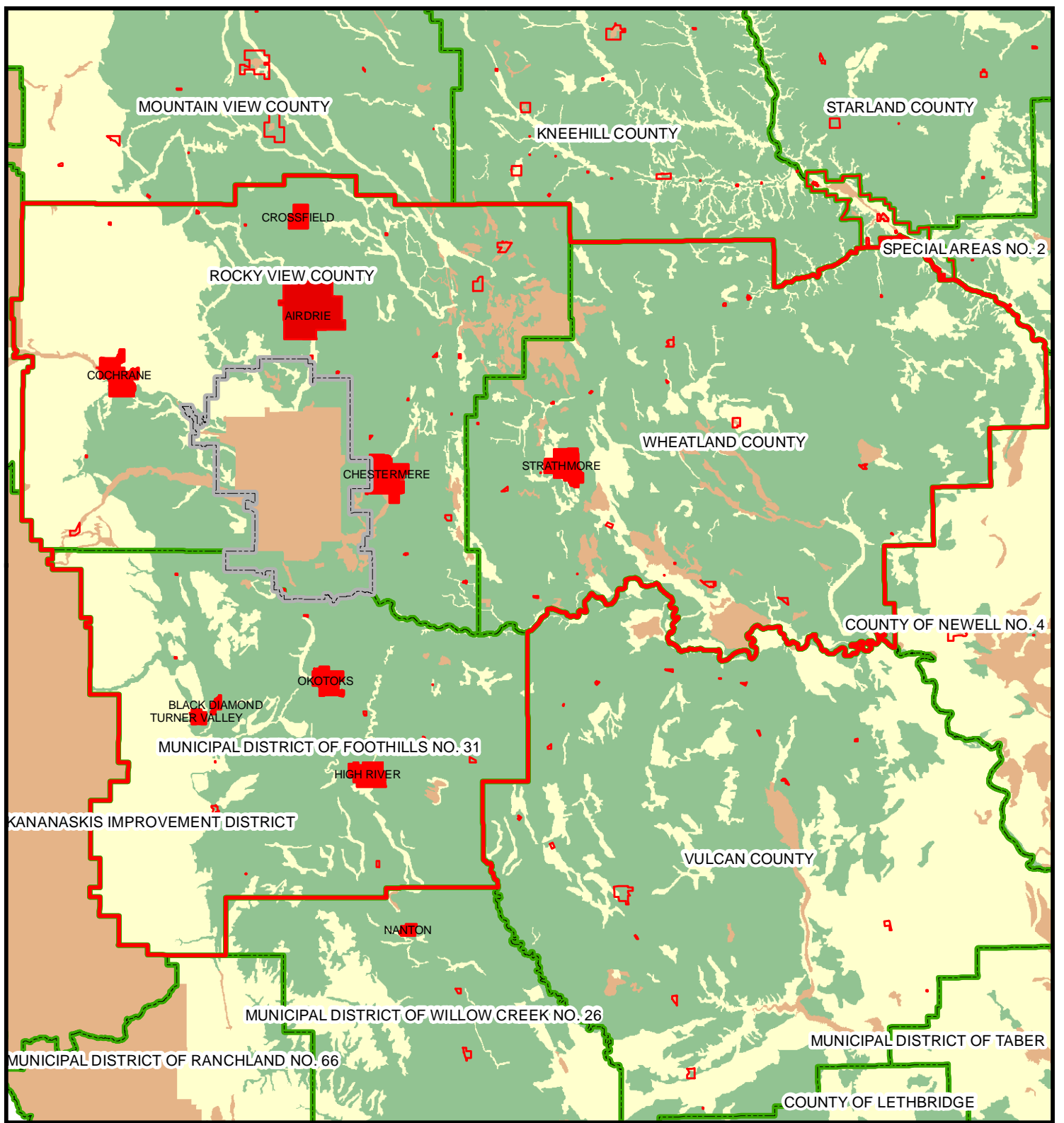
City of Calgary
Map 3.3 - Population by Community



Data: City of Calgary Community Social Statistics
 Source: Statistics Canada, 2006 Census of Canada

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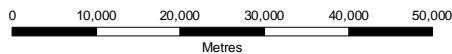


Legend

-  Calgary City Limits 2012
-  Cities and Towns
-  Calgary Metropolitan Plan (CMP) Area
-  Calgary Regional Partnership (CRP) - Towns and Villages
-  Municipality
-  LSRS Rating 1-3
-  LSRS Rating 4-5
-  LSRS Rating >5

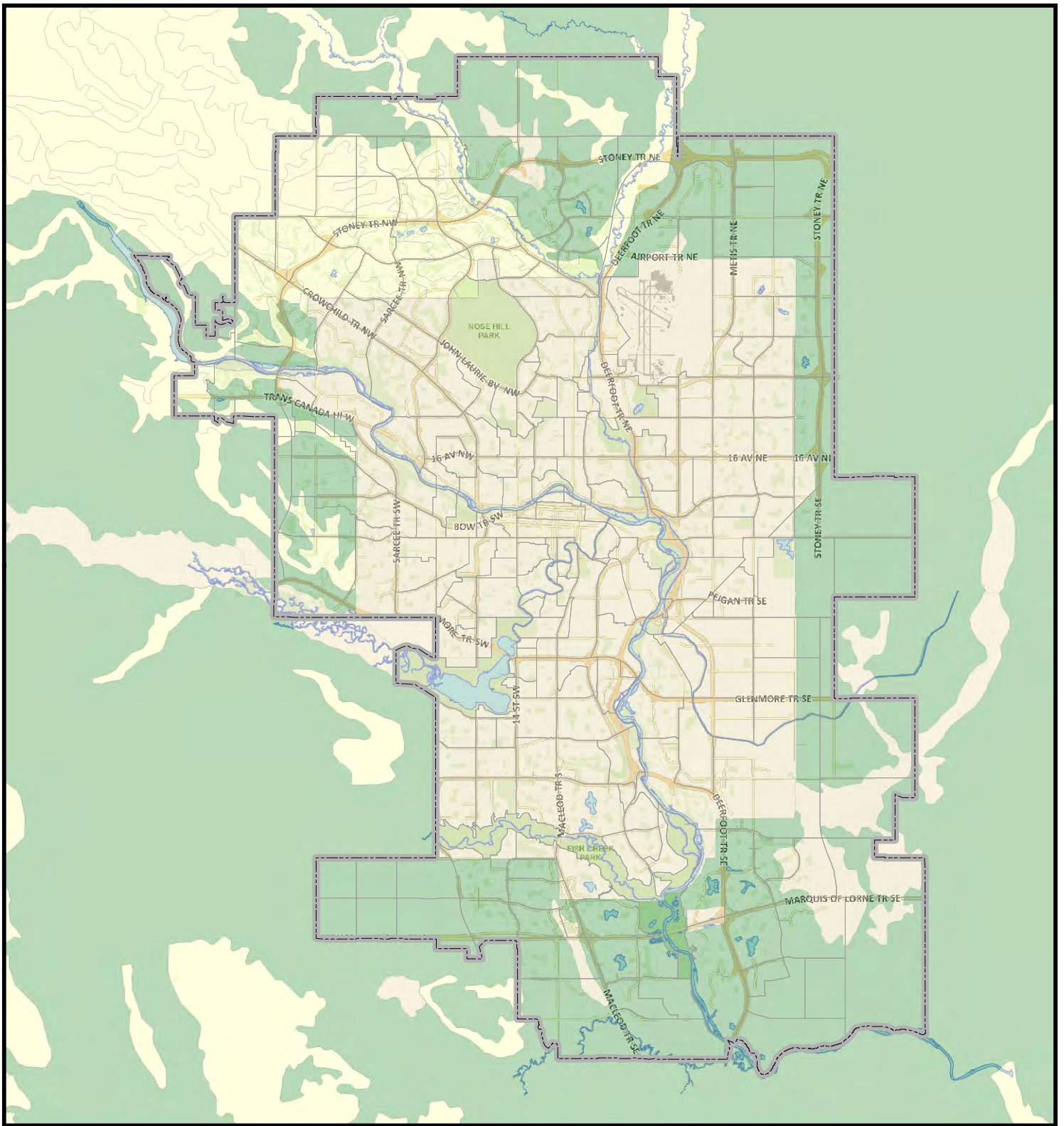
Data: Agriculture and Agri-Food Canada

City of Calgary
Map 3.4 - Land Suitability Rating System (LSRS) Calgary Region



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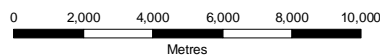
Date Printed: May 10, 2012



Legend

- Calgary City Limits 2012
- LSRS Rating 1-3
- LSRS Rating 4-5
- LSRS Rating >5
- Community Boundary

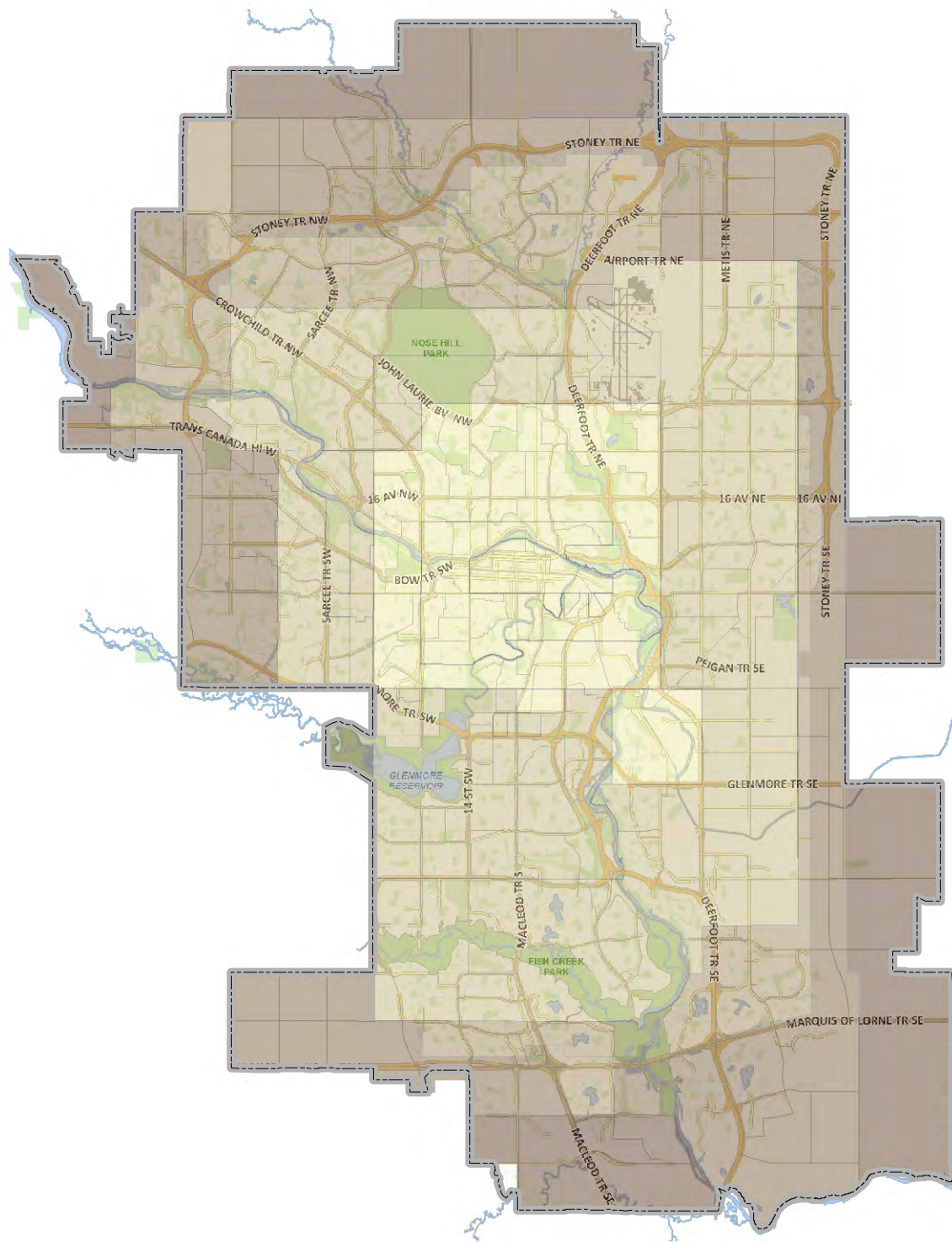
City of Calgary
Map 3.5 - Land Suitability Rating System (LSRS) by Community



Data: Agriculture and Agri-Food Canada

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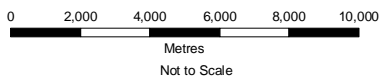


Legend

Annexation History

- 0 - 1911
- 1912 - 1964
- 1965 - 1982
- 1983 - 1995
- 1996 - 2007
- Community Boundary
- Calgary City Limits 2012

City of Calgary
Map 3.6 - Calgary Historical Annexation



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4.0 PRODUCTION

4.1 CONTEXT

This chapter provides baseline information, an assessment and issues and opportunities related to the current state of production for Calgary and the surrounding region. Production includes planting, growing, raising and harvesting of food encompassing both rural and urban agriculture.

Urban agriculture is a term used globally to describe the raising, growing and processing of food and other products through plant cultivation and animal husbandry in and around cities for the purposes of both food and fuel consumption. This can be for personal use or for profit. The most striking feature of urban agriculture, which distinguishes it from rural agriculture, is that it is integrated into the urban economic and ecological system: urban agriculture is embedded in the urban ecosystem. This can mean the use of urban residents as labourers, use of urban organic waste as compost and urban wastewater for irrigation, direct links with urban consumers, direct impacts on urban ecology (positive and negative), being part of the urban food system, competing for land with other urban functions and being influenced by urban policies and plans, etc.

In comparison, rural agriculture differs from urban agriculture primarily in scale and intensity in addition to being generally located outside of city development boundaries. Farmers are often highly skilled and production is carried out for profit. Farms cover large areas and production generally relies on substantial inputs and heavy machinery. Farming can be intensive, may employ indoor food garden systems and greenhouses and could use aeroponics, aquaponics and high-density vertical systems. Rural farms produce a wide range of products, including livestock, eggs, milk, grains, oilseeds, pulses, and some vegetables and berries, in large quantities. Large-scale agricultural commodities, such as grains, oil seeds and pulses can be exported globally.

However, there is now an increase in a type of less intensive rural agriculture focussed on more local and environmentally sustainable operations. This type of local food production tends to be on a smaller scale often producing speciality or niche, high value products in relatively close proximity to consumers. They may employ organic, low-input, biodynamic⁵³ and sustainable agriculture methods. Though some farms may still specialize in one product, production often incorporates a mixture of crops, and sometimes crops and livestock. An important characteristic of locally-oriented farmers is that they often take on activities related to processing, marketing, distribution, sales and consumer education. Many are also involved in advocacy, community building and agri-tourism.

It is important to recognize the value of all products and by-products associated with urban agriculture, not only food but also wool, leather, bone, compost, oils to produce bio-fuels, soaps etc. This ensures the sustainability of the food system by recognizing the value of each product and by-product throughout the food chain. However, for the purposes of this food assessment and action plan, the focus has been on food and composting alone.

It is also important to highlight the resources used in food through the whole life cycle. Life cycle assessment (LCA) is a process for evaluating the environmental impact, or 'environmental footprint' of a product from cradle to grave. LCA can be used to evaluate inputs such as energy, water, nutrients and raw materials and track those through the food chain from production to transportation, processing,

⁵³ Biodynamic - is a method of organic farming that emphasizes the holistic development and interrelationships of the soil, plants and animals as a self-sustaining system



manufacturing, distribution, retailing, preparation, and waste management. LCA is being applied increasingly to many sectors of the economy, including agriculture, particularly given an increasing demand by consumers who wish to know the environmental impact of their purchasing decisions. Another driver for LCA in agriculture is the requirement by the retail sector to understand and communicate their environmental impact against targets set as part of their sustainability strategies and Corporate Social Responsibility (CSR) reporting. LCA of specific crop and livestock production and processing can help guide improvements in farming methods to minimise the environmental impact. LCA information is becoming more accessible for customers. For example, GoodGuide, developed by the University of California, has apps for iPhones and iPads so that customers can scan a product label and immediately receive the environmental, health and social rating of the product. Approximately 160,000 products have LCA completed to support this software.

A study by Department for Environment Food and Rural Affairs (DEFRA) in 2008 evaluated the comparative life cycle burdens of alternative food supply chains for seven indicator foodstuffs, bought by UK consumers. It found that food production and consumption has a large environmental impact, particularly given the move towards year-round supply of food products. The key factors affecting the environmental burden of food delivered to distribution centres was yield, the need for refrigerated storage and distance from the consumer. For most of the UK products, the majority of greenhouse gas (GHG) emissions were pre farm gate, particularly for meat products due to methane released by enteric fermentation and where non-renewable fuel was used to heat greenhouses (e.g. for tomatoes). Where products did not require greenhouses but were perishable (e.g. apples and potatoes) and required long-term refrigerated storage for a significant proportion of the total crop, GHG emissions were greater post farm gate. Farming systems or climates that produced large yields reduced the overhead burdens and associated GHG emissions. However, the increased transportation distances often negated these advantages, but this was dependent upon the total pre farm gate primary energy use and global warming potential of the product.⁵⁴ LCA studies of beef production in western Canada⁵⁵ have been completed in addition to Canadian food packaging LCA assessments, amongst others. LCA is a valuable tool to influence both policy and operational decisions within the food system.

One concept that has is being used by several jurisdictions is the concept of a 'foodshed'. A foodshed describes the geographic location that produces the food for a particular population. It is based on the similar idea as a watershed. It includes everything between where food is produced and where food is consumed, including the land it grows on, to the routes it travels, and the markets it goes through, right to the consumer. It is a term to describe a food system that connects local producers with local consumers⁵⁶.

The importance of the productive capacity of the area surrounding a city is an issue that has been highlighted in several food assessments for North American cities and is helpful to understand or influence the local food shed. Within the U.S., San Francisco has a huge capacity for agricultural production within the local area, Vancouver would be relatively advantaged among Canadian cities with its proximity to the Fraser Valley production area. Alberta and Calgary have a limited growing season relative to both San Francisco and Vancouver. As a result, the types of agricultural production possible in the vicinity of Calgary are limited and less diverse. However, the variation in climatic conditions and

⁵⁴ More information available at:

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=15001>

⁵⁵ More information available at:

[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/econ13238/\\$FILE/BeefLCAPhase1FinalReport.pdf](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/econ13238/$FILE/BeefLCAPhase1FinalReport.pdf)

⁵⁶ Kloppenburg, et al., 1996



agronomic limitations is not unique to Calgary; every environment has native species of plants that flourish in the given geography and cities and regions within similar climates employ strategies to address these conditions.

4.2 FOOD PRODUCTION IN CANADA

Canada is one of the largest producers and exporters of agricultural products in the world. As with many other developed nations, the proportion of the gross domestic product (GDP) and the population engaged in agriculture has declined, but overall Canada's agriculture industry remains a core sector of the economy, employing one in eight Canadians⁵⁷ and accounting for 8.2 % of GDP⁵⁸.

The overall number of Canadian farms has declined in the last several decades. The total number of farms in Canada is approximately 206,000 which represents a 10.3% decrease, or 23,643 since 2006. While the number of farms is declining, the average size has increased to 778 acres up from 728 in 2006⁵⁹. Canada's food system has become increasingly geared to large-scale systems of production, distribution and retail over the past 60 years. Recent decades have seen major consolidation of Canada's food processors and commodity brokers, whose bottom lines depend on imported food purchased at prices below those offered by Canadian farmers. This dependence on imported food makes Canada's food supply vulnerable to natural disasters or political instability in the producing regions of the world, and to disruptions of transportation (e.g. due to oil price spikes or interruptions in oil supply).

4.2.1 Growth of Organics in Canada

Discussion regarding healthy and environmentally sustainable food often includes organics. Organics is one component of environmentally sustainable food production. The principal goal of organic production is to develop enterprises that are sustainable and harmonious with the environment; providing a holistic systems approach designed to optimize the productivity and fitness of diverse communities within the agro-ecosystem, including soil organisms, plants, livestock and people⁶⁰. An organic product must be certified by a Canadian Food Inspection Agency accredited Certification Body and therefore is produced using the methods outlined by the Canadian Organic Standards. Organic products sold within the province of origin are subject to provincial organic regulations, the *Consumer Packaging and Labelling Regulations* and the *Food and Drug Regulations*.⁶¹ In Canada, the term organic actually means certified organic. This has occurred as a way to protect the consumer against misleading claims. However, it must be recognized that many local producers declare that they are practicing organic production without being certified, often employing ecological techniques and are part of a larger organic community. While it is important to recognize and encourage the practices of these farms, to avoid confusion and mislabelling, these should be distinguished from organic farms or produce given that they are not officially certified and are often referred to as ecological farms. There is currently no organic certification system in place for Alberta. However, Organic Alberta is actively working to adopt the Canadian Standard provincially⁶².

Organic sales in Canada in 2010 were estimated at \$2.6 billion, compared to \$1 billion in 2006. Organic farms and pastures in Canada account for roughly 900,000 hectares, up from just over 500,000 hectares

⁵⁷ CAPI (2011) The Canadian Agri-Food Policy Institute, Canada's Agri-Food Destination Update

⁵⁸ macleans.ca on Tuesday, February 8, 2011

⁵⁹ Statistics Canada (2011) available at: <http://www.statcan.gc.ca/daily-quotidien/120510/t120510a001-eng.htm>

⁶⁰ Agriculture & Agrifood Canada www.agr.gc.ca

⁶¹ Canadian Food Inspection Agency, available at <http://www.inspection.gc.ca/food/organic-products/labelling-and-general-information/certified-choice/eng/1328082717777/1328082783032>

⁶² More information available at www.organicalberta.org/



in 2006. Alberta has experienced particularly strong growth in organic production, with the number of certified organic operators increasing by 23% over 2008⁶³.

A National Grocery Label Scan conducted for Agriculture and Agri-Food Canada by ACNielsen in 2009 found that the sales value of scanned organic products was \$443.2 million, which is 1.8% of the sales value of all scanned goods. 90.2% of the scanned organic items were certified organic. Of the 2,281 organic food items in the inventory, 38% were identified as grown, packaged or processed in Canada⁶⁴. Less than 29% were of U.S. origin, less than 1% were of Chinese origin, and 22% were of unspecified origin. The U.S. was the main source of organic imports to Canada in 2008, estimated at almost \$187 million, representing 74% of total organic imports⁶⁵. Most other organic imports are from Chile, Mexico, China, Italy and Germany. The largest category of organic imports in 2008 was organic fresh vegetables.

4.3 FOOD PRODUCTION IN ALBERTA AND CALGARY REGION

Nationally, Alberta accounted for 19.2 % of total Canadian agri-food exports (\$35.8 billion), making Alberta the third largest exporter of agri-food products after Saskatchewan and Ontario⁶⁶. However, Alberta exports of primary and processed agriculture and food products (agri-food) decreased by 9.6 % to \$6.7 billion in 2010 from \$7.4 billion in 2009. Specific to food products, beverages and animal feeds, Alberta's exports totalled \$2.5 billion in 2010, making up 38% of all agri-food exports. Overall, the decline may be attributed to consumers adjusting their food choices in response to the economic downturn, volatility in the Canadian dollar, and trade constraints by other exporters, particularly the United States. Regardless of the slight decline in 2009 and 2010, food production, processing and distribution remains a significant contributor to the provincial, regional and local economies.

Calgary is situated within a province and region that includes some of the nation's most productive agricultural land. In 2010, the value of major crop production in Alberta totalled \$5.3 billion, with 22.4 million acres harvested⁶⁷. The Calgary Regional Partnership (CRP) was the intended boundary for the regional component of this assessment; however, specific data was not available for the CRP. However, data is available from Statistics Canada for Census Division #6 (CD6). A Census Division is a group of neighbouring municipalities joined together for the purposes of regional planning and managing common services (such as police or ambulance services). CD6 consists of the Census Consolidated Subdivisions⁶⁸ of Foothills No. 31, Rocky View County No.44, Calgary and Mountain View County (see Map 3.1 in Chapter 3). The 2011 census data indicated that there were 4,186 farms in total in CD6. Gross farm receipts for the region totalled \$763,963,393, a decrease of 1.5% from 2005, this equated to an average of approximately \$691/ha in 2010 up from \$668/ha in 2005. Within Calgary, gross farm receipts totalled \$12.5 million in 2010, which decreased from \$38.2 million. Due to the decrease in number of farms and farm land, these receipts actually equated to an average of \$995/ha representing a significant increase from 2005 at \$748/ha⁶⁹.

⁶³ Globe and Mail, October 14, 2011

⁶⁴ Ibid

⁶⁵ Ibid

⁶⁶ Alberta Agriculture Statistics Yearbook, 2010

⁶⁷ Statistics Canada and Alberta Agriculture and Rural Development, Statistics and Data Development Branch

⁶⁸ A census consolidated subdivision (CCS) is a grouping of adjacent census subdivisions. Generally the smaller, more urban census subdivisions (towns, villages, etc.) are combined with the surrounding, larger, more rural census subdivision, in order to create a geographic level between the census subdivision and the census division.

⁶⁹ ⁶⁹ Statistics Canada (2011) available at: <http://www.statcan.gc.ca/daily-quotidien/120510/t120510a001-eng.htm>

Traditional agriculture, including large scale crop and cattle production, still dominates the region’s land use. However, the agricultural industry has been revitalized through a renewed global emphasis on sustainable food production, increased prices for food commodities, and an interest in supporting local economic development at the municipal level.

For instance, in Rocky View County more producers are now involved in agriculture that serves a local or region-based clientele⁷⁰. This includes the raising and local processing of specialty animals and animal products, greenhouse production of fruits and vegetables while using local irrigation. There are more value-added food products and local markets being developed to capture some of the new demand for locally grown food. Direct sale of products are increasing (see Chapter 6: Distribution); a more cost efficient and effective food distribution system has resulted by taking food products directly to the larger population centres.

The reality is that in some categories of food production the region supplies either significantly more or less than these rough averages since there are agronomic limitations to the variety of products that can be produced in the Calgary region. A lack of precision on the source of food consumed in Calgary limits the ability to conduct a thorough analysis of the percent of production that is local.

Appendix D provides an inventory of Calgary and regional producers and identifies where these are certified as organic. This inventory is based upon information sourced from Alberta Agriculture and Rural Development, supplemented by Slow Food Calgary. It should be noted that this list is not exhaustive and there are other sources of information that may include additional producers. These range from books which celebrate the regional farmers such as ‘Foodshed’ by dee Hobsbawn-Smith to websites listing and mapping producers such as the Alberta Farm Fresh Producers Association Food Map⁷¹ and the Alberta Regional Cuisine Sourcing Directory⁷².

Based on census data collected in 2001 and 2006, there are some general trends that can be identified within the Calgary region in terms of production. Overall within Foothills MD, Rocky View County and Mountain View County, total grain production decreased, while canola increased in all areas. The number of farms and/or the number of hectares in production has increased for specialty crops including vegetables, fruits, berries and nuts in all three regions.

YEAR ROUND PRODUCE AT HOTCHKISS



*Photo & Story Courtesy of Hotchkiss Herbs & Produce
Original Story written by Lauren Mangion*

Just 35km from Calgary’s city centre, in Rocky View, are Hotchkiss’s six certified organic greenhouses. Producers Paul and Tracy Hotchkiss and a team of staff hired for their green thumbs, grow tomatoes (including heirloom varieties), carrots, arugula, romaine lettuce, spinach, swiss chard, several different herbs, wheatgrass and 15 varieties of Microgreens.

It all started with Paul’s quest to find the perfect tomato to top the BLT, his favourite sandwich. When imported, conventionally grown tomatoes were leaving him dissatisfied so he started growing his own. Quickly, a hobby turned into a business and Hotchkiss now has 1½ acres of greenhouse space growing vegetables and herbs. Hotchkiss has been growing organically since 1989, though Paul’s reasons for doing so are rather unusual. Paul believes that farming more traditionally poses an enjoyable challenge, and puts his science background to work. Fighting off pests with a limited arsenal (Hotchkiss receives weekly deliveries of beneficial insects like wasps and ladybugs), making nutrient-rich compost to amend the soil, and creating an appealing and flavourful product are all things that keep Paul going.

⁷⁰ 2011, Rocky view County Agriculture Master Plan

⁷¹ Available at: http://www.agric.gov.ab.ca/app21/rtw/ff/farm_fresh_map.jsp

⁷² Available at: <http://www.agric.gov.ab.ca/app68/dinealberta>

Generally, greenhouse production also increased. This confirms the anecdotal information gathered in the stakeholder workshops and interviews. There has been an increase in production of speciality crops, such as vegetables and fruits, trying to meet the increased demand. As a general trend, the number of farms involved in livestock production decreased, and number of livestock in many cases also decreased. Some of the speciality areas of livestock such as llamas and alpacas and bison tended to go up (except for Rocky View).

FOUR GENERATIONS OF WINTER'S TURKEYS

Spanning 4 generations our family has been raising turkeys on our Alberta farm near Dalemead. In 2008 we celebrated our 50th year raising "Winter's Turkeys". Our flocks are primarily hens, raised to a plump 17-22 pounds. This ensures an excellent finish and produces a naturally self basting turkey with a delicious flavour. Our turkeys are available fresh for Thanksgiving and Christmas and frozen throughout the year. We offer a wide variety of frozen products made from 100% turkey meat including smoked turkey, smokies, sausage, luncheon meat and jerky. Winter's Turkey products are gluten free, dairy free, nitrate free and made with no added MSG.

Our free range protocol ensures no antibiotics, no growth hormones and no animal by-products are used. Our birds range in sunshine and fresh air and have unlimited access to the outdoors. They are provided a whole grain diet that is supplemented with organic greens and forage. Their total diet is 65% whole grain and they are fed 90% whole grain as a finishing ration. Our birds are humanely raised with total consideration for their comfort and well being.



Photo & Story Courtesy of Winter's Turkeys

In 2000 we began raising a certified organic flock which includes the free range protocol and ensures all feed and bedding is certified organic. In 2010 we introduced the Orlopp Bronze heirloom turkeys to our farm and raise them as certified organic. Over the years we have been privileged to reliably provide savoury turkeys to for countless family feasts and celebrations and everyday meals and occasions. We have built our reputation on quality and make every effort to maintain it.

We are dedicated to practicing sustainability for our planet and providing respectful husbandry for our animals. We grow some of our own grain to feed the birds and use the straw for bedding. We fertilize the crops with our composted bedding and manure to build the fertility of our soil. Half the 480 acres are certified organic. Corinne and I have been operation the family farm since 1976. Our children, Curtis and Laurel still help when they can and have lots of interest in keeping the operation viable. Slow food has taught us that our customers are actually co-producers and with our committed co-producers support, small family farms like ours will continue to survive and provide good, clean and fair food for years to come.

4.3.1 Growth of Organics in Alberta

As of 2011, of the 43,234 farms in Alberta, 326 were organic producers. Within the Calgary region, 13 were organic and within Calgary, 2 were identified as organic in the 2011 census of agriculture⁷³. In addition to this, Slow Food Calgary identified 80 local producers (21 produce, 45 meat, four dairy, 10 other). Though these are not necessarily certified organic there are a significant number of farms identified as organic and/or natural that are listed on the Slow Food Calgary website (www.slowfoodcalgary.ca). This is consistent with the information that is collected and maintained by

⁷³ Statistics Canada (2011)



ARD⁷⁴. A survey of Alberta organic producers and processors was conducted in 2005⁷⁵. Most of the organic product coming from Alberta producers is sold through one of three marketing channels:

- direct to the consumer (23%)
- direct to the processor (26%)
- to a specialty food store (26%)

The products most likely to be sold to a processor include grains, pulses and oilseeds. Meats and vegetables are most likely to be sold directly to consumers. Of the organic crops and livestock products produced in Alberta, 40% are sold in Alberta. 17% of sales were through local markets, as defined by a 100 kilometre radius. 25% of organic products produced in Alberta are sold to other provinces, and 32% is sold to the U.S. Availability of data, particularly in relation to production at the regional level, exports and imports has limited the ability to assess the Calgary food shed. This impacts the ability to produce a baseline for the imagineCALGARY targets associated with local food and in monitoring performance in achieving those targets.

4.4 URBAN AGRICULTURE IN CALGARY

This section provides an assessment of food production within Calgary including a highlight of current urban agriculture initiatives. Urban agriculture is important in contributing to a sustainable city. Beneficial functions include food production, both for personal consumption and sharing with family and friends, education, recreation, community building and creating vibrant neighbourhoods. Urban agriculture can enhance the environment by improving soil health, air quality, reducing energy costs and greenhouse gas emissions by reducing the distance food travels and supporting biodiversity by providing habitat for insects and birds. Urban agriculture is experiencing rejuvenation across Canada and the United States. There is increasing collaboration amongst the community, local and provincial government, schools, institutions, and developers in supporting urban agriculture.

Urban Agriculture

- **The What** – the raising, growing and processing of food products (edible plants and animals) and non-food products (e.g. aromatic and medicinal herbs, biomass).
- **The Where** – inside the city of Calgary boundary on the homestead (on-plot) or on land away from the residence (off-plot), on private land (owned, leased) or on public land (parks, conservation areas, along roads, streams and railways), or semi-public land (schoolyards, grounds of schools and hospitals).
- **The Who** – by individuals, community groups, non-profit organizations, non-governmental organizations, specialized micro-enterprises, farmers and business. Scales of production and technology used will range from individual or family farms, group or cooperative farms and commercial enterprises.
- **The For** – relaxation and recreation, food for personal consumption, income market-oriented e.g. sold at the farm gate, in local shops, at local farmers markets or to intermediaries and supermarkets.

⁷⁴ <http://www.agric.gov.ab.ca/app68/dinealberta>

⁷⁵ Farm to Fork: Organics in Alberta (June, 2007) Alberta Agriculture and Food

- Household Food Production
- Community Gardens
- Institutional Gardens
- Small-scale Commercial and Semi-Commercial
- Large Scale Agro-enterprises
- Multi-functional Farms

HOUSEHOLD FOOD PRODUCTION

Household food production can range from growing herbs and some small vegetables inside the house in pots on window sills or within sun-rooms, to planting fruit and vegetables and herbs in the ground or raised beds in front and backyards. In addition, food production at the household level can include vertical gardens against walls or on balconies, rooftop gardens, greenhouses within the household plot and go beyond the growing of fruit and vegetables to include the keeping of bees and animals such as chickens and goats. Food is primarily consumed by the residents, or shared with neighbours, friends and family. Household food production, most commonly in the form of backyard gardens, has long been part of Calgary's urban fabric. In the early 1900's, residents planted gardens to supplement their food supply during the summer months. Victory gardens were very popular during World War I and World War II when vegetables, fruit and herbs were planted to reduce pressure on food production and support the war effort. Today many Calgarians continue to garden for food production.

PERMACULTURE

Story and photo courtesy of Adrian Buckley

Permaculture, or permanent culture, is a concept that is gaining momentum throughout the communities in Calgary very quickly. Permaculture is a design science that is guided by ethical principles and inspired by natural systems for creating sustainable human habitat. A big expression of permaculture is reconfiguring the land on which we live into opportunities for beautiful spaces that produce local food. For every calorie of energy we get from our industrial food system, over 10 calories are spent getting it to us.



Big Sky Permaculture Head Quarters Calgary

Hundreds of people are now learning how to take control of their own food, energy, and water security through a positive and solutions-oriented design system called permaculture right here in Calgary, through courses, community-based garden installations, and ever-strengthening permaculture community groups. Permaculture designed landscapes are currently replacing lawns all over the city, leaving a *net-positive* footprint behind in every way! Water is being harvested and cleaned, food is being produced locally, landscapes are being created that build community and habitats are being re-created. For more information visit www.permacultrecalgary.org.

Based on a 2010 survey of 400 randomly chosen Calgary citizens⁷⁶, 33% of respondents surveyed indicated that they grew vegetables, 33% grew herbs, and 24% grew fruit/berries. The majority of respondents indicated they grew produce in their own yard. Of those respondents growing produce in their front or back yard, 70% said they grew vegetables, 49% herbs and 85% fruit/berries. Of the respondents that did not grow their own food, 44% cited that lack of space was the reason, followed by 22% citing no time and 11.5% due to being not interested.

However, many respondents actually produced food within their house in pots and containers, 25% of these respondents said they grew vegetables, 50% grew herbs, and 13% grew fruit/berries. This indicates that although yards are still significant in food production, containers and pots provide an alternative supply, particularly where space is limited. Educational programs geared at container and

⁷⁶ HarGroup Management consultants, 2010



gardening in small spaces could increase the capacity and knowledge of Calgarians for food production, particularly given 44% gave the main reason as being lack of space. There are several examples of education programs that address food production in containers, delivered by such groups as Calgary Horticultural Society⁷⁷ and Big Sky Permaculture⁷⁸.

The Calgary Urban Harvest Project is a programme for residents with fruit producing trees that do not have the time or interest to harvest the fruit, or have an excess of fruit that they are unable to use. Map 4.16 shows the locations across the city where homeowners have signed up for the project.

THE CALGARY URBAN HARVEST PROJECT

Story courtesy of Adrian Buckley

Started unofficially in 2009, The Calgary Urban Harvest Project began as a response to observations of unused fruit production in the city. The core idea is that property holders who have a fruit tree they cannot make use of, can register their tree on the project's website. Community members interested in picking local and fresh fruit team together and harvest the registered trees. The total harvest gets divided up into portions. One portion goes to those doing the harvesting; another portion goes back to the homeowners, and another portion goes to organizations and markets who can make use of the fruit, including charitable organizations. This project has seen explosive growth, with over 1000 trees registered, and over 6000 pounds of fruit harvested in the 2011 season. Starting in 2011, the project took a community-based approach by recruiting 'community coordinators' to manage a portion of the harvest project in their particular neighbourhoods. As part of this approach, Calgary Harvest is actively seeking more partnerships at the neighbourhood level to make more use of the harvest and to connect more community members to volunteer harvesting opportunities. This project has revealed how large a fruit food source this city has, and has demonstrated the potential for its use! More information about the project on its website: www.calgaryharvest.com



COMMUNITY GARDENS

A community garden is a piece of land gardened by a group of people for the purpose of providing a garden experience and education to the citizens of Calgary. They can be classified as public (city-owned) community gardens, private community gardens, allotment gardens and community orchards and can be developed on brownfield sites and, as such, labelled brownfield gardens. Community gardens may be considered a component of urban agriculture. However, the primary function of public community gardens is not considered to be urban food production, rather they are expected to provide an educational component and community benefit beyond individual garden bounty. Community gardening is promoted as an activity that *“improves quality of life by providing a catalyst for neighbourhood and community development, stimulating social interaction, encouraging self-reliance, beautifying neighbourhoods, producing nutritious food, reducing family food budgets, conserving resources and creating opportunities for recreation, exercise, therapy and education”*⁷⁹.

Psychological well-being, enhancements in social relations, facilitation of healing, community development and mobilization and an increased supply and consumption of fresh foods are additional benefits reported in the community gardens literature.

⁷⁷ Information available at: <http://www.calhort.org/home/default.aspx>

⁷⁸ Information available at: <http://www.bigskypermaculture.ca/>

⁷⁹ American Community Garden Association, 2009

Public community gardens are offered in partnership between The City of Calgary Parks and community-based organizations and are subject to all policies and bylaws governing public lands⁸⁰. They are defined as a piece of land gardened by a group of 10 or more people. In addition to the land approval, new gardens may receive up to \$5,000 in support (in-kind) from The City. Funding is not available for established community gardens.

Private community gardens are non-City gardens and may be operated by a private organization. Many are supported through the Calgary Horticultural Society via the Community Garden Resource Network⁸¹. The Network is a project aimed at assisting groups of gardeners to get new gardens started and to strengthen existing community gardens and currently funded by Encana and The Calgary Foundation.

As of April 2012, there were 52 private and 59 public gardens in Calgary. An estimate of the average garden size (based upon public community gardens average size) was determined to be 0.0351 ha. When applied to the total 111 community gardens, the estimated hectares currently used for community gardens is about 3.89 hectares. This indicates an enormous potential for the growth of community gardens in terms of potential sites available. However, this would also mean a significant increase in resources required to assist community groups in starting a garden. Maps 4.1 – 4.15 show the locations of private and public community gardens and the pilot orchards across the city.

COMMUNAL COMMUNITY GARDENS – are free to participate, everyone shares in the gardening and the harvest, and a portion of the harvest is donated to families and/or organizations to increase access to fresh, local food. This is an important distinction because it helps to decrease the time, cost and knowledge barriers to community gardening. Sunnyside Shared Garden is using this model in Calgary.

BRENTWOOD COMMUNITY GARDEN



*Photo courtesy of Janet Henderson
Story courtesy of Linda Rands and Sue Drader*

The harvest at the Brentwood Community Garden in 2011 was abundant! Our 35 beds grew a huge diversity of perennials, veggies and flowers. The perimeter beds flourished with apple and cherry trees, Nanking cherry shrubs, honeyberries, potentillas, high bush cranberries, barberry shrubs, clematis, a rhubarb plant, hardy day lilies, strawberry and raspberry beds, and an herb bed offering sage, oregano, lovage, chives, mint. Stunning sunflowers and spectacular sweet peas framed the garden.

Member displayed their adventurous spirits as they grew: 8 different types of Beans, 4 varieties of Beets; Broccoli; Brussels Sprouts; red and green Cabbage; Cauliflower; curly green and black Kale; Kohlrabi; Mustard greens; 4 kinds of Oriental vegetables as well as Turnip Greens and White Summer Turnips. There were Crunchy Carrots in various oranges, red, white, and yellow. Members grew peas of all types. Potatoes: blue, red, white, yellow. Two Pumpkins! 2 types of Spinach and 4 varieties of Squash! Several varieties of luscious tomatoes including those donated by the Calgary Horticultural Society which produced nearly 200 lbs of fruit in just the perimeter bed!



Photo courtesy of The City of Calgary Parks

⁸⁰ More information available at: <http://www.calgary.ca/CSPS/Parks/Pages/Programs/Community-gardens.aspx>

⁸¹ Information available at <http://calhort.org/gardening/community.aspx>



PRIVATE OR ALLOTMENT GARDENS - characterized by a series of garden plots rented out to individuals, often offered for the purpose of food production. Parcels are cultivated individually, and common areas are often managed through volunteer activities of the garden group. They generally are located outside of neighbourhoods and aren't related to a specific community. According to the Calgary Horticultural Society, there are currently no allotment gardens in Calgary.

COMMUNITY ORCHARDS - a piece of land gardened by a group of people for the purpose of producing fruit on trees and shrubs for community benefit and education. The City currently has four community orchards which are being evaluated as part of a five year pilot project and are subject to all policies and bylaws governing public lands⁸². The pilot is aimed at evaluating the sustainability and viability of the various trees and shrubs in the orchards and program expansion will be considered based upon the results. The orchards are outlined in Map 4.1 and include:

- **Hillhurst-Sunnyside Community Garden Orchard** - this orchard has been incorporated into an existing park, which already housed a few fruit trees. The fruit planted includes several mature apple trees as well as young cherry bushes, hazelnut bushes, gooseberry bushes, honeyberry bushes, apricot trees and pear trees.
- **Hillhurst-Sunnyside Community Association Orchard** - this community orchard is tucked in behind the community association building and tennis courts. The site will include mature apple trees as well as other fruit tree and shrub selections. Up to 50 fruiting trees and shrubs will be integrated into the orchard. Planting is currently underway.
- **Baker Park** - when complete, it is anticipated to be the largest orchard in Calgary incorporating a wide variety of species, including mature apple trees. This site is maintained by The City and will be used for demonstration and education purposes.
- **Ralph Klein Park**- this orchard consists of a variety of pear trees that surround the public parking lot of the Environmental Education and Ethics Centre as well as eight varieties of apple trees at the south end of the parking lot beside the centre.

In order for the new orchards to bear fruit in the coming years, they require pollinators. Unfortunately, native honey bee populations have decreased across the continent as a result of parasitic mites, loss of habitat and climatic change. In order to ensure that pollination occurs, The City is introducing mason bees (smaller, solitary, non-aggressive native bees) at orchard sites and is encouraging homeowners to do the same. The City has set up mason bee houses at orchard sites to increase the colonization of the orchards by mason bees. These boxes will be removed each fall and stored over winter to protect the bees from predators. Boxes will be replaced each spring.

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. Currently, The City of Calgary's Brownfield Strategy implementation plan is on-going and evolving. Community gardens are one aspect of interim use the plan may look at.

INSTITUTIONAL GARDENS

Many institutions, such as schools, hospitals, universities, colleges, municipalities, prisons, restaurants, hotels and care facilities may operate a garden for the purpose of supporting the residents. This can provide recreation and education opportunities as well as the provision of food. There are several examples of gardens within Calgary for a variety of different institutions, one being the garden at SAIT Polytechnic.

⁸² More information available at <http://www.calgary.ca/CSPS/Parks/Pages/Programs/Community-orchards.aspx>

As part of the Culinary Arts program, the students learn not only how to prepare the food but also how to grow it, in a 4,200 square foot 'living classroom'. This is the largest of any other culinary program in Canada. Chef instructor, Andrew Hewson calls this concept, culinary-agro literacy, combining culinary arts with agriculture and issues of food security, scarcity and sustainability.

Based on 2012 data, at least 75 schools participated in the schoolyard naturalization program within Calgary⁸³. Of these schools, there were at least five schools that incorporated edible gardens into the design of their naturalization area. Some schools have created entire fruit and vegetable gardens while others have incorporated a few perennials. The Calgary Board of Education (CBE) views this as a valuable learning component for the students from planting through to harvesting the fruits or vegetables. Belfast School located in Northeast Calgary, has incorporated a vegetable garden into their schoolyard. The students grow food for themselves and the volunteers and then donate approximately one-third to the food bank.

The number of schools in Calgary is estimated at 519 including those in the Calgary Board of Education, Separate School District, Charter Schools, Independent/Private Schools, Calgary Catholic School District and Francophone Districts. This presents a significant potential for collaboration between schools, school boards and school associations to increase edible gardens, not only for consumption, but as a valuable learning opportunity.

SMALL-SCALE COMMERCIAL AND SEMI-COMMERCIAL

Alberta Innovates Biosolutions⁸⁴ defines small-scale commercial and semi-commercial urban agriculture as that which is less than 809 hectares with gross income for the preceding fiscal year not in excess of \$5,000,000 and with fewer than 51 employees.

Of the 55 farms identified within Calgary, none were between 227 ha to 453 ha, 5 were between 97 ha and 226 ha, and 43 were less than 97 ha in size (7 were over 453 ha). Most are small-scale commercial and semi-commercial. This is a significant change from 2006, where there were 112 farms, with 20 between 227 and 453 ha, 27 between 97 ha and 226 ha, and 40 farms less than 97 ha in size. The area of farmland declined from 51,437 ha to 12,193 ha from 2005 to 2010; a decrease of 76.3%, likely the result of land that was developed for new communities⁸⁵.

SHIFTING PARADIGMS FOR SAIT CULINARY INSTRUCTION



Photos and story courtesy of Andrew Hewson

In the fall of 2009 SAIT began a new direction in culinary education. Chef Andrew Hewson and Chef Simon Dunn initiated a project to build a large culinary garden/living classroom. It has led to a paradigm shift in thinking and teaching hospitality students about food and sustainability issues. From here Andrew applied for and was awarded the Cadmus Trades Teaching Chair that allows a trades instructor to pursue an applied research project. The topic of his research was centered on a term called Culinary Agro Literacy, which is the connection of culinary training, agriculture, and sustainability issues that face our food system. This has led to a new level of understanding of the food system by students.



⁸³ http://www.calgaryzoo.org/schoolyard_naturalization/documents/CBEschools.pdf

⁸⁴ <http://bio.albertainnovates.ca/>

⁸⁵ Statistics Canada (2011).

Small-scale commercial and semi-commercial may include structures such as greenhouses and barns with potential noise from machinery and livestock and also smells from muckheaps or organic sites. They can include (semi-) commercial horticulturalists, (semi-) commercial livestock keeping and fish-farming or small-scale specialist producers. Small-scale commercial or semi-commercial also encompasses SPIN farming. SPIN stands for **S**mall **P**lot **I**ntensive farming. SPIN farming is a non-technical, easy-to-learn and inexpensive-to-implement vegetable farming system that makes it possible to earn income from land bases less than one acre in size.

LARGE SCALE AGRO-ENTERPRISES

Large scale agro-enterprises refers to the conventional agricultural production system within the small-scale commercial and semi-commercial as described above, from which the majority of food consumed is sourced. The scale is however larger. Within Calgary, the amount of land being farmed was calculated to be 12,193⁸⁶. Of the 55 farms within Calgary city limits, 8 farms were over 453 ha. However, it is not currently know whether these farms exceed the Alberta Innovates Biosolutions definition of more than 809.3 hectares to be considered as large-scale agro-enterprises.

Of the 55 farms within Calgary, 23 were focused on food production; cattle (5), apiculture (5), oilseed and grain (7), vegetables (2), fruit/tree nut (3) and food crops under cover (1). It is not possible to map farmland by food type as this information is not maintained in many cases and where it is maintained it is subject to Freedom of Information and Privacy (FOIP) regulations.

Within Calgary, gross farm receipts totalled \$12.5 million for an average \$995/ha. This implies that Calgary farms are more productive than either the average Alberta figure (\$560) and/or the average for Canada (\$787). However, this profile of agriculture in Calgary presents a picture of a type of agriculture consistent with the surrounding region of southern Alberta, and generally subject to the same economic constraints (e.g. labour supply) as agriculture elsewhere in the province.

LEAF & LYRE URBAN FARMS



Photo & Story Courtesy of Rod Olson and Chad Kile

A farm boy from central Alberta finds himself in Calgary, feeling a growing desire to reconnect with his farming roots. The farm boy’s brother-in-law moves to the city and, on a break from his PhD book-learnin’, wants to learn the skills of farming and sustainable living.

Together they implement the SPIN Farming business plan under the name Leaf & Lyre Urban Farms in the spring of 2010, and they just manage to come out ahead at the end of their first growing season. Calgarians love the idea, offering more and more of their support and their backyards for growing, following the progress of the urban farmers on the Eyeopener on CBC Radio 1. As their skills increase, they also begin to participate in the larger conversation about food in Calgary. The interests that motivate them to act are their desire to provide delicious local food for others and to gain gardening expertise for themselves.

They would love to see the day when Calgary is once again known as the Garden City of the West, because they feel that everybody needs a garden so they too can experience the whole story of their food.

More information available at www.leafandlyre.com



⁸⁶ 2011, Agriculture Census

A recent analysis of the relative share of farm value in retail food price suggests that it represents an average of 18.5% over all food categories. In other words, about 18.5% of what is spent on food at retail goes directly to the farmers. Other studies have indicated that this share ranges from 10% to 20%⁸⁷.

Based on farm receipts of \$12.5 million for Calgary and 18.5% of retail sales going to the farmers, an approximate estimate of the retail sales that could be generated by Calgary is \$67.6 million. This suggests that the Calgary could potentially produce around 3.5% of Calgary's food retail sales of \$1.943 billion. This is a significant decrease from 2006 figures indicating that figure to be 11%. Based on the same analysis, the agricultural production of CD6 represents just under 30% of Calgary's food retail sales for 2006 (data not available at time of publication). Of course the caveat still stands that the CCS of Calgary and CD #6 cannot produce the full range of foods retailed in Calgary. This simplistic analysis only serves to provide perspective as to the relative magnitudes of the Calgary region's capacity to produce food and the city's food requirements and how that changes with an increase of the amount of farmland developed.

URBAN CITY FARMS

Story & photo courtesy of Rod Olson, Leaf & Lyre



Urban City farms is a new addition to the SPIN farming movement in Calgary. Through the utilization of local land space, and emerging method, they hope to grow an abundance of healthy produce for consumption right here in the city.

So far it has been an awesome experience, meeting all of the industry pioneers, learning how Mother Nature works her magic, and spending some long days out in the dirt. They want to do their part to make local sustainable food a reality, because they see it as invaluable and necessary. It's stable, less energy intensive, more transparent, and fresher. For Urban City Farms local food is about providing quality and quantity, in a symbiotic manner with the natural environment.

LOCAVORE

Story courtesy of Sandy Aberdeen

The more I learn about climate change the more concerned I become. Food security will become a huge issue on a warming planet. To that end my son and I started an urban farm on a vacant lot in North West Calgary. We were not farmers and the learning curve was steep. As this concept was new to The City of Calgary the permit process for an Urban Farm had not been established so it took a few trips back City Hall to get it sorted out. Hopefully it will be easier for those who come after.

Calgary's relatively short growing season can be extended easily with the use of devices such as cold frames, raised beds and hoop houses. Locavore is experimenting with these devices this year. Permaculture has many exciting possibilities for increasing food security in an urban setting and we are currently taking a Permaculture Design Course. There is so much waste in a city's food system, waste that could be used to create healthy compost and to build soil for Urban Agriculture.

Urban farmers need to work together to establish a resilient, secure foodshed. I'm inspired and happy to know that Calgary's Urban Farmers are doing just that.

⁸⁷ Schnepf, R (2009) *Farm To Food Price Dynamics*. <http://www.nationalaglawcenter.org/assets/crs/R40621.pdf>

MULTI-FUNCTIONAL FARMS

Multi-functional farms include fully functioning farms that may also offer additional elements such as tourism, educational opportunities, or farm shops. Within Calgary, agriculture has always formed a significant portion of the Albertan economy and heritage, so in some cases museums have been established within a working farm to educate about the history of agriculture in Alberta. Some multi-functional farms may offer training and instruction on different skills and techniques related to agriculture.

4.4.2 Other Forms of Urban Agriculture

ROOFTOP GARDENS AND VERTICAL FARMING

Rooftop gardens can be an attractive, energy-saving alternative to a conventional rooftop, helping to reduce heating and cooling costs by providing added insulation and shade, supporting water management and drainage, improving air quality, potentially extending the useful life of a roof and adding beauty and useable space in urban environments where access to space for food production can be limited. Specifically, rooftop gardens can provide space for localized small-scale urban agriculture, on a house or building, as either a community or personal garden for local food production. Rooftop garden classifications for food production include:

Rooftop planter garden- a rooftop garden with removable/non-fixed planting containers and/or raised beds using soil, hydroponics (a method of growing plants without soil, using mineral solutions in water or an inert medium such as gravel or mineral wool) or aeroponics (a method of growing plants in an air or mist environment without the use of soil or an aggregate medium).

Green roof system for agriculture- a rooftop garden consisting of specialized membranes, drainage barriers and growing medium as another layer of the roofing system used to support the growing of vegetation on top of buildings

Vertical Gardens - the term vertical garden is used to define the growing of plants on, up, or against the façade of a building. Strategies for vertical gardens include planting in the ground at grade or planting in planter boxes at grade, attached to walls, on window ledges, as part of horizontal and vertical sun screens over windows, doors and glazed areas, as a balcony garden, or in a vertical hydroponic system. Vertical gardens have similar benefits to a green roof or rooftop garden often without the added weight or cost implications and with the ability to impact a significantly larger area of the building. Similar permitting considerations may be applicable to vertical gardens as apply to rooftop gardens.

THE MUSTARD SEED ROOFTOP GARDEN

Story & photo courtesy of The Mustard Seed



In spring 2011, The Mustard Seed installed a rooftop garden on top of its building on 11 Avenue SE Calgary. With help from Verge Permaculture, Burst and Bloom Studio, local permaculturists, volunteers and sponsors, the Mustard Seed created a green space sanctuary in the middle of the city for the guests living in the Mustard Seed housing and those involved in the Aftercare program as well as staff and volunteers. This multi-purpose space was intended to be used as a place to build and experience community, learn new skills and teach about sustainable gardening, whilst rewarding participants with the ability to eat the herbs and vegetables grown in the garden.

One of the major challenges of the design was the patio's high exposure to sun and wind, making evaporation a concern. However, innovative solutions such as wet pots and hassle free watering systems that slowly release water into the soil and enable plants to only take as much water as they need.



TABLE 4.1: CITY OF CALGARY PLANNING PERMIT REQUIREMENTS FOR URBAN AGRICULTURE

Urban Agriculture Classification	City of Calgary Planning Permit Requirements
Household food production	Gardens are considered a form of landscaping and do not need a development or building permit. A retaining wall, greenhouse or similar structure may require a building permit to address safety issues. The landscaped areas of multi-residential buildings are approved through a development permit which may need to be amended to approve the proposed garden.
Community gardens	Depending on the nature of the park and where it is located a development permit may be required. Associated structures may require a building permit to address potential safety issues. Very few community gardens are in city parks, most are on public land under the stewardship of City of Calgary Parks and leased by community associations by a LOC License of Occupation. When starting a public community garden, an application form is required for approval by The City.
Institutional gardens	In some cases the garden may be in a required landscape or setback area, which may require planning considerations or development permits. Building permits would be required for any associated structures.
Small scale commercial and semi-commercial farms	Extensive Agriculture is a defined use that allows for crop and livestock rearing that is consistent with a traditional farm. Farms are typically an established development and do not require a development permit and changes within the farm are not controlled through development permit except where resulting in an intensive agriculture operation. Intensive forms of agriculture, such as greenhouses, chicken barns and feedlots are only allowed in areas that have been designated by Council as a specific Direct Control District. Building permits are required to address safety; however, the Alberta Building Code does treat some farm buildings differently than buildings typically seen in an urban context.
Large scale agro-enterprises	Purpose built agricultural development, or intensive agriculture such as a farm, greenhouse, chicken barns or feedlot, are considered their own separate and defined use and are only allowed in areas that have been designated by Council as a specific Direct Control District. Extensive Agriculture is a defined use that allows for crop and livestock rearing that is consistent with a traditional farm. This is typically only allowed in areas on the edge of the City which has yet to see true urban development.
Multi-functional farms	Depending on the scale, intended operation and intensity such a development may be considered Intensive Agriculture, Museum or both. The characteristics of the operation will also impact if the activity can be accommodated through a normal Land Use District or whether a Direct Control District may be appropriate. Depending on the land use designation this would be considered an instructional use and would be approved through a Development Permit. The rearing of crops and any livestock would be considered as part of the development permit to ensure it is accessory to the instruction activity
Rooftop Gardens and Vertical Farming	Installing a roof top garden may impact several aspects of a building. As such, any rooftop garden in Calgary will ostensibly be permitted the same as a green roof; requiring a Building Permit and, in some circumstances, a Development Permit from The City of Calgary Development & Building Approvals department. The points to consider will vary dependent upon the site and therefore, it is recommended (and usually required) that a professional engineer and/or architect be contracted to aid the design and ensure both the roof top garden and the building function as intended. More information can be found by reviewing the Sustainable Technologies Permitting Matrix, available at www.calgary.ca/greenbuilding .

BEES

The USDA acknowledges the importance of honeybees in our food chain *'one mouthful in three in the diet directly or indirectly benefits from honeybee pollination'*⁸⁸. However rural bee colonies are in heavy decline with epidemic infection rates by the varroa mite parasite, poor nutrition as they forage on crops with low nutritional values, heavy use of pesticides, "monocrop diets" of bees who forage on just a few crops rather than on the more nutritionally varied "polycrop diet," limited access to water or contaminated water sources, and migratory stress as they are transported between agricultural locations. The devastating effects of this mass honeybee decline (Colony Collapse Disorder) raises questions about the vulnerability of the food chain.

In comparison, there are many examples of urban bee populations thriving within some cities as often they provide an environment with greater biodiversity per square mile, fewer genetically modified plants and fewer pesticides in addition to being slightly warmer (due to the heat island effect). Interest in urban bee-keeping has been increasing for several years in cities such as Toronto and Vancouver in addition to Calgary. In 2005, France's National Apiculture Association launched an urban bee program to support and encourage urban beekeeping and to help support the decreasing rural honeybee populations. There are five hives on the roof of the Palais Garnier, hives on a skyscraper in the La Défense business district; the town hall in the Fourth Arrondissement; and Charles de Gaulle Airport has four hives. Importantly for bees, Paris has been a pesticide-free zone since 2000, in addition, urban beekeepers must register with the veterinarian authority of Paris, and their hives must be at least 25m from the nearest school or hospital. London, UK, has approximately five thousand hives and a thirty-to-one bee-to human ratio. In 2010, it held its first London Bee Summit with a Capital Bee campaign in late 2010 featuring a London produced honey-tasting competition.

ANIMAL HUSBANDRY & ANIMAL WELFARE

Animal husbandry is the agricultural practice of breeding and raising livestock. Animal welfare is the quality of life of an animal. The Canadian Veterinary Medical Association states that *"animal welfare is a human responsibility that encompasses all aspects of animal well-being, including proper housing, management, nutrition, disease prevention, responsible care, humane handling, and, where necessary,*

APIARIES & BEES FOR COMMUNITIES A.B.C



Photo Courtesy of Andrew Hewson

A.B.C. was founded by native Calgarian Eliese Watson in January 2010 and is part of a global movement towards greater urban apiculture, present to-date in such Canadian cities as Toronto, Vancouver, and Victoria. A.B.C. engages, educates, and supports individuals that are part of the community while allowing the community design to become individual to the culture and values of the members themselves! Approximately 225 people have taken the Level I Beekeeping Course through A.B.C., although less than 50% of attendees become hobby apiarists in the first year. Over 1,000 people have attended the various educational and speaking engagements since January 2010 and Eliese has reached an additional 500 school-aged children through classroom visits since September 2010. By the summer of 2012 there will be approximately 95 urban beekeepers educated, supported, and mentored by A.B.C. in Calgary. For more information visit www.backyardbees.ca.

⁸⁸ Questions and Answers: Colony Collapse Disorder," United States Department of Agriculture, Agriculture Research Service, last modified Dec. 17, 2010 <http://ars.usda.gov/News/docs.htm?docid=15572> (accessed April 17, 2012).



*humane euthanasia.*⁸⁹ Animal welfare is a consideration in the breeding, rearing, transportation and slaughter aspects of agriculture and the impact on welfare will depend upon the producer, the country of origin, the distance and conditions of travel and slaughter. Inhumane treatment or lack of appropriate minimum care standards and legislation is often attributed to economic forces driving intensive practices.

Increasingly, good animal welfare practices are perceived as important by consumers. There is growing demand for assurances that animals from which food is derived have been humanely managed and this has led to trends for instance regarding vegetarianism, veganism and the request for free-range eggs and hens. Animal welfare is also encompassed within the considerations of organic certification.

There are several non-profit, community and some government supported organizations established to address animal welfare at the global, national and provincial level, from the Animal Welfare Foundation of Canada⁹⁰ to Alberta Farm Animal Care⁹¹.

In Canada, there is an emerging trend for municipalities to review bylaws that restrict animal husbandry in residential areas. A number of Canadian municipalities are allowing a limited number of urban egg laying hens. Currently in Calgary, under section 27 of the Responsible Pet Ownership Bylaw 23M2006, *“No person shall keep Livestock in any area of the City except where the keeping of Livestock is allowed under The City of Calgary Land Use Bylaw.”* The definition of Livestock within the Bylaw includes animals such as, but not limited to, horses, chickens, sheep, goats, foxes, and cattle. Animal & Bylaw Services is responsible for developing, educating and encouraging voluntary compliance and enforcing the Responsible Pet Ownership Bylaw. A summary of other Canadian cities’ bylaws and experiences specific to hen egg laying is outlined in Appendix E. In the nine Canadian municipalities reviewed, three municipalities allow, four municipalities prohibit and two municipalities are reviewing urban egg laying hens.

Bylaws are essential to the development and maintenance of safe, healthy and vibrant communities, and they help Calgarians live in harmony with their neighbours by setting minimum standards for acceptable behaviour. The role of Animal & Bylaw Services is to help develop bylaws and educate the public about responsible pet ownership and responsible citizenship. The Responsible Pet Ownership Bylaw 23M2006 enables Animal & Bylaw Services to work with Calgarians to ensure that cats, dogs, their owners and neighbours live together in safety and harmony. A review of the Responsible Pet Ownership Bylaw to explore the potential for allowing backyard egg laying hens would need to consider the potential impacts (e.g. noise, odour, humane care and treatment of animals), regulations or criteria as well as the opportunities and benefits, and a pilot study would be able to research these impacts and benefits and inform permanent bylaw amendments if appropriate.

AGRI-TOURISM

Agri-tourism is the combination of agriculture and tourism, two significant industries in Alberta. It provides an opportunity for tourists to directly engage with the farm community. This could happen on a farm tour, at a garden or farmer’s market, at an agriculture festival or fair, or at a country vacation or working farm⁹². Connected to agri-tourism, Tourism Calgary is trying to showcase Calgary by promoting unique regional foods. Tourism Calgary sources out new products related to either ‘only in Canada’ or ‘only in Alberta’ or ‘best in type’. These products form part of building a story and local, unique

⁸⁹ Available at <http://www.afac.ab.ca/aboutus.htm>

⁹⁰ <http://www.awfc.ca/english/index.htm>

⁹¹ <http://www.afac.ab.ca/>

⁹² <http://www.agric.gov.ab.ca/app68/agtour%20?OpenDocument>



experience that Tourism Calgary can sell. For example, Alberta has the best barley in Canada is used to sell the local beer. This creates the connection between the producer, the processor, the local brand, and tourism. This provides an opportunity for marketing the local producer/processor connection, being helped further by such initiatives as: Slowfood Calgary – *The Alberta Snail Trail: Your Guidebook to Local Products at Farm Gates and Restaurants around the Province*.

PRINCE EDWARD COUNTY, ON: Agri-ECONOMIC DEVELOPMENT

Prince Edward County, Ontario, with a population of 25,000 adopted a cultural strategic plan in 2005 to address economic decline. This focussed on wineries, local foods, restaurants and tourism attractions. The results:

1. \$50million wine industry investment
2. 300% increase in building permits (\$16million - \$70million)
3. 168% increase in tourism (now a \$100million industry)
4. \$30million in downtown revitalization
5. \$750million increase in assessment
6. Population decline has reversed and is now up 2%

4.5 CHALLENGES TO FOOD PRODUCTION IN CALGARY AND THE REGION

The following section identifies the challenges that impact food production both within Calgary and the region. Most challenges relate to both the region and Calgary but the references to City land use planning and policy and bylaws pertain to Calgary only.

4.5.1 Climate

There are a number of climatic factors that can have a significant impact on agricultural productivity, such as:

- Precipitation – the source of virtually all terrestrial water, occurring in various forms including snow, rain, dew, and hail.
- Temperature – one of the key elements affecting growth and crop specific.
- Heat Units – the heat available for agricultural purposes. These include:
 - Growing degree days – the reference temperature for this calculation is the minimum threshold temperature at which plant growth starts (typically 0-5° Celsius, although for crops like corn and beans the threshold is 10° Celsius).
 - Frost Free Period – the number of days between the last date of 0°Celsius in the spring and the first day below 0°Celsius in the fall.
 - Growing Season Length – reflects the period of time each year during which perennial crops and forages can grow. The growing season is longer than the frost free period.
- Wind – used mainly to determine the impacts on soil erosion and for estimating the periods when agricultural chemicals can be applied.

The frost free period for Calgary tends to fall between May 23 and September 15 giving approximately 114 consecutive frost free days⁹³. The minimum number tends to be above 50 days with a maximum of

⁹³ Government of Alberta, Alberta Agriculture and Rural Development, Agdex 075-2;



over 150 days. Calgary has approximately 1,400 growing degree days with ranges across the city from 1,370 at the airport to 1,352 and 1,349 at Glenmore Reservoir and the University of Calgary respectively. This compares with Lethbridge at 1,723 growing degree days. Comparing frost free days in the whole of Canada, Vancouver has 221 days, Chilliwack has 216 days and Victoria has 200 days.

In Calgary, there are 114 frost-free days in the year. However, because of Calgary's elevation at over 1000 meters, there is a low heat value in May and September (this means it can be too cool for plants to grow at night). This translates into an equivalent of 80 days of productive growing season⁹⁴. Therefore, because of local weather and elevation, Calgary's growing season typically extends from June 1 to September 1 and is considered relatively short. Consequently, most types of locally grown fruits and vegetables are only available in Calgary at certain times of year. Table 4.2 shows the share of the annual production available in each month for a range of vegetables produced in Alberta. For example, while potatoes and greenhouse lettuce and cucumbers are available at essentially all times of year, beans and spinach are not. This short growing season, in addition to severe weather conditions can influence the imports of cheaper raw-materials and also cheaper food.

Education and awareness of the seasonality of locally grown food in Calgary in addition to methods for effectively extending the growing season and increasing production under the restrictive climatic conditions are subjects that were raised repeatedly at stakeholder consultations during the course of this project. These are important topics for education efforts.

4.5.2 The Global Food System

Advanced biotechnologies, accelerating production and market concentration in the Market Food Sector lead to low food prices but also low returns to the smaller producer. In the US, 75 cents of every US dollar spent on food goes to processors, packagers, shippers advertisers and retailers⁹⁵. Small farmers generally receive low prices for commodities and agricultural subsidies favour large-scale farmers⁹⁶.

The producer of local food has to compete with low-priced industrial foods, but this is countered by the growing interest of Calgarians in locally produced food, where they can interact directly with the producer, and know the origin of the food and the methods of production. Many Calgarians are willing to pay a higher price for food they perceive to be fresh, high quality and support local economic development. In addition, the local producer may be able to avoid some of the intermediate costs of industrial food e.g. marketing, processing and packaging.

⁹⁴ Calgary Horticultural Society, website <http://www.calhort.org/gardening/default.aspx?id=732>. Accessed April 21,2010.

⁹⁵ Unger, S. and Wooten, H. (2006) A Food System Assessment for Oakland, Ca: Toward a Sustainable Food Plan

⁹⁶ Bailey, O. (2011), *Food Plan: A Strategic Approach to Enhancing the Viability of the Calgary Local Food System*. Faculty of Environmental Design, University of Calgary



TABLE 4.2: SHARE OF ANNUAL VEGETABLE PRODUCTION AVAILABLE IN EACH MONTH IN ALBERTA

Vegetable	Type	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
* Asparagus	White & Green	P A											A
Beans	Green & Wax		A	P	A								
Beets	Bunch	A	P	L									
	Bulk		P	P	P	P	A	A	L	L	L		
Bok Choy		P	P	P	P	A L							
Broccoli			L P	P	P	P A							
1) Cabbage	Green		P	P	P	P	P	P	A	L			
	Red		A P	P	P	P	P	A	A	L			
	Savoy			A P	P	P	P	P	A				
Cabbage, Chinese	Suey Choy	L L	P	P	P	P A	L						
Carrots	Baby		L A	P	P	L							
	Cello (medium)			A	P	P	P	P	A	L			
	Jumbo			L	A	P	P	P	A	A			
Cauliflower			P	P	P	P A							
Celery				P	P								
Corn				P	P	L							
Cucumbers	Pickling		L	P	P								
2) Cucumbers	Greenhouse	P	P	P	P	P	A	A	A	L A	P	P	P
Dillweed			L P	P	A								
* Garlic				P	P	L							
Kale	Green, Purple		L A	P	P	P							
Kohlrabi			L P	P	P	L							
Leeks					A P	P	P	A					
Lettuce	Field (Leaf & Romaine)	A	P	A	A								
Lettuce	Greenhouse	P	P	P	P	P	P	P	P	P	P	P	P
* Micro Greens	Greenhouse					P	P	P	P	P			
*Mixed Greens	Field	P	P	P	P	L							A
Onions	Green	A	P	P	P	A L							
	Yellow (cooking)			A	P	P	P	P	P	A	A		
	Silverskin, fresh			P	A								
Parsnips					A	P	P	A	A	A			
Peas	Green, Snow, & Sugar Snap		A	P									
Peppers	Greenhouse - Green	P	P	P	P	P	A				A	P	P
	Greenhouse - Red, Yellow, Orange, Hot Peppers		P	P	P	P	A				A	P	P
Potatoes	Baby			A	A	P	P	P	P	P	A L	L	
	Table	L	L	L	A	P	P	P	P	P	P	A	L
Pumpkins					P	P							
Radish	Bunched & Cello	L P	P	P	P	A L							
Rutabagas					P	P	P	P	P	P	P	L	
Spinach	2 doz/box	A	P	P	P	A							
	Cello	A	P	P	P								
3) Squash					P	P	P	A	A				
4) Tomatoes	Greenhouse	P	P	P	P	P	A			A	A	P	P
Zucchini					P A	L							

* These vegetables are available in smaller volumes from direct marketers to the specialty stores and /or restaurants

Source: Alberta Agriculture and Rural Development,

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sis1663291411](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sis1663291411)

KEY: L = Limited (1-4 % of crop available), A = Average or regular supplies (>4-15% crop available), P = Peak (> 15 % of crop available)



4.5.3 Rising Costs of Inputs (Labour, Land and Energy Prices)

Prices of food in Canada have risen since 2009. Consumers paid 4.8 % more for food in 2011 compared to 2010; store-bought food rose 5.7 % while restaurant prices rose 3 %⁹⁷. This is due to several key drivers:

1. High transportation costs;
2. High prices of commodities;
3. Export restrictions and panic buying (usually caused by weather related shocks);
4. Weaker Canadian dollar that makes imports more expensive; and
5. Reduced production due to bad weather.

In addition, global shifts influence Canadian food prices, for example the restrictions on exports in a range of countries e.g. soybeans from Argentina and wheat from Russia.

A wide variety of inputs contribute to the finished food product including transportation, packaging, advertising and the wages of workers as a product moves from farmers, to manufacturers, to wholesalers, and finally to retailers and restaurants. Price increases in each area of the supply chain impact the price of the final product.

An underlying driver at each level is the rising cost of fuel (both diesel and natural gas), which causes escalations in the cost of fertilizers and food transportation as well as all raw inputs. Therefore, as increasing food prices are influenced by increasing costs in the food supply chain, shorter supply chains may be considered more effective and resilient. For instance, transportation costs would relate to much shorter distances. However, the distribution chain at the local level may be less efficient (e.g. multiple small distance trips to multiple outlets versus a larger distribution hub with greater quantities supplied to fewer outlets) meaning fuel costs still significantly impact the price of local food.

In addition to raising costs associated with farming, fragmented areas also make it increasingly difficult for producers to perform daily farming operations such as moving or operating farm equipment. Fragmentation of agricultural land occurs when once contiguous areas become divided into separate fragments isolated from each other by other, non-agricultural land uses such as residential or industrial development. Fragmentation of agricultural land can also occur within a parcel of land by subdivision, access roads, oil and gas developments, and/or other mid-field structures such as transmission towers.

4.5.4 Development and Land Values

Conversion of farmland to other uses, fragmentation of the farmland base and the right to farm are the key concerns regarding land use and farmland protection. A key impediment to the development of food production in the Calgary region is the cost of land, which is influenced by these concerns. There are two main components of land value:

- Intrinsic value – value based on productive capability, essentially the ability to cash flow the asset; and
- Speculative value – the addition to intrinsic value related to potential factors that would affect the highest and best use of the land.

When the speculative value increases relative to the intrinsic value it becomes very difficult to cash flow the land from the agricultural enterprise. While this may not be an issue for a well established farm unit

⁹⁷ Statistics Canada



with a significant amount of equity, young farmers (either in age or farm tenure) find it difficult to acquire sufficient land in order to make farming viable.

Land owners in both Calgary and the surrounding region have a significant amount of speculative value attached to their asset base given both the presumption in favour of development once lands are annexed within City of Calgary boundaries and the increased demand for country residential development in the surrounding region for those commuting into the urban centres. This speculative value, from a financial perspective, far exceeds the intrinsic value based on productive capability. This means that regional agriculture is under extreme pressure from urbanization, environmental degradation, and a globalized, industrialized farm economy. This inevitably leads to the ultimate sale of land for development purposes rather than continued food production and preservation of lands for agriculture.

There are many local farmers with a passion to continue in the agricultural profession. However, the various challenges to local food production and lack of awareness of the true value of our food system and the total cost of food (e.g. a living wage for farmer and farm workers, benefits etc), impacts the financial viability of the local agricultural economy. When speculative land values are high and alternative employment opportunities are abundant and given higher value in society, the opportunity to leave of the agricultural profession becomes attractive.

While the food movement is becoming incredibly supportive of young farmers, there is a lack of understanding of the difficulties of beginning a farming business in comparison to growing food in your spare time. Starting a farming business requires capital investment, time, and risk. If farming is to be an acceptable career choice for Canadians and Albertans, then it should be able to pay, as a minimum, for a family's basic necessities and a good quality of life, agriculture should be recognized in planning and the mechanisms for supporting it explored.

4.5.5 Land Use Planning Policy

The principles and actions associated with a sustainable food system are not only specifically identified within imagineCALGARY and support the 2020 Sustainability Direction and Council's and Corporations objectives but are also referenced throughout the Municipal Development Plan (MDP), the strategic plan providing direction for the growth and design of Calgary over the next 60 years. Policies range from the encouragement of community gardens as part of complete communities and parks, open spaces and outdoor recreation (Sections 2.2.4 Policy b vii, Objective 2.3.4 policy h), to the integration of green infrastructure which includes for urban food production (Section 2.6.1 policy b and d) to recognition of the value and preservation of agricultural land in Sections 3.6.2 and 4.3.2: *The City recognizes that agricultural is a viable use of land prior to urban development. It [The City] supports it's [agriculture] continuation by allowing extensive agriculture as a Permitted Use in the Land Use Bylaw and restricts the fragmentation of agricultural land until needed for urban development. The City also supports the use of such lands for the long term food security of the city."*

However, despite supportive policies, a key issue in implementing a sustainable food system is the fact that food production systems have to compete with the land uses of a growing urban area. One of the challenges in advancing urban agriculture in any urban area is the fact that food systems have not typically been a high priority item in land use designation and have been absent in specific policy development and implementation.

Statutory land use plans provide the policies for implementation of the MDP at the local level and these plans have not in the past identified lands of significant agricultural value for protection within their land



use concept designs, albeit specific policies in recent plans often refer to food production, urban agriculture and community gardens. The Municipal Government Act allows for the protection of lands from development for the purposes of Municipal Reserve and Environmental Reserve. Environmental Reserve has been used to protect Environmentally Significant Areas (ESA), but it is limited in the amount of area that can be protected and has not extended to the preservation of lands of agricultural value.

As a result, once land use policy plans are approved for lands annexed within city of Calgary boundaries, any land of agricultural value is generally proposed for development rather than preserved for agricultural purposes and the resulting outcome does not promote an approach that would be consistent with what is now identified as best practice for an optimal food strategy.

A total of 84,922 hectares of land has been annexed by the City of Calgary since 1884, with the largest single annexation occurring in 1961 (19,321 hectares). Another major transaction occurred in 1989 (11,989 hectares). Over 35,482 hectares has been annexed since 1980 as shown in Map 3.6 in Chapter 3. Using the average of \$748/ha that was outlined in the 2006 Census this represents a loss of \$26,540,760 in annual gross farm receipts, approximately 7% of annual Calgary food purchased.

Not only has the concept of using/considering a food system approach been absent in terms of policy development, but the lack of focus on this means that the mapping of essential agronomic characteristics has also been neglected. A detailed and systematic agronomic analysis of the region would be valuable in order to ensure that the best land use policy decisions can be made. Further, in order to be successful, the Food System Assessment and Action Plan should be included as part of the decision framework for land use policy development and the Growth Management Framework on a go-forward basis.

4.5.6 Bylaws & Legislation

Bylaws are essential to the development and maintenance of safe, healthy and vibrant communities. They help Calgarians live in harmony with their neighbours by setting minimum standards for acceptable behaviour. Different business units are responsible for developing, amending and enforcing bylaws, and educating the public about their content and requirements. Several bylaws currently impact the Calgary food system. An overview is provided for each below:

CITY OF CALGARY LAND USE BYLAW 1P2007

The Land Use Bylaw is an important tool for implementing the policies of the Municipal Development Plan, Area Structure Plans, Area Redevelopment Plans, and other policy documents. The Land Use Bylaw regulates neighbourhoods regarding the type and mix of housing; the location and type of shops and services; and the development potential of each property. Further, it defines different activities, (“uses”) based on how they function and based on the impact of those functions. In some cases the use is accessory to the primary use of the site, in other cases the function constitutes its own use.

The proposed urban agriculture classification identifies production at six different scales (discussed previously); household food production, community gardens, institutional gardens, small-scale commercial and semi-commercial, large scale agro enterprises and multi-functional Farm. These six different scales do not apply to the Land Use Bylaw, each development must be reviewed and assessed to determine what activities are taking place. Part 4 of the Land Use Bylaw defines different uses and the proposed urban agriculture activity must fit within the definition. Section 130 outlines that each use definition is to include customary activities.

Most urban agriculture activities will not be specifically defined; instead, the activities taking place on the parcel must be examined. In some cases the agricultural activities are ordinary and customary for



what is occurring, such as a backyard garden. Where agriculture functions stand on their own they would be considered their own use, such as a small scale farm. Depending on the use and what other development is happening Development Permits for planning approvals, and Building Permits for life safety, may be required. In cases where the proposed use is not currently allowed on the parcel a Land Use Amendment may be required.

CITY OF CALGARY BUSINESS LICENCE BYLAW 32M98

Development and Building Approvals is responsible for the Business Licence Bylaw. A licence is required to prepare, store, serve and sell food, with licence categories for different classes of premises.

CITY OF CALGARY COMMUNITY STANDARDS BYLAW 5M2004

Animal & Bylaw Services is responsible for developing, educating and encouraging voluntary compliance and enforcing the Community Standards Bylaw. Existing sections of the Community Standards Bylaw that should be considered when evaluating a sustainable food system are as follows:

Planting, Growing & Harvesting

- Part 9 – Regulation of Noise
- Part 10 – Nuisances Escaping Property
- Part 11 – Weeds and Grass

This section currently prohibits citizens from growing grass more than 6inches (15cm) tall and regulates 'noxious weeds' and 'objectionable grasses'.

Food Waste Recovery

- Part 4 – Untidy Properties, Accumulation of Materials 8(1)(a)(b)(c) and 8(3)(f)
- Part 8 – Regulation of Composting, Prohibitions 24(1) and 25(1)(2)(3)

CITY OF CALGARY RESPONSIBLE PET OWNERSHIP BYLAW 23M2006

The Responsible Pet Ownership Bylaw 23M2006 enables Animal & Bylaw Services to work with Calgarians to ensure that cats, dogs, their owners and neighbours live together in safety and harmony.

Currently in Calgary, under section 27 of the Responsible Pet Ownership Bylaw 23M2006, "*No person shall keep Livestock in any area of the City except where the keeping of Livestock is allowed under The City of Calgary Land Use Bylaw.*" The definition of Livestock within the Bylaw includes animals such as, but not limited to, horses, chickens, sheep, goats, foxes, and cattle.

CITY OF CALGARY PARKS & PATHWAY BYLAW 20M2003

The Parks & Pathways Bylaw is developed by Parks and enforced by Animal & Bylaw Services. The City of Calgary's Parks and Pathways are valued and treasured assets, and protecting their value and quality is a high priority as is ensuring that they remain safe and accessible for the enjoyment of all Calgarians. This bylaw protects and preserves the park's natural features and resources (e.g. flowers, ground nesting areas, natural areas) which should be considered when evaluating a Sustainable Food System as follows:

Planting, Growing & Harvesting

- Prohibited Activities 17(b), 23 (1)(a)(b)(c)

This section currently prohibits citizens from growing and harvesting on Parks land, however an exemption is made for Community Gardens and Orchards.

Distribution

- Sale of Goods and Services



CITY OF CALGARY STREET BYLAW 20M88

The Street Bylaw regulates the use of streets and activities adjacent to or near streets. Existing sections of the Street Bylaw that should be considered when evaluating a sustainable food system are as follows:

Planting, Growing & Harvesting

- Sidewalks – Section 68 (all)

Consumption

- Soliciting and selling
- Sidewalk cafes

PROVINCE OF ALBERTA WEED CONTROL ACT S.A. 2008 87, C. W-5.1 AND WEED CONTROL REGULATION 19/2010

These are developed by the Province of Alberta to regulate weeds and are enforced by Animal & Bylaw Services within Calgary. The Alberta government developed the new Act and regulation in consultation with a broad range of stakeholders to ensure the legislation reflects Alberta's current realities and needs in the shared effort to protect the province's natural resources and agriculture industry. Similar to the community bylaw standards this could restrict crops grown on certain land uses.

CITY OF CALGARY WATER BYLAWS AND CONSIDERATIONS

Water Utility Bylaw 40M2006

Regulates connections, responsibilities and provision of service for connection to The City of Calgary Water System.

- Interpretation and definitions Part I, Outdoor Water Use Restrictions Part, VIII, Water Service connections Part XIII, Cross Connection control, Part XIV, Alternate sources of water, Part XVI

Wastewater Bylaw 14M2012

Regulates connection service and discharges to the wastewater collection system.

- Definitions and Interpretation, Part I, General Prohibitions, Part VI, Prohibited Substances, Schedule "A", Restricted Substances, Schedule "B"

Drainage Bylaw 37M2005

Oversee issues of drainage and run off from a property.

- Interpretation and Definitions Section 2, Releases to the storm drainage system Section 4, Release of prohibited materials Section 5, Connections Section 13

Please note that the Community Standards Bylaw 5M2004 includes wording related to drainage between properties and the Lot Grading Bylaw 32M2004 applies to construction design and proper drainage. Residential and community development projects related to food must ensure that water development approval submissions meet the appropriate specifications. Resources, checklists, guides and templates are found at: <http://www.calgary.ca/UEP/Water/Pages/Specifications/Submission-for-approval-/Development-Approvals-Submissions.aspx>.

The best practice for utilities across North America is to process all water drawn from surface and underground sources to drinking water quality for distribution regardless of the intended final use of the water. As a result, water that will be used for irrigating lawns, gardens and crops, or for heating and cooling systems and industrial processes, is of the same high quality as the water used for drinking, bathing and cooking. This traditional approach ensures that all water coming into contact with humans directly and indirectly is potable, and as such, will not compromise human health. On the other hand,



this approach requires larger treatment infrastructure, and increased chemical and energy use to bring the raw water to drinking water quality. The financial and environmental costs may be lowered through water conservation actions such as residential rain water harvesting with a rain barrel to reduce the demand on water treatment facilities during high water use periods during the summer months.

Other methods of water reuse, such as stormwater, grey water and wastewater reuse are getting a lot of attention through research and in some cases used to supplement potable water supplies in limited applications. Calgary is following the issue but is subject to provincial and federal legislative and regulatory requirements for water reuse. While rainwater harvesting is allowed in Alberta, stormwater and grey water quality guidelines have not been developed at a provincial level yet. The Province's Reclaimed Water Working Group continues to work toward water quality guidelines but has not set a date for release.

Rain Water Harvesting for Food Crops

The quality of water that is harvested in a rain barrel is related to the nature of the material the rain water runs over to be collected (i.e. shingles), how the water is stored and eventually used (i.e. in what type of container, maintenance of the container, how long the water sits). There are many types of shingles and downspouts. Some can contain preservatives, fire retardants, asphalt, and lead. Bird waste and heavy metals are also a major concern for human health.

It is not possible for The City to guarantee the quality of water in a rain barrel or its suitability for use on edible crops. Collected rain water is not potable, which means it should also not be used for drinking. Therefore, The City of Calgary does not promote the use of rain water harvesting from a rain barrel on food crops. Residents do use it at their own discretion. However, residents are encouraged to use the rain water on their trees, lawn, shrubs and flowers in their garden. For larger water storage cisterns, residents should refer to provincial guidelines.

OTHER CONSIDERATIONS

Some Community Associations have commercial grade kitchen facilities in addition to community gardens and land suitable for urban agriculture. However, the Licence of Occupation (LOC) restricts Community Associations from allowing third parties to use the site for profit. This would limit the classifications of urban agriculture currently possible on Community Association land and sites.

4.6 POTENTIAL FOOD PRODUCTION CAPACITY IN CALGARY

There is a significant amount of land currently owned and stewarded by The City of Calgary for a variety of purposes. Much of this land has a specific function e.g. recreation, natural area conservation, transportation, industrial site development, Transit Oriented Development etc. However, some sites may have the potential to be explored further for the purposes of food production either as a permanent or temporary (interim) use. A temporary or interim period of food production may be suitable for a site with a future allocated purpose but for which development or sale for that purpose has not yet occurred and may require a period of a year or more to complete.

The type of urban agriculture or food production suitable will depend upon site specifics such as plot size, location, surrounding community, neighbouring land uses, existing function, access and micro-climatic conditions.

In order to assess the quantity of land owned and stewarded by The City in an efficient manner a two-phased approach is required for the completion of a land inventory for sites with potential for urban agriculture. Phase 1 has been completed as part of this Food System Assessment. This phase screens



City owned sites based upon a set of high level principles and criteria in order to remove those sites immediately unsuitable for urban agriculture at a strategic level and refine the number to which a site-specific analysis would be completed. Phase 2 will be completed in alignment with existing City of Calgary land review projects and will further analyse sites resulting from Phase 1 on a site-by-site basis where possible. Given the additional analysis required, maps identifying specific sites are not deemed appropriate at this time and will not be included as part of the Phase 1 analysis.

Land Inventory Phase 1: Completed

City of Calgary owned land was analysed using Geographic Information Systems (GIS) and appropriate criteria based upon the Land Inventory Principles outlined below in order to identify, at a strategic level, sites for Phase 2 of the land inventory. This analysis used data from Infrastructure and Information Services (IIS) at The City of Calgary. This database includes all of the land within the city boundary and is categorized by a number GIS layers. A set of inclusionary and exclusionary criteria were developed based upon the principles above and best practice from other jurisdictions with consideration of the Calgary specific context (Table 4.3). The criteria were applied to remove sites that would be unsuitable for food production due to their use for a specific purpose e.g. natural areas, sports fields, cemeteries, off-leash dog parks, golf courses etc or because of other unsuitable criteria e.g. size, slope, access to water etc based upon the identified principles.

Land Inventory Phase 2: Future Analysis

The Phase 1 sites will be reviewed on a site-by-site basis, working with specific business units that steward and own the sites in order to further refine the land inventory and prioritise specific opportunities. This Phase 2 land inventory will be aligned to work programmes and processes that are happening concurrently within The City of Calgary, which include Corporate Properties and Buildings Corporate Real Estate Review and any land review associated with the biodiversity strategy. This will ensure efficient use of resources, incorporating urban agriculture as a consideration in the existing land reviews to identify suitable sites. A number of additional factors would be considered at this stage, including, but not limited to, existing and future site function, lease holds, contamination, type of urban agriculture and appropriate governance structure.

Throughout the Phase 2 land inventory, governance structures appropriate for different classifications of urban agriculture and appropriate to the land steward will be explored. The development of an appropriate governance structure should address several considerations including, but not limited to, type of urban agriculture (scale and intensity), status of the farmer/grower in terms of charity, not-for-profit or business, timeline of lease, payment for the lease, financial support, existing legislation and bylaws, public access to the land, management criteria etc. Site development may be driven by public interest and may require short-term pilot projects to explore the suitability of the developed governance structures and to analyse any requirements for amendments.

Land Inventory Principles

A set of principles were established to analyse City owned land in consideration of the potential for urban agriculture and in order to refine the number of sites to which a specific site analysis would be completed:

OWNERSHIP

Only city-owned land was reviewed as part of the land inventory for Phase 1 given the quantity of land in ownership within Calgary and the recognition of support by the municipality for urban agriculture and food production. City-owned sites are stewarded by individual business units and their function, review and/or sale supported by Corporate Properties and Buildings. The consideration of sites for urban



agriculture and the governance structure employed will be influenced by the business unit steward and would be further reviewed as part of Phase 2 of the land inventory.

Private land was not reviewed as part of the analysis. The likely support for urban agriculture by individual land owners, even as an interim use on a currently abandoned or derelict sites, would be difficult to understand in the time frame of this assessment. However, the principles outlined for this land inventory would be applicable to private site should individual land owners consider urban agriculture.

SIZE

A variety of site sizes would be valuable to offer diverse choice for different urban agriculture classifications. Some community gardens utilise a square foot garden approach, which employs the concept of planting food crops based on how much nutrients each kind of plant needs from the soil and space to grow. Often this incorporates some vertical growing using trellises and therefore requires only small sites to carry out urban agriculture. As such, the Phase 1 land inventory used a minimum plot size of 100ft² with no portion less than 10ft in width.

SITE FUNCTION

City-owned land is currently allocated for a variety of uses including recreation, habitat protection and biodiversity, archaeological conservation, business development, affordable housing etc. For each of these uses, there may be a range of specific functions that the land must supply e.g. community parks space must meet a spectrum of parks users including informal play areas, off-leash dog parks, sports fields, naturalised areas etc; there must be a balance between play, nature and recreation. Therefore, urban agriculture will be inappropriate on many of these sites due to their current use and function; it could prevent use of sports fields, interfere with recreation, impact the environment and damage cultural resources if implemented in the wrong location. As such, the following areas were excluded from the Phase 1 land inventory:

- Buildings
- Golf courses
- Natural Areas and Habitat Areas
- Sports Fields
- Cemeteries
- Archaeological Sites
- Parks
- Cultural Landscapes
- Off-leash dog parks
- Riparian Zones
- Select areas of Regional Parks i.e. skateboard areas, playgrounds etc
- Some provincial

SITE ACCESS

Access to a site is important from both a safety perspective e.g. a site may be inappropriate if it is located in an isolated island between major highways, in addition to ensuring suitable means of transportation for gardeners/farmers. This will need to consider if there is a requirement for dedicated car parking or shared parking with a neighbouring facility should the site not be located on a primary transit route or pathway/bikeway. In addition, bike parking may need to be considered. Depending on the type, scale and intensity of urban agriculture undertaken, access for farm machinery, delivery vehicles and visitor parking may also need to be considered. This would be done on a site-by-site basis in Phase 2 of the land inventory.



ACCESS TO WATER

Albeit some methods of urban agriculture are less restricted by access to water (e.g. Permaculture), in prioritising sites the ability to access potable water should be a consideration. All sites without access in a 15m radius were excluded from the Phase 1 land inventory.

SITE SLOPE & ACCESS TO LIGHT

Some methods of urban agriculture may employ a terraced approach to food production on steeply sloped sites. However, this can restrict access to the site, light availability (depending upon site orientation) and ease of gardening, particularly using intensive methods or raised beds. As such, in prioritising sites for the Phase 1 land inventory, land was excluded if more than 30% of the site had a slope greater than 10%. In further consideration of access to light, a 1m buffer was excluded around existing tree driplines.

SAFETY

Existing infrastructure and neighbouring uses may impact the ability to use a site for urban agriculture. For instance, the existence of high pressure pipelines, major roads and land fill sites can present either a contamination issue through leaching of contaminants through the soil, air quality issues from major roads, root damage to buried infrastructure or a need to access buried infrastructure. Albeit the design of the site can mitigate certain issues on a site-by-site basis, legislation and associated setbacks exist for some uses. For instance, the *Subdivision and Development Regulation* prohibits certain uses (residences, food-establishments, schools, hospitals) from locating within a prescribed setback distance from a landfill site; 450m when the landfill is in operation and a permanent setback of 300m following landfill closure. As such, for the purposes of the Phase 1 land inventory, pipelines, major roads and land fill sites and their associated buffers were excluded.

SOIL QUALITY & CONTAMINATION

Soil quality and contamination can impact the ability to pursue urban agriculture. However, given existing strategies that overcome this issue e.g. the ability to employ growing methods in raised beds, it was considered that this should be addressed within the Phase 2 land inventory.

ENVIRONMENTAL IMPACT

Certain city-owned sites are protected and managed for the purposes of biodiversity, natural area protection and wildlife preservation. These sites play an important role in protecting Calgary's wildlife by providing habitat for resident and migratory animals. Compared to manicured parks, natural areas give priority to the protection of vegetation and wildlife over human use when the two come into conflict. Therefore, these sites will be inappropriate for urban agriculture due to the potential impact on wildlife and vegetation. In addition, urban agriculture in neighbouring sites may still be inappropriate, in particular if non-organic methods of production are employed. Further, in implementation of the Open Space Plan, Wetland Conservation Plan and Biodiversity Strategic Initiative, some city-owned land may be identified for future naturalisation in order to increase connectivity between existing protected sites and strengthen green corridors.

As such, Natural Areas and Habitat Areas and Riparian Zones were excluded from the phase 1 land inventory. Impact on neighbouring natural areas and the allocation of additional sites for naturalisation would be addressed within the phase 2 land inventory.



IMPACT ON NEIGHBOURING USES

In addition to the potential impact of urban agriculture on neighbouring natural areas, consideration should also be given to the potential impact on other neighbouring uses e.g. additional parking, visual impact and noise. Community engagement would be required as part of any exploration of a site for potential urban agriculture. The scale of this engagement would depend upon the scale of urban agriculture undertaken. Development of any site for urban agriculture would also be subject to any applicable permits, licenses and regulations.

Several of these principles may be mitigated or overcome and sites that have been excluded could have the potential for future urban agriculture. However, this requirement for mitigation will likely impact the financial viability of the site and for the purposes of prioritizing sites, these principles have been used to develop a set of criteria (Table 4.3) to exclude land within the Phase 1 land inventory (Table 4.3).

TABLE 4.3: CRITERIA FOR CALGARY LAND INVENTORY ANALYSIS

Criteria	Detail
Type and Size of Land Included	<ul style="list-style-type: none"> • City-owned land • all parcels greater than 100ft² • no portion less than 10ft in width (i.e. all narrow strips excluded)
GIS Layers and Zones Excluded	<ul style="list-style-type: none"> • Private land • Public Water Access –parcels without access in a 15m radius • Parcels that only have river water access • Slope – at least 30% of the site must have slope of 10% (5.8°) remaining land must have slope less than 40% (21.8°) • Golf courses • Natural Areas & Habitat Areas • Sport Fields • Cemeteries • Archaeological Sites • Off-leash dog parks • Riparian zones - floodway and 15 m Buffer around Water Features • Select areas of Regional Parks; i.e. skateboard areas, playgrounds etc • Impervious Areas - pavements and gravelled areas were kept in. • Buildings • High Pressure Pipeline - buffer 25 ft (8m) • Expressway – buffer 15m • Major roads – buffer 15m • Other Roads (e.g. skeletal roads, neighbourhood boulevards etc) • Trees –buffer 1m around tree driplines • Landfield • Fish Creek provincial park / COP • LRT/Railway – buffer 15m

The Phase 1 land inventory was based upon the criteria outlined in Table 4.3 and suggested an area of land approximately 2700ha. It should be noted that this is the first phase of the land inventory and many of the sites identified will be unsuitable for urban food production for a variety of reasons that



include but are not limited to, dedicated current or future site function, operating realities, and political or local environmental sensitivities. Each site identified will have specific limitations associated with it and will require review on a site by site basis as part of the Phase 2 land inventory. Given the additional analysis required, maps identifying specific sites are not deemed appropriate and will not be included as part of the Phase 1 analysis.

An analysis of the potential for rooftop gardens adds additional possibilities. The area of rooftops in the city accounts for approximately 7,600 ha of land space. However, this does not account for rooftop slope, structural quality or accessibility for a rooftop garden and the proportion of existing rooftops currently suitable for urban agriculture is likely to be small.

In addition, there are a total of 390,629 low density residential properties in Calgary that have the possibility of back or front yards. An estimate of yard size was made using an average parcel (excluding building footprint) for two communities in Calgary; one in an established community in the Northeast (Rundle) and one in a new community in the Southwest (Evergreen). The average yard size for Rundle was 495.5 m² and for 410.8m² for Evergreen. Using these figures, it is estimated that the average yard size across all low density residential development in Calgary is 453m². With 390,629 low density residential properties it can be estimated that there is approximately 17,700ha of yard land available for food production. It should be noted that the amount of this yard area with potential for urban agriculture would depend upon other yard uses e.g. decking, patio, pathways and the desire of the residents to grow food either themselves or provide access to others to do so. Given that 33% of Calgarians outlined that they grow their own vegetables⁹⁸ it can be estimated that approximately 33% of this 17,700ha or 5,840ha (considering much of this area will be allocated to decking and other garden area) is already employed in food production.

4.7 SUMMARY

Traditional agriculture, including large scale crop and cattle production, still dominates the region's land use. However, the agricultural industry has been revitalized through a renewed global emphasis on sustainable food production, growth of organics, increased prices for food commodities, and an interest in supporting local economic development at the municipal level. In some categories of food production the region supplies either significantly more or less than these rough averages since there are agronomic limitations to the variety of products that can be produced in the Calgary region. A lack of precision on the source of food consumed in Calgary limits the ability to conduct a thorough analysis of the percent of production that is local. Calgary, like other North American cities, is experiencing a rejuvenation of urban agriculture.

⁹⁸ HarGroup Management consultants, 2010

TABLE 4.4: PRODUCTION SUMMARY

Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	<p>Bylaws are written to protect the environment, private and public property, ensure high standards of public health and safety and maintain an orderly appearance for the city. Proponents of local food production may point to contradictions between existing bylaws and the production of local food. Proposed amendments to bylaws should contemplate community consultation, role of each level of government, operational impacts associated with regulating proposed amendments and requirements for public education. See Section 4.5.6 for a listing of relevant bylaws.</p> <p>Global competition and low costs of food imports.</p>	<p>Willingness of multiple stakeholder groups to work collaboratively on solutions.</p> <p>Willingness of City of Calgary business units to collaborate when undergoing bylaw and policy review.</p> <p>The Urban Forestry Strategic Plan encourages citizens to participate in tree planting and maintenance activities.</p> <p>Branding of certain products e.g. Alberta Beef and red spring Red Fife wheat is supported by groups such as Commodity Boards, food associations and Tourism Calgary. Designation of food trails, by Travel Alberta such as the Cowboy Trail. Development of the cottage wine industry with the assistance of Alberta Agriculture and Rural Development.</p>	<p>Federal policy legislating the protection of agricultural land in many countries and provinces e.g. UK, Ontario through the use of growth boundaries and green Belt policy.</p> <p>Food Security is one of the pillars of The City of Vancouver’s Greenest City 2020 plan.</p> <p>Vancouver, Victoria, Richmond, Kamloops and Halifax have and continue to review bylaws in alignment with food strategies and policy (see Appendix E).</p> <p>The City and County of San Francisco Board of Supervisors passed several resolutions supporting a sustainable food system including:</p> <p>The Fair Trade Certified Goods Resolution declaring that the city would maximize its purchasing of fair-trade certified goods (2005).</p> <p>The Organic Certified Foods Resolution resolving that the city would create a policy to maximize the city’s purchasing of Organic Certified goods.</p> <p>The Caged Hens Resolution urging San Franciscans not to purchase eggs produced by caged hens and opposing the factory farming practice of confining egg-laying hens in battery cages (2008) supporting the California initiative 07-0041 for The Prevention of the Farm Animal Cruelty Act.</p>	<p>Collaboration with Alberta Agriculture and Rural Development (AARD) on policy development supporting local food production.</p> <p>Collaboration between the Office of Sustainability, Calgary Food Committee (CFC) and relevant City of Calgary business units to align bylaws to the Food vision and principles when reviewed. Undertake pilot programs as part of bylaw review where concerns need to be explored and suitably mitigated to inform bylaw amendments and policy or project development.</p> <p>Make community halls and centres more available as hubs for community gardens, food distribution etc e.g. Hillhurst Sunnyside Community Association garden and market.</p>
Planning and Land Use	<p>Absence of binding federal and provincial legislation to protect Canada’s or Alberta’s agricultural</p>	<p>Implementation of the MDP will focus on strategic intensification which will reduce the need to annex further agriculture lands. Environmental</p>	<p>The Ontario Farmland Trust, BC’s The Land Conservancy and Saskatchewan’s Genesis Land Conservancy are examples of organizations that are conserving farmland</p>	<p>Collaboration with CRP Members to develop a food policy and associated strategies for the protection of agriculture and a sustainable food system as part of</p>



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
	<p>land.</p> <p>Food production systems have typically not been a high priority item in land use designation. As a result impacts on food production are not generally considered in land use planning and policy or development planning. This is clear through the annexation of agricultural lands for development and results in high speculative land values which impact the financial viability of farming in the region.</p> <p>Data is currently unavailable to clearly understand the demand for food in comparison to the productivity of local food production to determine the land mass required to support a percentage of demand through local supply.</p> <p>Currently, food production and community gardens are less accessible to residents in affordable housing from an access to space and time perspective.</p>	<p>conservation policies would allow for agriculture conservation consideration. Implementation of complete community policies should include for food production. The development of the Corporate Framework for Growth and Change provides principles for sustainable growth and development that will incorporate ecosystem services, which encompass food considerations.</p> <p>The Calgary Regional Partnership (CRP) presents an opportunity to collaborate with the regional municipal districts on a shared vision for a sustainable food system.</p> <p>There is a growing interest in rooftop gardens for food production and several examples within Calgary associated with multi-family residential and restaurants.</p> <p>The Phase 1 land inventory has identified a significant number of City-owned sites for further review for potential food production.</p>	<p>and ensuring that that the land is farmed in a sustainable or organic manner. BC’s Agricultural Land Reserve and Quebec’s Act to preserve agricultural land, both benchmark planning policies designed to protect prime farmland from encroaching development.</p> <p>Community Development Futures Task force Neighbourhood Revitalization Strategic Framework, Detroit, incorporates food production as a major characteristic in some of the proposed sectors including Urban Homestead (large lots to accommodate a small farm) and Green Venture Zones (green and blue industrial areas, larger scale food production).</p> <p>http://datadrivendetroit.org/wp-content/uploads/2010/09/CDAD_Revitalization_Framework_2010.pdf</p>	<p>the Calgary Metropolitan Plan (CMP) and work of the CRP.</p> <p>Collaboration between Office of Sustainability, CFC, Land Use Planning and Policy (LUPP), growth management team, inter municipal team and CRP to implement the food vision, principles and strategies in local area plans, regional policy and growth management decisions.</p> <p>Requirements for Subdivision, Outline Plans and Development Permits to address agricultural land conservation and consider urban agriculture (e.g. community gardens, design for rooftop gardens, space for farmers markets, requirement for fruit producing landscaping etc) within their design.</p> <p>Undertake Phase 2 of the Land Inventory to identify sites suitable for urban agriculture in alignment with business unit land review studies. Include appropriate governance structure models. Connect city-satellite large-scale land owners with small scale intensive farmers to make use of appropriate sites.</p> <p>Work with LUPP, Development & Building Approvals (DBA), Calgary Housing Authority, Office of Land Servicing and Housing, Parks and other stakeholders to explore and support rooftop gardens for food production (e.g. on affordable housing etc).</p>
Transportation		<p>There is an increase in interest and establishment of food distribution hubs that support regional production.</p>		<p>Locate community gardens, allotments in close proximity to transit and community users.</p>



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Environment	<p>Limited growing season and climate conditions limit diversity and availability of local fruit and vegetables.</p> <p>Use of pesticides within Calgary could cross-contaminate urban agricultural sites and gardens.</p> <p>There is some limited public opposition to community gardens and urban agriculture in certain locations.</p> <p>There is a lack of federal and provincial regulation or direction regarding water reuse for irrigating crops and food production. The City recommends using potable water on city-owned land due to health and safety considerations. This impacts (increases) the quantity of potable water used for food production.</p> <p>There is a perception that food production cannot happen on contaminated or brownfield sites albeit strategies exist to overcome these issues. Soil testing for contamination is costly.</p>	<p>The City of Calgary Parks business unit has developed and expanded a popular and successful Community Garden program and Orchard pilot.</p> <p>Greenhouse development across the region and globally has explored and implemented the use of waste heat and alternative sources of energy.</p> <p>Recent approval of the Community Greenhouse Gas Plan amongst other environmental policies (e.g. Water Efficiency Plan, 80/20 by 2020 Waste Target) provide targets and support for sustainable food production.</p> <p>Permaculture, xeriscaping and other water efficient techniques are developing and community groups with knowledge and experience are established in Calgary. Calgary currently has the Healthy Yards program that provides resources and information on such approaches.</p> <p>There are a significant number of vacant and derelict brownfield sites within Calgary. The City of Calgary Brownfield Strategy is underway in alignment with the provincial Brownfield Redevelopment Working Group. This presents an opportunity for potential areas for urban agriculture.</p> <p>Several strategies exist to enable urban agriculture on contaminated land e.g. raised beds, bio-barriers and remediation.</p>	<p>The annual “Picnic at the Brick Works” in Ontario teaches the importance of preserving small-scale, sustainable farming practices, protecting native breeds and local plant varieties.</p> <p>Multiple provinces and cities bans on cosmetic use of pesticides on private and public land (e.g. Ontario and City of Kelowna).</p> <p>Chicago has over 200 green roofs. Program participants range from City Hall to a Target store and a McDonald's. The City of Chicago's Grant Program selects 20 projects yearly that they deem the best embodiment of urban sustainability to receive \$5,000 grants. True Nature Foods, a health food store and food co-op that was awarded a grant includes a rooftop greenhouse, which produces vegetables and herbs to be sold in the store below.</p> <p>Gardens Under Glass is working to be a sustainable urban Eco Village located in the Galleria at Erieview, transforming a retail centre into a mixed-use property with an Arcadia Glass House featuring BioDynamicz to grow food. The Glass House will be operated by a solar powered tracking device and opened the ReSource Center in 2010 to provide classes and workshops. www.galleriaaterieview.com/</p>	<p>Map the carbon or ecological footprint of our local food system / specific ingredients or produce e.g. the ecological footprint of a restaurant’s menu. Use this to help influence strategies for production to increase sustainability (e.g. farm machinery fuel use, distribution network, water consumption and irrigation system, etc).</p> <p>Collaboration with multi-disciplinary stakeholders including City business units (Environmental and Safety Management, local producers, research/educational institutions such as Olds College or SAIT, local businesses, Enmax etc) to develop a pilot project on greenhouses with potential to use waste heat.</p> <p>Explore the use of private brownfield sites for interim urban agriculture use as part of the brownfield redevelopment strategy ensuring appropriate criteria for safe food production on contaminated sites.</p> <p>Review the use of pesticides within Calgary.</p> <p>Explore/review rainwater harvesting and alternative water conservation strategies for urban agriculture as part of a comprehensive approach to the water efficiency plan and reduction of potable water use in line with provincial and federal standards and guidance.</p>



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Economic Development	<p>Subsidies and grants favour conventional agricultural production.</p> <p>The global food system and cheap food imports impact local community economic development and the economic viability of local and sustainable producers. The cost of local, organic and sustainable food is often higher.</p> <p>Local production is often exported whilst the same commodity is imported.</p> <p>There is a lack of specific data regarding demand for local and or sustainable food and types and the ability to provide a consistent local supply.</p>	<p>Increased social financing opportunities to fund start-up initiatives and programs related to urban food production.</p> <p>The provincial government is looking at launching a coupon book to advertise local food business or agritourism business to schools in the hopes of connecting the two groups.</p>	<p>SOLEfood Farm - a social enterprise with start-up funding provided by The City of Vancouver provides urban agriculture employment and training opportunities for Vancouver’s inner-city residents on leased urban lots. Produce grown from the farms is washed, cooled, and consolidated at a central location, then sold to restaurants, at farmers markets and distributed to community organizations. SOLEfood Farm will expand to include a large network of farms throughout the city. www.1sole.wordpress.com</p> <p>The Oberlin Project (www.oberlinproject.org) is a joint effort of the City of Oberlin, Oberlin College, and private and institutional partners to revitalize the local economy, eliminate carbon emissions, restore local agriculture, food supply and forestry, and create a new, sustainable base for economic and community development. Goals include conserving 20,000 acres of green space and developing a robust local foods economy to meet 70% of their consumption.</p> <p>Growing Power – Will Allen, Milwaukee (www.growingpower.org) a national non-profit organization and land trust supporting people from diverse backgrounds, and the environments in which they live, by helping to provide equal access to healthy, high-quality, safe and affordable food for people in all communities. Provides hands-on training, on-the-ground demonstration, outreach and technical assistance through the development of Community Food</p>	<p>Identify or establish sources of data to measure the percentage of local food production that is being consumed within Alberta, Calgary or exported.</p> <p>Increase marketing and procurement of local produce within the retail/market sector.</p> <p>Marketing and labelling assistance for producers to get products to market.</p> <p>Collaboration with local institutions pursuing research and development on elements of the sustainable food system and how this may relate to start up or support for existing business in local food production. Explore the need for an incubator within the Calgary region.</p> <p>Explore incentives e.g. start up grants and financing and support to encourage sustainable local food production.</p> <p>Explore the economic impact on the local economy of importing food.</p> <p>Provide an inventory of support systems available for local producers.</p> <p>Develop food sharing networks (e.g. barter system, food exchange etc).</p>



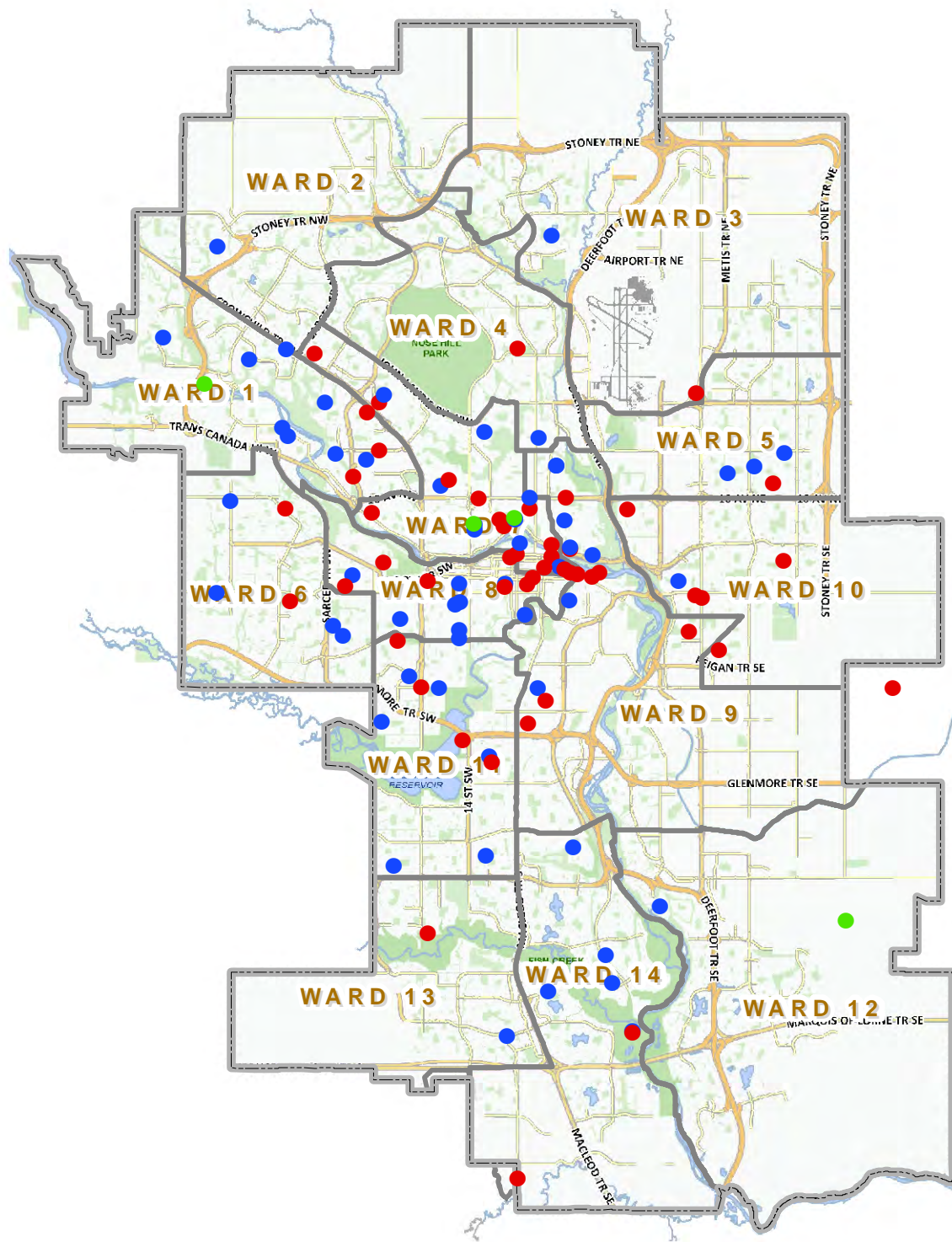
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
			Systems that help people grow, process, market and distribute food in a sustainable manner.	
Community and Social Programs	<p>Demand for community gardens exceeds the current capacity to deliver. Resources are limited within both community groups in terms of volunteers and funding and also at The City of Calgary.</p> <p>Community gardens membership can be restricted to community members.</p> <p>There can be community opposition to community gardens and urban agriculture and the process for developing a garden can be extensive.</p> <p>Community advocates often do not know where to seek advice when starting a new urban agriculture project.</p>	<p>Multiple community programs for urban food production exist, e.g. Calgary Horticultural society, community association farmers' markets and initiatives like the Urban Harvest Project.</p> <p>Collaboration between City business units, the Calgary Horticultural Society and community associations is well established. There are many success stories where public concerns with a potential community garden were overcome through mitigation measures (e.g. use of flower borders to increase visual amenity).</p>	<p>There are several Canada-wide websites encouraging urban gardening by connecting those who have the space to garden with those who would like to garden but don't have the yard space (e.g. www.sharingbackyards.com, www.Landshare.ca).</p> <p>In 2005, France's National Apiculture Association launched an urban bee program to support and encourage urban beekeeping and to help support the decreasing rural honeybee populations. There are five hives on the roof of the Palais Garnier, hives on a skyscraper in the La Défense business district; the town hall in the Fourth Arrondissement; and Charles de Gaulle Airport has four hives. Importantly for bees, Paris has been a pesticide-free zone since 2000.</p> <p>London, UK, has approximately 5000 hives and a 30:1 bee-to human ratio. In 2010, it held its first London Bee Summit with a Capital Bee campaign in late 2010 featuring a London produced honey-tasting competition.</p> <p>Farm Folk City Folk (FFCF) hosts an annual Feast of Fields on Vancouver Island each year. The purpose is to promote the connection between those who grow food and those who eat it and the interdependency of all living things.</p> <p>Cowichan Bay had just been designated North America's first Cittaslow community.</p>	<p>Connect those who own a yard but do not garden with those who need land to garden similar to the Urban Harvest Project.</p> <p>Identify community groups that want/need access to space for urban agriculture and type of space required.</p> <p>Additional support for community gardens, the community orchard pilot and exploration of allotment gardens. Roll-out of city-wide community orchard program and fruit tree planting in alignment with bylaw review.</p> <p>Explore the integration of community gardens in additional venues with demand e.g. seniors centres, affordable housing, care centres etc.</p>



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
			<p>Cittaslow is an international network of towns dedicated to quality of life and preservation of traditional values.</p> <p>City of Vancouver has published a set of walking/cycling tours to introduce eight different “pods” of their 74 community gardens.</p> <p>JustFood Ottawa Community Food and Sustainable Agriculture Hub http://www.justfood.ca/ottawa-food-hub/</p>	
<p>Education Programs</p>	<p>Many residents are not aware of what can be efficiently produced locally and is available to purchase in season.</p> <p>Many residents are not aware of the potential for urban agriculture or the resources available to assist them to start gardening.</p> <p>More education is required around the value of pollinators and supportive habitat and approaches for encouraging pollinators within the city.</p> <p>New gardeners may have difficulty connecting with community garden space.</p> <p>Marketing programs for local food are lacking.</p> <p>There are restrictions in some schools regarding the ability for schools to grow and consume their own food. This is based upon individual school preference rather than policy restrictions.</p>	<p>There is growing awareness about local and regional farmers and the impacts and benefits of sustainable food production.</p> <p>There is increased demand by residents for local and regional sustainable food.</p> <p>There are multiple courses and workshops focused on urban food production within Calgary (e.g. provided by the Calgary Horticultural Society, Big Sky Permaculture, ABC Bees).</p> <p>Existing mechanisms, such as the CSA model, farmers’ markets and other opportunities have potential for expanding marketing programs for local food (could include education on gardening, cooking, sourcing, etc.)</p> <p>Interest from schools to incorporate school garden learning, which touches on all facets of the curriculum, is gaining momentum. The Calgary Board of Education (CBE) offers environmental stewardship and</p>	<p>The Mel Johnson School Gardening Project, Manitoba has been recognized by the UN, the David Suzuki Foundation, and Manitoba Conservation and its success captured in a documentary by Katharina Stieffenhofer: http://andthisismygarden.com/</p> <p>Slow Food has set up the Thousand Gardens program, in partnership with the UN. While it supports gardens in Africa to protect indigenous seeds and practices, Canadian gardens have been developed along that model.</p> <p>The Stop's Urban Agriculture program establishes Community Food Centres. Their Toronto location includes an 8,000sqft garden at EarlsCourt Park; a greenhouse, sheltered garden and the Global Roots Garden at The Green Barn; as well as a community garden at Hillcrest Park. These sites yield more than 4,000lbs of fresh organic produce yearly, and educate community members. They also coordinate a garden-sharing program and run frequent community gardening workshops. The Stop is expanding Community Food Centres across Canada and is interested in</p>	<p>Develop and manage a web-based information source to share the findings of the food assessment and provide resources to the public.</p> <p>Development of guides for the different classifications of urban agriculture (household, community, small-scale etc) outlining regulations, opportunities, best practices and resources e.g. seasonal food production calendar and outlets for purchase.</p> <p>Embed urban agriculture within existing environmental education programs e.g. the Mayor’s Environment Expo.</p> <p>Continued support by the Calgary Board of Education (CBE) for embedding environmental stewardship and associated programs such as edible gardens within curriculum delivery to an increased number of schools. Consider children Ambassadors for school gardens and food system.</p> <p>Market surveys & trends to track effectiveness of actions on increasing support for local and sustainable food and</p>



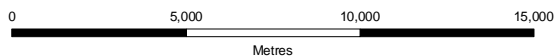
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
		associated programs such as edible gardens within curriculum delivery for Calgary schools.	establishing one in Calgary. Launched this past spring, taste•real is the new branding logo initiative of Guelph Wellington Local Food. The logo is at farmers markets, farm gate stalls, on-farm stores, at retail outlets, restaurants and places to stay and taste real food. www.guelphwellingtonlocalfood.ca/taste-real .	make recommendations for improvements.



Legend

- Community Orchards
- Community Gardens**
- Private
- Public
- Wards

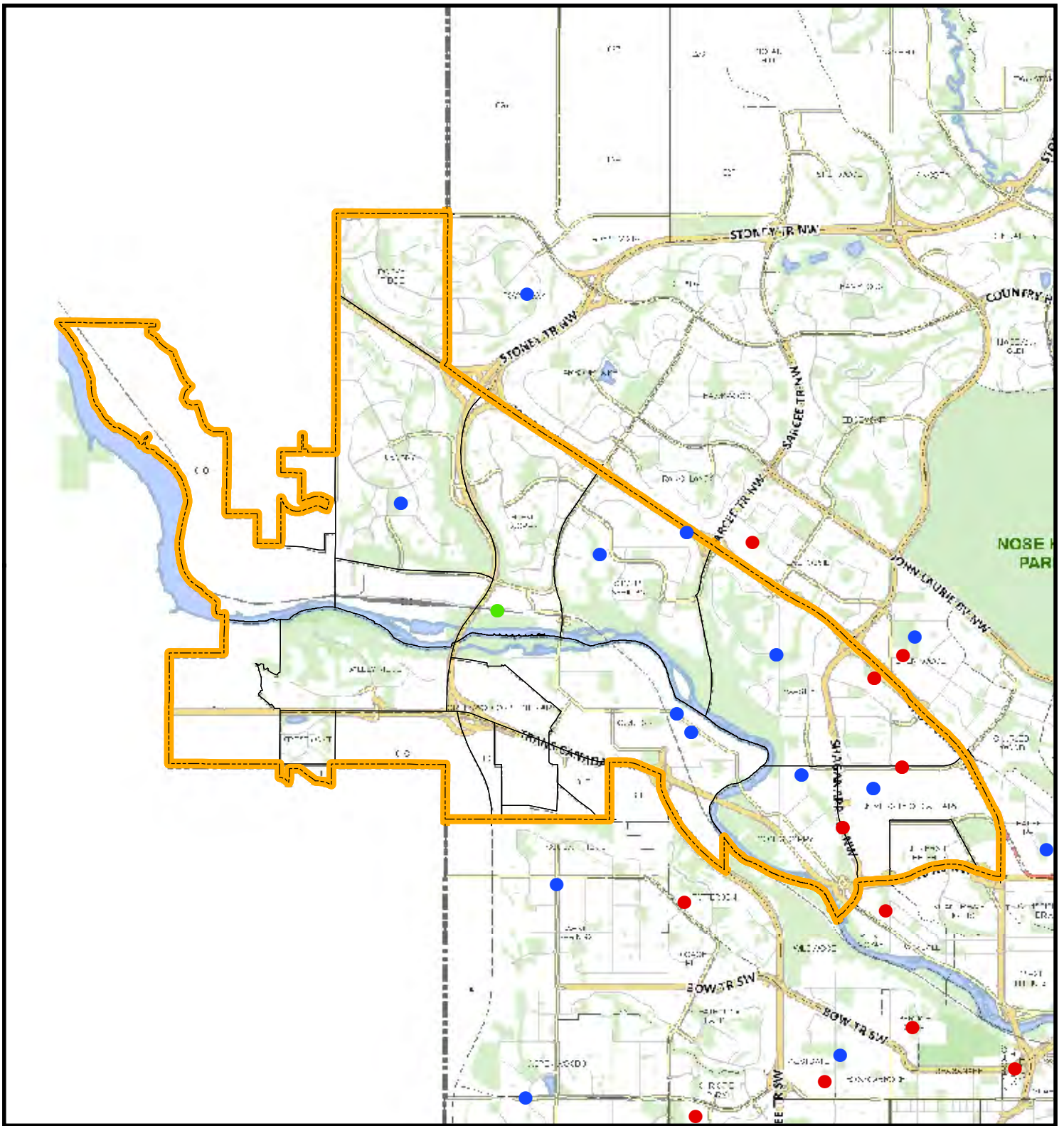
City of Calgary
Map 4.1 - Community Gardens



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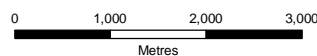


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 1

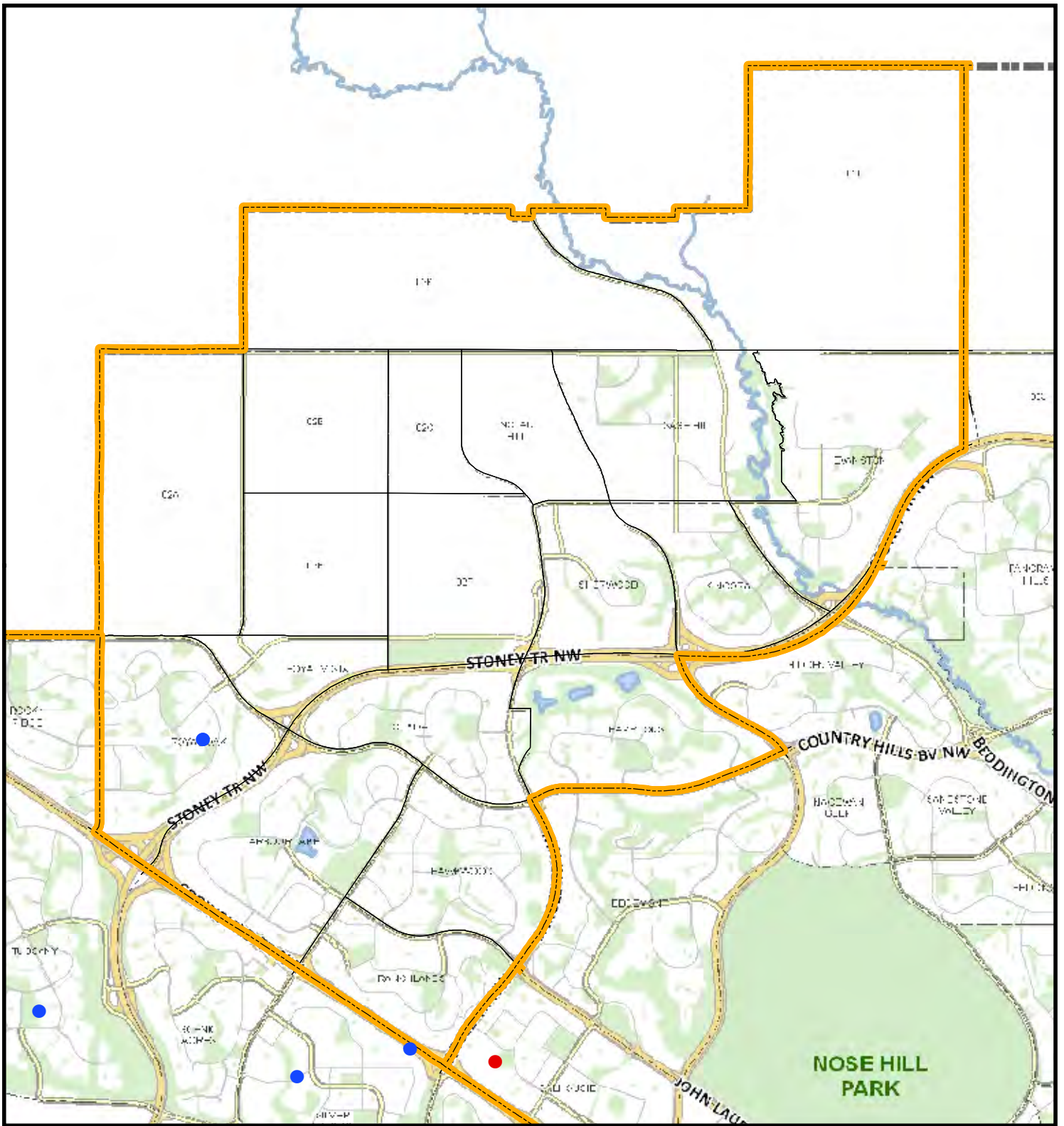
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Map 4.2 - Community Gardens - Ward 1



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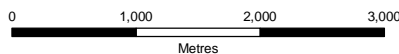
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Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 2

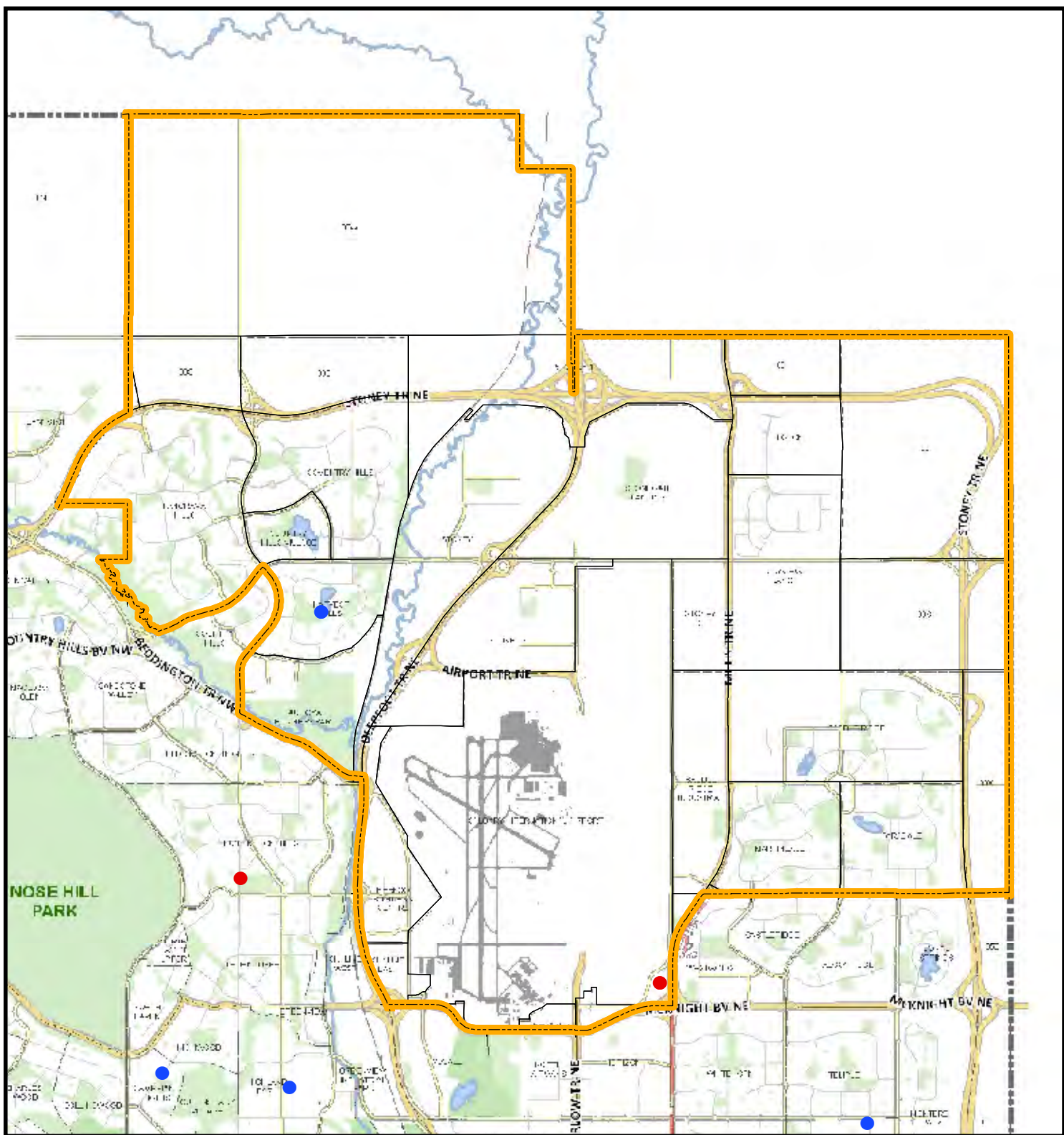
Map 4.3 - Community Gardens - Ward 2



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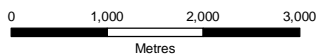
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Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 3

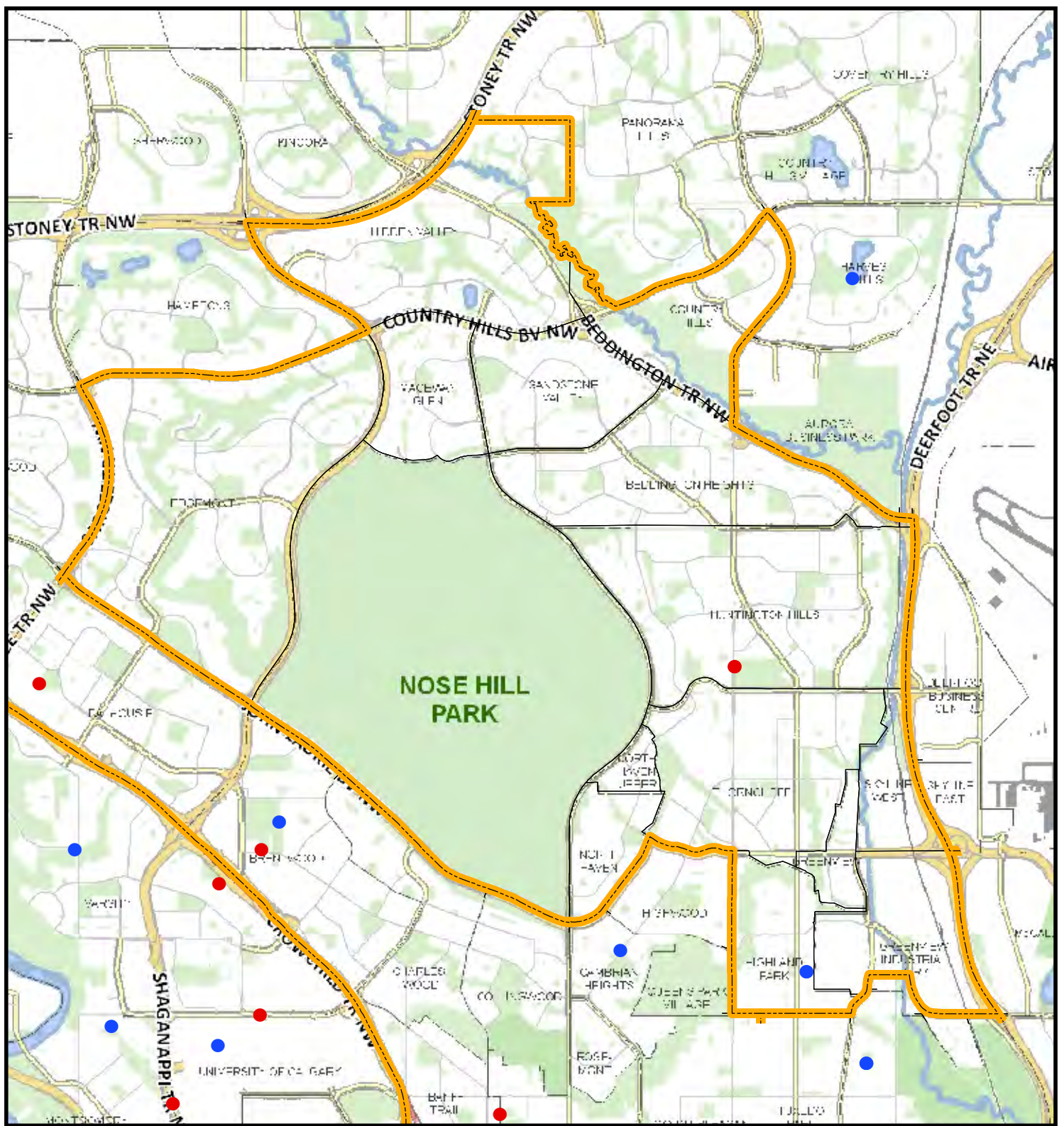
Map 4.4 - Community Gardens - Ward 3



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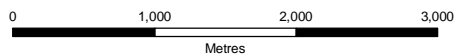


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 4

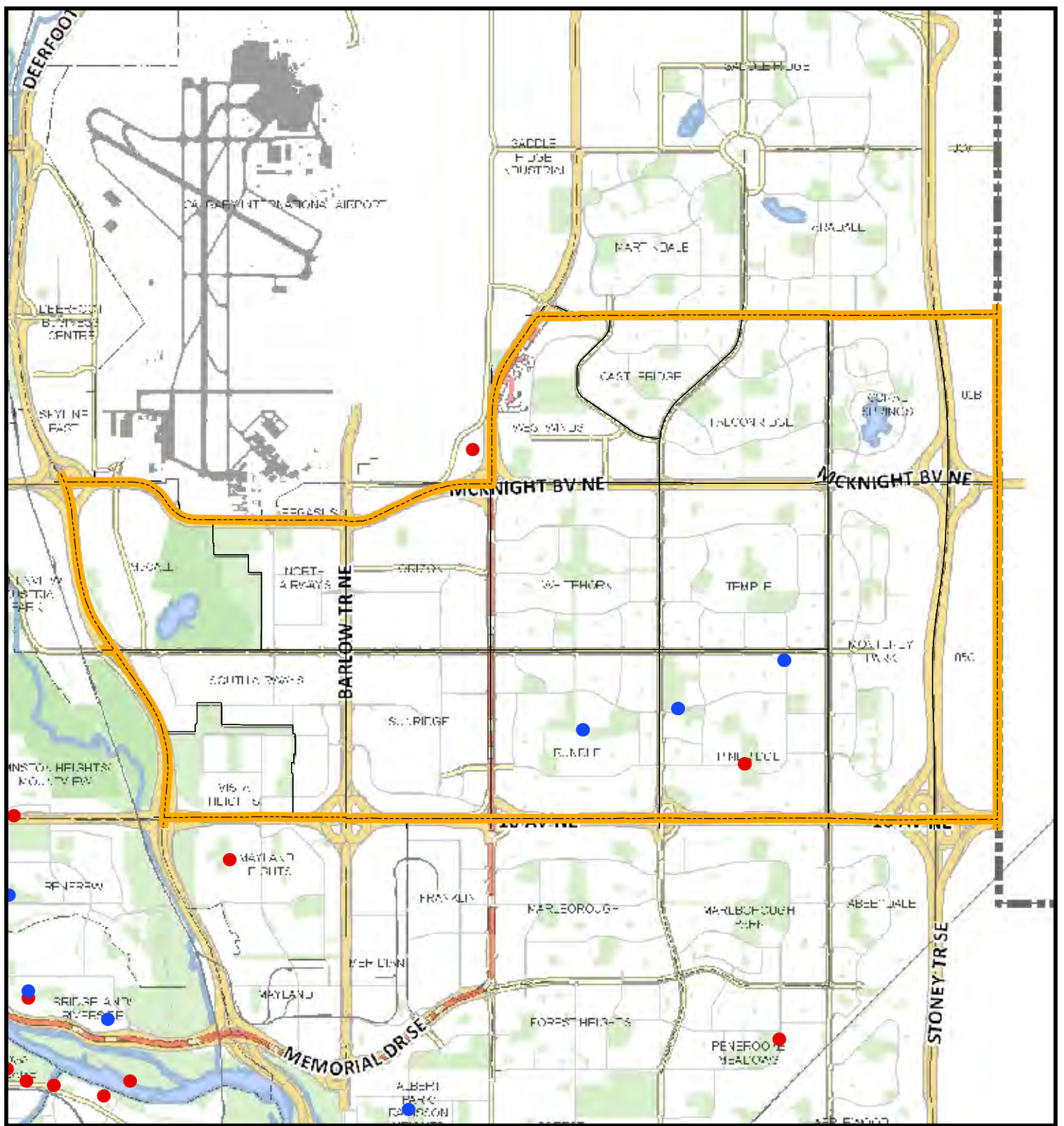
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Map 4.5 - Community Gardens - Ward 4



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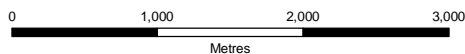


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 5

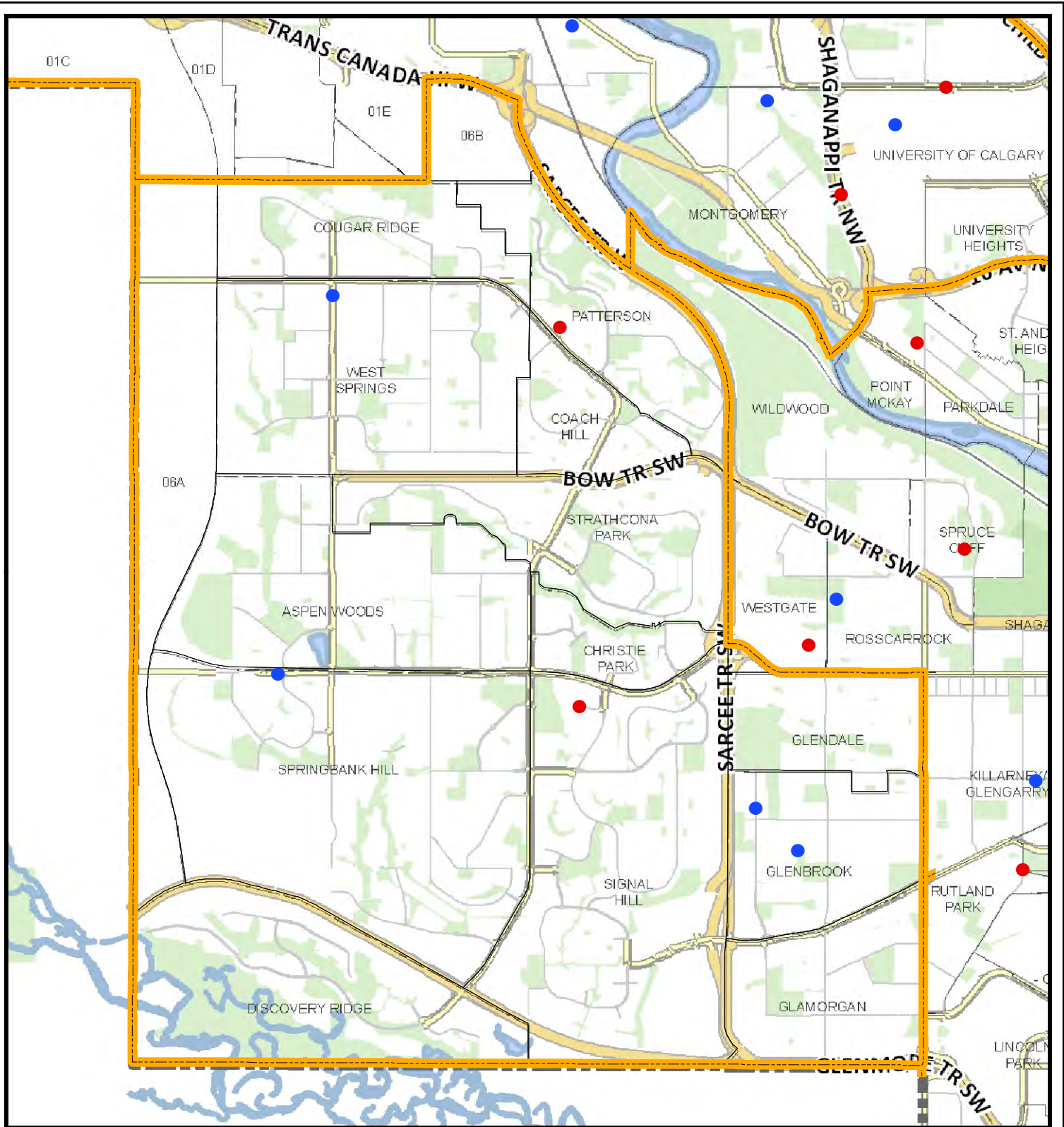
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Map 4.6 - Community Gardens - Ward 5



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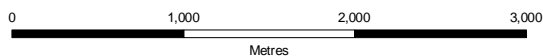


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 6

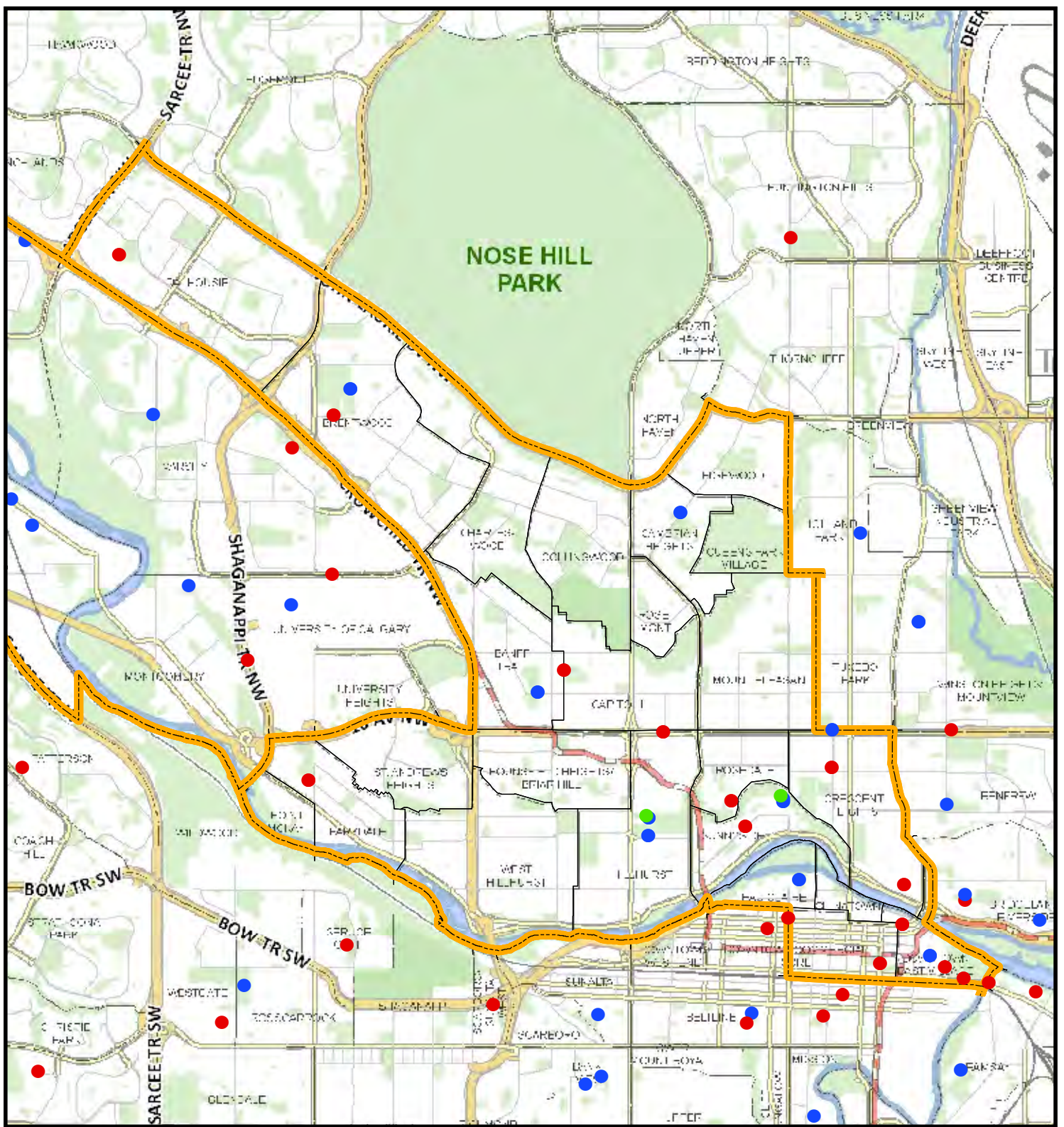
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Map 4.7 - Community Gardens - Ward 6



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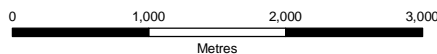
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Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 7

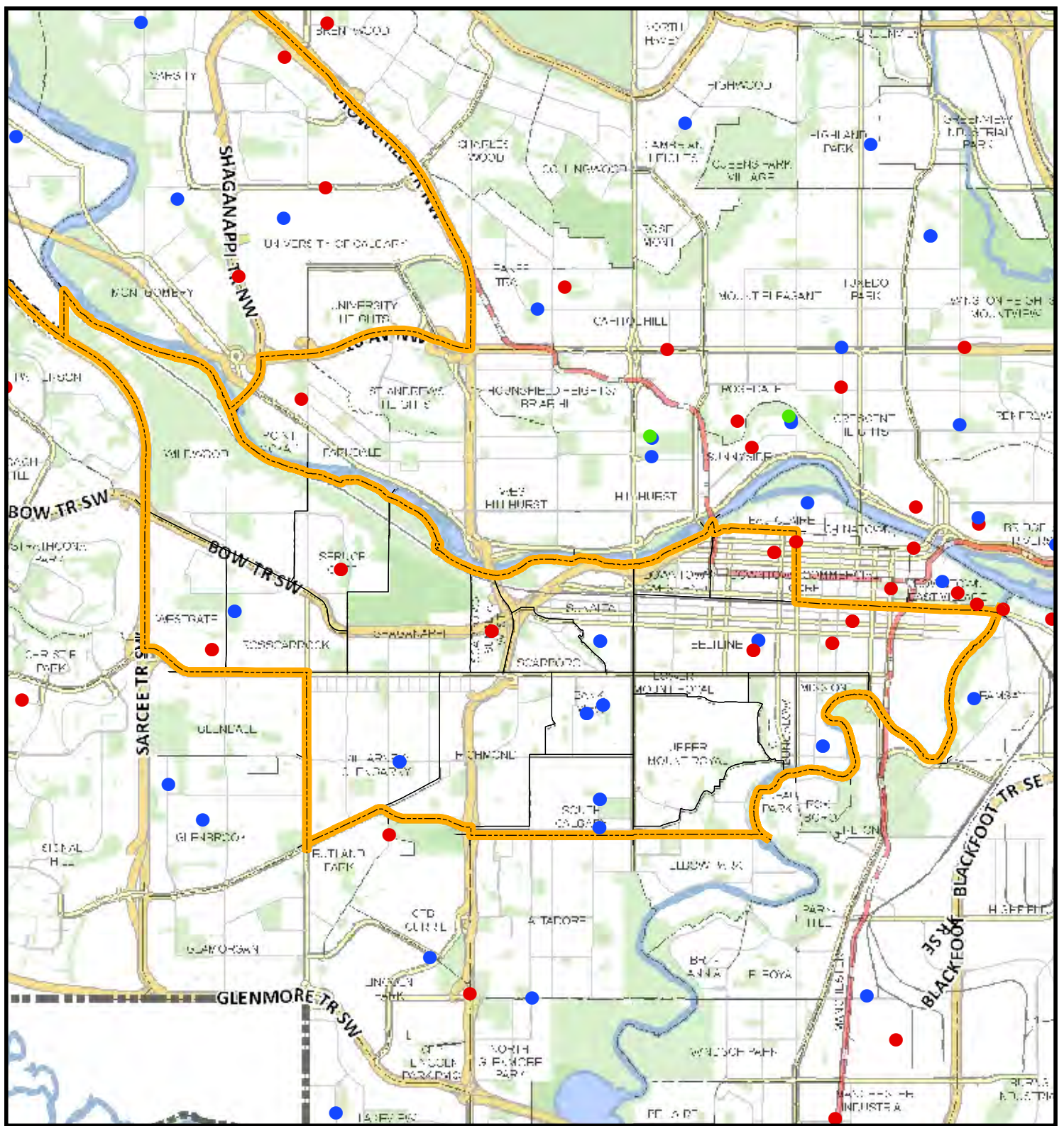
Map 4.8 - Community Gardens - Ward 7



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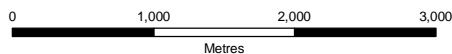
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Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 8

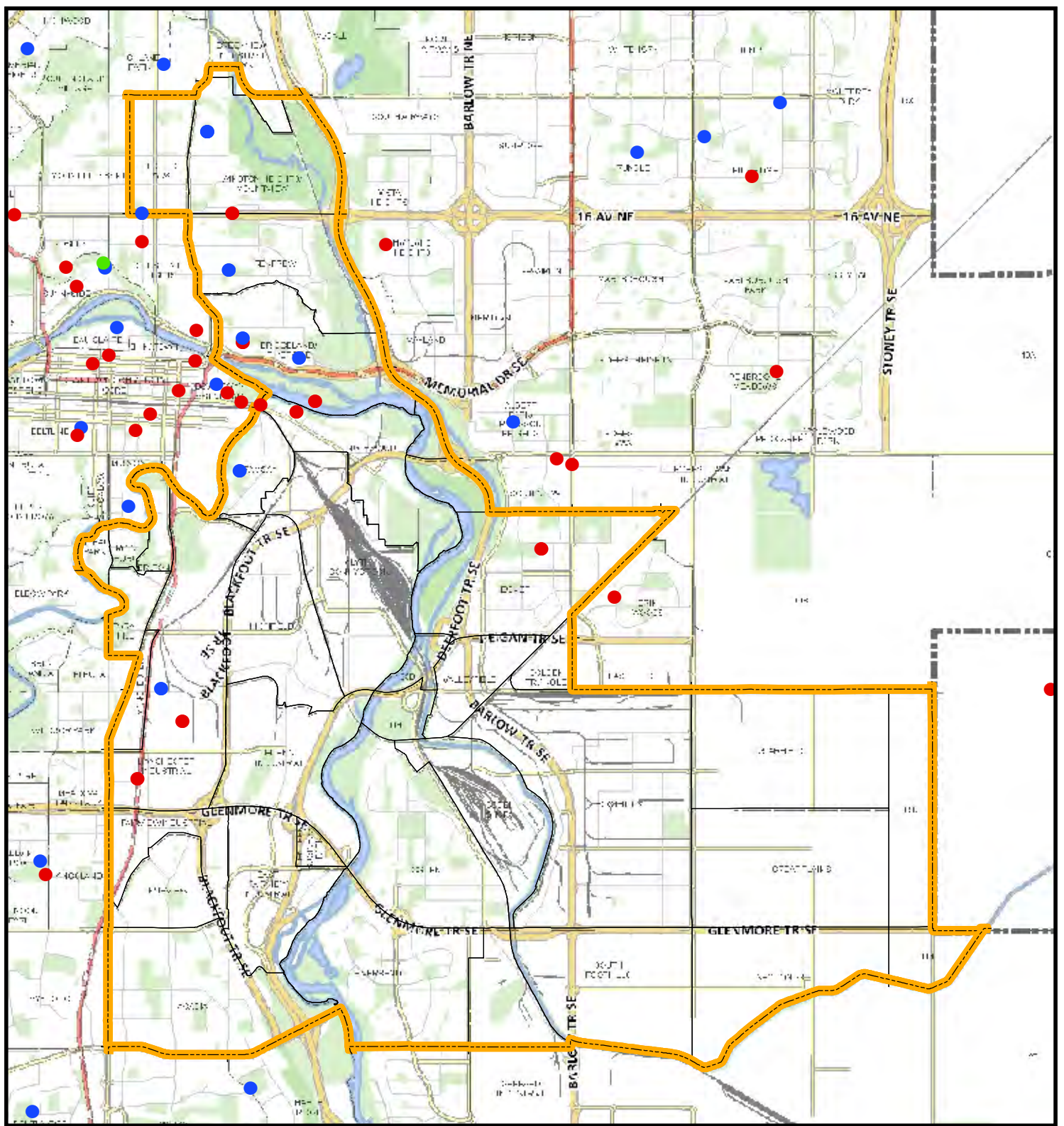
Map 4.9 - Community Gardens - Ward 8



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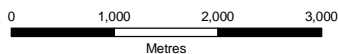


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 9

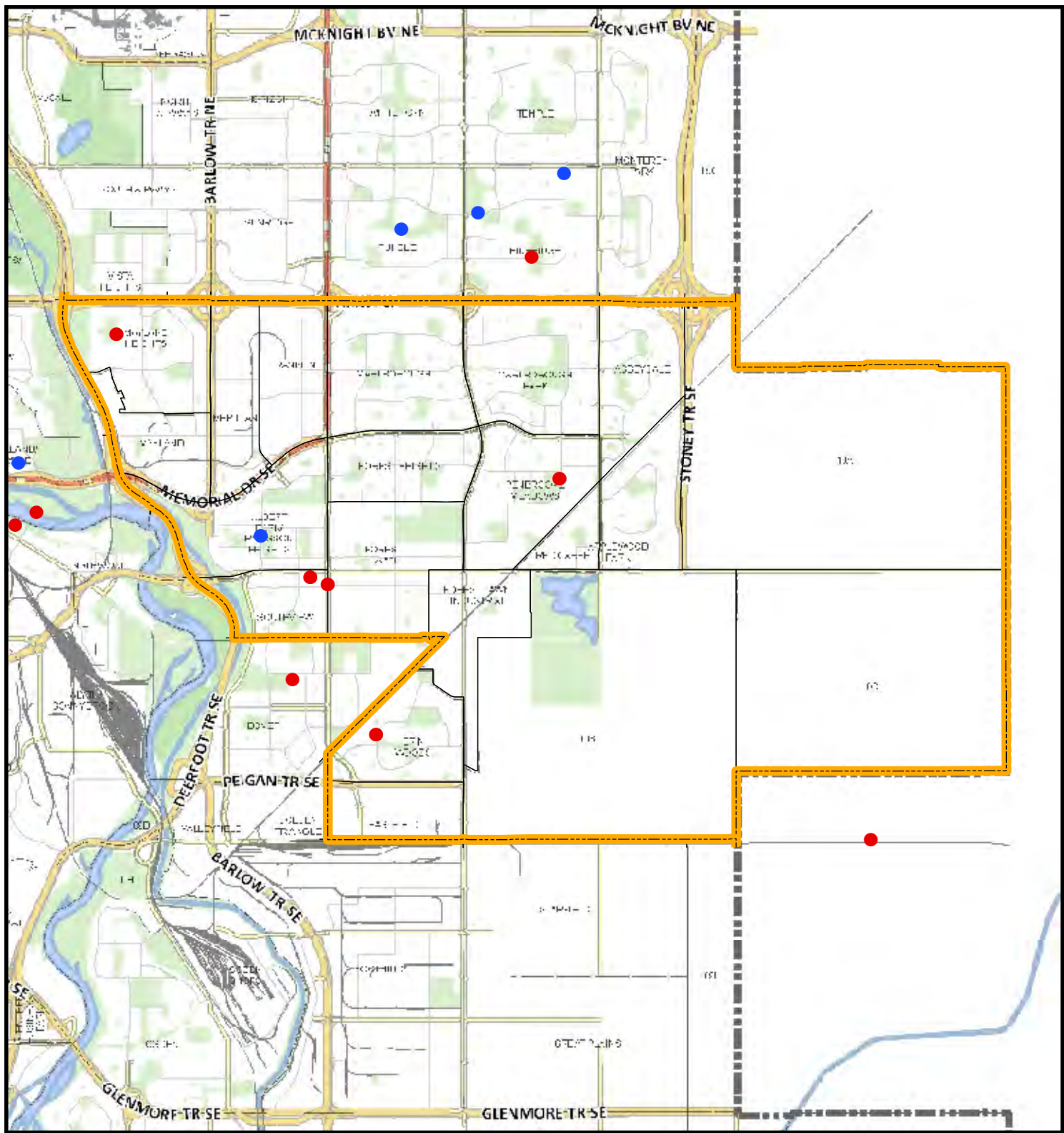
Data: Community Garden Resource Network, a project of the Calgary Horticultural Society, supported and funded by Encana and The Calgary Foundation. City of Calgary www.calgary.ca

Map 4.10 - Community Gardens - Ward 9



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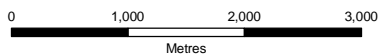
Date Printed: May 10, 2012



Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 10

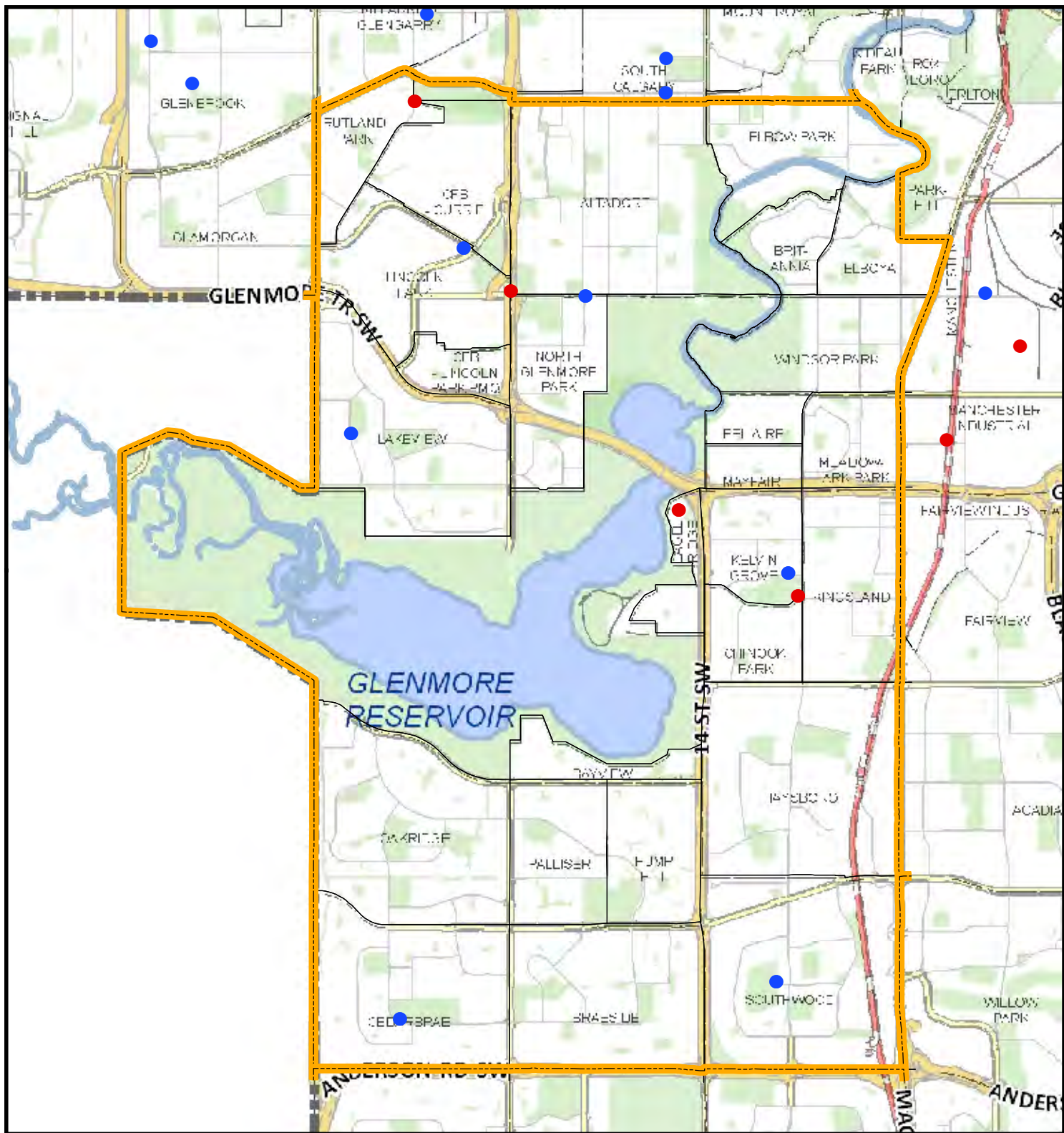
Map 4.11 - Community Gardens - Ward 10



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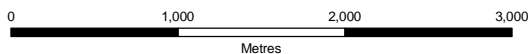
Date Printed: May 10, 2012



Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 11

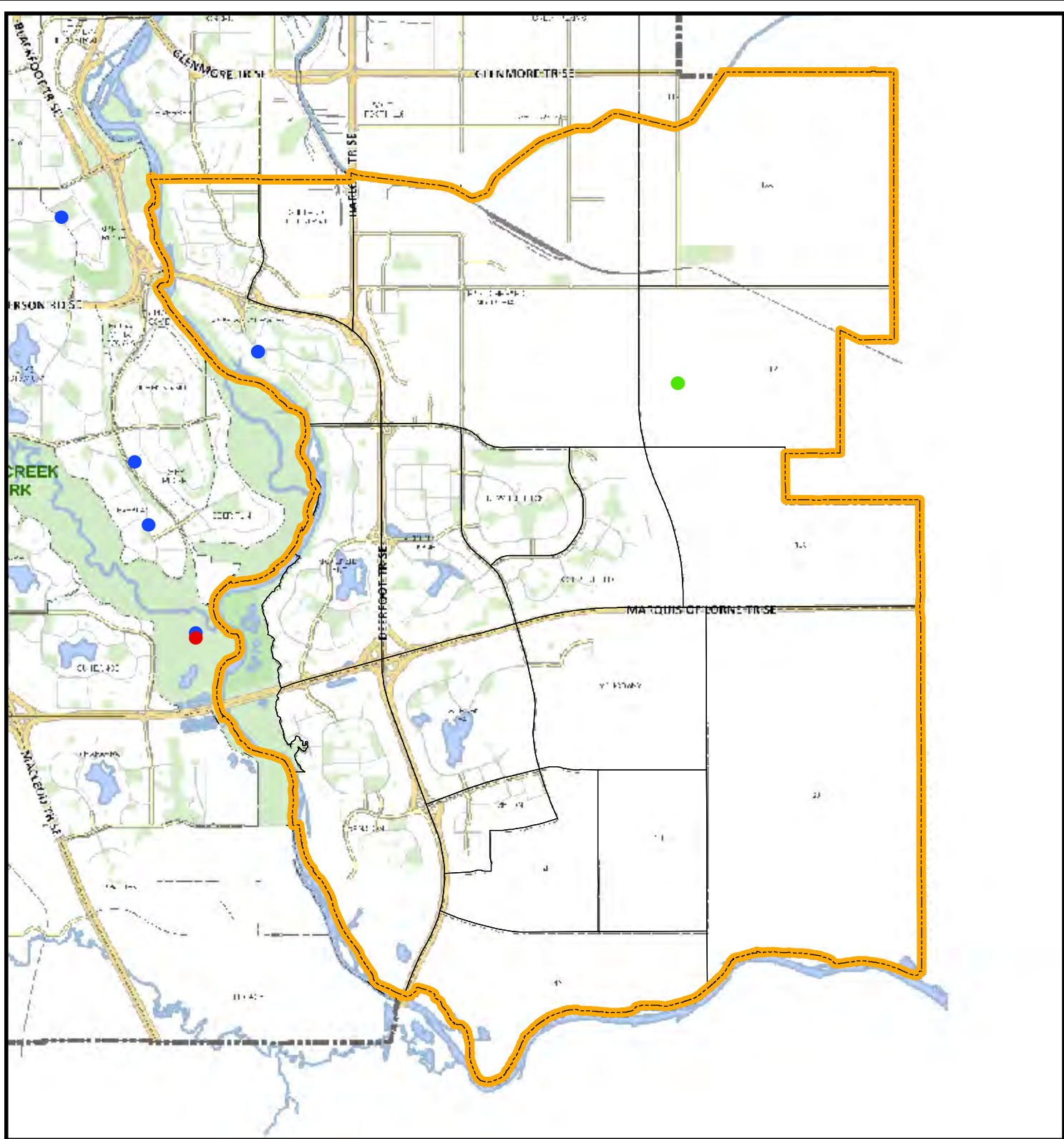
Map 4.12 - Community Gardens - Ward 11



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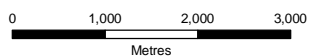
Date Printed: May 10, 2012



Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 12

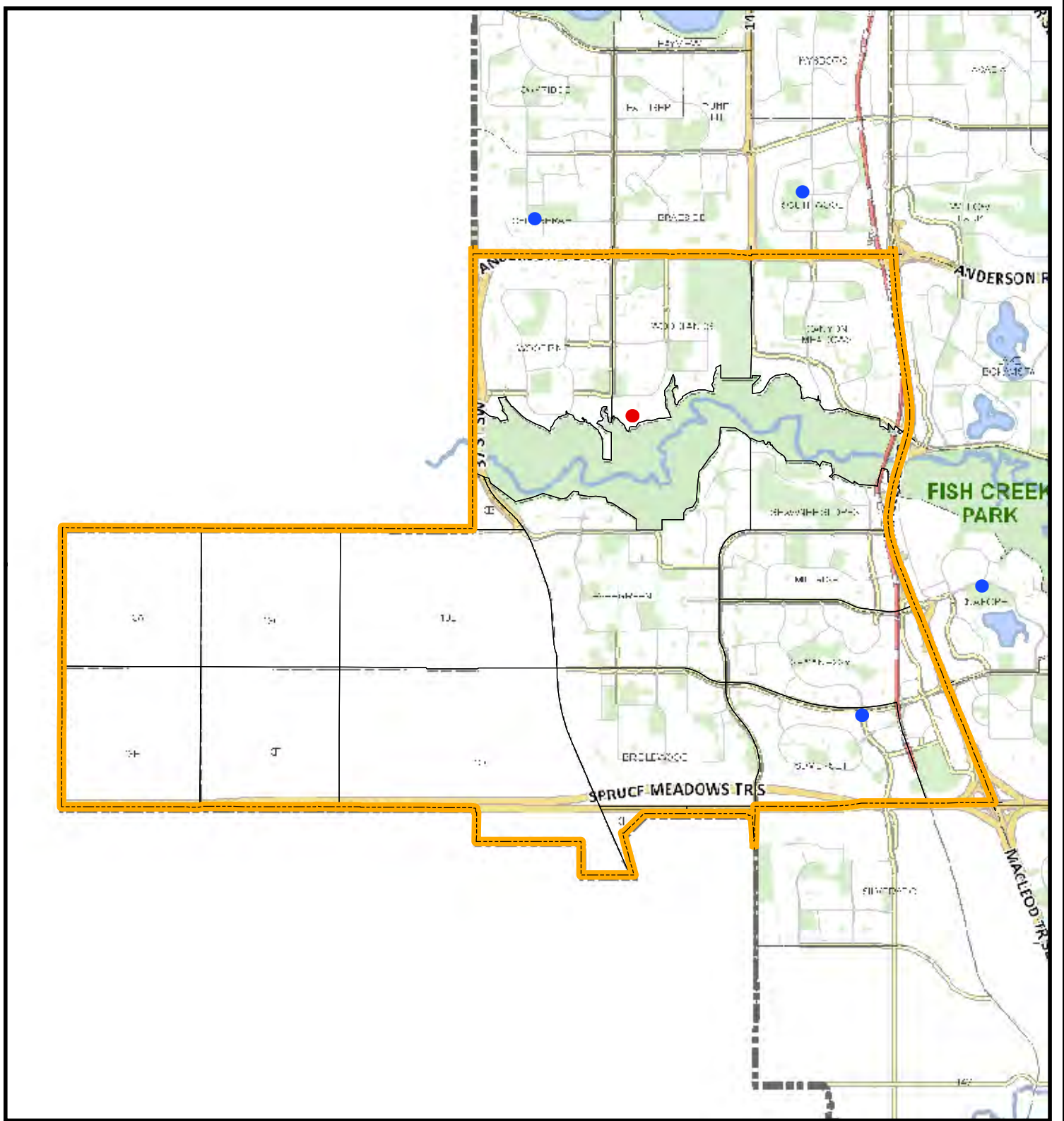
Map 4.13 - Community Gardens - Ward 12



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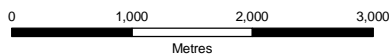


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 13

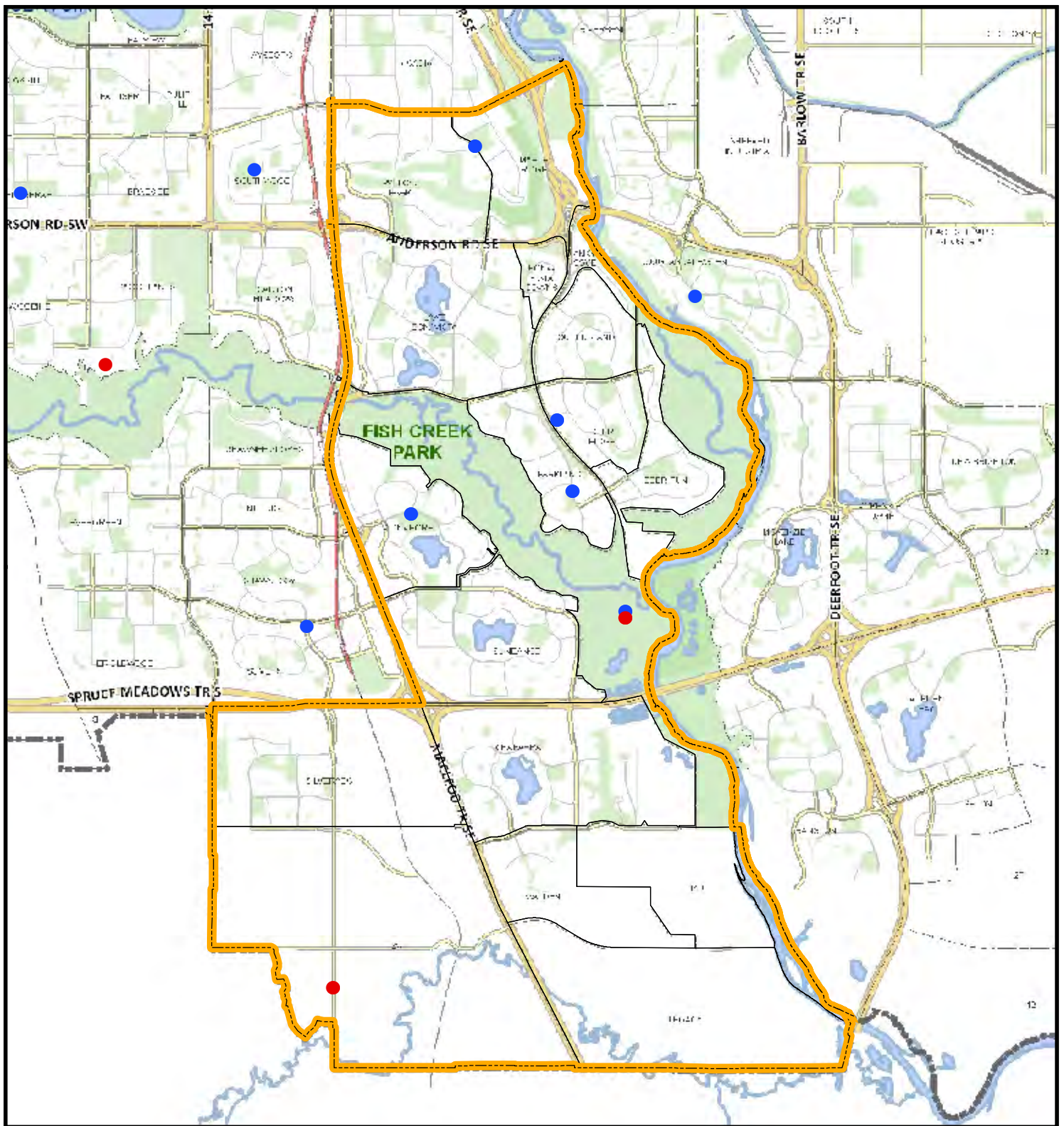
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Map 4.14 - Community Gardens - Ward 13



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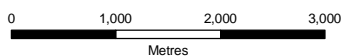


Legend

- Community Orchards
- Private Gardens
- Public Gardens
- WARD 14

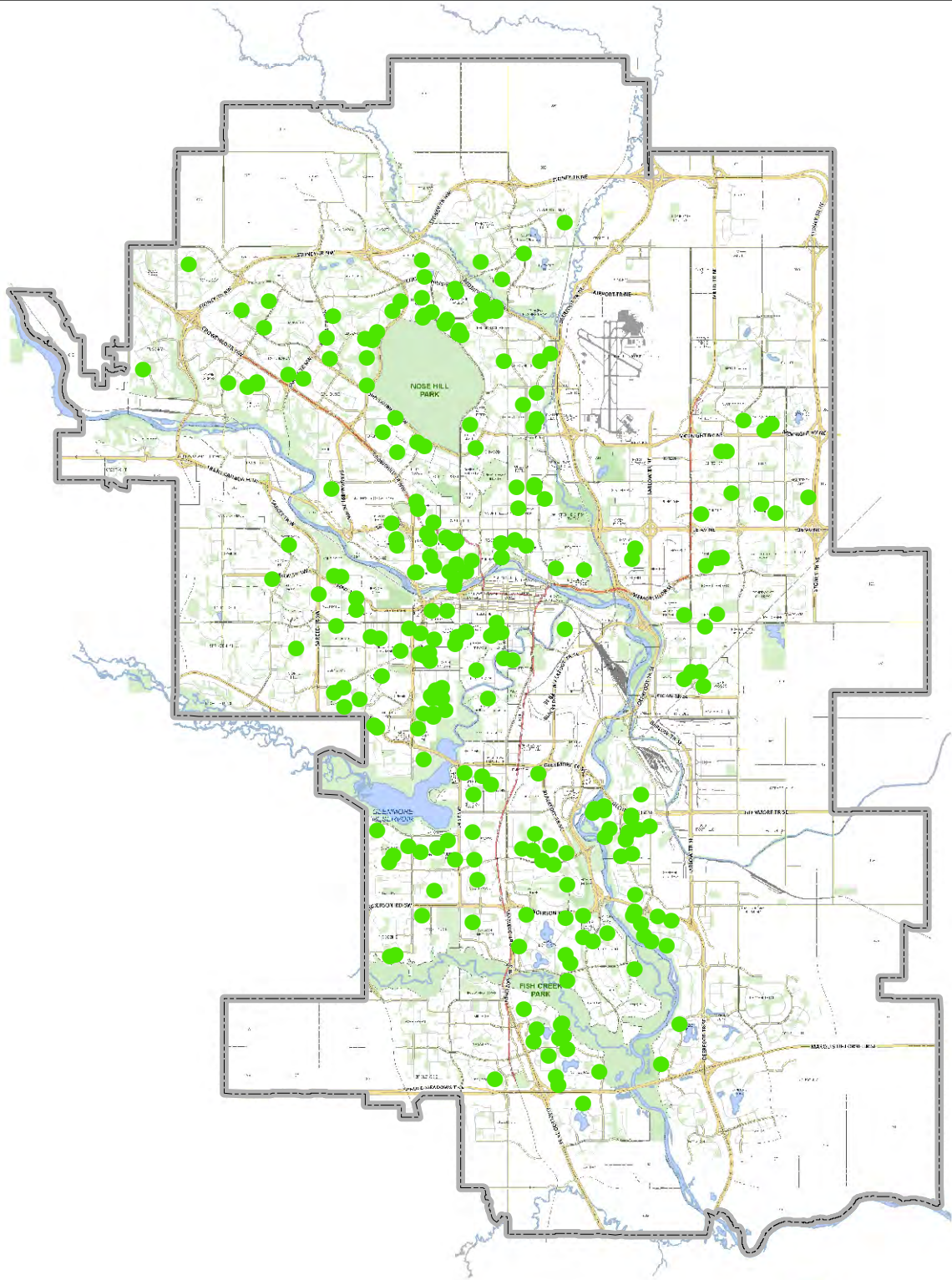
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Map 4.15 - Community Gardens - Ward 14



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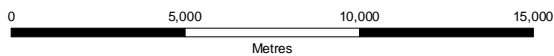
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- Calgary Urban Harvest Trees
- Calgary City Limits 2012

City of Calgary
4.16 - Calgary Urban Harvest Project





5.0 PROCESSING

5.1 CONTEXT

This section provides baseline information, including context, issues and opportunities for processing in the Calgary food system. Processing refers to the altering of raw food stuffs to create a different, more refined product. Examples include preserving, cooking/baking, preparation, meat processing, grain milling and other value-adding operations at a variety of scales. Whilst in recent years, there has been a negative connotation associated with ‘processed food’, primarily as a result of the health effects or perceived health effects of certain additives and preservatives, which has led to an increase in movements like the raw food diet⁹⁹, processing in a sustainable manner can add significant value to the food system. Reasons for processing include the need to manage harvests, reduce waste, keep food safe and protect public health, improve palatability, feed large urban populations and feed rural and remote communities. It is through processing that most value is added to the raw food product and the profit margin is increased beyond the raw product.

Food processing and food manufacturing are used synonymously for the purposes of this assessment and are a significant component within the food system. The processing and manufacturing sector provides employment opportunities and contributes to economic growth. Processing also links to other economic sectors such as packaging, tourism, advertising, and biotechnology. By processing raw materials and manufacturing food products local, raw food can be transformed, enabling seasonal local foods to be accessible year-round.

5.2 FOOD PROCESSING IN ALBERTA

Canadian food and beverage manufacturing and processing has experienced a variety of challenges since the onset of the global recession in 2008. Since that time, exchange rates, energy prices and cost of inputs and supplies have been volatile, and food manufacturers have passed on increases in their selling prices to consumers¹⁰⁰. Owing to the strength of agriculture in Alberta, food processing is a major part of the economy both in Alberta and Calgary.

In recent years, this sector has increasingly centralized abattoirs and other food processing¹⁰¹ and, in many cases, moved to smaller centres (e.g. Brooks, the home of Lakeside Packers). This centralization can result in additional transportation requirements and associated fuel use and therefore has potential cost implications and environmental impacts. Nonetheless, food processing remains a significant part of the Alberta and Calgary economy. Some of North America’s largest food processing companies, as well as many local successful businesses, have chosen Calgary and the region because of its prime location, proximity to a strong agricultural base and favourable economic conditions.

5.2.1 Economic Importance

In 2010, Alberta’s food and beverage processing industries comprised the second largest manufacturing sector in the province (19.2%), following petroleum and coal products industries (24.5%). Alberta’s food and beverage processing industries generated \$11.5 billion in sales in 2010, an increase of 11.5% over 2009. Alberta’s food and beverage processing activity continues to be dominated by meat processing,

⁹⁹ Raw food diet - the practice of consuming uncooked, unprocessed, and often organic foods as a large percentage of the diet.

¹⁰⁰ ARD, Food and Beverage Industries

¹⁰¹ de la Salle and Holland, 2010



i.e. livestock and poultry slaughtering, processing and rendering, second only to Ontario as Canada's largest producer of meat products in 2010.

In 2010, approximately 71% of food manufacturing sales in Alberta were concentrated in three areas: meat products, grain and oilseed milling and animal food (including feed). Meat processing accounted for \$5.9 billion, while grain and oilseed milling accounted for \$1.3 billion, and animal food manufacturing (including feed) totalled \$412.5 million. The remainder of food manufacturing was distributed between dairy products, bakeries and tortilla manufacturing, sugar and confectionery products, fruit and vegetable preserving, seafood products, specialty foods and snack foods¹⁰².

As a whole, Alberta's manufacturing sector grew steadily from 2003 to 2008. Albeit there was a decline in 2009 as a result of the recession, growth rebounded in 2010 with a 13.5% increase in sales, largely based on the strength of meat products (including poultry).

Within Calgary, the manufacturing sector has been a strong contributor to the economy. Food manufacturing, including processing, represents the largest of all the 21 manufacturing sub-sectors in Calgary and maintains a strong labour force within the city¹⁰³.

5.2.2 Employment

Food and beverage processing industries in Canada employed 270,600 people in 2010, down from 306,100 people in 2004. Canada-wide, employment in the food and beverage processing industries has continued to decline, with a loss of 18,500 jobs (a 6.4% decrease). The job losses experienced in most provinces were somewhat offset by gains in Saskatchewan (22.2%), Alberta (10.1%) and Manitoba (5.2%)¹⁰⁴ in 2010.

In 2010, Alberta's food and beverage processing industries represented the province's largest manufacturing employer. Employment in this sector peaked at a level of 28,600 jobs in 2002. Since then, employment has fluctuated, but has generally trended downward. The lowest level over the past decade was 20,800 employed in 2009. However, in 2010, employment grew by 10.1% over this level, to 22,900¹⁰⁵.

Following a similar pattern to the national and provincial trends, Calgary's labour force in the food manufacturing sector has fluctuated over the last decade reaching a high of 8,400 workers in 2002. However, since 2002, employment in this sector has been on a decline with 6,100 people employed in food manufacturing in Calgary in 2011¹⁰⁶.

5.2.3 Exports

Alberta exported \$2.5 billion in food products, beverages and animal feeds in 2010, making up 38% of all agri-food exports¹⁰⁷. In 2010, meat and meat products accounted for 60% of the \$2.5 billion of food, beverage and animal feed exports in Alberta (Figure 5.1). This represented an overall increase from

¹⁰² Alberta Agriculture Statistics Yearbook, 2010

¹⁰³ Calgary Economic Development (2009) *Calgary: Manufacturing Force: Manufacturing Sector Profile*.

¹⁰⁴ Alberta Agriculture Statistics Yearbook, 2010

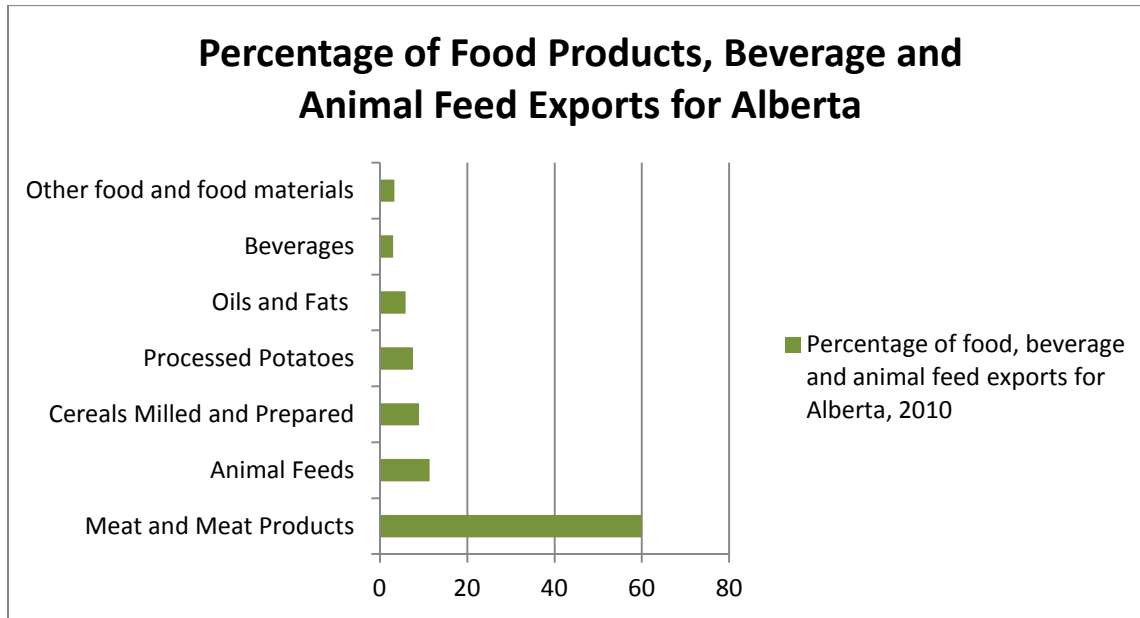
¹⁰⁵ Ibid

¹⁰⁶ Calgary Economic Development (2009) *Calgary: Manufacturing Force: Manufacturing Sector Profile*.

¹⁰⁷ Ibid

2009, but exports in milled and prepared cereals decreased by 30.6%, processed potatoes decreased by 26.8%, oils and fats decreased by 12.6% and beverages decreased by 2.0%¹⁰⁸.

FIGURE 5.1: PERCENTAGE OF FOOD PRODUCTS, BEVERAGE AND ANIMAL FEED EXPORTS FOR ALBERTA



Source: Alberta Agriculture Statistics Yearbook, 2010

SUNFRESH FARMS

Story developed by CFC

Sunfresh Farms (sunfreshfarms.ca) was founded by a group of Alberta farmers in 1997 and established as a wholesaler in Western Canada. Their services include aggregation, processing, packaging, distribution, storage, marketing and training and education. In 2007, Sunfresh purchased a large warehouse in Edmonton’s west end which allowed for larger capacity, enhanced quality control and food safety. They were also able to incorporate value-added products, such as peeled potatoes, onions, carrots, fruit and salads. In 2008, they established a trucking division and now have five long haul trucks. They are building relationships with companies that ship nationally and to the US.



Photo courtesy of Janet Henderson

Co-owner Phil Dixon, said the success of their company lies in the fact that they are willing to go *beyond local* for their clients; they will always source local first but go to where they can get it - ensuring their client needs are met. By taking this approach, they have been able to secure Safeway and Walmart as key clients.

¹⁰⁸ Alberta Agriculture Statistics Yearbook, 2010

5.3 CALGARY FOOD PROCESSORS

Processing is an important element of Calgary's food system. However, it is acknowledged less by the average citizen. Whereas recent trends demonstrate an interest by consumers in food producers, there is less interest and understanding in the food processor¹⁰⁹.

Food processing companies in Calgary and the surrounding region range from large global companies to small locally owned businesses. For the purpose of this report, small-scale processors will be defined as those having 25 or less employees, while large-scale will be classified as having more than 25 employees. Appendix F provides an inventory of processors within Calgary. Whilst not exhaustive, it provides a snapshot of the number of food and beverage processors and manufactures within Calgary. There are approximately 113 processors within Calgary, 27-30 of which are identified as niche processors, or supplying products to gourmet and speciality markets. Map 5.1 shows the distribution of these processors by size and processing type within Calgary and Map 5.2 shows the distribution of these processors by size and type within Alberta.

Many food industry trends continue to impact the market for food processing. Some major trends impacting food processors in Calgary include¹¹⁰:

- centralization of abattoirs and other food processing facilities;
- health and safety concerns and increased regulation;
- increased fuel costs;
- labour supply shortage and increased cost;
- increased extreme weather conditions;
- increasingly competitive import prices;
- increased demand for organics; and
- increased demand for specialty or 'niche' products.

These trends can have either a positive affect or negative impact on food processing in Calgary. For example, within Calgary, key interviews with stakeholders identified an increased demand for niche, often high-value gourmet and specialty foods that has resulted in the positive development of niche processing markets.

¹⁰⁹ AARD 2011

¹¹⁰ Nicol and Zbeetnoff, 2008, AARD (Irshad, 2011), key interviews, 2012 & de Salle and Holland, 2011

SCREAMIN' BROTHERS & DSL

Story & image courtesy of Screamin' Brothers & DSL, by Amanda McLellan



Screamin Brothers story grew in Canada but was born of tragedy. In January 2010, JR's youngest brother was stuck in the wake of the Haiti earthquake, his orphanage destroyed. J.R. knew he couldn't just stand by idly so he took his love of creating with food and began selling his dairy free frozen treats to raise money to help. It didn't take long for these delicious products to become so popular that J.R.'s brothers offered to help with the business. The boys could see that the more frozen treats they sold, the more children they could help. Today, 5% of net profits are donated to support children locally and internationally.

Screamin Brothers is passionate about Fair Trade and sustainable food. Their dairy free frozen treats are handmade, using quality ingredients such as honey from their farm and other Alberta farms, Canadian organic maple syrup, organic and Fair Trade cacao and organic coconut milk. They are able to compost 100% of the organic materials used in production and their Canadian made paper cups and lids are recyclable. Refrigeration on their delivery trucks is powered by electricity, helping reduce their carbon footprint.

Screamin Brothers' future goals to introduce delicious and healthy coconut milk frozen treats to a large customer base required increased production capacity. Amanda McLellan of DSL worked extensively with Screamin Brothers to select Taylor Ice Cream equipment that would suit their innovative product. DSL provided training upon delivery as well as ongoing support and connections to potential resources and markets.

Today, DSL and Screamin Brothers are successfully working together to explore further opportunities in Alberta. DSL has met with dieticians from Alberta Health Services, provincial schools and health centers.

For more information visit: www.screaminbrothers.com



Over the last 60 years Canada's food and agriculture industry has increasingly been geared for large-scale producers and cannot easily accommodate the specialty products or small-scale processing required by many local producers¹¹¹. Small-scale processors often require specific facilities such as refrigeration units, stoves, freezers, water, etc, for processing produce into frozen or preserved food, as well as the more basic tasks of washing, peeling, or paring. The financial capital required to purchase this type of equipment or space in addition to the funding needed for operation and maintenance can restrict the ability of small-scale processors to be successful, particularly if processing is short-term based on the seasonality of the produce. In addition, labour costs, labour supply and retention and the time and skills necessary to enter into the market can be significant barriers to small-scale processors¹¹².

All of these issues impact small-scale processing in Calgary and the region, and the product price must reflect the true cost of production. This can mean a higher price to the consumer when compared with a similar product processed in larger facilities able to take advantage of economies of scale.

Several approaches have been implemented to address these issues. Some producers process directly on their farm, which allows them to control the type of processing, reduce additional transportation costs and expand their business to incorporate any additional financial value. Another solution is for several food processors to co-locate in a shared facility, which provides the opportunity to share capital and operating costs, labour and expertise and also the associated risk. Similarly, 'producer marketing networks' are groups of farmers working together to meet market demand with central facilities for activities such as washing or packing. These types of facilities and initiatives can be referred to as 'Food Hubs' and are of increasing interest throughout Canada and North America as a mechanism for supporting the local producer and processor. Several information sessions have recently been held by AARD in exploring food hub best practices in North America for application at the local level as part of their 'Explore Local' program¹¹³.

HIGHWOOD CROSSING FARM

Photo & Story Courtesy of Highwood Crossing Farm

When Tony and Penny Marshall took over the Highwood Crossing family farm in 1989 they returned to the farm's organic roots. Tony's great grandfather had naturally been an organic farmer on the same farm 112 years before, and as both Tony and Penny fundamentally believed in organic farming, it made complete sense for them to become organic producers. Highwood Crossing Farm Inc. grows 100% certified organic crops on 320 acres of land. The crops include; wheat, rye, flax, canola, oats, barley, peas, hay and sweet clover.



The other half of Highwood Crossing Foods Inc., Highwood Crossing Foods, takes the crops they've grown and produces and packages certified organic food products. The food products include stone ground flours as well as whole grains and cereals, cold pressed flax and canola oil, granola, flaxseed muffin and pancake mix. What sets Highwood Crossing flaxseed oil apart from other similar products, as Tony says... "The oil will be in the seed on Monday, in the bottle on Wednesday and on the shelf by Friday."

¹¹¹ Bailey, O. (2011), *Food Plan: A Strategic Approach to Enhancing the Viability of the Calgary Local Food System*. Faculty of Environmental Design, University of Calgary; Oakland, AARD, 2011

¹¹² Bailey, O. (2011), *Food Plan: A Strategic Approach to Enhancing the Viability of the Calgary Local Food System*. Faculty of Environmental Design, University of Calgary

¹¹³ [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/explore13593](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/explore13593)



The Vancouver Island Heritage Food Service is one example of a Food Hub. It is a co-operative developing a pilot project to demonstrate a successful regional value chain (production, processing, packaging and distribution are all within a single area). The goal is to produce organic foodservice ingredients for restaurants, hospitals and institutions and includes farmers, workers, distributors, packing businesses and various community organizations. The co-op offers training in greenhouse management, organic production, and manufacturing. They are currently pursuing funding to build two co-packing kitchens and source refrigerated delivery trucks. They also intend to create a fund for local farmers to purchase season extension equipment and carbon footprint reduction technologies, so they can grow winter crops and measure and manage their environmental impact¹¹⁴.

Within Alberta, value-added activities are supported and encouraged through the provincial government and other institutions. Albeit there is limited capacity, several business incubators, facilities and programs are available to support new businesses, provide leadership and expert guidance in the food processing industry¹¹⁵:

- **Agrivalue Processing Business Incubator (APBI)** is a facility that provides infrastructure and services to multiple tenants to support establishment and growth of new companies and business ventures in Alberta. The APBI is registered federally, which enables resident companies to market their products nationally and internationally. The goals include supporting the start-up of new food businesses by providing facilities and programs, assist in transition from new product development, right through to establishment of independent production facilities.
- **The Food Processing Development Centre (FPDC)** is one of the Food Processing Divisions of Alberta Agriculture and Rural Development opened in Leduc, Alberta in 1984, with the objective of encouraging the growth and expansion of the food and beverage industry in both domestic and global markets. It is a modern pilot plant and product development laboratory facility, with a staff of food scientists, engineers and technologists. The services of the centre are designed to strengthen the capacity of Alberta food processors to succeed in the marketplace through application of new technology and development of new and improved products and processes.
- **The Food Science and Technology Centre (STC)** is another unit of the Food Processing Division, operating out of the Crop Diversification Centre near Brooks. Applied research is conducted here on post-harvest handling, storage and value-added processing of horticultural and special crops. As well, technical leadership is provided to Alberta companies seeking specialised knowledge and capacity to compete globally.
- **The Sensory Evaluation Program (SEP)** supports Alberta's value-added food industry by providing comprehensive sensory evaluation services, including consumer acceptability and trained panel testing. Sensory evaluation is an important risk management tool for the food industry, where 80-90% of new products fail.
- **The Growing Forward Agri-Business and Product Development Grant Program** is aimed at stimulating new investment in value added food and agri-product processing sectors. The program targets agri-businesses and producers with innovative market driven opportunities to commercialize a new product, create healthy or healthier products or expand their business.
- **Community Futures Capital Region** along with the **Leduc-Nisku Economic Development Alliance (EDA)** is establishing a local food development council to implement a Local Food

¹¹⁴ <http://www.bcca.coop/node/220>

¹¹⁵ [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/fpdc5012](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/fpdc5012)



Market Business Expansion Initiative. This initiative will develop local food value chains through import replacement with support from the Leduc Food Processing Development Centre. This will create opportunities for local producers and processors to connect directly with each other and consumers, providing the opportunity to change and grow the local agri-food industry.

5.3.1 Affordability of Land for Processing Facilities

Food processing facilities, including commercial kitchens, bakeries, refrigerated storage and food packaging generally require efficient and affordable land, facilities, warehousing, transportation, water and energy. These requirements tend to be associated with more industrial land uses, which are demonstrated through the location of Calgary processing facilities within industrial areas (Map 5.1). Land use planning attempts to locate industrial land in areas that have good access to all of these inputs with less impact (visual, noise, odour, etc) on residential development. Preserving the affordability of industrial land within city boundaries and capitalizing on underused industrial acreage would maintain and potentially increase the viability of industry in high-cost land markets in support of the processing facilities required as part of a sustainable food system. If rental or land development costs are too high within city boundaries it leaves processors vulnerable to relocation outside of Calgary.

Programs exist within Alberta to mitigate the costs associated with processing and packing facilities and equipment. For instance, a co-packer is a food processing company that processes, packages and distributes a food product on behalf of another company. This approach may be valuable for producers lacking capital, special equipment (e.g. bottling machinery, safety sealing or packaging equipment), or industrial kitchen equipment, particularly in the early stages of product testing and marketing. Processing costs are usually based on a per case or per pound basis. Some small food processors have used hospitals, caterers, restaurants or bakeries as co-packers. They may process the products in off-hours to utilize their own staff and equipment more efficiently. The Alberta Agricultural Processing Industry Directory lists companies by product category and is a good place to start searching for a compatible co-packer¹¹⁶.

5.3.2 Food Processing and Safety Regulations

Food retailers, processors and restaurants are all commercial facilities that are required to follow food safety rules and regulations. These rules are in place to protect the public's health and prevent food borne illness. Retailers and producers provide various types and quantities of food; inspections and regulations are conducted based on their potential risks. Whilst further information on safety regulations is contained within Section 3.6, with regard to food hubs, these would be required to follow the same rules as other commercial facilities. Participants would be required to demonstrate safe sources of food for products other than fruits and vegetables; this could be in the form of documentation such as food permits, labels and product testing.

While these regulatory structures are designed for the benefit of public health, stakeholder feedback (Key Stakeholder Workshop and interviews 2012) indicated that they can create a high level of confusion and frustration and are perceived to impact the financial viability of some agricultural or community based food businesses. In order to assist processors and producers, AARD has a food safety-processing program designed to allocate funds for processors to implement food safety systems that result in demonstrated behaviour changes in food safety practices achieved through the adoption of food safety

¹¹⁶ Alberta Agricultural Processing Industry Directory available at: <http://www.agric.gov.ab.ca/app68/foodindustry>



systems, undergoing food safety audits, participating in food safety training or through capital equipment purchases that directly impact food safety.

In addition, research is being conducted on the potential for mobile slaughter units for small-scale and unique production. However, at this time this has been limited to slaughter for personal consumption rather than for the sale of provincially inspected products.

5.4 SUMMARY

Processing is a critical part of the food system, being the point at which value is added to raw products and often a connection point between producer and distributor or consumer. The province has a strong food and beverage manufacturing and processing industry, particularly related to meat and grain, which is reflective of the strength of livestock and grain production within the province. However, whilst employment in Alberta food processing continues to grow and has been relatively resilient to the economic decline, employment in this sector has decreased within Calgary. While there are some positive trends that impact processors, issues such as centralization of processing facilities for livestock producers, barriers impacting small-scale processors, the health and safety regulations and education required by processors impact particularly at the small and local scale. There are a variety of programs established, primarily by the province, to address these issues. However, despite these, stakeholders identified that some issues still remain and further support may be required.



TABLE 5.1: PROCESSING SUMMARY

Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	<p>The complexity and overlap of regulations related to processing between different jurisdictions, and groups that are within a single order of government.</p> <p>Understanding the regulatory landscape (with low, medium and high risk).</p> <p>Capital costs of meeting the regulations e.g. labelling.</p>	<p>Regional development officers play an important role in clarifying legislation requirements and making the connection between Alberta Health Services (AHS), Alberta Agriculture and Rural Development (AARD) and federal regulations.</p> <p>There is active engagement and policy development by AARD that may address these issues.</p> <p>Several business incubators, facilities and programs are available in Alberta to support new businesses, provide leadership and expert guidance in the food processing industry including.</p> <p>The Ag-Info Centre in Stettler provides a way for members of Alberta's agriculture industry to access specialists, information and services within AARD.</p> <p>AARD has a program to help processors reformulate recipes to meet the Alberta Nutrition Guidelines.</p>	<p>Ontario's Rural Economic Development Program is helping local processors install new equipment, implement food safety management systems and conduct nutrition studies. These upgrades will create new jobs, increase production capacities and ensure companies are operating to the highest industry standards.</p> <p>A strong agri-food industry is part of the provincial government's plan to create jobs and opportunities that will grow the province's economy in Ontario.</p>	<p>Continue collaboration with AARD on their food policy development.</p> <p>Continued development and support through food processing programs.</p> <p>Further strengthen communication around regulations and legislation.</p> <p>Consider review and aggregation of food regulations and standards to reduce complication.</p>
Planning and Land Use	<p>There is insufficient affordable space for processing facilities.</p>	<p>The City of Calgary Industrial land supply strategy is currently underway. The City of Calgary owns significant portions of industrial land, which provides a level of control over its use, design and function.</p>	<p>The International Food Processing and Innovation Centre in Toronto is being developed as a public-private sector partnership to supply much needed food-grade industrial space in the city. It responds to the constant call for a focus on commercialization, especially for small and medium sized companies. It will help strengthen the link between rural and urban areas by providing more opportunities for sales of area farm products into the local processing industry. The facility will be built to LEED Green standards,</p>	<p>Collaborate with The City's industrial land development team to explore industrial sites within the city for potential processing space.</p> <p>Work with the land use planning and policy inter-municipal planning team and the CRP for co-locating opportunities for processing facilities.</p>



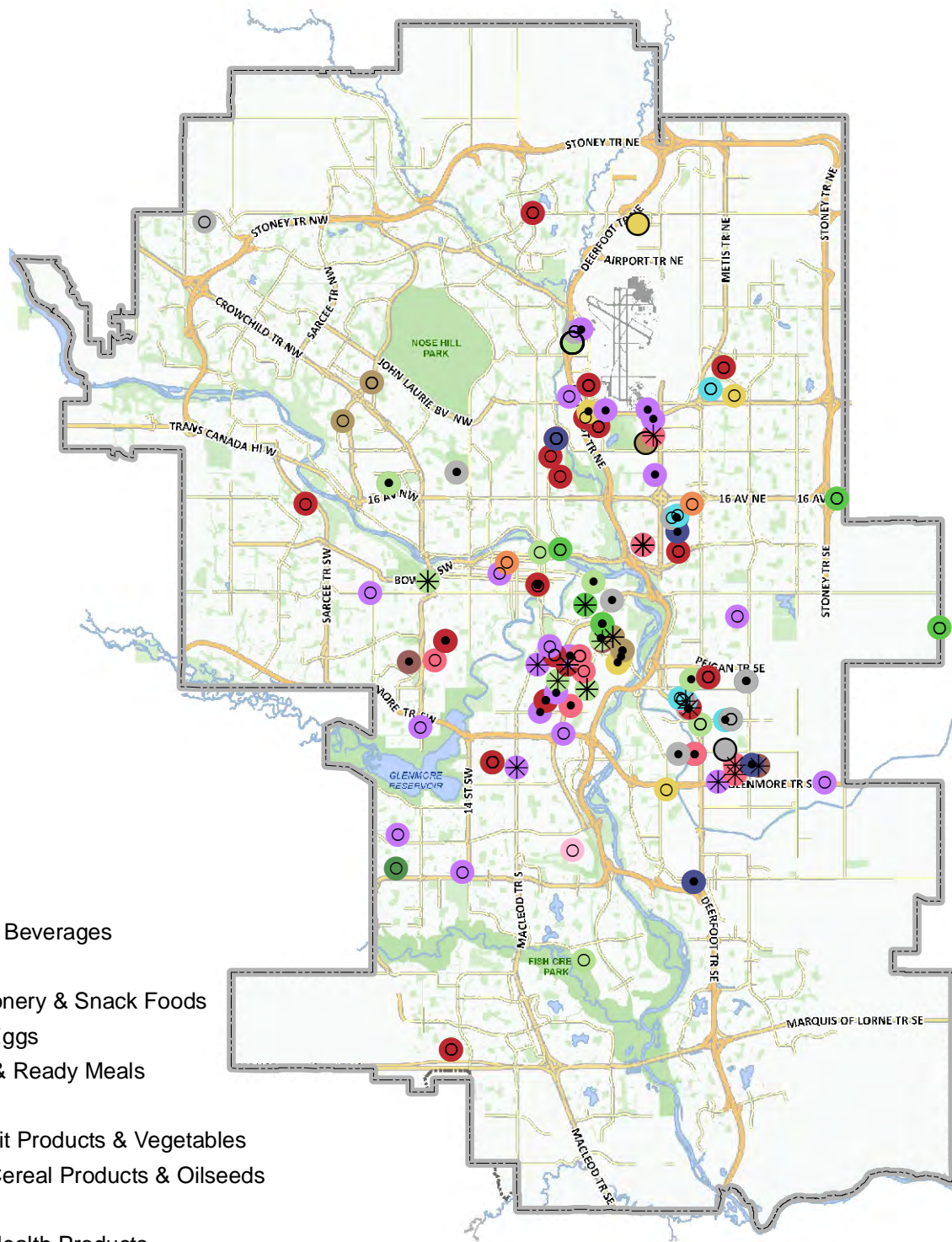
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
			Victoria has completed an inventory of food processing lands.	
Transportation				
Environment	<p>Lack of Life Cycle Assessment studies to show the environmental impact of processing facilities.</p> <p>Centralization of abattoirs and processing facilities leads to a potential increase in transportation distances and fuel costs.</p>	<p>Energy-efficient practices and technologies are being developed and coming on-stream (also, these are easier and cheaper to implement at start-up).</p> <p>Development and city support for eco-industrial parks which aim to reduce environmental impact of industrial facilities and plan for district energy and co-location of facilities e.g. to use waste heat as a resource.</p> <p>Water Resources at The City has an effective water conservation and efficiency program.</p> <p>Potential program for mobile slaughter units in Alberta by AARD.</p>	<p>There are many local food hub examples from other cities e.g. Edmonton, Toronto and Vancouver.</p> <p>In partnership with Toronto Water, a series of Energy Efficiency Workshops for the food and beverage sector have been created, resulting in the Toronto Water Industrial Water Rate Program that gives reduced water rates to companies that put in place a water conservation program with Toronto Water.</p> <p>General Mills invested burns oat hulls to provide 90% of the steam to operate its Fridley facility. They have incorporated solar panels at facilities and their headquarters that supply approximately 55% of its annual electricity needs and save \$19,000 per year in electricity costs.</p> <p>Perdue's AgriRecycle litter recycling plant processes surplus poultry litter into pasteurized, organic fertilizer and provides free poultry house clean-outs to farm partners. They have handled roughly 650,000 tons of litter in its first eight and a half years of operation, equivalent to 52 million lbs of nitrogen, 26 million lbs of phosphorus and 30 million lbs of potassium.</p> <p>Shore Water Conservation resulted in an average reduction in water use of 2.3 million gallons of water per week for each of four Delmarva processing plants. Cold cathode lighting reduces energy use by 80%.</p> <p>Recycling efforts at the Lewiston, N.C., processing plant reduced solid waste by 2,170</p>	<p>Exploration of Life Cycle Assessment to show the environmental impact of food processing facilities as part of the full life cycle. Use this information to develop strategies to decrease the environmental impact of the food system and also reduce costs.</p> <p>Explore the re-localization of processing facilities e.g. the program for mobile slaughter units in Alberta.</p> <p>Ensure environmental impact is addressed when collaborating with The City's industrial land development team (see above).</p>



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
			tons, and the Dillon, S.C.; facility recycles more than 55% of its solid waste.	
Economic Development	<p>There is a high cost of entry, inputs and operations of local processing facilities with labour supply shortage and increased costs.</p> <p>Increasingly competitive import prices and cheaper non-local processing services and facilities.</p> <p>There is a large time commitment required to develop new products and retain individuals with the required skill set.</p> <p>The location of processing facilities is often not near the site of production. For example, poultry processing facilities are located near Edmonton and are not easily accessible to Calgary and regional producers.</p> <p>Local processors often struggle with a need to market and advertise when it is not their specialism.</p>	<p>There is growing interest and expansion of co-ops and food hubs which could provide efficiencies and shared capital investment and risk.</p> <p>There is an increase in skill and uptake of processing by producers on the farm.</p> <p>Existing co-packers provide processing facilities, services and equipment to those lacking capital or testing a product. These are listed on the AARD Processing Industry Directory.</p> <p>Social financing opportunities are expanding. This could support capital and operating expenses required for start up processors who embed sustainability principles.</p> <p>GIS processing layers and traffic flow information could be used in order to identify gaps in processing locations.</p> <p>There are an increasing number of commercial kitchens and bakeries in Calgary and the region.</p> <p>There is an increased demand for niche products in Calgary.</p>	<p>The City of Toronto, Economic Development & Culture Division launched the Toronto Food Business Incubator (TFBI) in 2007 to support new entrepreneurs by teaching them the best practices of food production and ensure that new and innovative products are continually being introduced to local consumers. TFBI is a non-profit organization run by an independent food industry board of directors that supports entrepreneurs interested in starting a new food company.</p> <p>The City of Toronto's Food and Beverage Sector runs Incoming Buyer's Missions for Toronto food processors. A number of times during the year food retailers and food service buyers from the U.S. and abroad are hosted in Toronto and one-on-one meetings are arranged for Toronto-based companies to show their products to potential clients.</p> <p>Vancouver Island Heritage Food Service.</p>	<p>Identify need for a food hub/location to aggregate for food processing, packaging and labelling.</p> <p>Coordinate and provide information about the availability of shared equipment, space, transportation, packaging, labour, labelling etc.</p> <p>Identify and establish networks and lists of processors to collaborate, share resources, mentor and help with experience in getting products to market and resource/time constraints.</p> <p>Provide marketing and labelling assistance for processors to get products to market.</p>
Community and Social Programs	<p>There is a lack of awareness at household level around the value of processing as an important part of the food system.</p>	<p>Community Kitchens are publicly accessible facilities where anyone can cook or process food – with programs that share knowledge on canning, drying, winter food preserves etc.</p>	<p>Operation Fruit Rescue in Edmonton is similar to the Urban Harvest Project in Calgary and includes processing and preserving of the fruit harvested within the city.</p>	<p>Marketing and Labelling communications on local processors e.g. new to market colour code on label.</p>
Education Programs	<p>There is a lack of awareness at household level around the value of processing as an important part of the food</p>	<p>Farmers' markets feature local processors as well as producers</p> <p>There are food science and processing and handling programs at The University</p>	<p>Olds College is offering Western Canada's only post-secondary 2 year diploma program on how to brew and market beer after partnering with Niagara College. Courses in this program</p>	<p>Make education more available for food processors.</p> <p>Mentorship, networks and list of processors to help with time</p>



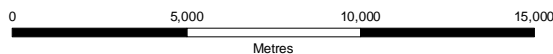
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
	system.	of Alberta and Northern Alberta Institute of Technology (NAIT) as well as courses at Olds College.	<p>will include business, communications, technology and all skill s needed to make and sell beer.</p> <p>Guelph Food Technology Centre (GFTC) is an independent, industry-driven, not-for-profit organization. The centre assists food companies and food entrepreneurs in improving their competitiveness and profitability by helping them develop new products, design new processes, train their staff, and implement safety and quality systems in their facilities.</p>	<p>constraints.</p> <p>Education on safe food processing, preparation, storage and handling for communities and individuals</p> <p>School based education programs could feature local processors as well as producers.</p>



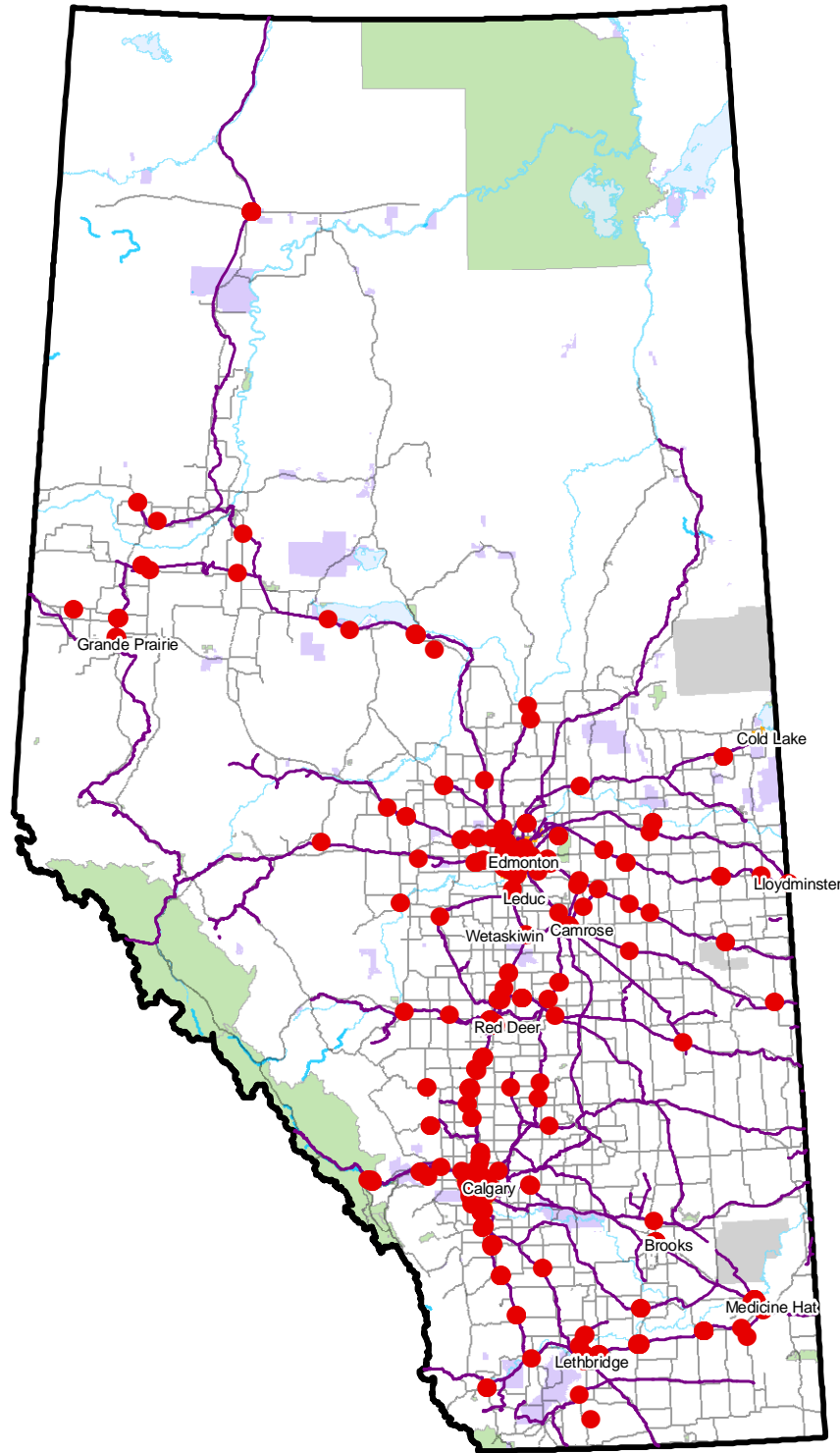
Legend

- Alcoholic Beverages
 - Bakery
 - Confectionery & Snack Foods
 - Dairy & Eggs
 - Entrees & Ready Meals
 - Fish
 - Fruit, Fruit Products & Vegetables
 - Grains, Cereal Products & Oilseeds
 - Meat
 - Natural Health Products
 - Non-Alcoholic Beverages & Ice
 - Poultry Products
 - Specialty Foods
 - Other
- # of Employees
- 1 to 25
 - 26 to 100
 - * over 100
 - Information Not Available

City of Calgary
Map 5.1 - Food Processing Facilities



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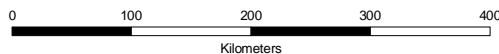


Legend

- Food Processing Plants
- Cities and Towns
- Parks
- Native Reserves
- Military Reserves
- Roads
- Railways

ALBERTA

Map 5.2 - Food Processing Facilities



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6.0 DISTRIBUTION

6.1 CONTEXT

This section provides baseline information, including context, issues and opportunities for distribution in the Calgary food system. Distribution includes the set of processes through which food finds its way from food producers and food processors to consumers. Distribution includes both the distribution and storage of raw and processed food as it passes from farms through brokers, wholesalers and retailers to consumers. Consumers may source food from grocery stores, markets or restaurants; thus all of these, and their suppliers, are part of the food distribution system. Energy and natural resources are used both in the packaging process and in the transport of both the food and the packaging materials to the places where packaging is completed.

6.2 DISTRIBUTION IN THE MARKET FOOD SECTOR AND INSTITUTIONAL FOOD SERVICE SECTOR

6.2.1 Wholesalers

The majority of food consumed in Calgary is distributed through a small number of large distributing and wholesaling companies. These companies typify the Market Food Sector; they are large companies emphasising economies of scale and cost efficiency, with the results that storage space is minimized and deliveries must adhere to a tight schedule. Western Canada's major distributors and wholesalers are listed in Table 6.1.

The largest wholesalers (in terms of sales volume) act as distributors and wholesalers to the major retail food stores:

- National Grocers Association - based in Virginia, with a warehouse in Calgary. Supplies Loblaws (Superstore). Superstore has approximately 35% of Calgary's retail sector, by volume.
- Macdonald's Consolidated - owned by Canada Safeway, supplies Canada Safeway (and some independent grocers) as wholesaler, and operates the warehouse business of Canada Safeway located in Calgary. Safeway has 20-25% of Calgary's retail food sector, by volume.
- Federated Co-operatives Limited - supplier to Calgary Co-Op and Federated Co-Op. Federated Co-Op is located in Saskatoon, with a warehouse in Calgary. Calgary Co-Op and Federated Co-Op have 8-10% of Calgary's retail sector, by volume.
- Other major food retailers in Calgary include Sobey's, Wal-Mart, and Costco, each with about 8% of Calgary's retail sector, by volume.

These three major wholesalers have warehouses in Calgary, which makes Calgary a major distribution centre for food among western Canadian cities. Table 6.1 indicates that five of the thirteen distributor/wholesalers identified with their main service areas in Western Canada are located in Calgary. Therefore, significant quantities of food will be imported to Calgary and then distributed elsewhere, which could have implications for the quantity of food potentially going to landfill in Calgary when any disturbances occur in the distribution network.



TABLE 6.1: DISTRIBUTOR/WHOLESALERS, WESTERN CANADA

Name	Location	Type	Specialization	Main Service Area
Associated Grocers	Calgary	Grocery	Bakery, Grocery, Frozen Foods, Produce, Meat	Western Canada
Bridge Brand	Calgary	Foodservice and Hospitality	General Merchandise, Fish, Produce, Dairy, Meat, Grocery, Frozen Foods	Western Canada
Core-Mark International, Inc.	Burnaby	Other	Grocery, Frozen Foods, Beverage, General Merchandise, Deli, Fast Food/HMR	Western Canada
Discovery Organics	Vancouver	Grocery	Certified Organic Produce	Western Canada
Federated Co-operatives Limited	Saskatoon	Grocery	Bakery, Grocery, Frozen Foods, Organic/Natural Foods, Deli, Produce, Dairy, Meat	Western Canada
Galloway's Foods	Richmond	Specialty	Grocery, Organic/Natural Foods	Western Canada
Horizon Distributors	Burnaby	Other	Organic/Natural Foods	Western Canada
Macdonald's Consolidated	Calgary	Grocery	Bakery, Grocery, Frozen Foods, Beverage, Organic/Natural Foods, General Merchandise, Deli, Fish, Produce, Dairy, Floral, Meat, Fast Food/HMR	Western Canada
Mayhew's	Burnaby	Specialty	Floral	Western Canada
Pratt's Wholesale	Winnipeg	Grocery	Meat, Grocery, Frozen Foods, General Merchandise, Deli, Produce, Dairy	Western Canada
SYSCO I&S Foodservice Distributors	Acheson, AB	Foodservice and Hospitality	Grocery, Frozen Foods, Fish, Produce, Meat	Alberta
Tree of Life Canada	Calgary	Other	Grocery, Beverage, Organic/Natural Foods, Deli, Dairy, Meat	Western Canada
UNFI Canada (previously Sunopta Grocery West)	Richmond	Other	Organic/Natural Foods	Western Canada
Wallace and Carey Inc.	Calgary	Warehouse Club	Bakery, Grocery, Frozen Foods, Beverage, General Merchandise	Canada

Source: Alberta Food and Rural Development.

<http://www.agric.gov.ab.ca/app68/agriprocessors?cat1=Distributor%2F+Wholesaler>

Map 6.1 shows the locations of Calgary's wholesalers and foodservice distributors and the major transportation network and Map 6.2 shows Alberta's major transportation networks.

6.2.2 Food Service Industry

Grocery stores (see Section 7.2 on Food Retailers) comprise approximately half of the food industry. However, food service (where food is served as prepared meals) is equal in terms of volume. Restaurant groups, fast food chains and cafeterias are the largest food service customers. A major food manufacturer such as Kraft Foods Inc. would likely sell approximately equal amounts of food to food retailers and the food service sector. Within Calgary, Wallace and Carey and SYSCO are the major distributors to the food service industry and Gordon and Cara are significant providers to food service.

6.2.3 Food Brokers

Food brokers sell and market food products. Hiring a food broker might enable a producer to introduce a product to a new market, or to place it on the shelves of a major supermarket chain, e.g. throughout



Western Canada. Many of the food brokers operating in Alberta are part of large national corporations. Some specialise in specific types of product, while others specialise in the food service and hospitality industries. The role of the food broker is to represent food products to prospective buyers, i.e. to various types of stores, food service operators, wholesalers and distributors, with the objective of having them listed for sale by these entities. The major food brokers operating in Western Canada are listed in Appendix G.

6.2.4 Food Retailers

Appendix H presents market shares for major retailers of food products at the level of Western Canada. Note that these closely reflect the market shares for the same retailers in Calgary.

- Superstore – approximately 35% in Calgary, approximately 27% in Western Canada
- Safeway – 20-25% in Calgary, approximately 25% in Western Canada
- Co-op – 8-10% in Calgary, approximately 10% in Western Canada
- Sobey's – approximately 8% in Calgary, approximately 12% in Western Canada
- Wal-Mart – approximately 8% in Calgary, approximately 19% in Western Canada
- Costco – approximately 8% in Calgary, approximately 16% in Western Canada

6.3 DISTRIBUTION OF LOCALLY PRODUCED FOODS

The majority of food moves from farms to consumers through an efficient system that minimizes costs through specialisation and economies of scale (the Market Food Sector). This system also tends to transport food over large distances. Local foods move from producers to consumers over much shorter distances along more direct distribution channels; producers often selling directly to consumers with no intermediaries. Alberta Agriculture and Rural Development has estimated the value of Alberta's local market sector at almost \$625 million.

It should be noted that some retailers in the Market Food Sector place a high importance on the sale of local food products and can identify local foods for retail from direct connection with farmers, often by going to local farmers' markets. A Calgary-specific example is Calgary Co-op, who makes it a priority to carry local food products, defined as those produced, processed and sold in Alberta, naming local producers in their annual report and identifying principles that reflect all elements of sustainability. Similarly, Save-On-Foods, who will be returning to Calgary with a new store in 2012, also source and label local food products defined as Albertan with specific aisle labelling. Safeway defines local as being produced, processed and sold in Canada and albeit they work with some Albertan producers, they label local products as those produced, processed and sold in Canada.

What is noticeable for each Market Food Sector is the lack of detailed annual reporting on sustainability or identification of specific targets and indicators to monitor against. This makes it difficult for the consumer to understand and be educated on the level of impact (positive or negative) that their purchases and choice of food retailer has on the environment, local economy and society. Detailed reporting on both sustainability and Corporate Social Responsibility has been increasing significantly over the past ten years, not only in the food system but for all businesses globally, in response to both legislation and customer awareness and demand for information. A best practice example is Marks and Spencer's Plan A which details commitments with targets and timelines and a transparent public reporting initiative to be the most sustainable major retailer in the world¹¹⁷. Through Plan A, Marks and

¹¹⁷ Marks and Spencer, Plan A, information available at <http://plana.marksandspencer.com/about>

Spencer are working with their customer and suppliers to address climate change, reduce waste, use sustainable raw materials, trade ethically and help their customers to lead healthy lifestyles. As provision of information by Calgary food retailers increases, this will be extremely valuable in raising awareness of consumers and helping in the delivery of a sustainable food system for Calgary and the region.

Direct marketing of food by producers is becoming more popular throughout Alberta, as is the case elsewhere in the developed world. Direct marketing is when the producer connects directly with the consumer, and enables producers to capture higher prices for their commodities, since the normal farm price may be much lower than the retail food price. Consumers value the opportunity to source fresh, high-quality products, while supporting local producers. Both producers and consumers value the connections they develop with one another and the knowledge they share be it an understanding of the production process and the daily life of a farmer, or the demands and changing tastes of the consumers.

BITE: INGLEWOOD'S FOOD HUB

Story and photo courtesy of Doug Taub and Julie Denhamer, co-owners of Bite

Bite Groceteria & Caffé, commonly known as Bite, began in 2007 when, as two friends, we found a common interest in food, culture, stories and education and decided to join in business. Bite is rooted in Inglewood, an inner-city community known for its historical buildings and also its absence of chain stores and a grocery store.



Italy was our inspiration, known as the mother of the kitchen and the founder of the Slow Food movement we started bringing aspects of it to our own Inglewood based food hub. In a short time, we expanded from two products (canned tomatoes from Salerno, a southern region of Italy known for its nutrient rich soil, and pasta from Cicciano, a small food community outside Naples) to more micro producers from France and Italy.

Bite began providing Calgary's best restaurants and hotels with European foods from producers and growers new to Calgary and Canada. The goal was to challenge the selection and raise awareness about the diversity of food, supporting new Calgarians, providing economic opportunity for family owned and operated companies largely inexperienced in the export market and developing a small food business network ensuring stable wages for the producer. For Bite, community building was paramount, regardless of the distance between producer and consumer.

However, as a small business we faced several hurdles... How do we tell our story? How do we coordinate provincial processing schedules and availabilities with the receiving chef? How can we maximize Alberta's resources, yet balance price and availability to maintain our supply? We are always looking for more local producers, striving for more cultural depth and intent on learning more and sharing knowledge with curious cooks, diners and shoppers.

Today we sell more than 3500 food ingredients to 170 restaurants and hotels in Alberta. We deliver and allow for pick up and opened our Inglewood shop to enable the curious diner to shop 'where the chef's shop' for ingredients from their favourite restaurants. We are set on plans for Bite Groceteria & Caffé Phase 2, a 12,000ft store embodying the concept of a piazza; a meeting place for all cultures, for all ages, for foods of the globe and for foods of our backyard, in Calgary, in Inglewood, on 9th Avenue.



However, some methods of direct marketing can take farmers away from the daily job of producing and can be detrimental to their productivity. Time spent by farmers selling goods at the farmers' market, marketing and labelling their products or delivering to restaurants, is time taken away from production. In addition to this, it was identified that farmers often cannot afford to hire marketers. There is a need for marketing assistance to make direct marketing more accessible to producers.

6.3.1 Direct Marketing Mechanisms

Alberta producers are making use of a range of direct marketing options. These impact both food retail and food service, and include:

- **Roadside stands or farm stores.** Roadside stands are usually located on the farm, and sell fresh products directly to consumers on a seasonal basis. Farm stores may operate year round, and may be located off the farm, where traffic is higher.
- **U-pick operations.** Customers come to the u-pick operation and harvest the produce, pay cash for it, and transport it home. This reduces the grocer's costs for harvesting, sorting and packaging. Alberta Farm Fresh Producers Association prepares a pamphlet listing all farms in the province as well as by geographical area, available at: www.albertafarmfresh.com.
- **Community supported agriculture (CSA).** In a partnership between consumers and producers, consumers contract or buy shares in farm products in advance, while producers commit to supply a range of products over the course of the season. Consumers may have the option of participating in planting, cultivation and harvesting. CSA's serving the Calgary area include¹¹⁸:
 - Thompson Small Farm, Box 451, Carbon, Ab
 - Noble Gardens, Nobleford, Ab -
 - Blue Mountain Biodynamics
 - Sundance Fields, Olds, Ab
 - Seeds to Greens, Calgary, Ab
 - Eagle Creek Farms, Bowden, Ab
 - Greens, Eggs, & Ham, Leduc, Ab
- **Farmers' markets.** Farmers' markets are a well established form of direct marketing to the consumer. They provide a location where producers and consumers can meet to buy and sell products made or grown by the seller. Vendors at Alberta's approved farmers markets typically share the costs of advertising and marketing. Farmers' markets often serve as business incubators or test markets for start-up processors. Calgary's provincially approved farmers markets and public markets are listed in Table 6.2 and information regarding vendors is located in Appendix I. Alberta Approved Farmers' Markets are required to handle local products, as defined by a requirement for at least 80% of products sold to be produced in Alberta. This requirement does not apply to public markets.

Farmers' markets and farm direct sales are addressed in the provincial regulations. Depending on the types of product being sold, vendors are exempt from obtaining food permits. However, farmers' market organizers are required to obtain a Farmers' Market Food Permit. The farmers' market organizers are subject to inspection on an annual basis and are ultimately responsible for the safe food practices of each of their vendors. Funding is available for farmers and food

¹¹⁸ More information on Alberta CSA's: <http://www.csaalberta.com/>

processors through *Growing Forward*¹¹⁹ to assist with regulatory/food safety activities. Food safety learning programs are also offered by the Alberta Food Processors Association¹²⁰.

Albeit this approach is supportive to small scale producers, this flexibility can lead to some customer assumptions that all farmers' market vendors are both organic and local. Whilst this is not always the case, face to face contact between customers and producers and processors allows for a level of education and understanding that goes beyond what is possible in the major food retail environment.

- **Municipal buying clubs.** This is a marketing concept where producers target a group of urban consumers, typically working in the same building or living in the same neighbourhood. Product is pre-sold and delivered to consumers at pre-determined locations and dates. Consumers who shop at farmers markets may become buying club members during the winter.
- **Direct sales to restaurants.** Chefs are increasingly interested in buying directly from producers in order to access products that are unique or difficult to obtain from distributors. Chefs working for high-end restaurants are often willing to pay more for products that are hard to find and of high quality. This reflects a growing interest among consumers in local food that is harvested and prepared at its freshest, a trend that is driving growth in farm direct marketing. As with major food retailers, uniform size and quality of product may be very important to restaurants and caterers; hence lack of uniformity can be a barrier to marketing local products to this sector.

TABLE 6.2: PROVINCIALY APPROVED & PUBLIC FARMERS MARKETS, CALGARY

Market	Type	Season
Airdrie Farmers' Market (outside of Calgary) Location: 508 3 Avenue Southeast, Airdrie, AB T4B 2C2	Public	Seasonal
Bearspaw Lions Farmers' Market Location: Bearspaw Lions Clubhouse, 25240 Nagway Rd, Calgary	Provincially Approved	Seasonal
Calgary Farmers' Market Location: 510 7th Avenue SE	Provincially Approved	Year Round
Chestermere Farmers' Market (outside of Calgary)	Public	Seasonal
Crossroads Farmers Market Location: 12-5 - 26 Avenue S.E. Calgary, AB T2G 1R7	Public	Year Round
Fish Creek Park Farmers' Market	Public	Seasonal
Grassroots Northland Farmers' Market (Calgary) Location: Northland Village, 5111 Northland Drive NW	Provincially Approved	Seasonal
Hillhurst Sunnyside Farmers' Market Location: HSCA 13-0 - 5 Ave NW Calgary, AB T2N 0S2	Provincially Approved	Seasonal
Kingsland Farmers' Market (Calgary) Location: 7711 Macleod Trail South	Provincially Approved	Year Round
Millarville Farmers' Market (outside of Calgary)	Provincially Approved	Seasonal
Springbank Country Farmers' Market	Public	Seasonal

Source: Alberta Farmers' Market Association

¹¹⁹ <http://www.growingforward.alberta.ca/>

¹²⁰ http://www.afpa.com/page_training_food.html



6.4 DISTRIBUTION IN THE CHARITABLE FOOD SECTOR

Distribution in the Charitable Food Sector is crucially linked to distribution in the Market Food Sector. This is illustrated by the channels through which food is sourced by the main player in Calgary's Charitable Food Sector, namely the Calgary Inter-Faith Food Bank (herein the Food Bank).

The Food Bank operates from a 60,000 sq. ft. warehouse, with 4,400 volunteers and a fleet of five ton trucks. They are the largest provider of food in the charitable food sector, distributing 9,000 tonnes of food within Calgary and an additional 2,270 tonnes in the region and beyond, with the support of over 100 partner agencies that assist in distribution. They distribute food through a significant number of channels ranging from shippable food (not prepared food) provided to groups with commercial kitchens to the Emergency Hamper Program, Food Link (sharing fresh and non-perishable foods with over 100 partner agencies), to the Welcome Home (pantry hamper) program to individuals and families moving into new accommodation under homeless initiatives through 10 partner agencies.

As a major distribution centre in Western Canada, Calgary has a disproportionate share of the Canadian distribution capacity. As a result, the Food Bank sources 85% of food donations from the food industry, e.g. from wholesalers such as Macdonald's Consolidated, SYSCO and Community Natural Foods. More than 20 million pounds of food are collected and redistributed through families and agencies annually. This is largely a result of the small storage spaces maintained by these Market Food Sector distributors, and tight delivery time lines. A disruption or missed delivery in the Market Food Sector distribution system would likely result in food being disposed of in the landfill were it not for the size of the operations that the Food Bank and their support organizations and their ability to take such shipments. These comprise much of the food distributed by the Food Bank to vulnerable populations in Calgary. It is important to acknowledge the additional resources required to transport waste from grocery stores to a warehouse facility then to non-profit organizations and to people in terms of facilities, energy, fuel, labour etc and the impact this has on the environment and general efficiencies of the food system.

A closely related issue is the expiry date labelling on food. A large proportion of food that is past its expiry date is still safe for human consumption. In the context of a tightly scheduled delivery system, even minor delivery disruptions can result in food failing to reach the consumer through the Market Food Sector distribution system before its expiry date, although the food is still perfectly safe for human consumption. This presents an opportunity to the Food Bank in terms of food supply, but also an obstacle in the form of a lack of information within the general public on labelling and food safety.

There are many additional programs and initiatives within the Calgary Charitable Food Sector, often closely linked to the Food Bank distribution system. The Community Kitchen Program (CKP) is an example being a not-for-profit organization to help people learn to feed themselves in an economical, nutritious and sustainable manner. The CKP operates a large warehouse, a 2,300 sq.ft. cooler, 6 vehicles and a mobile kitchen. In 2011 they distributed 734 tonnes of food.

6.5 DISRUPTIONS AND INFLUENCING FACTORS

The efficient functioning of the food distribution system is essential to enable consumers to maintain an adequate supply of food and to effectively minimize waste. This is particularly true in the case of fresh foods, which may have to reach the consumer within days of production, under refrigeration at all stages of distribution, in order to be useable by consumers. Further, the food distribution system in North America is designed to minimize storage costs, resulting in limited ability to accommodate disruptions in transportation. This implies that distribution should be flexible to disruption by external factors such as labour action, increases in energy prices, political disruption and natural disasters.



However, the global nature of the distribution system within the Market Food Sector increases the susceptibility of food to these types of disruptions and, therefore, impacts Calgary's level of food security.

Lord Cameron of Dillington, coined the phrase "nine meals from anarchy" to describe the fragility of the United Kingdom's food supply. The scenario he referred to involved a sudden shutdown of oil supplies. He outlined that, given the global nature of the UK food system, it would only take three days from a shutdown on oil supplies, resulting from political or natural disaster, for food supply on supermarket shelves to have been depleted and for law and order to break down. This hypothesis has been validated on several occasions in the last ten years through times of oil price increase and fuel protests and is further supported by the looting that followed Hurricane Katrina in New Orleans.

Chapter 3 outlined the potential climate impacts within the Calgary food system and Chapter 4 demonstrated the reliance of Calgary on imports for our food supply. Fuel and imports are currently an integral part of the Calgary food system. An increase in local production to diversify the food supply and reduce the risk associated with political instability and fuel prices would help to decrease the threat of food supply disruptions.

6.6 ENVIRONMENTAL IMPACT

The environmental impact of the distribution system depends upon the distance travelled, the method of transportation, requirements for refrigeration during transportation and associated fuel use and efficiency. Map 6.2 outlines the major transportation network for Alberta. Rail plays an important role in the food distribution network with majority of processors located along the rail routes. However, the current global food system and this rail network relies greatly on the use of non-renewable fossil fuel for its distribution.

On average, food travels approximately 1640 km every time that it is delivered to the consumer, (6,760 km on average over its life cycle through the supply chain)¹²¹. *Food Miles* is defined as the distance food travels from where it is grown to where it is ultimately purchased or consumed by the end user. Food Miles research was conducted on the GHG emissions of an internationally-sourced versus locally-sourced meal; a spaghetti dinner¹²² (Appendix J). This found:

- The average international sourced meal distance is over 2,800 km;
- The average locally sourced meal is 189 km;
- The amount of GHG emissions generated for the meal based on the internationally sourced ingredients is 1.57 kg or 260 grams per person;
- The amount of GHG emissions generated for the meal based upon the locally sourced ingredients is 0.155 kg or .025 grams per person;
- Sourcing ingredients locally for meals can reduce the greenhouse gas emissions by 10 times.

It is estimated that the CO₂ emissions attributable to producing, processing, packaging and distributing the food consumed by a family of four is about eight tonnes a year¹²³. The cost of mitigating the environmental impact resulting from the food miles traveled is not currently factored into the actual price of food. Farming systems or climates that produced large yields can reduce the overhead burdens and associated GHG emissions of production. However, the increased transportation distances often

¹²¹ Food Miles and Relative Climate Impacts of Food Choices in the United States; Weber, C. Matthews H.S.; Environ. Sci. Technol 2008 42, p. 3508

¹²² Research conducted by The City of Calgary Environmental & Safety Management

¹²³ Ibid



negated these advantages, dependent upon the total pre farm gate primary energy use and global warming potential of the product.¹²⁴ Therefore, if environmental mitigation costs were considered within the cost of food, local food could be more price competitive with international imports. Given that the current food system relies greatly on the use of non-renewable fossil fuel inputs, growing and processing food closer to home is becoming increasingly important in addressing a more sustainable future.

As outlined within the Section 4: Production, Life cycle assessment (LCA) is a process for evaluating the environmental impact, or 'environmental footprint' of a product from cradle to grave. LCA can be used to evaluate inputs such as energy, water, nutrients, raw materials etc and track those through the food chain, including the consideration of distribution and transportation. LCA of specific crop and livestock distribution can help guide improvements in farming methods to minimise the environmental impact.

Much of Calgary's imported produce comes from California, Washington, British Columbia or further. While the distances imported food travels is greater than those within a local food system, these larger distribution networks tend to be quite efficient. The distribution networks are able to consolidate many products coming into Calgary and are distributed from a central warehouse. Local producers are generally not part of a larger, more efficient distribution network. Often local producers that sell directly to restaurant or institutions will deliver small quantities, making many deliveries over a short time. In addition, the frequency of delivery may increase to ensure the freshness of perishable produce¹²⁵. This indicates that, in some cases, local distribution has an opportunity to increase efficiency through collaborating with other producers, distributors, retailers and consumers and developing a coordinated system.

Some strategies exist to reduce the environmental impact of the local distribution network. For example, haul-back or utilization is an approach which ensures that delivery trucks are full both in delivering food items on an outward journey as well as on the return journey. This not only reduces the environmental impact by increasing the efficiency of the fuel used, but also directly reduces the cost. Most major food retailers employ this method to reduce their costs and maximise efficiency and it is recognized that this requires collaboration within the food distribution system and between competitors.

6.7 SUMMARY

The majority of food consumed in Calgary is distributed through a small number of large distribution and wholesale companies as part of the Market Food Sector and global food system. These operate in an efficient manner that minimises cost through specialisation and economies of scale; storage space is minimized and deliveries must adhere to a tight schedule. However, this system is subject to global disruptions (e.g. political instability, fuel prices and environmental disasters) with an associated risk and instability. This benefits food assistance programs and, due to the substantial facilities provided by such agencies as the Calgary Food Bank, a large amount of food, which is suitable for human consumption, is prevented from going to landfill. The local distribution network is more resilient to global disruptions and covers much shorter distances with potential for reduced environmental impact. However, this system can be less efficient due to an increased number of smaller deliveries. There is an opportunity to increase efficiency through collaborating with other producers, distributors, retailers and consumers and developing a coordinated system.

¹²⁴ More information available at:

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=15001>

¹²⁵ 1994, Peters Snider



TABLE 6.3: DISTRIBUTION SUMMARY

Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	Regulations regarding food safety are perceived to be a barrier to direct marketing initiatives. They can also restrict some producers from selling to major food retailers.	There is interest at the provincial, regional and city level regarding support for existing and new food hubs. Alberta Farm Fresh Producers Association prepares a pamphlet listing all farms in the province as well as by geographical area, available at: www.albertafarmfresh.com .	The County and City of San Francisco Board of Supervisors passed the Farmers Market ordinance in 2007 requiring all farmers' markets in the city to accept all forms of payment from food assistance programs, (e.g. Food Stamp). It allowed Parks/Recreation land to be considered as a possible venue for future markets, and called for a comprehensive assessment by the Agricultural Commissioner of the neighbourhoods in San Francisco that could support farmers' markets.	Collaborate with AARD in their exploration of food hubs in the Calgary region.
Planning and Land Use	Local distribution sources e.g. farmers markets are often not in a location that is walkable or on the primary transit network. There are no public farmers markets in Calgary that are city-owned, supported, operated or financed.		Fresh food stands at transit hubs to service the transit-taking population. Ottawa's vision: A City where pedestrians and public transit riders have ample and easy access to retail outlets along transportation routes which sell healthy and fresh foods that are locally-produced when possible (www.justfood.ca) Public farmers markets exist in many cities e.g. Granville Island in Vancouver, Pike Place in Seattle and Byward Market in Ottawa. Detroit Eastern Market, "Detroit's Kitchen", is a plan to create a food hub around an already successful market including an economic development strategy and campus plan. The strategy includes retail, wholesale, education and processing businesses that are all food related. They also plan to include a model market garden and urban garden training. Currently they have 86 adjacent food businesses, a community kitchen, 200 residents and 880 stalls. http://www.detroiteasternmarket.com/page.php?p=1&s=60	Planning for walkable neighbourhoods and complete communities with farmer's markets and/or other distribution facilities located in accessible areas e.g. Transit Oriented Developments (TODs). Work with inter-municipal planning and Calgary Regional Partnership (CRP) to support distribution hubs at the regional level. Co-location of food related companies to reduce travel requirements.
Transportation	There is a significant footprint related the distance that food currently travels. The distribution logistics within the local food system can be	An example of a local food hub is Edmonton's Sunfresh Farms (sunfreshfarms.ca), founded by a group of Alberta farmers in 1997 and established as a wholesaler in	Biofuels currently make up 3.1% of the total road transport fuel in the UK or 1,440 million litres. By 2020, 10 per cent of the energy used in UK road and rail transport must come from renewable sources. 2 nd Generation biofuels use non-food substances as a	Increased collaboration between producers, buyers and logistics/distribution companies to ensure that transport occurs in the most



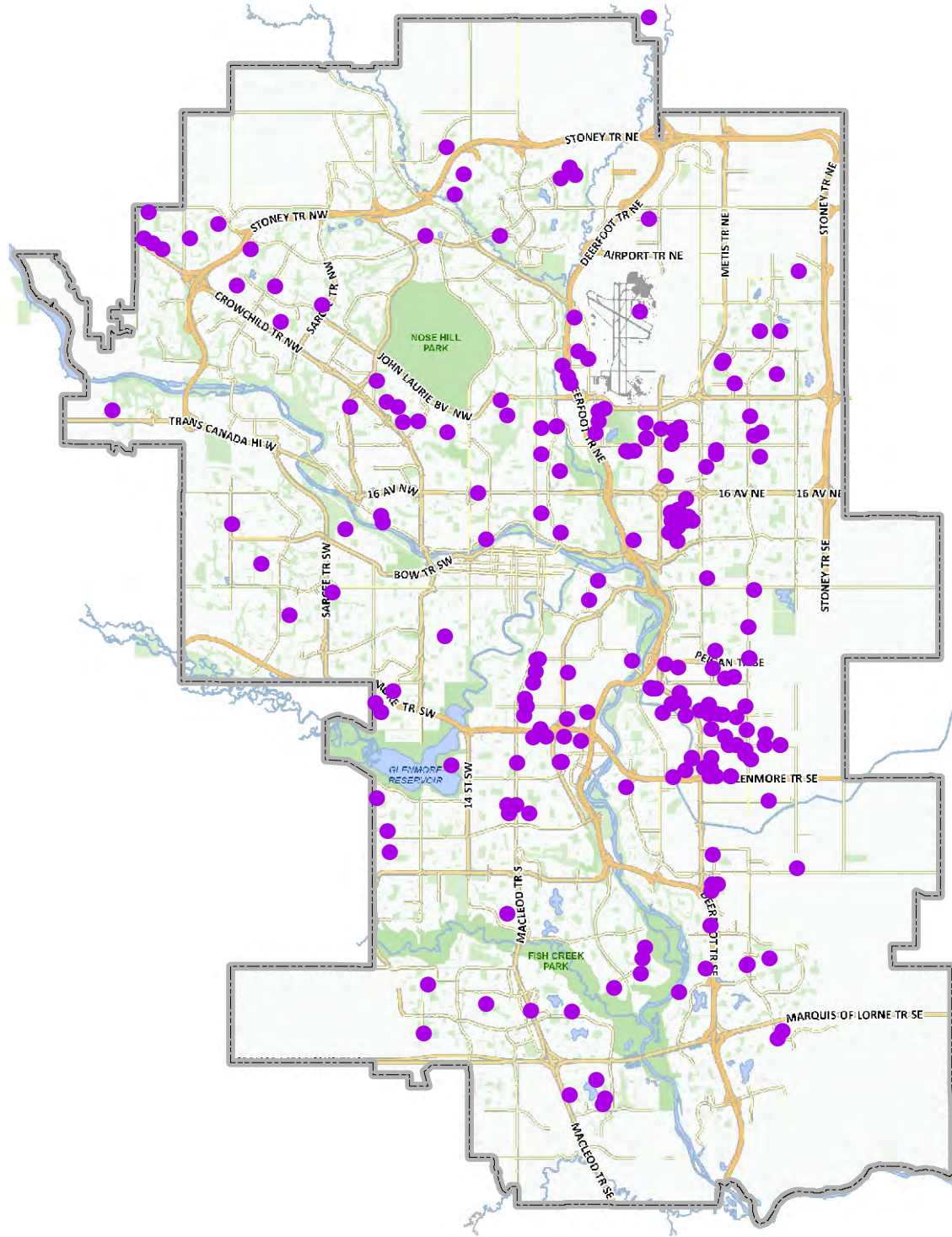
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
	<p>inefficient. Local farmers may not be part of a larger distribution network that may use more organized and efficient transportation logistics.</p> <p>Time spent transporting food to restaurants/markets, etc., for the producers is a significant issue.</p> <p>Buyers (i.e. restaurants) find it difficult and time consuming to coordinate all of the deliveries and deal with the complex billing when sourcing local produce.</p> <p>Large transportation systems are dealing with larger volumes and great distances and it is difficult to deal with the smaller scale local producer's distribution needs.</p>	<p>Western Canada. Their services include aggregation, processing, packaging, distribution, storage, marketing and training and education.</p> <p>Significant progress has been made on the local production of biofuels. The City has explored and implemented a green fleet program from which learnings could be drawn.</p> <p>Shell's Canadian Green Corridor, the company's first large scale liquefied natural gas (LNG) project in North America, launched March 2012. Initially employing a mobile refuelling unit to service the needs of fleets running the Edmonton to Calgary corridor, the company also has agreements in place with three stations in the corridor for them to supply LNG. This demonstrates the flexibility and capability of employing new fuel within existing transportation networks and processes within Alberta, presenting the opportunity for future conversion to 100% renewable fuel use in the province.</p>	<p>feedstock carbon source e.g. Gushan Environmental Energy biofuels china, Dupont Danesco etc. 3rd generation biofuels use algae to convert carbon dioxide into biomass e.g. Sapphire Energy San Diego, In addition to its projected high yield, algaculture unlike crop-based biofuels does not entail a decrease in food production, since it requires neither farmland nor fresh water.</p> <p>Development of sustainable advanced biofuels is part of the Strategy for a Sustainable European Bioeconomy proposed by the European Commission in February 2012 to shift the European economy towards greater and more sustainable use of renewable resources and processes (for food, feed, energy and industry).</p>	<p>efficient way viz a viz food hubs, coordinated distribution networks, drop-off/pick-up locations, web-based logistics solutions etc.</p> <p>Review existing infrastructure and facilities e.g. community halls, for food distribution locations.</p> <p>Map the existing routes and efficiency of the distribution networks with partners. Align this with a carbon footprint mapping of the different distribution networks to inform strategies for environmental conservation.</p> <p>Explore alternative fuel sources such as local biofuel options, as well as other options for green vehicles (right-sizing vehicles, electric, hybrid, etc)</p>
<p>Environment</p>	<p>Transportation of foods in the current global food system is reliant upon fossil fuels and creates a significant environmental footprint.</p> <p>There is a requirement for refrigeration for the distribution</p>	<p>Grocery delivery services exist in Calgary (e.g. Sunterra Market, SPUD), which can increase efficiency of delivery by reducing single family trips to grocery stores.</p> <p>Haul-back is being employed by the major Calgary distributors. It is</p>	<p>Many jurisdictions are taking steps to facilitate direct marketing of local foods</p> <p>Kraft Foods is undertaking a multi-year footprinting project analyzed by the World Wildlife Fund and the University of Minnesota. This study shows that in order to make meaningful change and conserve nature's valuable resources, companies need to work with their suppliers to reduce the impact of producing raw materials. This has</p>	



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
	<p>of perishable goods.</p> <p>Due to Calgary being a major distribution centre, there is the possibility of excessive food waste sent to landfill, should there be any disturbances in the system.</p> <p>There are some empty trucks that do not employ haul-back as part of their logistics and operations.</p>	<p>an approach which ensures that delivery trucks are full both in delivering food items on an outward journey as well as on the return journey. This not only reduces the environmental impact by increasing the efficiency of the fuel used, but also directly reduces the cost.</p> <p>Emergency food provision programmes e.g. the Food Bank and supporting agencies provide facilities for the re-distribution of food suitable for human consumption that would otherwise go to the landfill.</p> <p>There are existing examples of environmentally sustainable small-scale distribution methods being employed by some local processors and producers e.g. The Unique Blend Coffee Co and Sidewalk Citizen Bakery.</p>	<p>helped make significant progress towards kraft sustainability targets with reduction of food miles, water and energy use.</p> <p>In the UK most grocery stores have offered a delivery service for several years e.g. Tesco, Sainsbury, Asda, often incorporating labelling such as 'in season' and 'organic'.</p> <p>Tesco's fleet running on a 50% biodiesel mix and utilizing solar and wind power generation at many depots and stores.</p> <p>New Seasons Market (Portland) uses a fleet of delivery vans with the capacity to make up to ten deliveries on a single route from online shopping. The vans are fuelled with a blend consisting of 20% biodiesel, and they have separate cargo areas for unrefrigerated, refrigerated, and frozen goods using software to increase efficiency of the route travelled.</p> <p>A carbon footprint study conducted by CleanMetrics (2010) for New Seasons Market compared the emissions produced by the delivery vans with the emissions that would have been generated had the customers driven from their homes to the nearest store and found that delivery vans were more efficient by a factor of almost two.</p> <p>Organically Grown Co. (Oregon) undertook a major initiative in 2008 to track the transport of every product that reached one of their three distribution centers responding to customer requests for information about the environmental impacts of their products.</p> <p>A web-based greenhouse gas emissions analyzer developed by CleanMetrics Corp. (2010) made use of OGC's database of thousands of suppliers and products, to compare the transport impacts of products sourced from different suppliers and locations. Results from these analyses provide OGC with visibility into product supply chains and information needed to incorporate transportation-related carbon footprint as one component of their food purchasing decisions.</p>	



Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Economic Development	Time and costs transporting food to retailers/restaurants/markets, etc., impacts the economic viability of the local producer	Opportunities may be available for centralized distribution of food or Co-ops/ food swaps / food shares Some major retailers (e.g. Co-op and Save-on-Foods) source, market and label local produce. This reduces the cost and time associated with multiple deliveries for local producers and processors and raises awareness for citizens shopping in the major retail outlets.		Coordinate and provide information about the availability of shared equipment, space, transportation, packaging, labour, labelling etc. Provide an inventory of brokers and distribution companies. Explore the potential for auction sites for the sale of produce to distributors.
Community and Social Programs		Calgary Interfaith Food Bank and associated organizations provide an extremely efficient network for distribution supported by major and small wholesale and retail outlets.		Consider equitable distribution not just efficiency of the network.
Education Programs		Demand for local food initiatives like CSAs, egg co-ops, meat share, farmer's markets is increasing and as result there are more diverse mechanisms for dissemination of information.	Bungay Community Bees is a UK CSA launched in 2010, as part of Sustainable Bungay (a Transition Town initiative) and provides 50 members with honey and the opportunity to become involved with the scheme (£20 membership annually). In raising awareness - stickers are used to label bee-friendly plants at local garden centres and leaflets are distributed.	

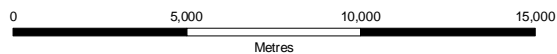


Legend

- Food Warehouse/Depot
- Calgary City Limits 2012

City of Calgary

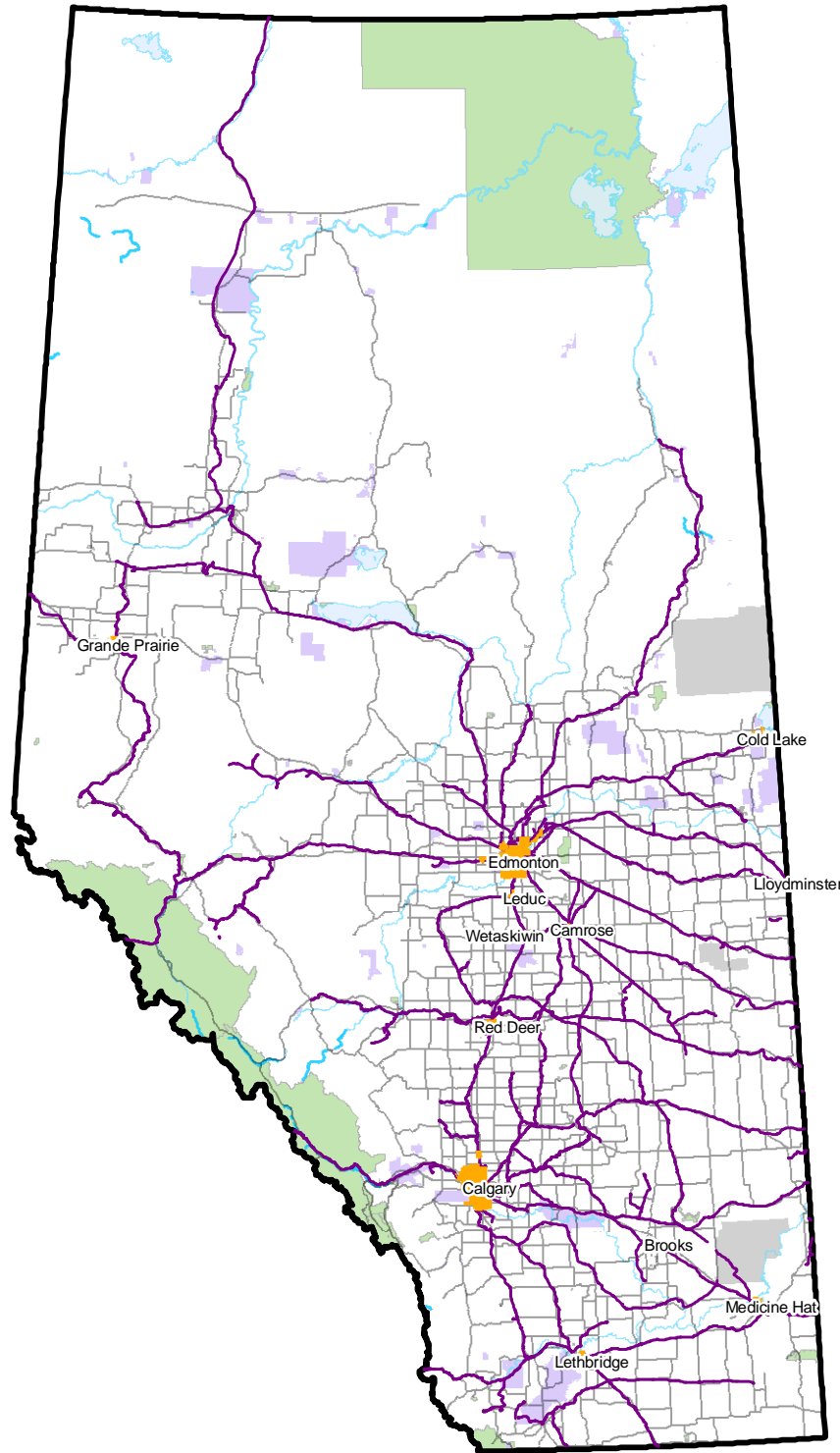
Map 6.1 - Wholesalers/Foodservice Distributors









Data: Alberta Health Services
Environmental Public Health database

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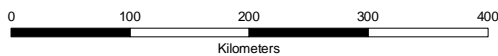
Legend

-  Railways
-  Roads
-  Cities and Towns
-  Native Reserves
-  Military Reserves
-  Parks

Data: IHS Energy
Altalis

ALBERTA

Map 6.2 - Major Transportation Networks



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7.0 ACCESS

7.1 CONTEXT

This section provides baseline information, including context, issues and opportunities for access in the Calgary food system. This refers to the accessibility and affordability of food at the level of the individual household (sometimes referred to as household food security). This takes place from the farm to grocery stores, to farmers markets, to communities and households. People purchase food based on family need, accessibility, food preferences, cultural background, religion, nutrition, values, attitudes and beliefs related to food and/or food advertising. Their choices are made within certain constraints such as money available to buy food, time available to shop for food, time available to prepare and cook food, skill and confidence in food preparation and cooking, facilities available in the home and access to shops and transport, likes, dislikes, allergies and cultural factors (addressed to some degree within Chapter 8: Consumption). Choices are also limited by the food supply.

7.2 FOOD RETAILERS

Access to food through the market food sector is affected by the location of retail stores. Food retail establishments in Calgary can be categorised into the following facilities:

- Bakery
- Bulk Food
- Butcher
- Convenience Store
- Deli
- Grocery Store
- Market Vendors
- Produce
- Speciality Food

This categorisation has been based upon the data sources available, which include an Active Facility Listing Report (as of January 2012) from the AHS *Environmental and Public Health Database* used for the purpose of health inspections. The list does not include some specialised food files such as mobile food vendors or facilities that are under the federal jurisdiction for inspection.

7.2.1 Market Food Retailers

- Superstore has approximately 35% of Calgary's retail sector, by volume.
- Safeway has 20-25% of Calgary's retail food sector, by volume.
- Calgary Co-Op and Federated Co-Op have 8-10% of Calgary's retail sector, by volume.

In addition to the Food Retail outlets identified within the AHS data, information is available for the number and location of public and private Farmers Markets, discussed in Chapter 6: Distribution, and listed in Table 6.2. Map 7.1 identifies the location of Farmers markets within Calgary, which can also be considered a Food Retail outlet as they provide a source for purchasing raw and processed foods. Map 7.2 identifies where the Major Food Retail facilities are located within the city. Map 7.3 shows these against population and Map 7.4 shows these against percentage of low income households. Maps 7.5 – 7.18 indicate where these facilities are located within each ward. Major food retail facilities have been defined as those indicated as a grocery store within the AHS data. Maps 7.18 – 7.32 indicate where all the food retail establishments listed above are located within the city. It should be noted that, in some cases, one location has multiple facilities e.g. a Safeway may have a deli and a bakery as well as being a

grocery store. Where this is the case, only one point will be identified albeit there may be additional facilities of different types.

Convenience stores, as well as grocery stores, are significant retailers of food in Calgary's Market Food Sector. By far the largest players are 7-Eleven and Mac's, with Shell also holding a significant share of this market. Convenience stores represent less than 1% of food retail in Alberta (Appendix H).

7.2.2 Community Food Retailers

There are now a significant number of food market retailers in Calgary that would be considered part of the Community Food Sector. These retailers often focus on the principles of local, environmentally sustainable and community development, incorporating elements of organics and fair trade. Examples include Amaranth, Blush Lane Organic Market, Community Natural Foods, Planet Organic, Sunterra etc. However, given that the major food retailers account for approximately 70% of the Calgary food retail market, these community food sector retailers hold less than 30%.

Many community food sector retail stores are smaller scale and more integrated within neighbourhood and community design compared with big-box or larger format food retail stores. This allows for integration within existing neighbourhoods on redevelopment sites and can provide support where physical accessibility to food is restricted (see Section 7.3.1 below). Examples in other cities include New Apple or Donald's Market in Vancouver, or Segal's or PA in Montréal.

COMMUNITY NATURAL FOODS

Story developed by CFC, photo courtesy of Janet Henderson

Community Natural Foods was founded by the Wilkes brothers in 1977. They began promoting the store before the doors had opened by travelling to the Midnapore Fair making dairy-free, no added sugar 'ice-cream,' and running organic bananas through a Champion Juicer. By the time the store opened on 11th Avenue SW, a customer base had already been established. The brothers grew their company with the idea of providing Calgarians with natural foods at great prices. The business flourished as discerning customers found delicious alternatives to the artificial ingredients found at conventional supermarkets, so they soon outgrew their 11th Avenue location and moved to the corner of 14th Street and 10th Avenue SW. In 2000, Community expanded yet again to open the Chinook Station Market at 202 – 61 Ave. SW.



Community's principles are based in sustainability. They work with local farmers and producers whenever possible in order to strengthen the local economy and reduce their ecological footprint. They use a private operator to recycle plastics, cardboard, paper, glass, tin and beverage containers in addition to composting. They are Calgary's first grocer to go single-use plastic bag free, offering a number of options for reusable bags including a 99 cent grocery bag made out of 100% recycled pop bottles. They also reward their customers for using reusable bags with a five cent incentive per bag used. They are Calgary's first retail store to go single-use plastic water bottle free. Their head office hot water heating is solar powered and all of their locations are powered by wind. They have sponsored and/or supported various environmental initiatives and groups. Their customers can be assured that the food found in their stores meets with the highest standards. They abide by a precautionary principle – if a new food additive or supplement does not have a proven history of safe use, it is highly unlikely you will find it in their stores.



7.3 FOOD SECURITY

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe, healthy and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This widely accepted definition of food security encompasses a range of issues from safety of the food supply to consistent access to adequate and culturally acceptable food at the individual or household level¹²⁶.

7.3.1 Physical Access to Food

Physical access to food is an issue with several dimensions. The actual distance between a house and the nearest food retail outlet supplying safe, healthy and nutritious food is only part of the story and other factors such as physical disability and car ownership must be considered. Therefore, the design of the urban form is critically important to ensure physical access to food. For instance, this should maximise walkability and connectivity between housing and food retail outlets with sufficient and direct pathway and bikeway connections that are well-lit for safety, designed for accessibility, of suitable size, provided on both sides of the street, be free from obstructions, have no or limited major road crossings and provide a pleasant walking environment (e.g. including sufficient and attractive landscaping, art work etc). Further, facilities to encourage walking and biking should be encouraged such as frontage of the store onto the street and corners, suitable and sufficient bike parking etc.

Map 7.2 shows the areas of Calgary within one kilometre of major grocery stores. A distance of 400m is used as an accessibility indicator between population and jobs and primary transit within the Municipal Development Plan (MDP) and Calgary Transportation Plan (CTP). The Leadership in Energy and Environmental Design (LEED)¹²⁷ green building standard provides credits for the community connectivity of residential development that is built within 800m walking distance of 10 basic necessities which include a supermarket and convenience grocery store.

However, for the purposes of analysing physical accessibility to existing grocery stores within this assessment, a distance of one kilometre was used to identify which areas of the city were located within 1km of a food outlet that could be used for a main food shop.

Map 7.2 illustrates that there is a congregation of grocery stores along the major roads and numerous gaps within the city where no grocery store exists for significant distance. When this is overlaid with population by community (Map 7.3) and percentage of low income households (Map 7.4) this highlights that there are some areas of the city without grocery stores but with low density; for example industrial areas, provincial parks or the airport. However, there are specific areas of the city with either a high population and/or also a high percentage of low income households with no availability to a grocery store. Gaps where there is both higher density and percentage of low income households exist primarily in Wards 5, 9 and 10. Additional gaps with either higher density or low income households exist in nearly all wards with multiple gaps in the newly established development in new communities.

Ultimately this shift in grocery store location increasingly requires personal vehicles versus public transit or walking and biking in order to access food. These gaps are often referred to as 'food deserts'; a district (rural or urban) with little or no access to foods needed to maintain a healthy diet but often served primarily by fast food restaurants and/or convenience stores. At the local level development

¹²⁶ Canadian Community Health Survey, Cycle 2.2 Nutrition (2004); Income-related Household Food Insecurity in Canada http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/income_food_sec-sec_alim-eng.php

¹²⁷ <http://www.cagbc.org/AM/Template.cfm?Section=LEED>

design, particularly of new communities, is auto-oriented and access to grocery stores is primarily by the private automobile. This not only impacts physical accessibility but also the environment as a result of increased GHG emissions.

At the most basic level, having physical access to a grocery store is an essential part of a complete community and in achieving sustainability, should be located in nodes, activity centres and on corridors immediately connected to LRT and primary transit stops in addition to bikeways and pathways. Most Canadian cities have several major grocery stores in the heart of downtown and close to light rapid rail or subway systems. Even when residing within a 1km radius of a grocery store, access can be restricted; Calgary has a Safeway in the west end of the downtown and Sunterra in the east end of the downtown core, both located approximately ten minutes walk from the downtown LRT line. However, the type of grocery store, associated cost and walking distance to and from transit can be a barrier. With an increase in residential development in the downtown, supportive of the MDP and intensification, additional food retail is required in order to increase accessibility.

MARY DOVER HOUSE AND FOOD ACCESS

Story and photo courtesy of YWCA

The YWCA Mary Dover House is a 100-bed transitional shelter that offers safe, affordable short-term supportive housing and emergency beds to women and their children in times of crisis or transition. In addition to housing, the YWCA also offers on-site counselling, referrals and advocacy in an environment that promotes positive change.



Hundreds of lives have been changed through the YWCA's commitment to providing affordable housing to women and children experiencing poverty. Last year, YWCA Mary Dover House sheltered 420 women and 69 children in crisis and transition and sheltered 191 women in emergency situations.

However, residents at YWCA Mary Dover House face significant challenges related to food accessibility, even located in Calgary's downtown core. A grocery store "desert" exists for people living on the eastside of the downtown core, including those staying at Mary Dover. The time, energy and expense (bus tickets) required for people living at the YWCA Mary Dover House to access the grocery store often means they simply cannot go. Instead, residents must spend a considerable amount of their already limited income purchasing less nutritious food at more expensive convenience stores. If a grocery store was in walking distance, it is likely that food bank referrals and hamper deliveries as well as reliance on supplementary food donated to the agency could be reduced.

Future analysis would be valuable to identify areas of the city without physical accessibility to grocery stores by transit to provide a full picture of physical accessibility to food. This could be completed by excluding areas of the city that are located within 400m of primary transit on Map 7.2. The remaining population outside the 1km radius around major grocery stores could be identified as those dependent upon automobile for physical accessibility to food.

The physical accessibility of food retail outlets is considered in planning policy and design following approval of the MDP and CTP (2009). The Complete Communities section of the MDP emphasises the importance of 'Neighbourhood stores, services and public facilities that meet day-to-day needs, within walking distance for most residents' (Policy 2.2.4 b iii). This is facilitated through the design of Major Activity Centres, Community Activity Centres and Neighbourhood Activity Centres where there are higher intensities and, preferably vertical mixed uses, supporting such retail requirements. There are also numerous policies in the MDP that deliver different components of walkability and pedestrian-oriented development that would further support accessibility to food. This approach, policies and design guidance have been incorporated within all local area policy plans developed since approval of the MDP and CTP. It would be valuable to monitor how these policies are implemented and the

resulting outcome; achieved whether sufficient grocery stores are provided for the need, if their scale and locations are appropriate, if the activity centres are designed for walkability and reduce automobile use and if accessibility to food retail outlets changes as a result. Additional planning policy considerations may include:

- Require grocery store design to minimize the walking distance between the front door, sidewalk and transit stops, and ensure that these elements are not separated by parking;
- Provide land uses requiring or ensuring food retail outlets at all transit hubs (places of connectivity where different modes of transportation i.e. walking, cycling, bus and rail transit come together), and particularly where segments of the primary transit network cross as a base level of services;
- Encourage small-scale grocery stores at Activity Centres which may not be part of a transit hub;
- Provide bike parking near store entrances and preferably covered;
- Provide taxi stands on-site close to store entrances.

Investing in quality food markets in underserved communities not only provides physical access to nutritious food, it also creates jobs and can serve as a retail anchor. In addition to planning policy and land use requirements, financial programs can provide successful mechanisms for encouraging food retail outlets in underserved communities. The Pennsylvania Fresh Food Financing Initiative (FFFI)¹²⁸ has helped develop grocery stores and other fresh food outlets in 78 underserved urban and rural areas, increasing access to healthy food for nearly 500,000 residents and creating or retaining 4,860 jobs. FFFI provides grants and loans to qualified food retail enterprises for predevelopment costs, capital grants for project funding gaps, construction and permanent finance, and workforce development in addition to technical assistance and financing to support energy efficiency and conservation measures. It is designed to meet the financing needs of supermarket operators that want to operate in these communities, where infrastructure costs and credit needs are often higher and unmet by conventional financial institutions. Land use planning must ensure that suitable land uses exist in appropriate locations to allow for and encourage such grocery store development in established areas of the city.

CALGARY MEALS ON WHEELS

Story developed by CFC

Calgary Meals on Wheels is a not-for-profit organization established in 1965 to fill a growing need. Although their principal clients are seniors, people with disabilities and people recovering from illness or surgery, they also serve the working homeless as well as children in need.

Their Regular Meal Program enables clients to enjoy two freshly prepared meals delivered to their place of residence. Service is available up to seven days per week. Their five week rotating menu is designed around Canada's Food Guide to help promote Healthy Eating and optimize the nutritional intake of our clients. Meals are prepared in their own kitchen, with little or no added salt and using low fat cooking method. They can accommodate special diets for medical reasons, allergies and cultural needs. Calgary Meals on Wheels offers a sliding fee scale based on individual net income to accommodate the various income levels of their clients.

Their regular and most popular meal service depends on 75 volunteers a day. In 2010 their volunteers delivered an average of 1,694 meals per day to seniors, convalescents and people with disabilities, living within Calgary city limits.



¹²⁸ <http://www.thefoodtrust.org/pdf/FFFI%20Brief.pdf>



7.3.2 Financial Access to Food

Income-related household food insecurity is the term used to describe a household's financial ability to access adequate food. The prevalence of household food insecurity in Canada is measured in population surveys using a tool called the Household Food Security Survey Module. This survey tool measures household food insecurity on a continuum from 1) feeling anxious about lack of food; 2) compromising on the quality of the foods by choosing less expensive options; 3) insufficient amounts of food and 4) not eating at all. All survey questions are clarified with the reason for uncertain, insufficient or inadequate food access, availability and utilization being due to limited financial resources¹²⁹.

The relationship between income and measures of food insecurity is not simple or linear. Rather, food insecurity is sensitive to fluctuations in household resources and factors such as household size and composition, shelter costs, debts and savings. Income measures do not include these variables and, consequently, income measures provide only a crude indication of resources available to a household for food at a given time. In addition, poverty rates do not capture the effect of non-monetary assistance such as emergency or charitable food sources on household food insecurity¹³⁰. Therefore, poverty is a major causative factor and a useful predictor of food insecurity, but the relationship between the two is complex.

Household food insecurity is found at all socioeconomic levels. However, those at greatest risk include low income households, lone-parent families (particularly those headed by females), those who do not own their home, those whose main source of income is government transfers (social assistance/ worker's compensation/ employment insurance), households with children, recent immigrant and refugees and aboriginal peoples¹³¹.

Many food insecure households have a member of the household in employment. However, the likelihood of food insecurity at the household level is highest among those reliant on social assistance¹³². The report *Income-Related Household Food Insecurity in Canada* revealed a 59.7% food insecurity prevalence rate for those on social assistance at the national level. The rate for Alberta during this same time period was 84.0% for those on social assistance in Alberta¹³³. Also notable was the finding that the prevalence of food insecurity among children was high (37.8%) when social assistance was the main source of household income. Children are generally the most protected from food insecurity in households and this is representative of the "managed process" where adults, particularly mothers and older children, will often go without food to ensure that the youngest family members are fed¹³⁴. This means that when a child is identified with compromised quality or quantity of food, there is most likely a parent who is also reducing their food intake.

An important factor contributing to household food insecurity among low-income groups is the increasing gap between the costs of food and shelter and the levels of income provided by sources such

¹²⁹ Canadian Community Health Survey, Cycle 2.2 Nutrition (2004); Income-related Household Food Insecurity in Canada http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/income_food_sec-sec_alim-eng.php

¹³⁰ Cook, B. Food Security Issues in a Public Health Context. Literature Review and Environmental Scan. 2008. National Collaborating Centre for the Determinants of Health

¹³¹ Health Canada. Canadian Community Health Survey Cycle 2.2, Nutrition (2004). Income-Related Food Insecurity in Canada. 2007 (Retrieved ..) Available from http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/income_food_sec-sec_alim-eng.php

¹³² Kirkpatrick (2008)

¹³³ Health Canada (2007)

¹³⁴ McIntyre L, Glanville NT, Raine KD, Dayle JB, Anderson B, Battaglia N. Do low-income lone mothers compromise their nutrition to feed their children? *CMAJ* 2003;168(6):686-91



as entry-level wages and social assistance. As housing costs increase, people have to cut back in other areas and this often includes the food budget. Income disparity in Alberta is significant and increasing and the underlying causes of poverty are remaining largely unmitigated¹³⁵.

There is clearly a need to address household food insecurity in Calgary. Many organizations and agencies in Calgary are involved with providing emergency and lower cost food programs to mitigate the impacts of household food insecurity on vulnerable populations. However, these programs cannot provide continuous access to food. These programs are not designed to address the causes of food insecurity i.e. the solution is not food based.

Emergency food assistance programs and lower cost food programs are often included in community food system assessments. The number of emergency food programs (including food bank and food hamper programs, drop-in free or “emergency” meals) and rate of use data (such as number of hampers distributed or a change in hamper use) provide an indirect measure of food insecurity at a local level. However, although this data captures information about one way in which food insecure households obtain food; it is estimated that only one-third of food insecure households experiencing food insecurity access a food bank¹³⁶.

Lower-cost food programs also include community food programs or individual skill building programs where individuals develop skills to grow, produce and prepare their own food. Skill building strategies such as collective kitchens or community kitchens have been shown to impact the social domain of food insecurity¹³⁷, food resources¹³⁸ and vegetable and fruit intake¹³⁹. However, research has found that these programs have limited potential to resolve food insecurity issues rooted in severe and chronic poverty because they do not significantly alter the households’ economic circumstances¹⁴⁰. This is supported by cost of eating and other food affordability measures, which demonstrate the insufficiency of household income for low-income households to meet all basic needs.

An important distinction must be made between the need to deal with household food insecurity and the need to address poverty. The presence and abundance of programs and services in the charitable sector has been argued as hiding the larger poverty issue¹⁴¹. Household food insecurity is often a symptom of poverty and the greater need is to address the underlying issue e.g. through provision of living wages, employment and affordable housing, which will then enable people to afford the full cost/value of food. For instance, evidence demonstrates that people in Calgary call the Food Bank first followed by 211 (community connection) when dealing with food insecurity and crisis¹⁴². They access food from the appropriate program to stabilize the situation, usually in the short term and then look to address the root causes of the crisis. However, they do have problems navigating the myriad of agencies and programming available to assist those who are experiencing food insecurity. A lack of understanding regarding privacy legislation and poor definitions for information sharing prevents many connections and can result in inaction, impacting those in need.

¹³⁵ Time for Action: Working Together to End Poverty in Alberta 2010

¹³⁶ Ibid

¹³⁷ Engler-Stringer, 2005

¹³⁸ Tarasuk, 1999

¹³⁹ Fano, 2004

¹⁴⁰ Tarasuk, 1999

¹⁴¹ Power E. Individual and household food insecurity in Canada: position of Dietitians of Canada. *Can J Diet Pract Res* 2005;66(1):43-4

¹⁴² Information provided through a comparison of calls related to food to 211 and the Food Bank



Section 3.5 outlined the growing disparity in wealth within Calgary and the many Calgary families whose income is within 105% of the poverty line. In 2009, 21% of Calgarians reported that they were concerned about not having enough money for food, with 9% reporting that they were “very concerned”¹⁴³. Albeit cheap food is not a solution to household food insecurity, food prices do impact it. In 2011, rising energy prices may have led to more rapid food price increases in Canada, due to rising costs of processing, packaging and transporting food¹⁴⁴. The current *National Nutritious Food Basket* (2008) has provided the foundation for the *Alberta Nutritious Food Basket* since February 2009. The Alberta Retail Food Pricing Survey is the tool used in Alberta for collection of both food trend data and the *Alberta Nutritious Food Basket Price Report*. This report details the cost of eating a healthy diet based on Canada’s Food Guide and the Dietary Reference Intake’s, for 22 categories of individuals defined by age, sex and stage of life (pregnancy and lactation) as well as for a reference family of four. In November 2010, the average monthly food costs for Calgarians for eating a healthy diet were:

- \$326.50 for an adolescent male, 14 – 18 years of age
- \$264.20 for a pregnant woman, 19 – 30 years of age
- \$921.35 for a reference family of four

The use of the *Alberta Nutritious Food Basket Price Report* enables the consistent measurement of the cost of a healthy diet in Calgary, based on national food guidance standards. These food costs contribute to policy development and monitor the affordability of a balanced diet for all residents’ particularly those living on low household incomes. In 2009, food costs in Calgary were the highest among major Canadian cities, although the percentage of income spent on food by Calgarians was the lowest¹⁴⁵. This highlights how household food insecurity can prevail in spite of the overall wealth of the average Calgarian.

There are a group of Calgarians who are food insecure, and this will not be alleviated through food-based responses or actions associated with a food system assessment. The City of Calgary and United Way of Calgary and Area are currently undertaking a Poverty Reduction Initiative. A Stewardship Committee has been established to guide this initiative and work with poverty reduction experts throughout Calgary to prepare a comprehensive plan of action. Although modeled on Calgary’s successful 10 Year Plan to End Homelessness, the resulting plan may not be a single big idea and instead involve a suite of actions from many organizations across many sectors based around the constellation model. The Constellation Model emphasizes self-organizing and concrete action within a network of partner organizations working on a common issue. The advantage to this approach is the light-weight governance structure, which harnesses the natural energy flow between groups and focuses on action and collective measurement. The organizing principles for the initiative are ‘Abundance’, ‘Resilience’ and ‘Trust’. This challenges the traditional economic approach of scarce resources for unlimited demand and replaces this with the idea that there is enough for all; it is through distribution and our behaviour that poverty transpires. Household food security will be one of the constellations of the poverty reduction initiative and there is opportunity to integrate the work of the CFC with the ongoing project. More information can be found at www.enoughforall.ca.

7.4 CALGARY FOOD PROVISION PROGRAMS

There are a significant number of Calgary programs that provide short term and longer term emergency food provision to citizens in need. These initiatives range from large organizations such as the Calgary

¹⁴³ City of Calgary (2011) Calgary & Region Volume 3: Social Outlook 2011-2016

¹⁴⁴ Ibid

¹⁴⁵ Statistics Canada 2011

Inter-Faith Food Bank, who provide a considerable range of food provision services to individuals/families and community agencies, to the skill building and food provision initiatives delivered by the Community Kitchens Program of Calgary to small, often faith based groups who are involved in emergency food provision to vulnerable groups in their local community. An inventory of programs and access to further information can be found in Appendix K (this is not a comprehensive list but is based upon information publicly available at the time of writing).

COMMUNITY KITCHEN PROGRAM OF CALGARY

Story developed by CFC, photo courtesy of Andrew Hewson

The concept of a community kitchen is not new. At a Community kitchen, a group of people meet and plan a 14-meal menu based on “specials” advertised in major food store flyers as well as foods available from local wholesalers. The cost to cook the 14-meal menu is determined and divided between the participants based on the numbers of portions each requires. Each participant pays for their share of the food.



The Community Kitchen Program shops for the food and delivers it to the local community kitchen. Participants then meet on a specified cooking day to prepare the 14 main course meals and homemade soups for lunches. After preparation is completed, individual family portions are packaged and taken home to be frozen for use over a two-week period.

The Community Kitchen Program can help you prepare delicious food for your family at an average cost of \$1.85 per person per meal while saving you time and energy.

CALGARY SCHOOL INITIATIVES TO ADDRESS FOOD ACCESS

Health and education are inextricably linked. Because of the interdependency between health status and education levels, schools represent a fundamental setting for evidence-based health promotion initiatives that improve student academic and health outcomes over the short and long-term^{146, 147,148}. Aside from the family home environment, schools are among the most influential settings for the development of long-lasting health behaviours and are an effective way to reach a large population.

Good nutrition contributes to healthy growth and development, chronic disease prevention, strong school performance and positive behaviour among children and youth. Healthier eating habits have been associated with improved performance on standardized tests and overall grade point averages^{149, 150}. Similarly, the consumption of less healthy foods has been associated with poorer achievement in core language and math courses¹⁵¹. Students who consume breakfast in the morning have an improved

¹⁴⁶ International Union for Health Promotion and Education. Promoting health in schools: From evidence to action. 2010.

¹⁴⁷ Barnekow V, Buijs G, Clift S, Jensen BB, Paulus P, Rivett D, et al. Health-Promoting Schools: A Resource for Developing Indicators. 2006:1-231.

¹⁴⁸ St. Leger L, Nutbeam D. A model for mapping linkages between health and education agencies to improve school health. J Sch Health 2000 Feb;70(2):45-50.

¹⁴⁹ Florence MD, Asbridge M, Veugelers PJ. Diet Quality and Academic Performance. Journal of School Health 2008;78(4):209-215.

¹⁵⁰ MacLellan D, Taylor J, Wood K. Food Intake and Academic Performance: Among Adolescents. Canadian Journal of Dietetic Practice and Research 2008;69(3):141-144.

¹⁵¹ Kristjansson AL, Sigfusdottir ID, Allegrante JP, Helgason AR. Adolescent health behavior, contentment in school, and academic achievement. Am J Health Behav 2009 Jan-Feb;33(1):69-79.



attention span and are less distracted in class¹⁵². School breakfast programs have been shown to improve student attendance and reduce tardiness^{153, 154}.

Comprehensive School Health (CSH) is an internationally-recognized whole-school approach for building healthy school communities and supporting improvements in students' educational outcomes through consideration of four distinct but interrelated pillars:

- Social and Physical Environment: Create a school environment that promotes healthy eating.
- Teaching and Learning: Teach students about the importance of healthy eating, nutrition and the food system.
- Healthy School Policies: Establish policies that support healthy eating.
- Partnerships and Services: Gain support from families, the community and other partners.

This approach is used by Alberta Health Services¹⁹, Alberta Health and Wellness and Alberta Education within their key documents and resources related to school health^{155, 156} such as the Framework for Kindergarten to Grade 12 Wellness Education.

The school food environment is complex with many stakeholders and partners. School nutrition programs can provide a supportive learning environment for the introduction and uptake of a variety of healthy foods. Foods provided at school should model the nutrition education curriculum, incorporate safe food handling principles, support allergy and food intolerance awareness and meet the Alberta Nutrition Guidelines for children and youth¹⁵⁷. School nutrition programs can increase fruit and vegetable intake, teach new skills, provide a positive eating atmosphere, leadership opportunities and social interaction, and promote role modelling. Within many Alberta schools there are multiple types of food-related programs and initiatives such as breakfast programs, lunch or snack programs, regular/daily food sales, culinary art programs, fundraising, school gardening, play first/reverse lunch, waste-free lunches (see Appendix L for more details).

7.5 SUMMARY

There are a variety of food retail outlets providing access to food within Calgary from farmers markets to grocery stores to convenience stores. Approximately 70% of the food retail sector (by volume) is operated by three retailers; Superstore, Safeway and Calgary co-op. Albeit some retailers in the market food sector place a high importance on elements of a sustainable food system, there is considerable opportunity within this sector to increase the scale and communications of strategies and associated progress towards sustainable targets. This would assist with data collection and monitoring of progress towards the imagineCALGARY targets and also help to increase customer awareness of the Calgary food system, impacts and progress. Some community food sector retailers support and communicate on sustainability initiatives.

¹⁵² Benton D, Jarvis M. The role of breakfast and a mid-morning snack on the ability of children to concentrate at school. *Physiology and Behaviour* 2007;90(2):382-385.

¹⁵³ Taras H. Nutrition and student performance at school. *J Sch Health* 2005;75(6):199-213.

¹⁵⁴ Story M, Kaphingst KM, French S. The role of schools in obesity prevention. *The Future of Children* 2006;16(1):109-142.

¹⁵⁵ Alberta Health and Wellness. Healthy Places: Comprehensive School Health. 2011; Available at: <http://www.healthyalberta.com/HealthyPlaces/1026.htm>. Accessed September 14, 2011.

¹⁵⁶ Alberta Education. Framework for kindergarten to grade 12 wellness education. 2009;LB1587.A3 A333 2009.

¹⁵⁷ More information from Alberta Health and Wellness, available at: <http://healthyalberta.com/HealthyEating/ANGCY.htm>



Physical access to food is dependent upon both distance and urban design. In Calgary, this is currently highly auto-oriented, particularly in new suburban development, and areas of the city exist with restricted physical access to a main food shop.

Income related household food insecurity exists in Calgary due to an underlying issue of poverty, increased through Calgary's significant income disparity. Approximately 150,000 Calgarians accessed the Food Bank Emergency Food Hamper Program in 2011. To some extent, Calgary food programs mitigate the impacts of household food insecurity but do not address the underlying issue. The Calgary Poverty Reduction Initiative is a venue to address the fundamental cause of household food insecurity rather than food system strategies and programs.



TABLE 7.1: ACCESS & PREPARATION SUMMARY

Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	<p>There is a decrease in funding for staffing, equipment and space needs for school food services. This includes sufficient funding for healthy nutritious and quality produce for school dinners and the implementation of Alberta Nutrition Guidelines in low income schools.</p> <p>There is currently a lack of sustainable food system representation in the school curriculum and time tabling.</p>		<p>Universal School Food Programmes address many issues; they increase the variety of foods, decrease stigma, increase awareness and skill development of students and decrease the quantity of unhealthy food brought in school lunches.</p> <p>Belo Horizonte in Brazil Zero Hunger” food security program based on the “right to food” initiated the creation of the Municipal Secretariat for Food Policy & Supply (SMAB), which centralized and coordinated food programs on less than 2% of the City’s budget. Today these initiatives benefit almost 40% of the city’s population.</p>	<p>Funding provided for schools to retrofit kitchens, equipment, electrical, plumbing etc. This could also apply to community kitchen programs and facilities as part of multi-use sites in community centres and community design and regeneration with consideration of sharing facilities.</p>
Planning and Land Use	<p>A significant number of Calgarians are not located within a kilometre of a major grocery store. Design of communities is currently auto-oriented this impacts physical access to food.</p> <p>There is a lack of information on health parameters at the spatial scale. This would be useful to understand the impact of planning and land use design on the health of the population in relation to healthy food access.</p> <p>There is limited access to space and facilities for skill-building e.g. kitchens, including issues with the affordability of space, liability and timing.</p>	<p>The Municipal Development Plan (MDP) and Calgary Transportation Plan (CTP) provide policies for complete communities which includes space for community gardens and local food production along with stores, services and public facilities to meet day-to-day needs. These will be implemented through new local area plans. However, existing established communities will not be subject to these policies unless amended.</p> <p>Access, awareness and understanding of the food system can be improved by increasing urban agriculture of which citizen interest is increasing.</p>	<p>The Pennsylvania Fresh Food Financing Initiative is a program that increases the number of supermarkets and grocery stores in underserved communities across the state providing grants and loans to qualified food retail enterprises for pre-development costs.</p> <p>Fair Food Network (FFN) and the Detroit Grocery Incubator project (DGI) are helping local entrepreneurs obtain training and experience to increase the number of grocery stores in Detroit neighborhoods. 500,000+ residents currently live in areas with limited or no access to grocery stores. There are 10 grocery stores for every 100,000 people</p>	<p>Work with Land Use Planning and Policy (LUPP) to analyze the physical accessibility to grocery stores in the established areas and in the development of future policy in local area plans. Consider land use, policy and incentives to permit and encourage the development of food retail outlets and mini-grocery stores in areas of need.</p> <p>Collaboration with Family and Community Support Services, LUPP, Federation of Calgary Communities, and Business Revitalization Zones.</p>



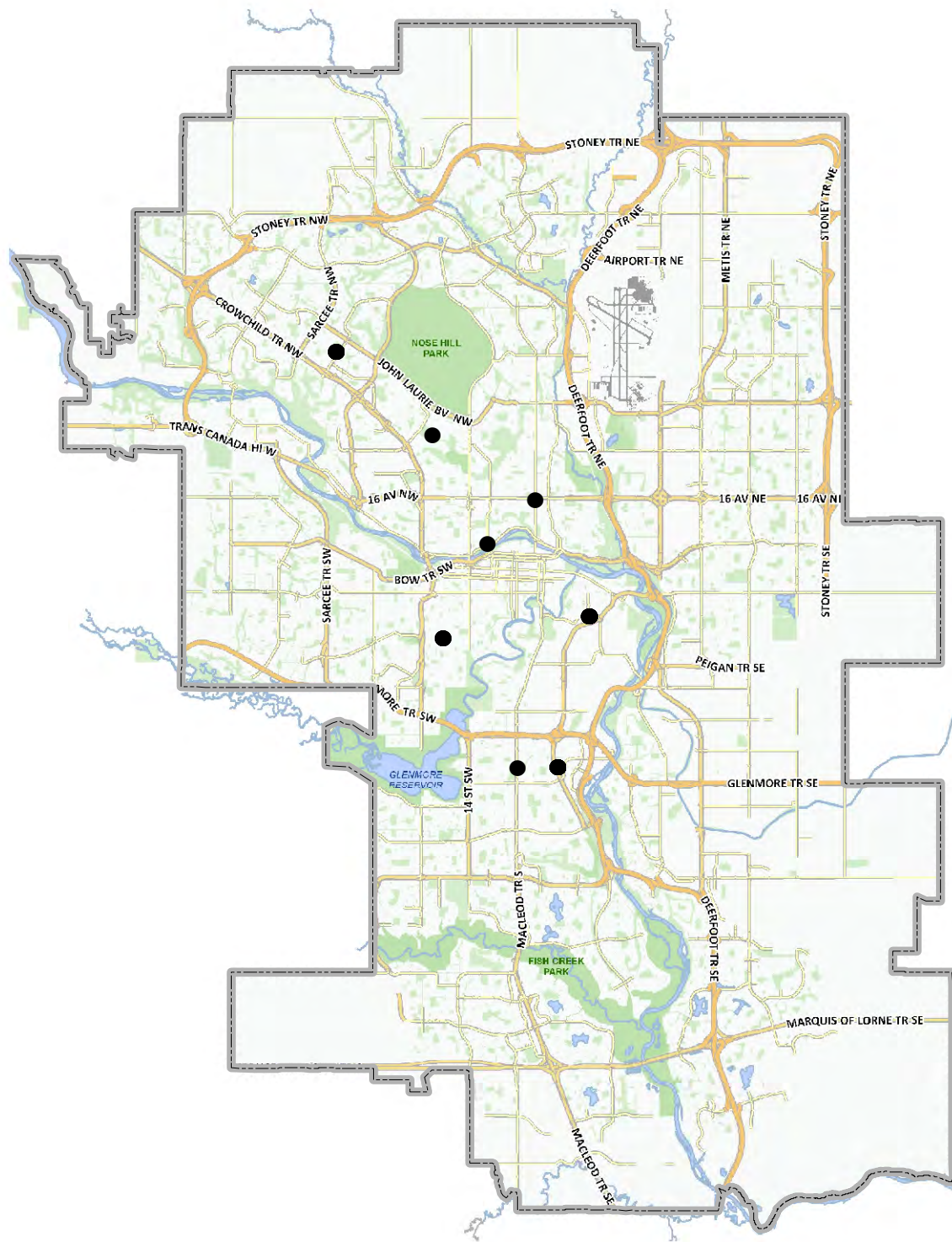
			<p>compared with 40 for every 100,000 people in San Francisco; in Chicago - 42; in Ann Arbor - 23, in Oakland County - 23, in Wayne County - 26. Over 70% of adults and close to 40% of Detroit's youth are overweight or obese.</p> <p>Vancouver has significant bike parking valet/lots for its large farmers' markets.</p>	
Transportation	<p>A significant number of Calgarians are not located within a kilometre within a major grocery store. Design of communities is currently auto-oriented this impacts physical access to food.</p> <p>Current transit routes and frequency are insufficient to encourage access by transit. Storage for grocery items on transit is limited.</p> <p>Current bike lanes, bike parking, pathways, community design and grocery store site design do not encourage accessing stores by bike or walking.</p>	<p>The MDP and CTP provide policies for the implementation of complete communities which includes access to food. These will be implemented through new local area plans. However, existing established communities will not be subject to these policies unless amended.</p> <p>Programs exist within Calgary to deliver meals to citizens with mobility issues e.g. Calgary Meals on Wheels.</p>	<p>Oakland is working with convenience stores already existing in these areas in order to get them to bring in higher quality products.</p>	<p>Pursue the primary transit network and delivery of targets to improve access to nodes with grocery stores.</p> <p>New development should incorporate the design of pathways and bikeways that connect residential development effectively to nodes and activity centres where grocery stores are located. Site design should ensure stores are accessible to the pedestrian and cyclist e.g. store frontage onto the street, effective and secure bike parking, valet bike parking, walkable environment, mixed use.</p> <p>Review existing development for potential upgrades and investment to support improved walkability and bike access.</p>
Environment	<p>The environmental impact associated with physical access to food and the auto-oriented design of the city.</p>	<p>Approval of MDP and CTP and associated complete communities policies. Development of the Corporate Framework for Growth and Change will support strategic intensification which will encourage walkability to food retail outlets hence reducing environmental impacts.</p>		
Economic Development	<p>New Calgarians must adapt to a new food system in terms of access to food</p>	<p>Calgary programs exist to address access and preparation and also</p>		<p>Explore and expand opportunities for social enterprise and community</p>



	<p>types, different labelling and safety requirements and preparation facilities.</p>	<p>support community economic development e.g. Ethnicity Catering. Skill building and knowledge sharing in such programs as community kitchens support community economic development.</p>		<p>economic development in collaboration with stakeholders e.g. momentum, Trico Foundation, social agencies, YWCA, EthniCity catering and the Retail Council of Canada.</p> <p>Explore the development of a Food Trust Fund to redistribute dollars to food programming and support training school cooks, retrofitting kitchens and developing sustainable food sourcing and menus. (e.g. Jamie Oliver’s School Dinners)</p> <p>Explore a vouchers or Calgary dollars or coupons approach to equalise purchase and choice for food.</p>
<p>Community and Social Programs</p>	<p>Income related household insecurity exists in Calgary. This is related to income rather than issues within the food system.</p> <p>Not all schools have cafeterias/ kitchens.</p> <p>Access to culturally appropriate foods is limited.</p> <p>Food preservation skills have declined.</p> <p>Some schools need funding to retro-fit their kitchen facilities (or develop kitchen facilities) for appropriate equipment in order to be able to provide meals to students.</p> <p>Consideration also needs to be given to staffing.</p>	<p>Development of the poverty reduction initiative presents an opportunity to address some of the underlying causes of income related household food insecurity.</p> <p>There are a significant number of food programs and provision services within Calgary e.g. Community Kitchens.</p> <p>Non-discriminatory opportunities include milk coupons and Calgary dollars.</p> <p>There are a significant number of educational institutions providing meals including schools and childcare facilities, recreation centres etc where opportunity for food programs and procurement can significantly impact the local food system.</p>	<p>The STOP, Toronto.</p> <p>The PATCH – Calgary Horticultural Society skill building and cultural integration.</p> <p>Farm to School and Farm to Cafeteria initiatives.</p> <p>Breakfast Clubs of Canada who support the outfit of kitchens.</p>	<p>Embed the food system vision and principles and food security as a constellation within the Poverty Reduction Initiative.</p> <p>Provision of programs at the community level and at nodes/corridors on good public transit access e.g. kitchen incubators.</p> <p>Exploration of kitchen provisions and programs as part of affordable housing to complement rooftop or community garden development.</p> <p>Implement the Alberta Nutrition Guidelines for Children and Youth in Recreation Centres and community centres to ensure healthy options are available.</p> <p>Collaborate with programs and initiatives e.g. Harvest Fair, Calgary 2012, Food’n’More, the Family</p>



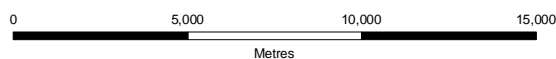
				<p>Resource Facilitation Program (a publicly funded program that supports child cares in Calgary) for education, food procurement and also community child care gardens.</p>
<p>Education Programs</p>	<p>Relative to the rest of Canada, Calgary has high average personal income. However, there is significant variation in its distribution. This income inequality means food insecurity exists but that the average Calgarian is not aware that this is an issue. There is a social stigma associated with accessing food assistance programs. Awareness raising is a priority to address access.</p> <p>There is a lack of funding available to address education and awareness in addition to prevention programs.</p> <p>There is a lack of detailed reporting related to amount and type of food distributed by food retailers (e.g. local, organic, fair trade ethnic, etc.) as well as social and environmental sustainability approaches. This information is valuable for consumers in decision making and also in developing strategies and policies in a sustainable food system.</p>	<p>The poverty reduction initiative is an opportunity to raise awareness of the issue of income inequality and associated household food insecurity.</p> <p>Multiple City of Calgary business units run education programs that could incorporate food system considerations.</p> <p>In addition to those local food retailers focused on sustainability several major food retailers have begun to incorporate corporate social reporting (CSR)</p> <p>Alberta Health Services is leading a Healthy Eating Environments in Child Cares Initiative.</p>	<p>Frameworks Institute videos on framing food as a public issue e.g. 'How did this broccoli get on my plate' slide show.</p>	<p>Collaborate with CBE on food curriculum and programs.</p> <p>Work with City of Calgary business units to incorporate food system education within their programs.</p> <p>Collaborate with food retailers on supporting the expansion of their CSR (e.g. to incorporate further environmental and local community economic development considerations)</p> <p>Develop a communications plan around food and all elements of the system.</p>



Legend

- Farmers/Public Markets
- ▭ Calgary City Limits 2012

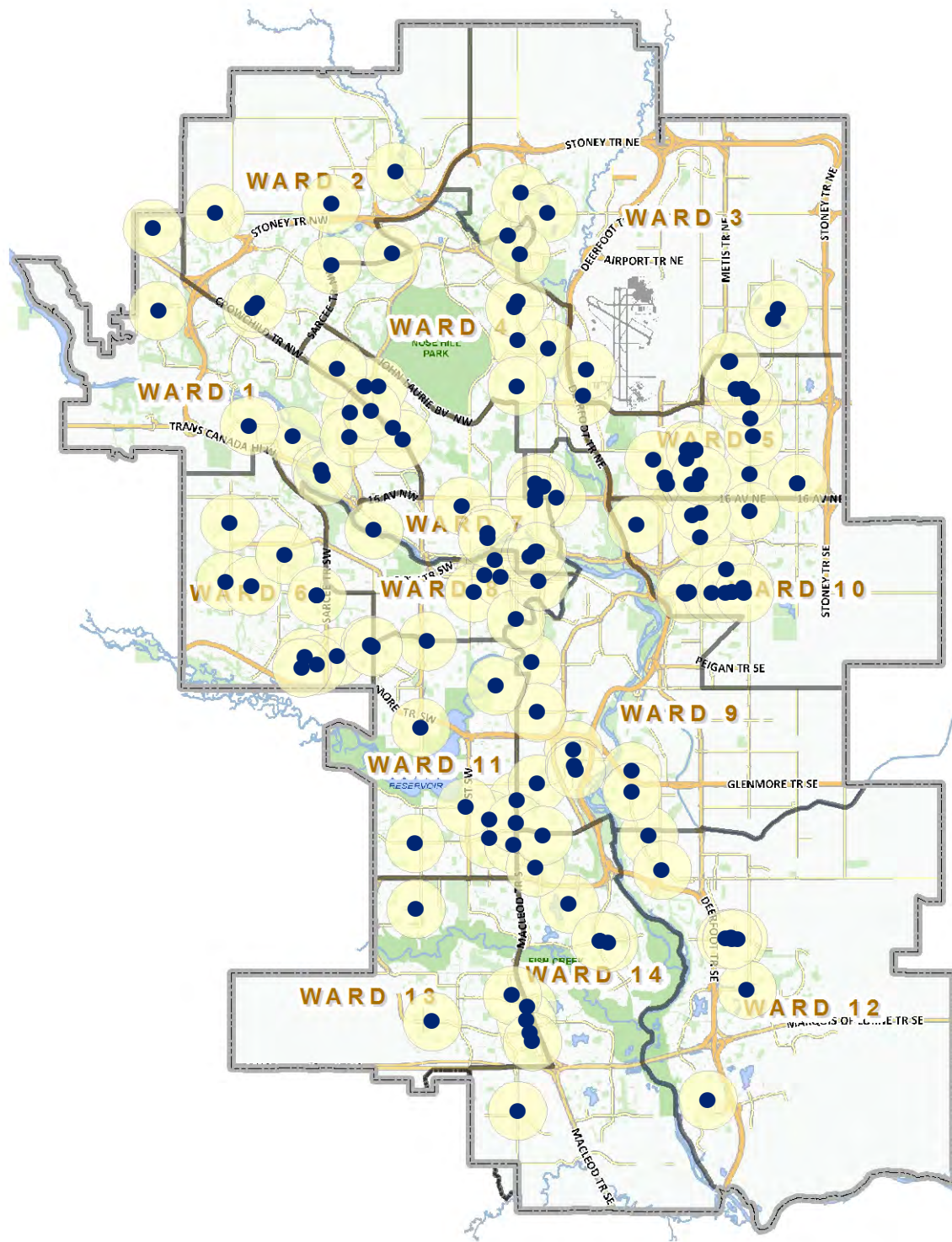
City of Calgary
Map 7.1 - Farmers/Public Markets



Data: Alberta Health Services
 Environmental Public Health Database

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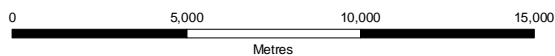
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Legend

- Grocery
- 1km Radius
- ▭ Wards

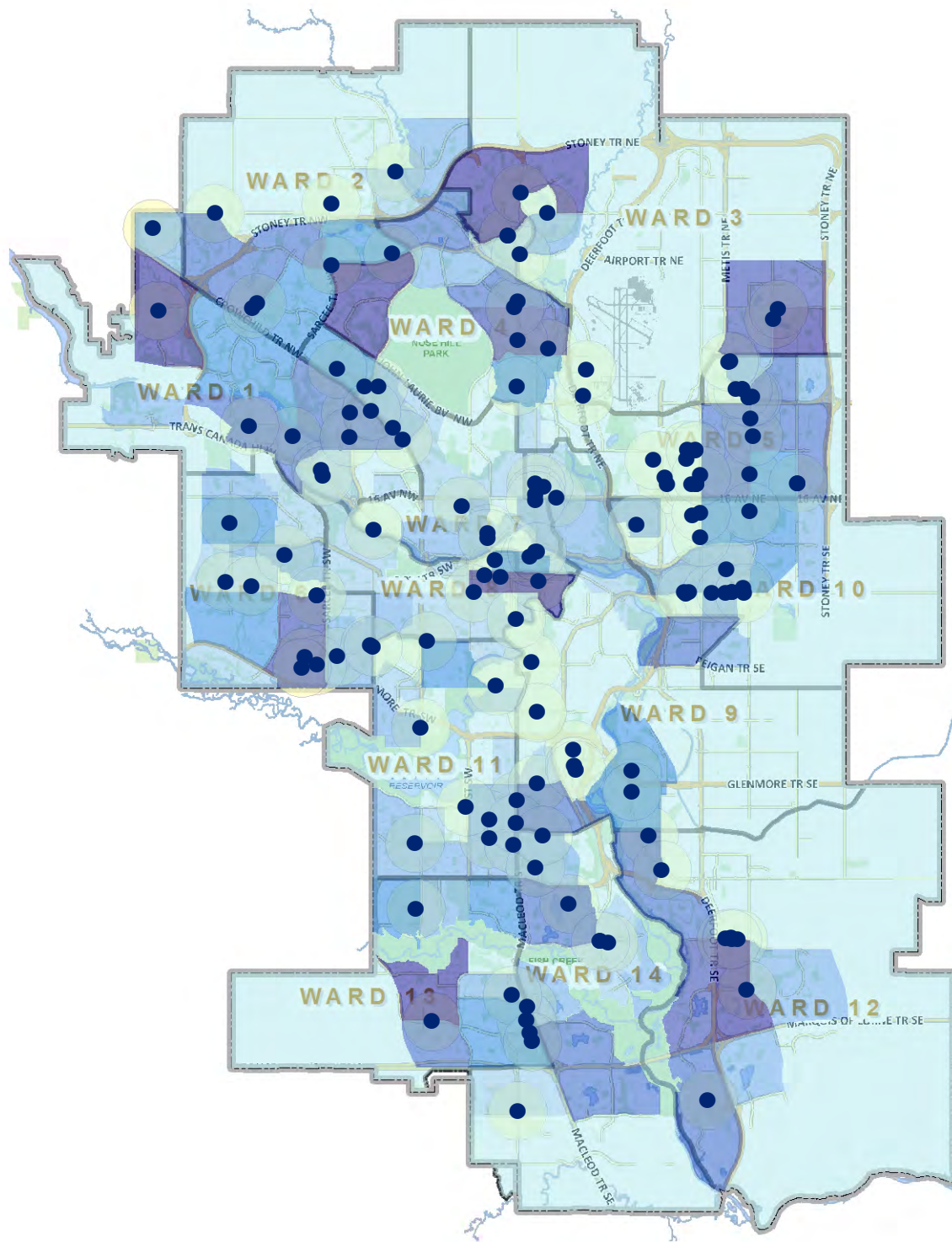
City of Calgary
Map 7.2 - Major Food Retailers – Grocery Stores
1km Radius



Data: Alberta Health Services
 Environmental Public Health database

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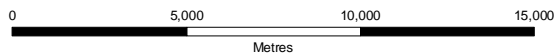
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Number of People

- Population
- < 2500
- 2500 - 5000
- 5000 - 7500
- 7500 - 10000
- 10000 - 12500
- 12500 - 15000
- > 15000
- Grocery
- 1km Radius

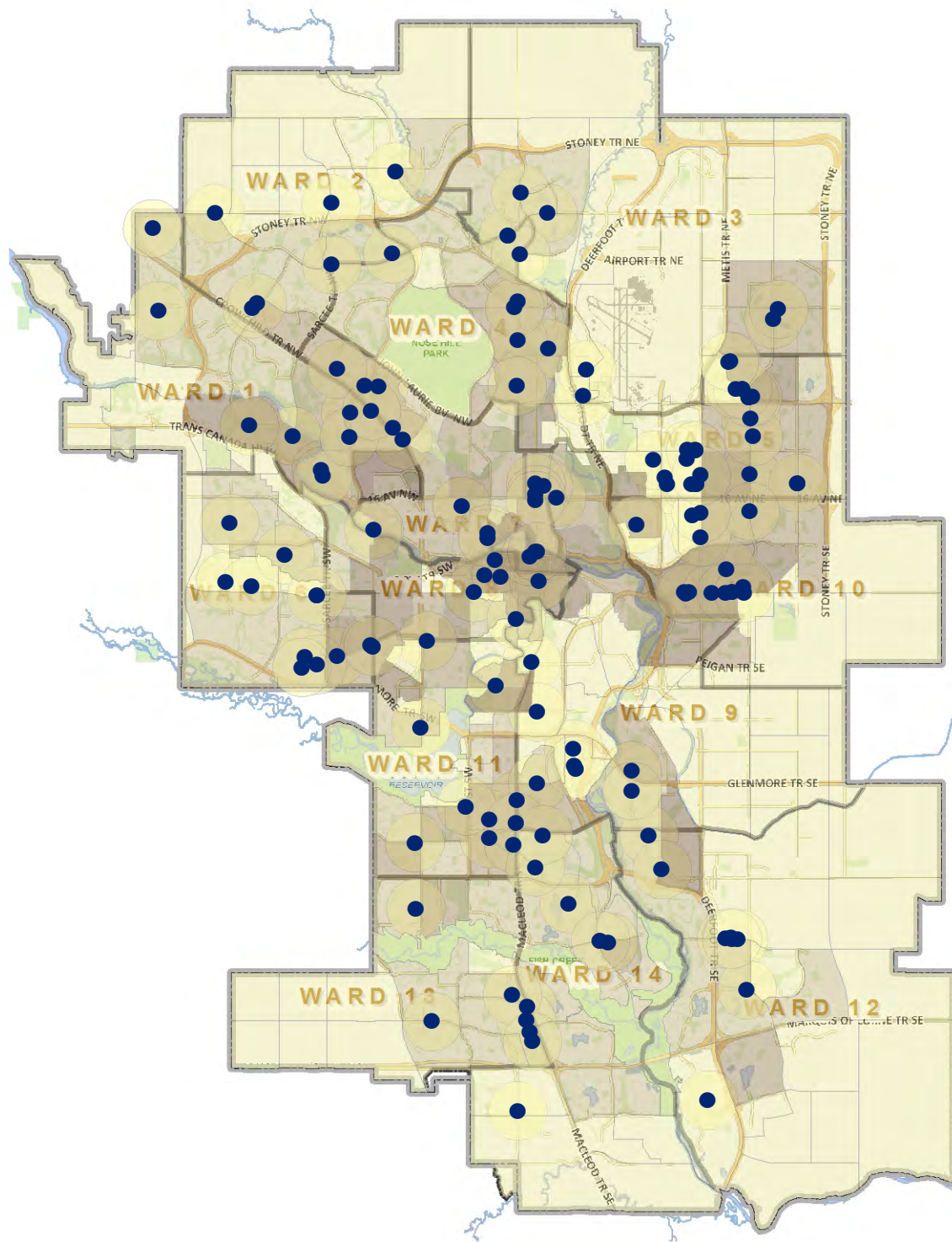
Data: Alberta Health Services
Environmental Public Health database

City of Calgary
Map 7.3 - Major Food Retailers – Grocery Stores
Population by Community



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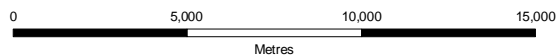


Legend

% Low Income Households

- 0 - 4
- 4.0 - 11.8
- 11.8 - 21.3
- 21.3 - 34.0
- 34.0 - 56.2
- Grocery
- 1km Radius

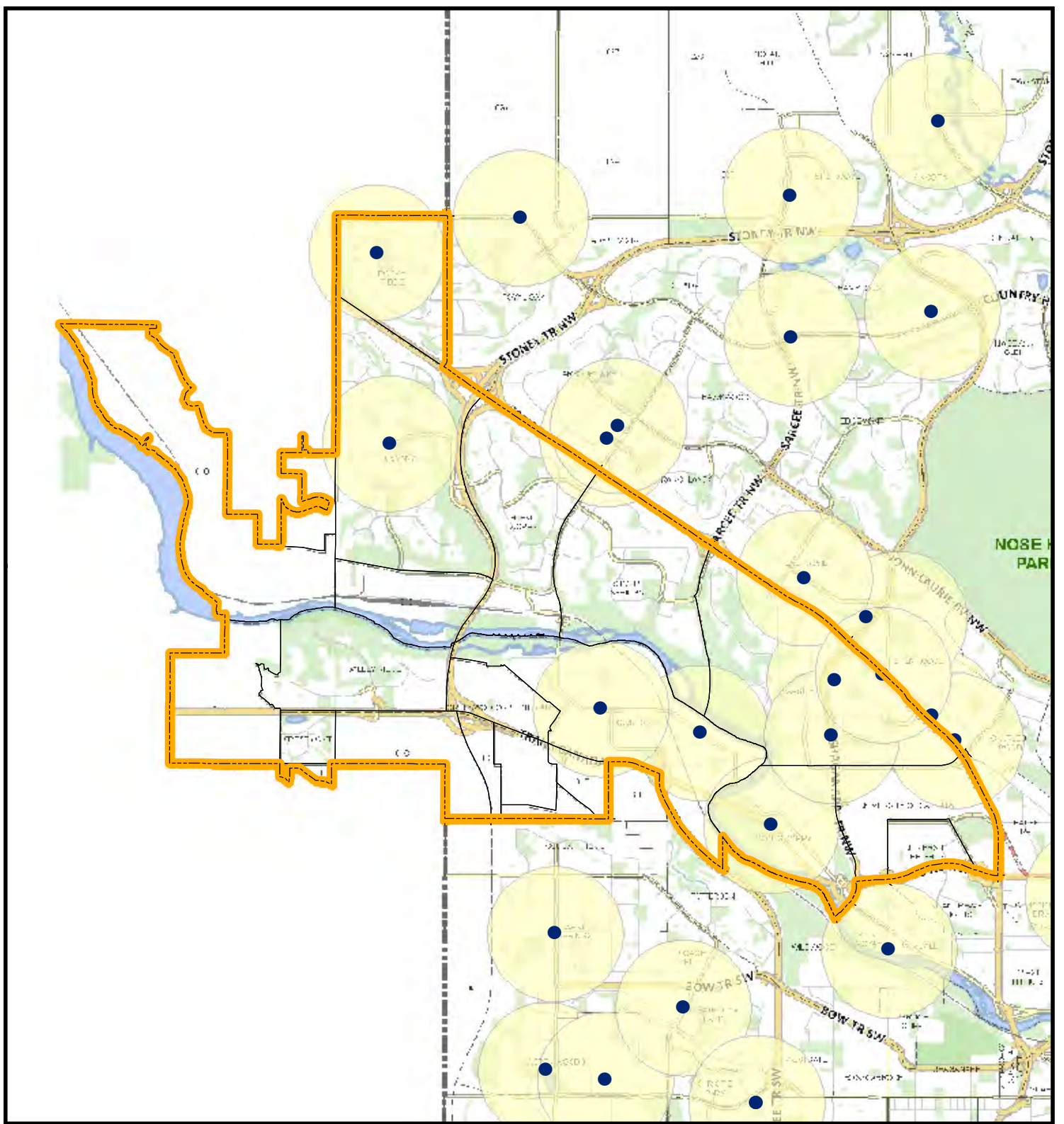
City of Calgary
Map 7.4 - Major Food Retailers – Grocery Stores
Percentage of Low Income Households



Data: Alberta Health Services
 Environmental Public Health database

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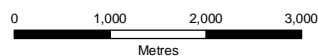
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 1

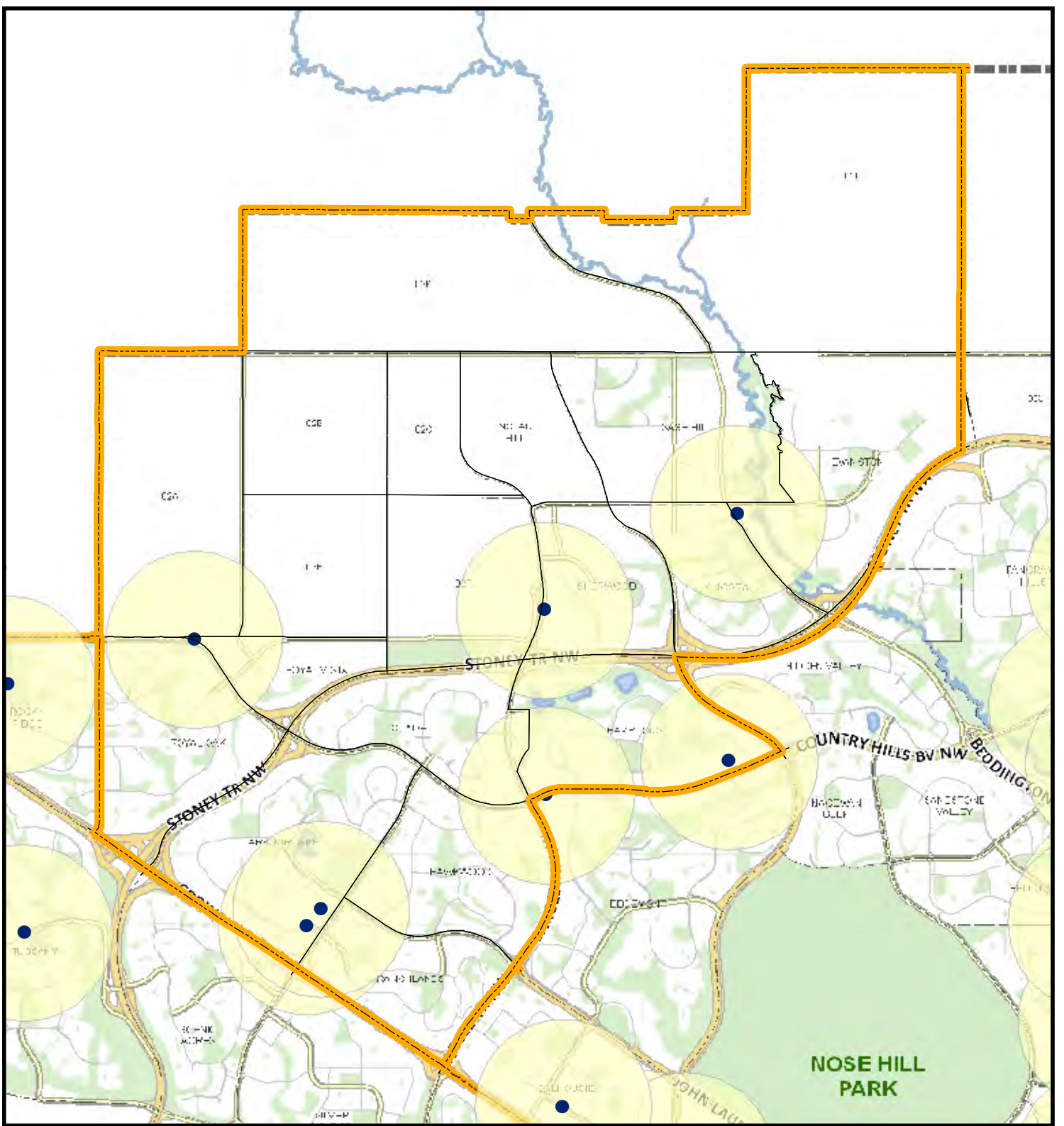
Map 7.5 - Major Food Retailers - Ward 1 - Grocery Stores



Data: Alberta Health Services
Environmental Public Health Database

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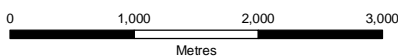
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 2

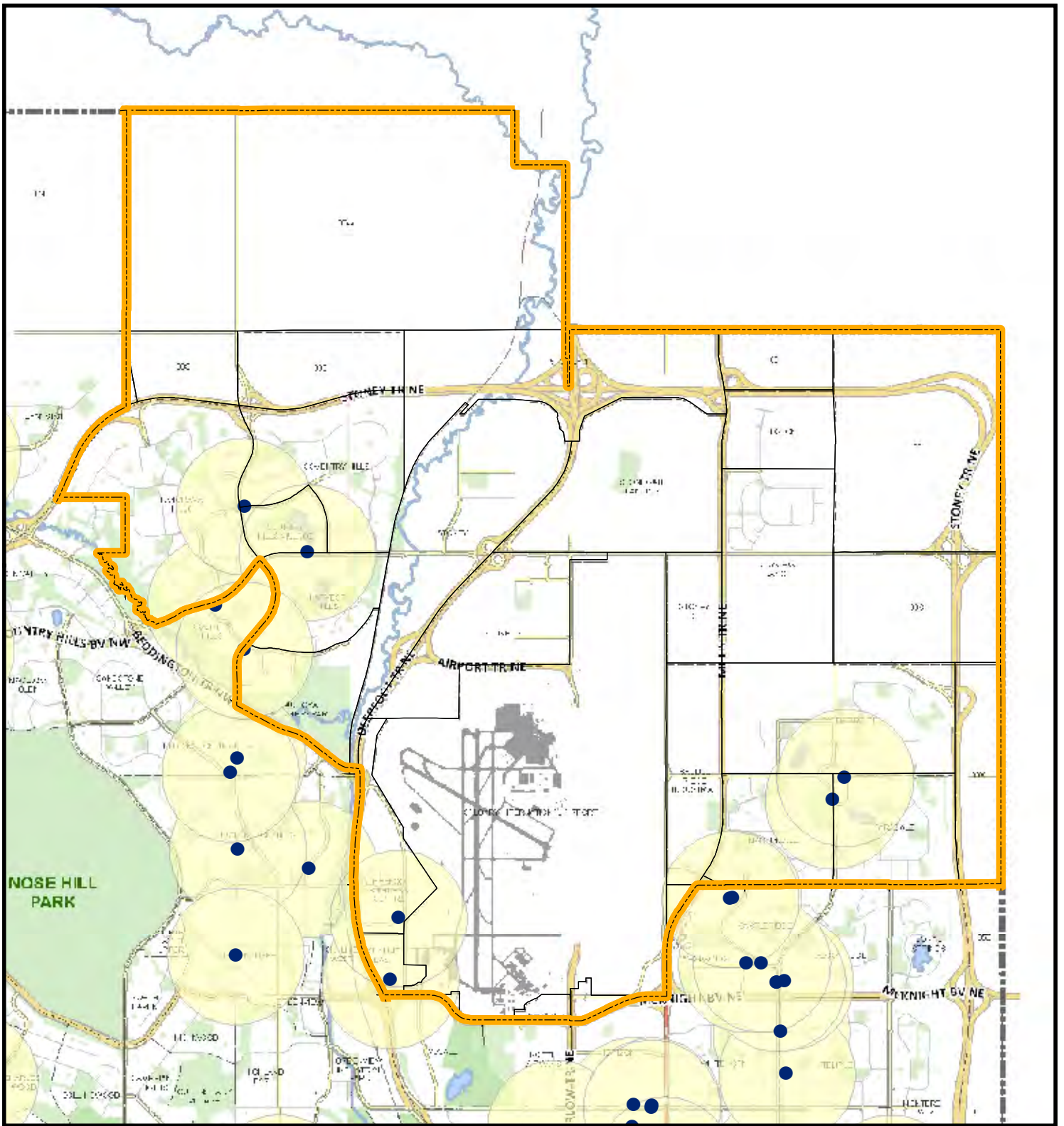
Map 7.6 - Major Food Retailers - Ward 2 - Grocery Stores



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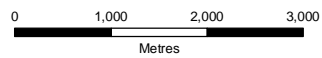
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 3

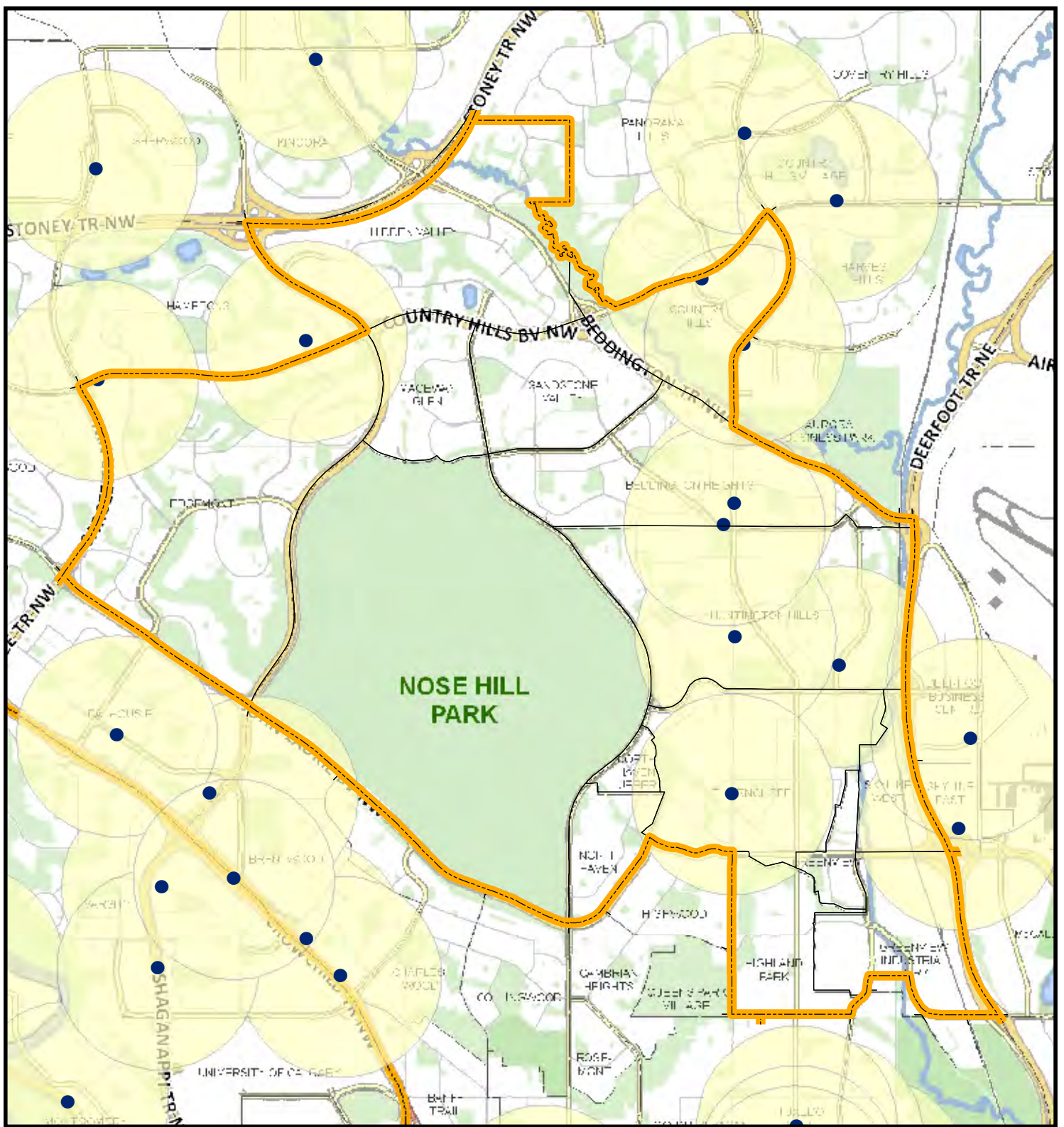
Map 7.7 - Major Food Retailers - Ward 3 - Grocery Stores



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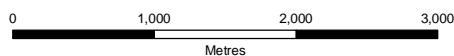
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Legend

- Grocery Stores
- 1km Radius
- WARD 4

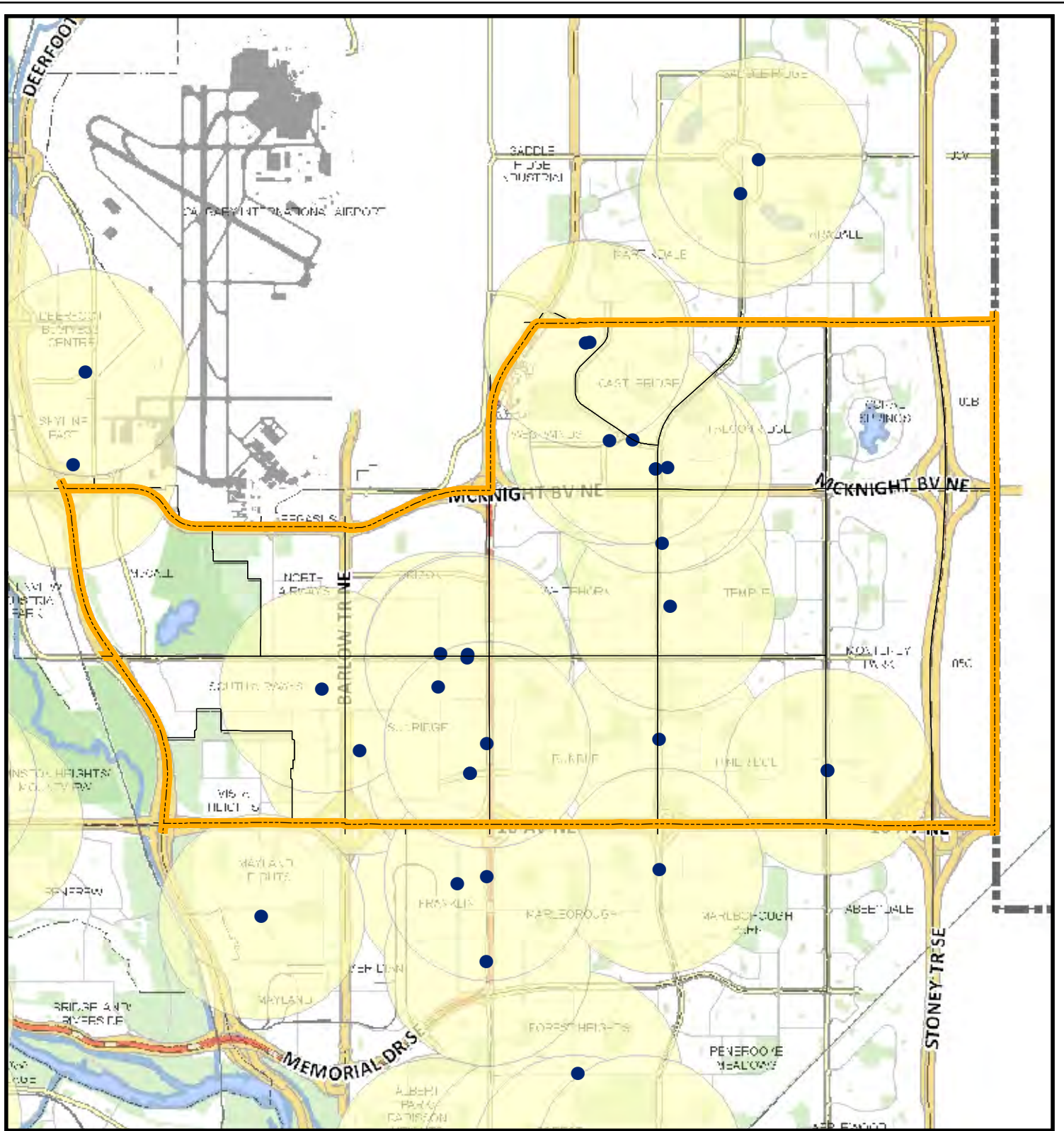
Map 7.8 - Major Food Retailers - Ward 4 - Grocery Stores



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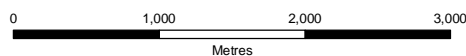
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Legend

- Grocery Stores
- 1km Radius
- WARD 5

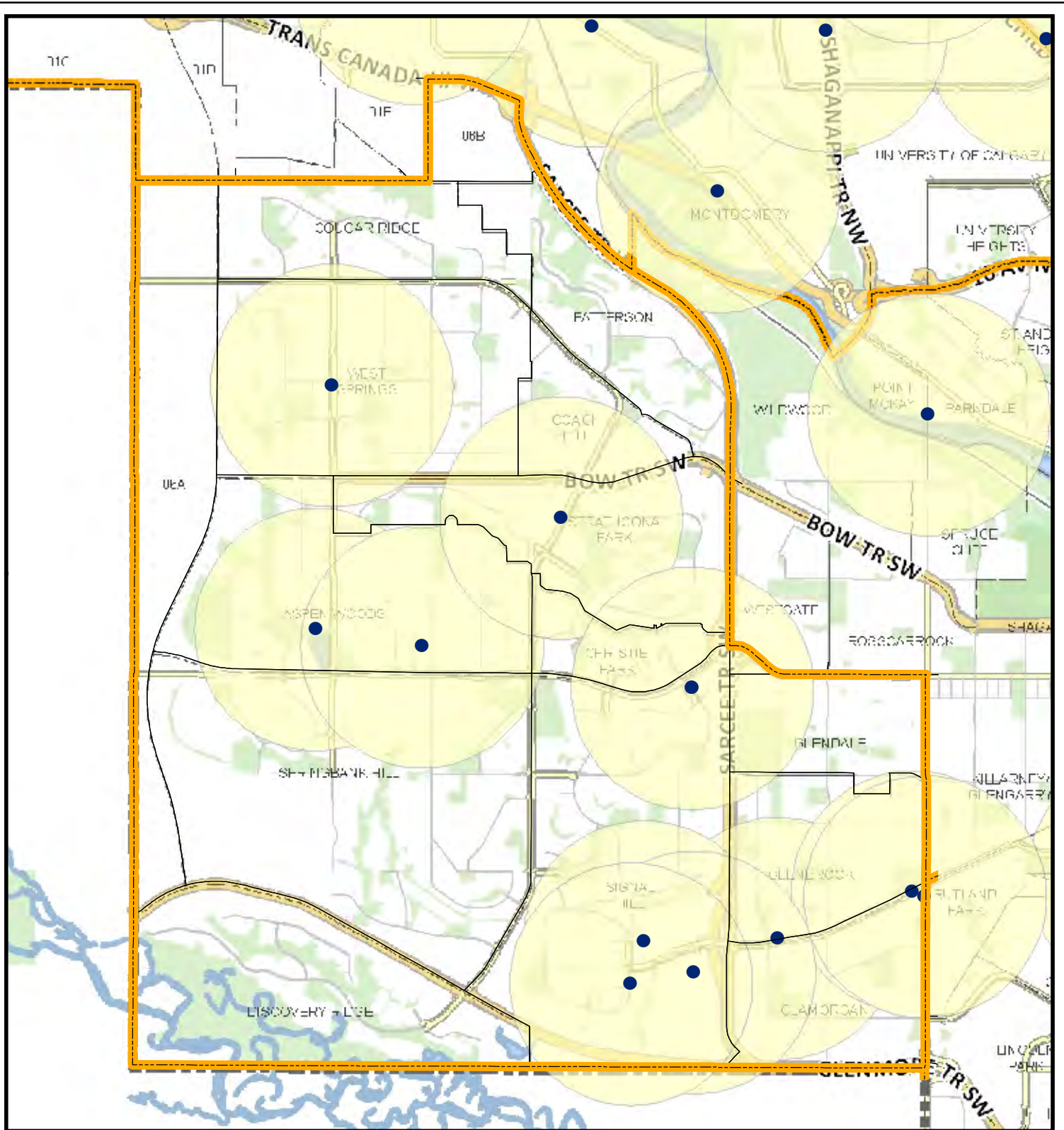
Map 7.9 - Major Food Retailers - Ward 5 - Grocery Stores



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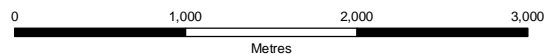
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Legend

- Grocery Stores
- 1km Radius
- WARD 6

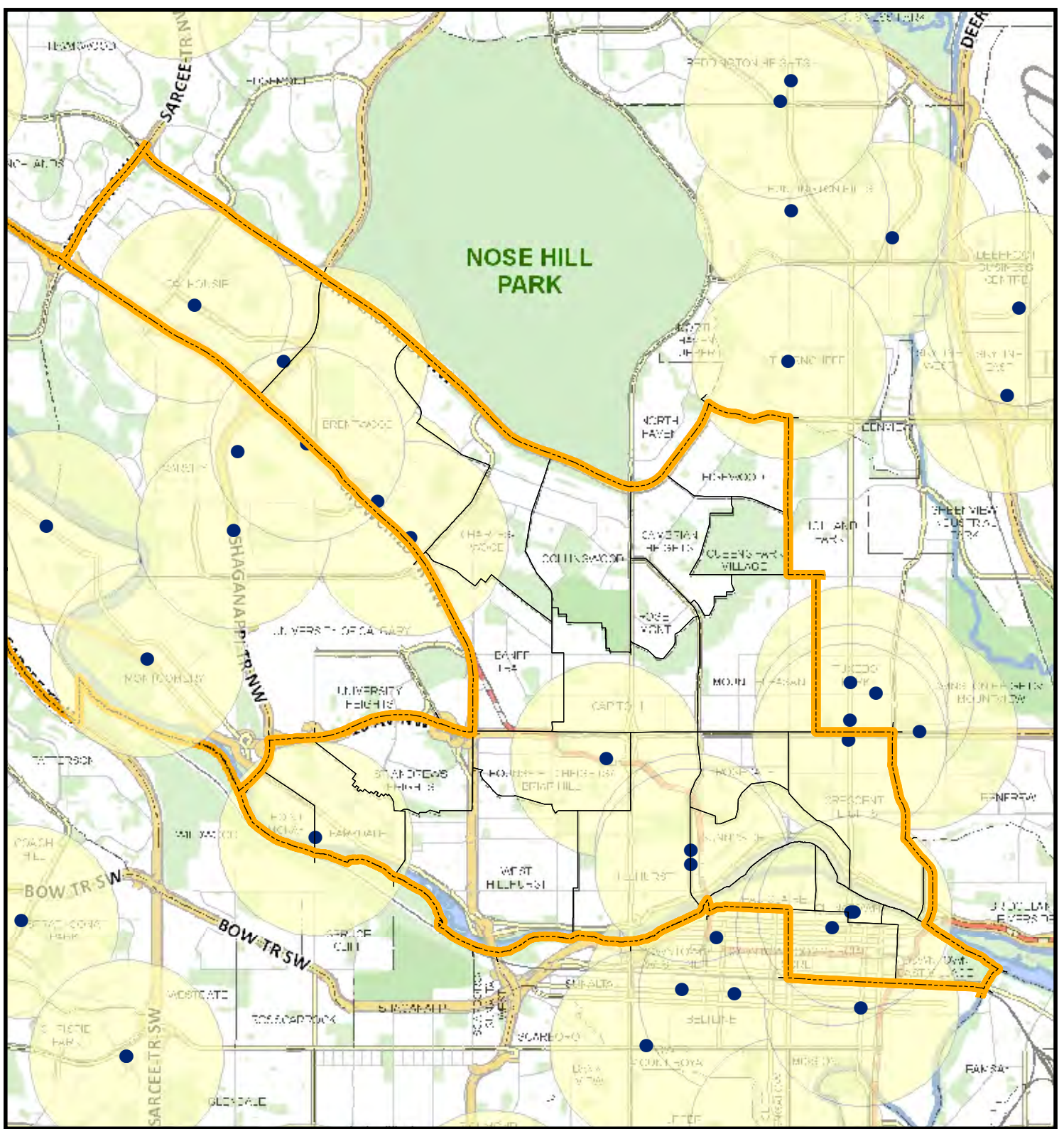
Map 7.10 - Major Food Retailers - Ward 6 - Grocery Stores



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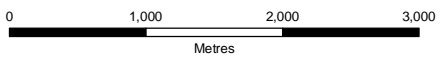
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 7

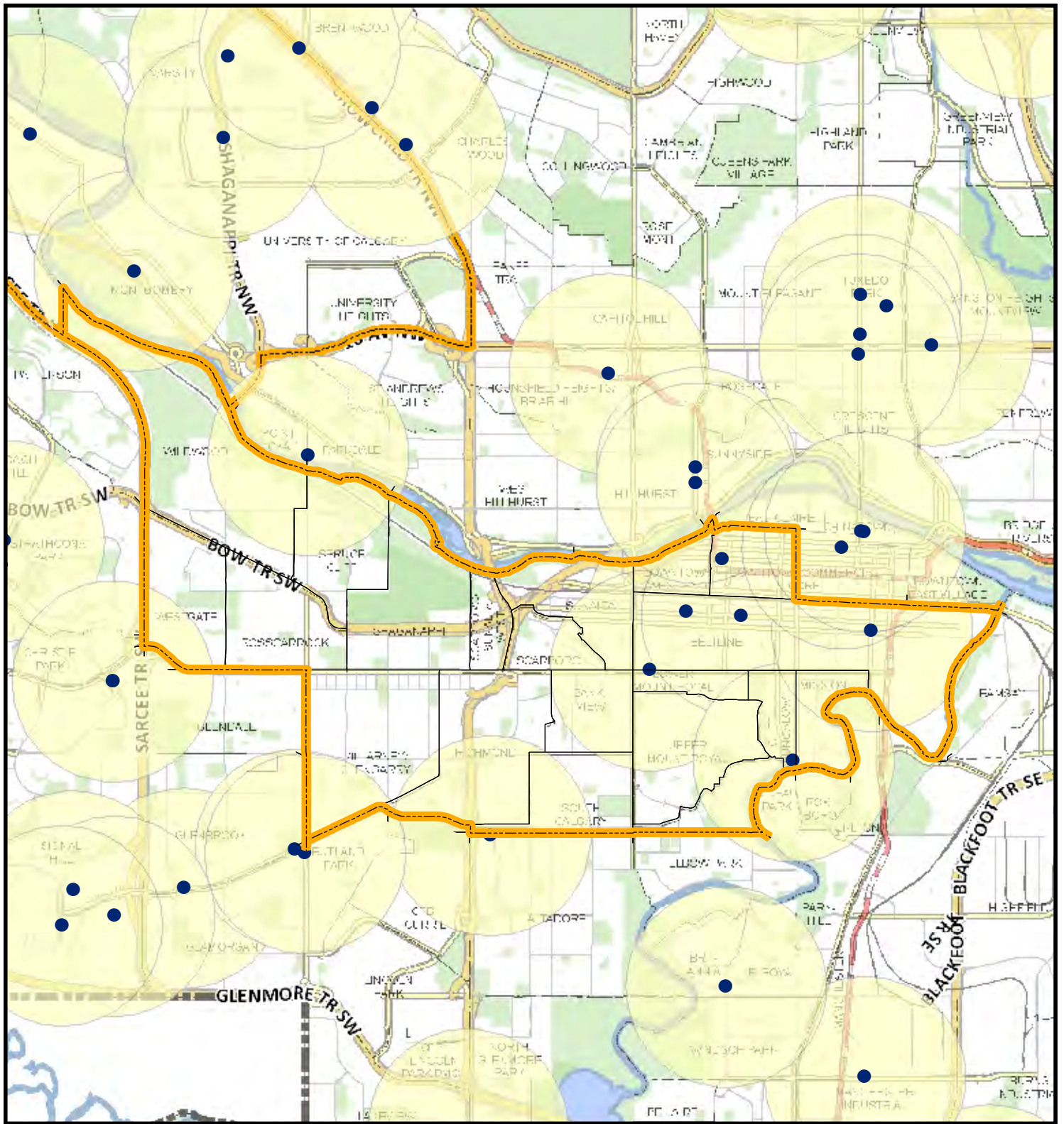
Map 7.11 - Major Food Retailers - Ward 7 - Grocery Stores



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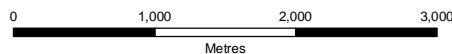
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 8

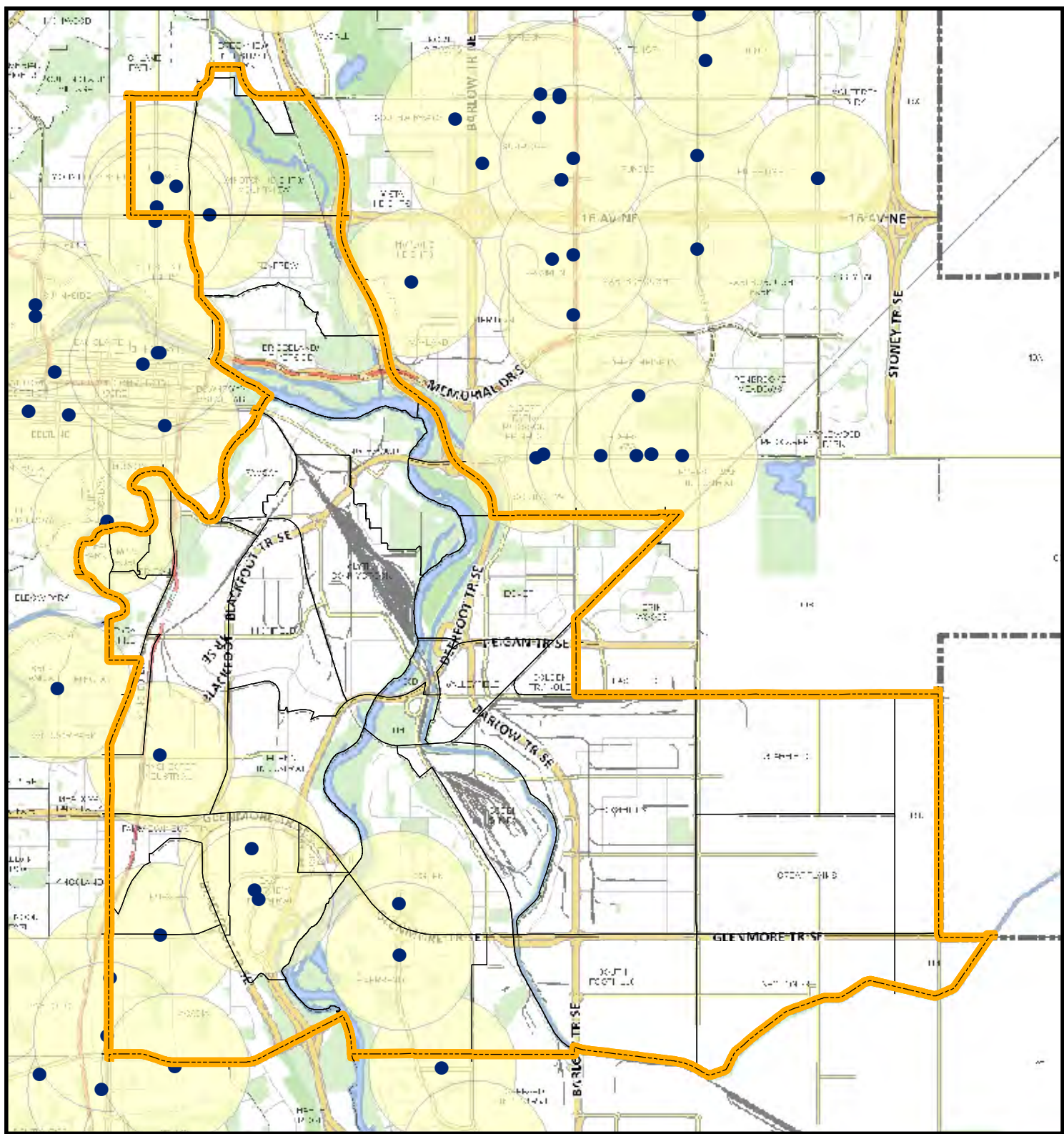
Map 7.12 - Major Food Retailers - Ward 8 - Grocery Stores



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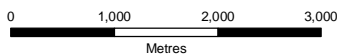
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Legend

- Grocery Stores
- 1km Radius
- WARD 9

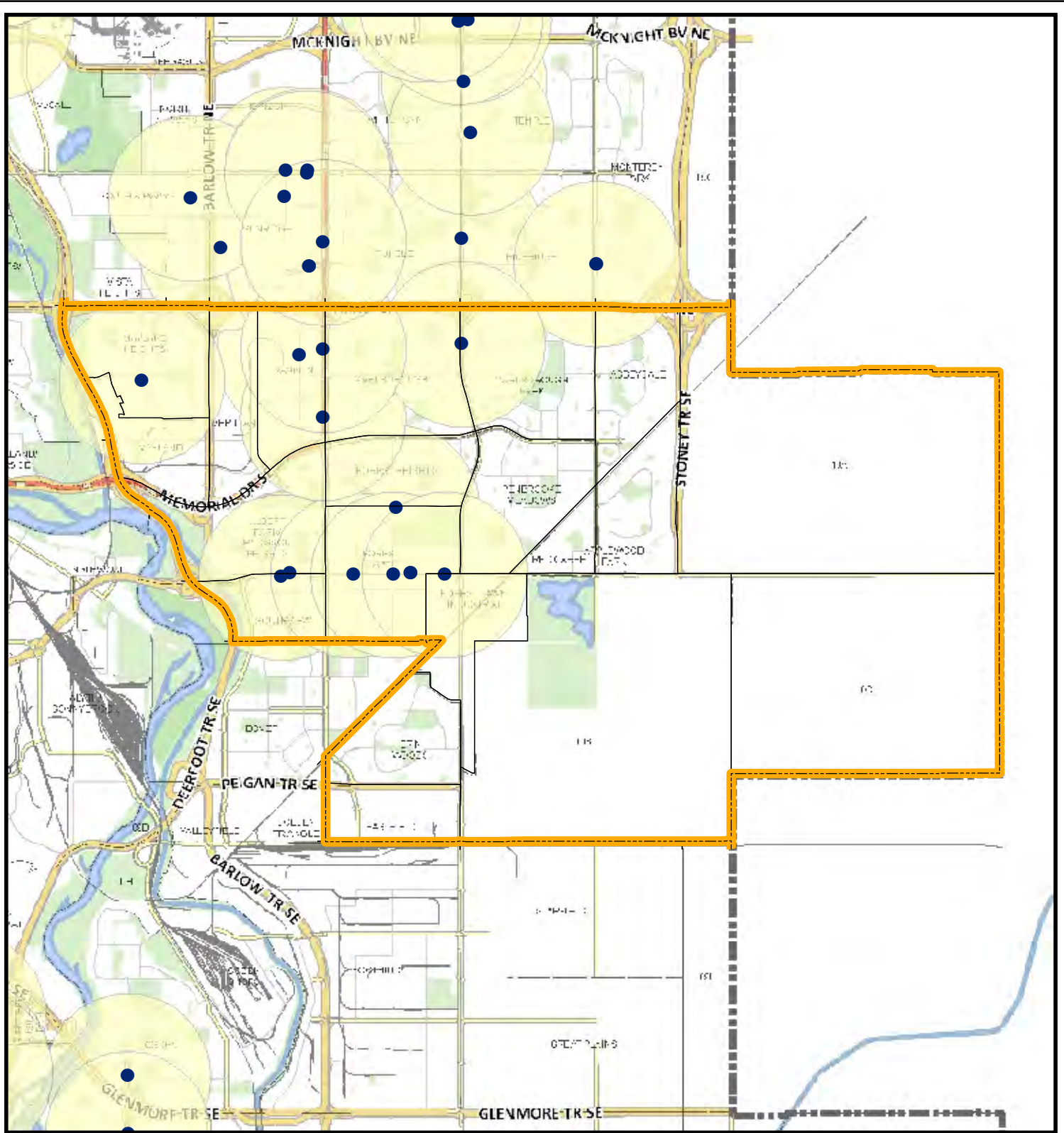
Map 7.13 - Major Food Retailers - Ward 9 - Grocery Stores



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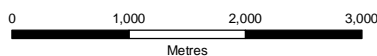
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Legend

- Grocery Stores
- 1km Radius
- WARD 10

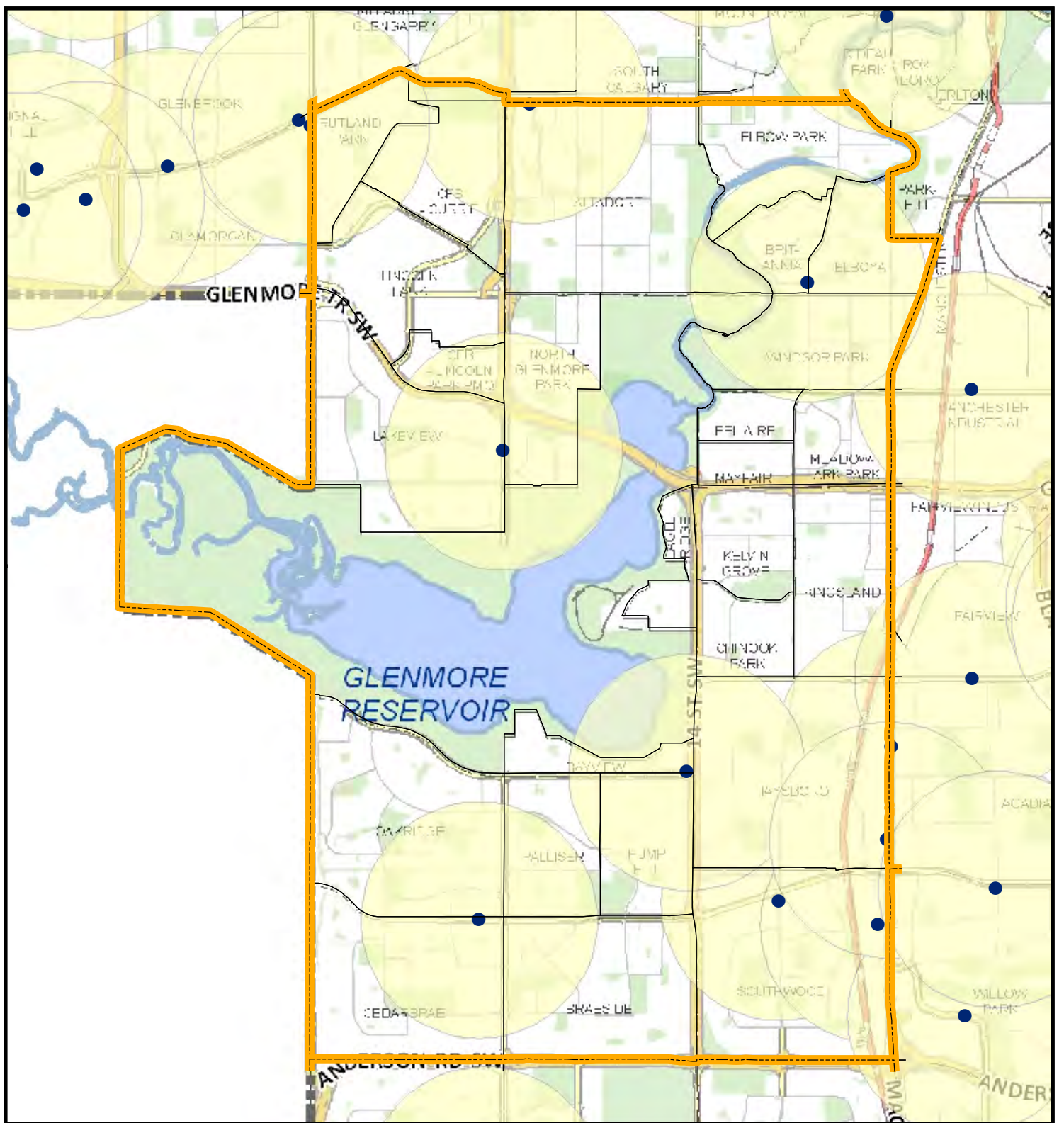
Map 7.14 - Major Food Retailers - Ward 10 - Grocery Stores



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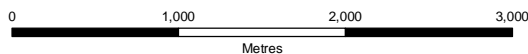
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Legend

- Grocery Stores
- 1km Radius
- WARD 11

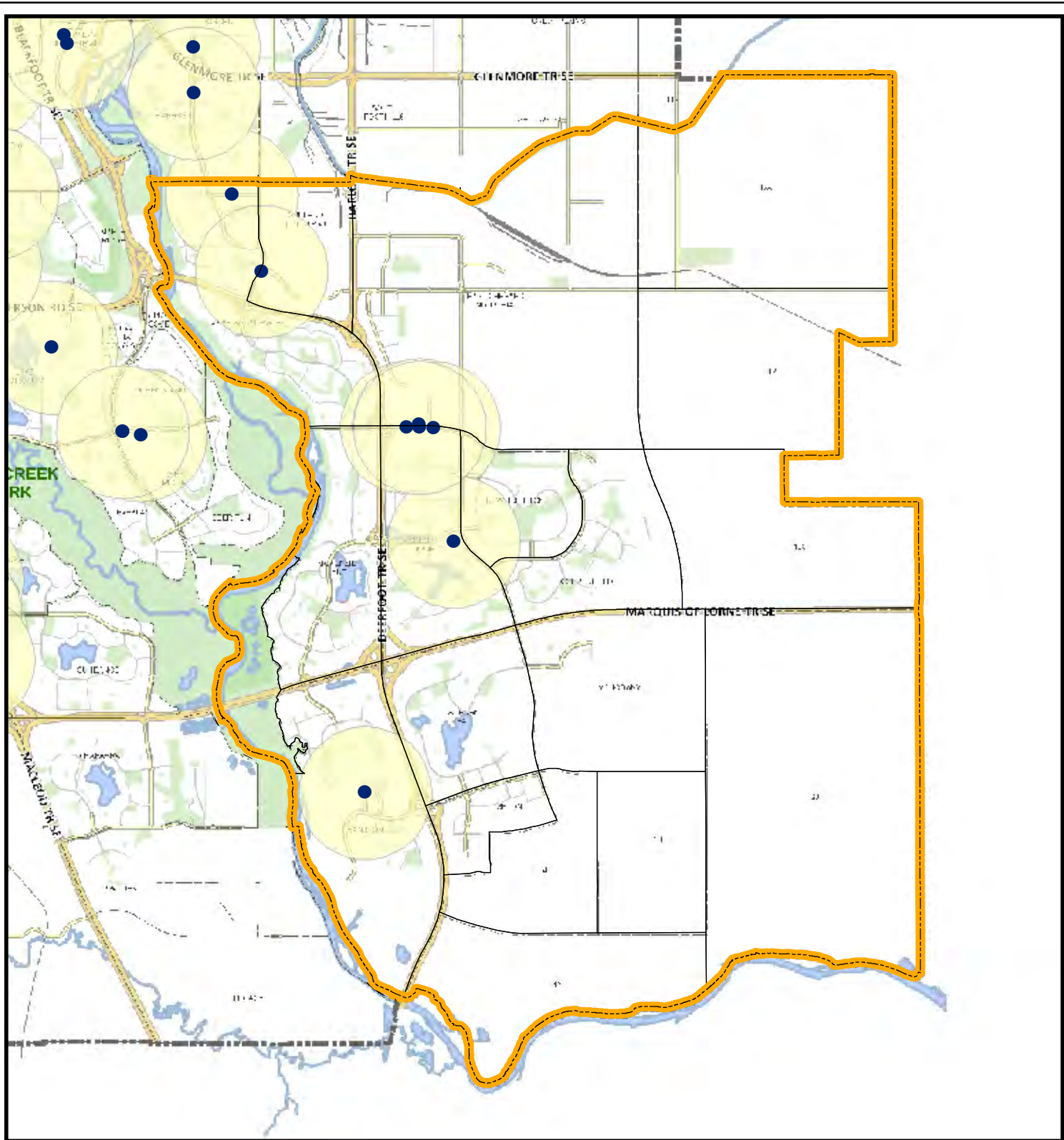
Map 7.15 - Major Food Retailers - Ward 11 - Grocery Stores



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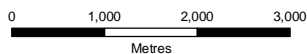
Date Printed: May 10, 2012



Legend

- Grocery Stores
- 1km Radius
- WARD 12

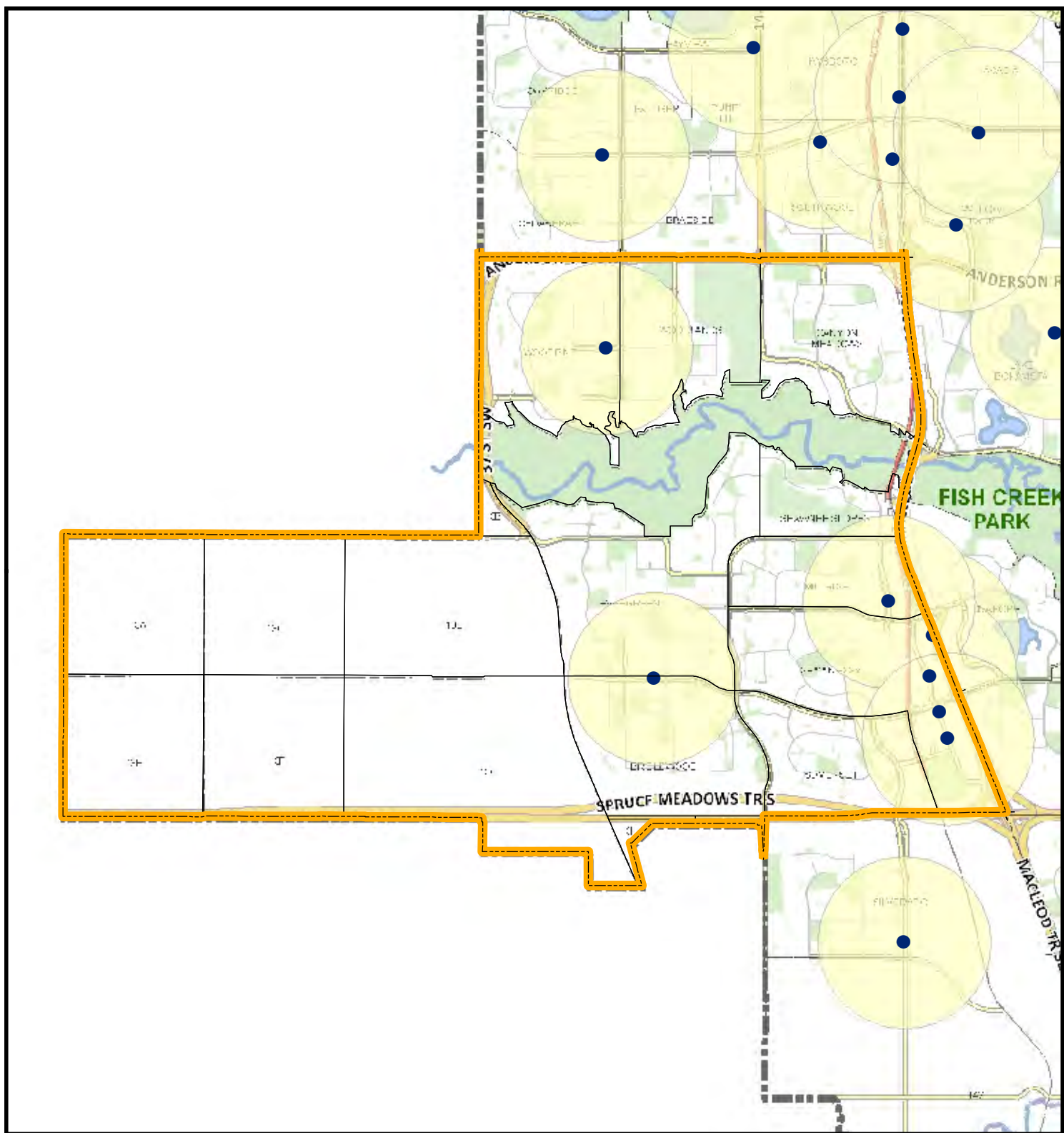
Map 7.16 - Major Food Retailers - Ward 12 - Grocery Stores



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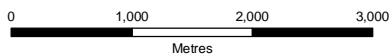
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Legend

- Grocery Stores
- 1km Radius
- WARD 13

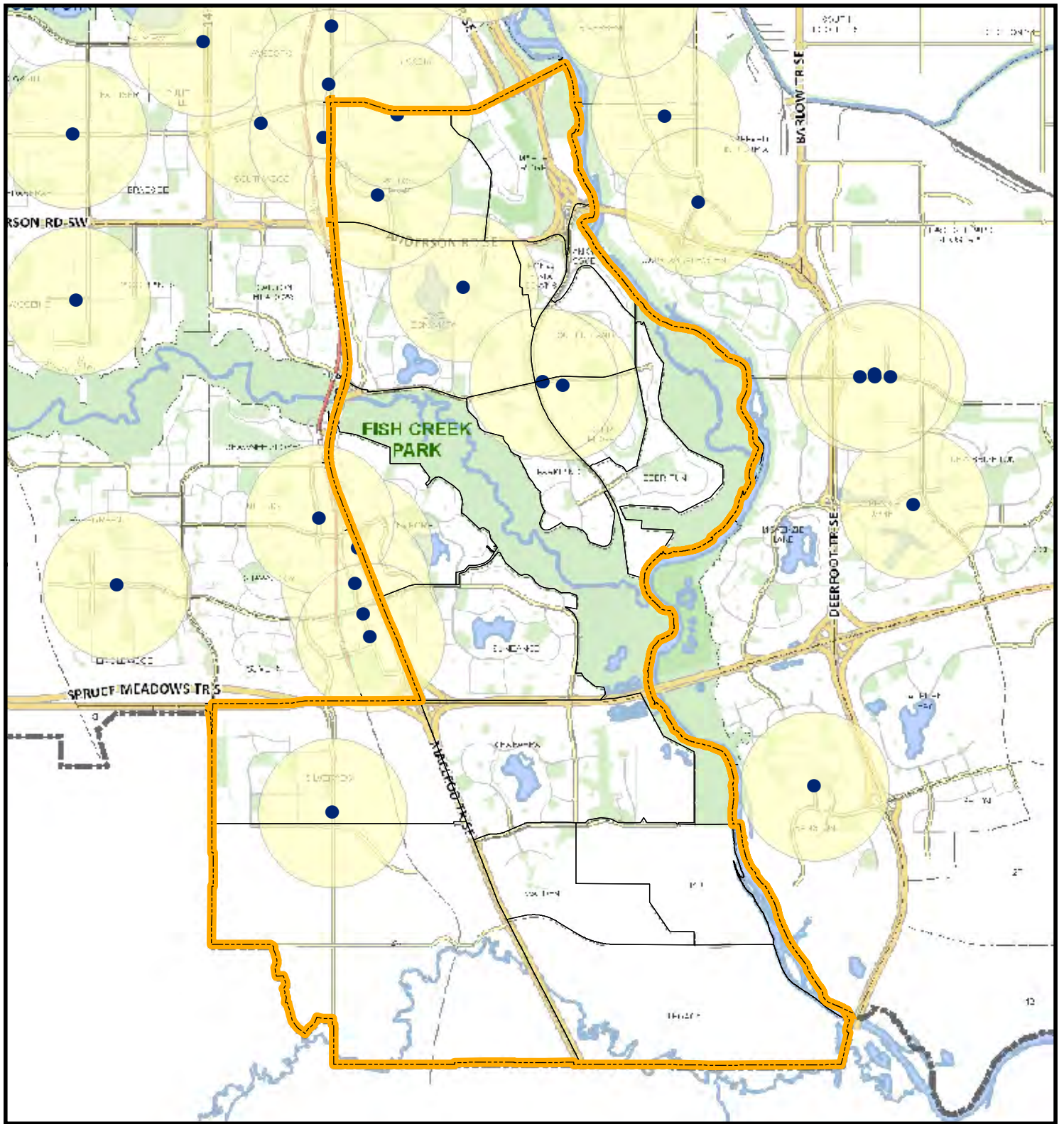
Map 7.17 - Major Food Retailers - Ward 13 - Grocery Stores



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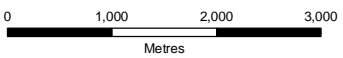
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Legend

- Grocery Stores
- 1km Radius
- WARD 14

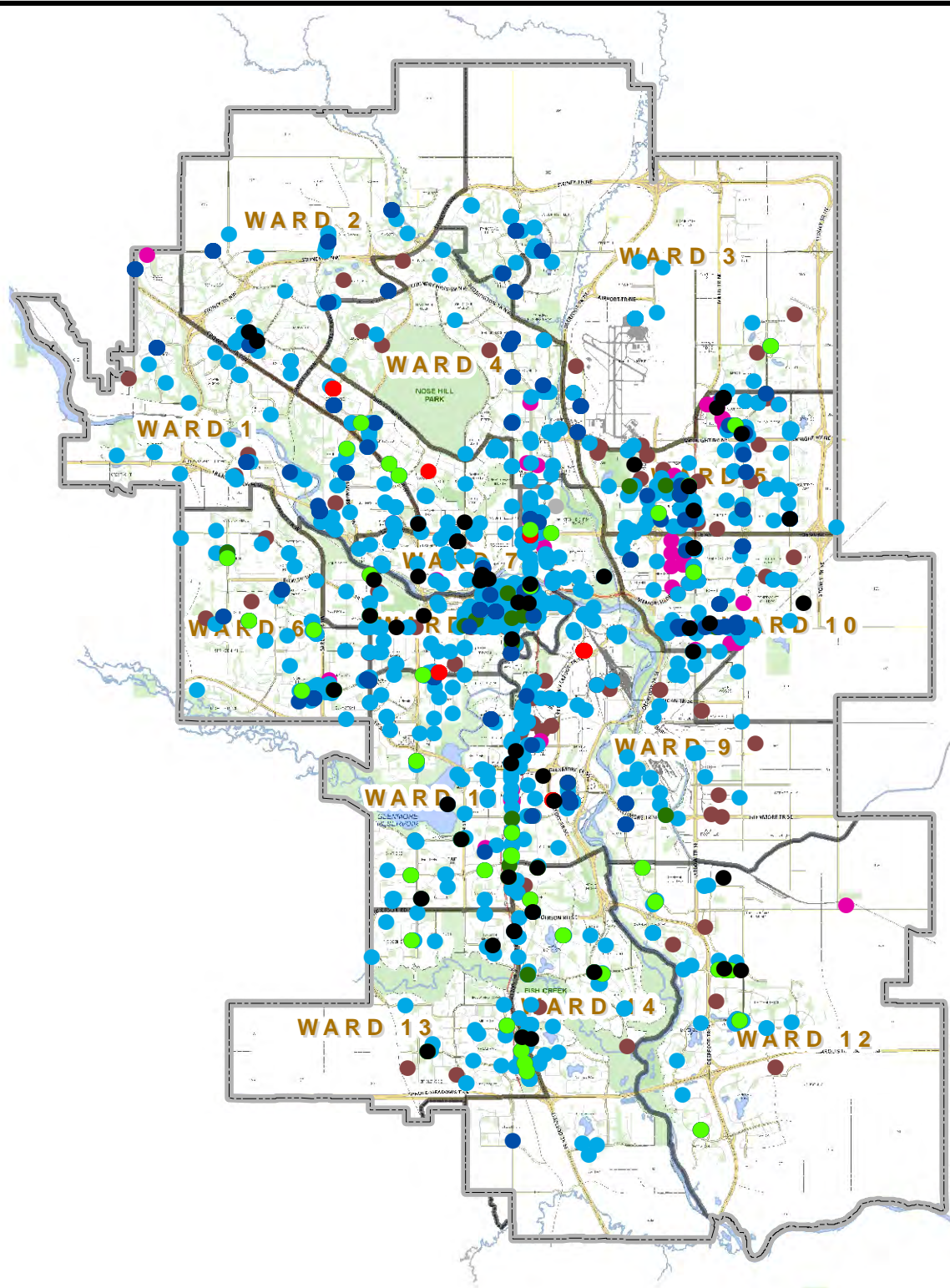
Map 7.18 - Major Food Retailers - Ward 14 - Grocery Stores



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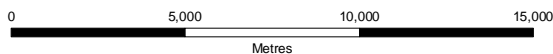


Legend

- Specialty Food
- Produce
- Market Vendor
- Grocery Store
- Deli
- Convenience Store
- Butcher
- Bulk Food
- Bakery
- ▭ Wards

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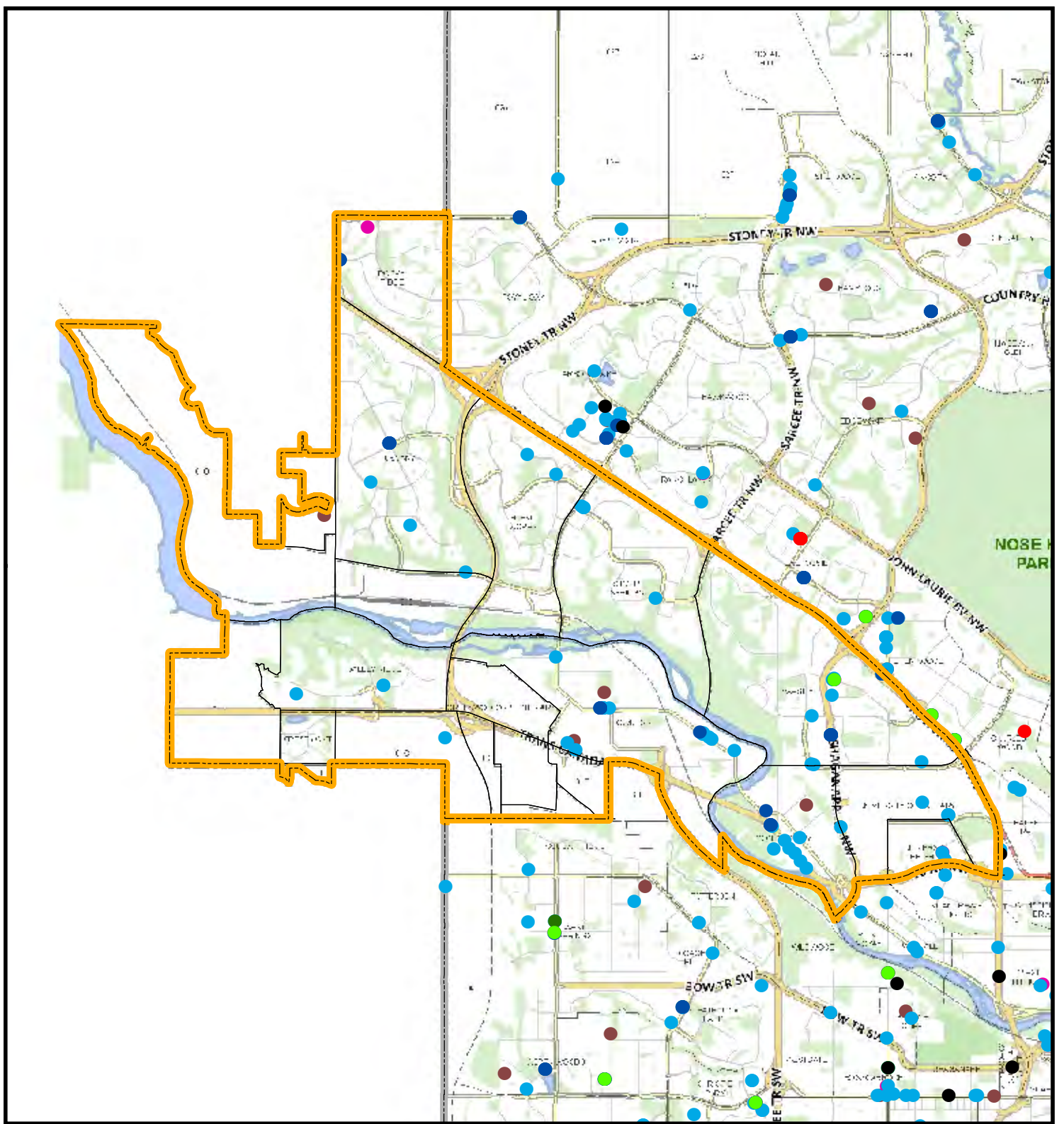
Map 7.19 - Food Retail Outlets by Type



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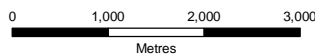
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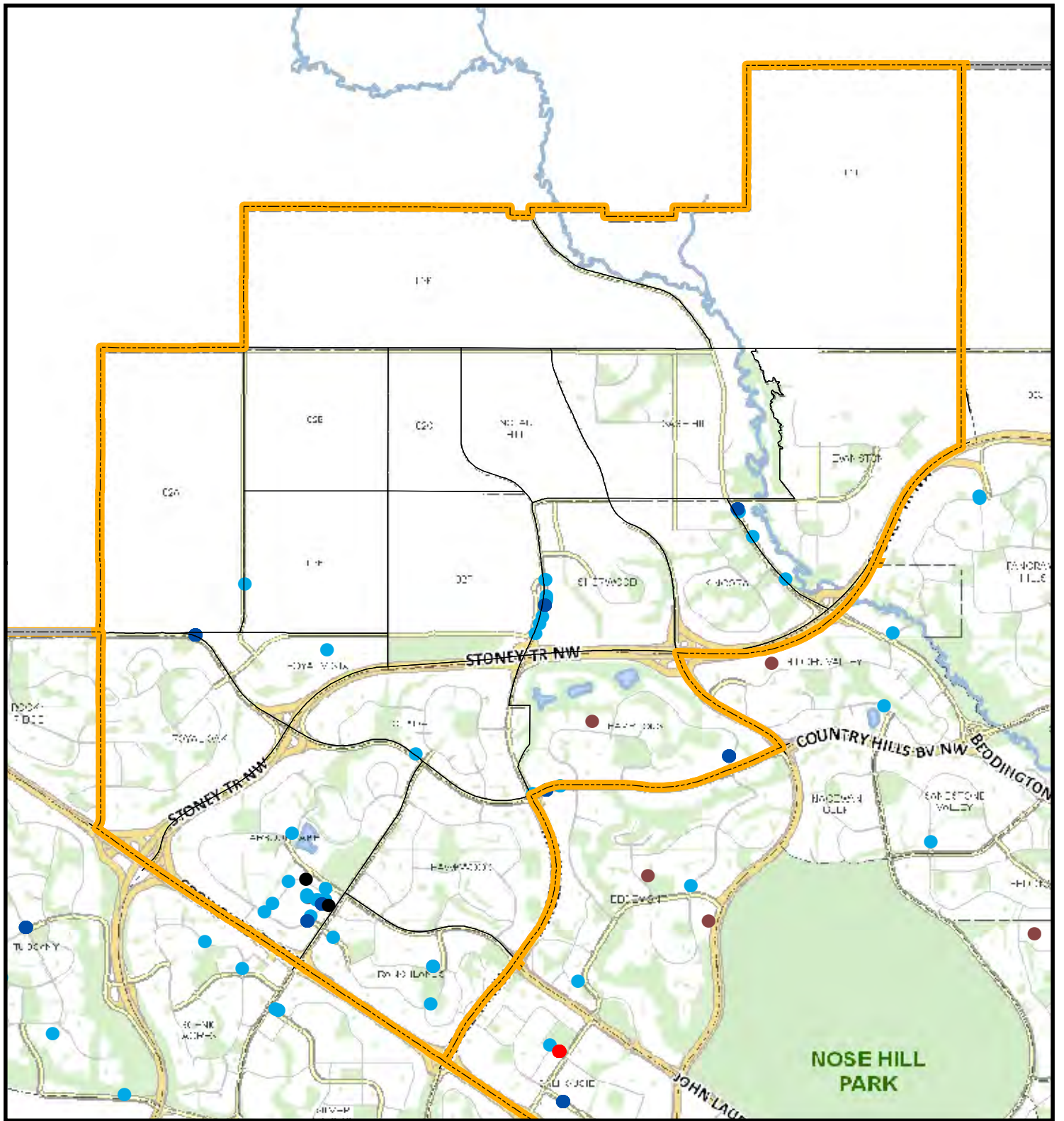
Map 7.20 - Food Retail Outlets by Type - Ward 1

Legend

- Grocery Store ● Convenience Store
- Specialty Food ● Butcher
- Produce ● Bulk Food
- Market Vendor ● Bakery
- Deli ● WARD 1



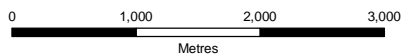
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Map 7.21 - Food Retail Outlets by Type - Ward 2

Legend

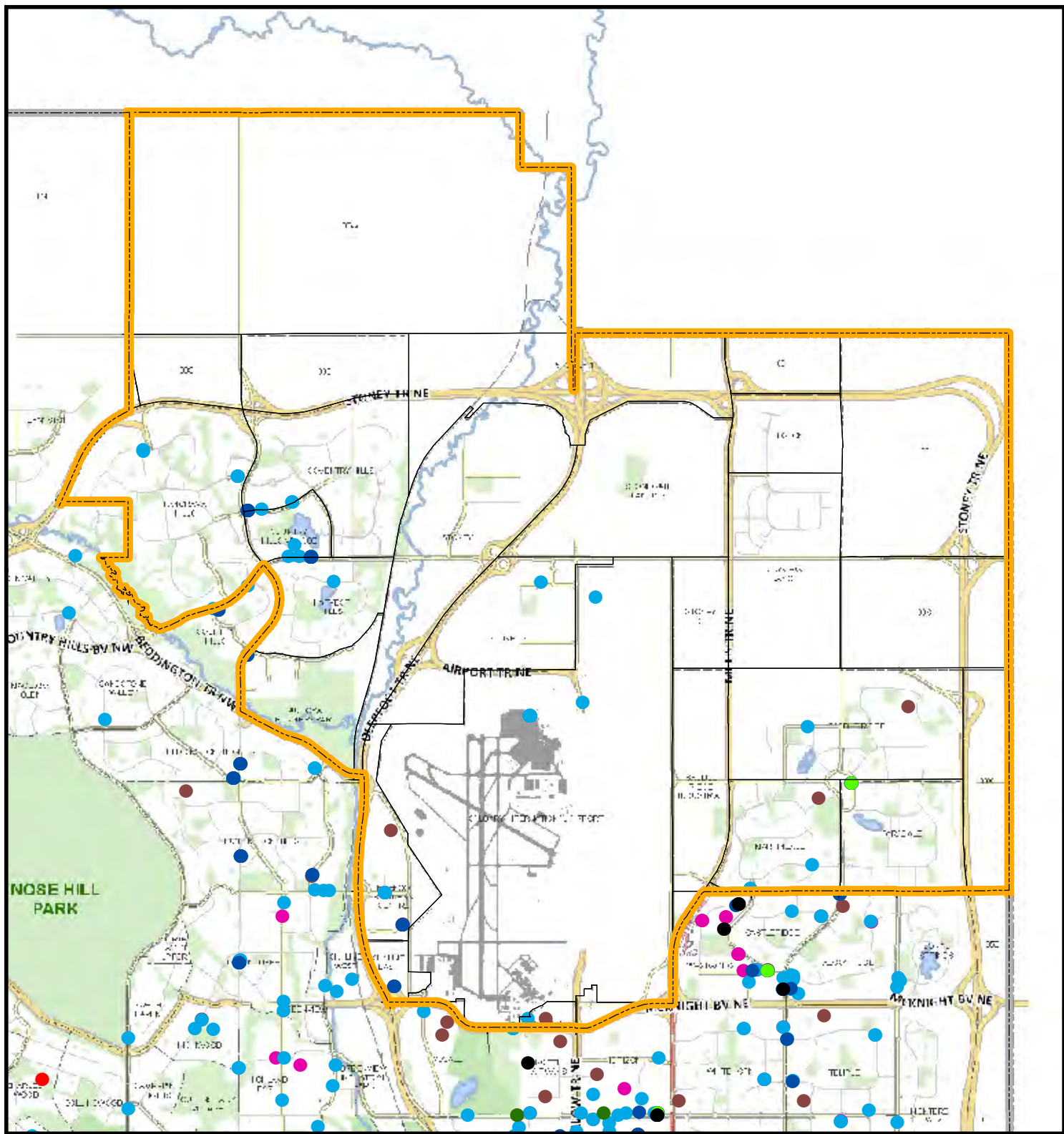
- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 2



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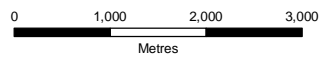
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Map 7.22 - Food Retail Outlets by Type - Ward 3

Legend

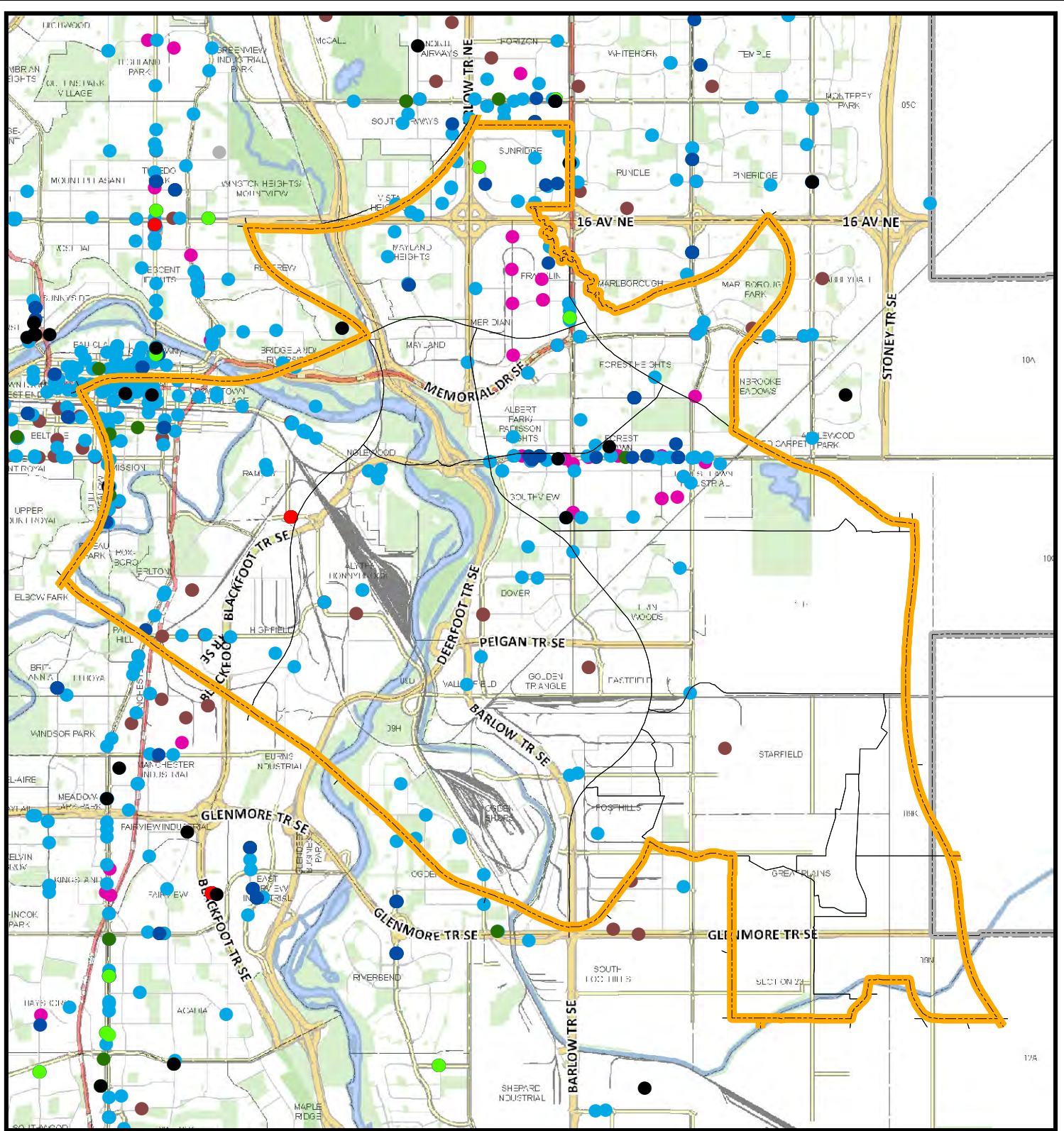
- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 3



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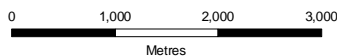
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Map 7.23 - Food Retail Outlets by Type - Ward 4

Legend

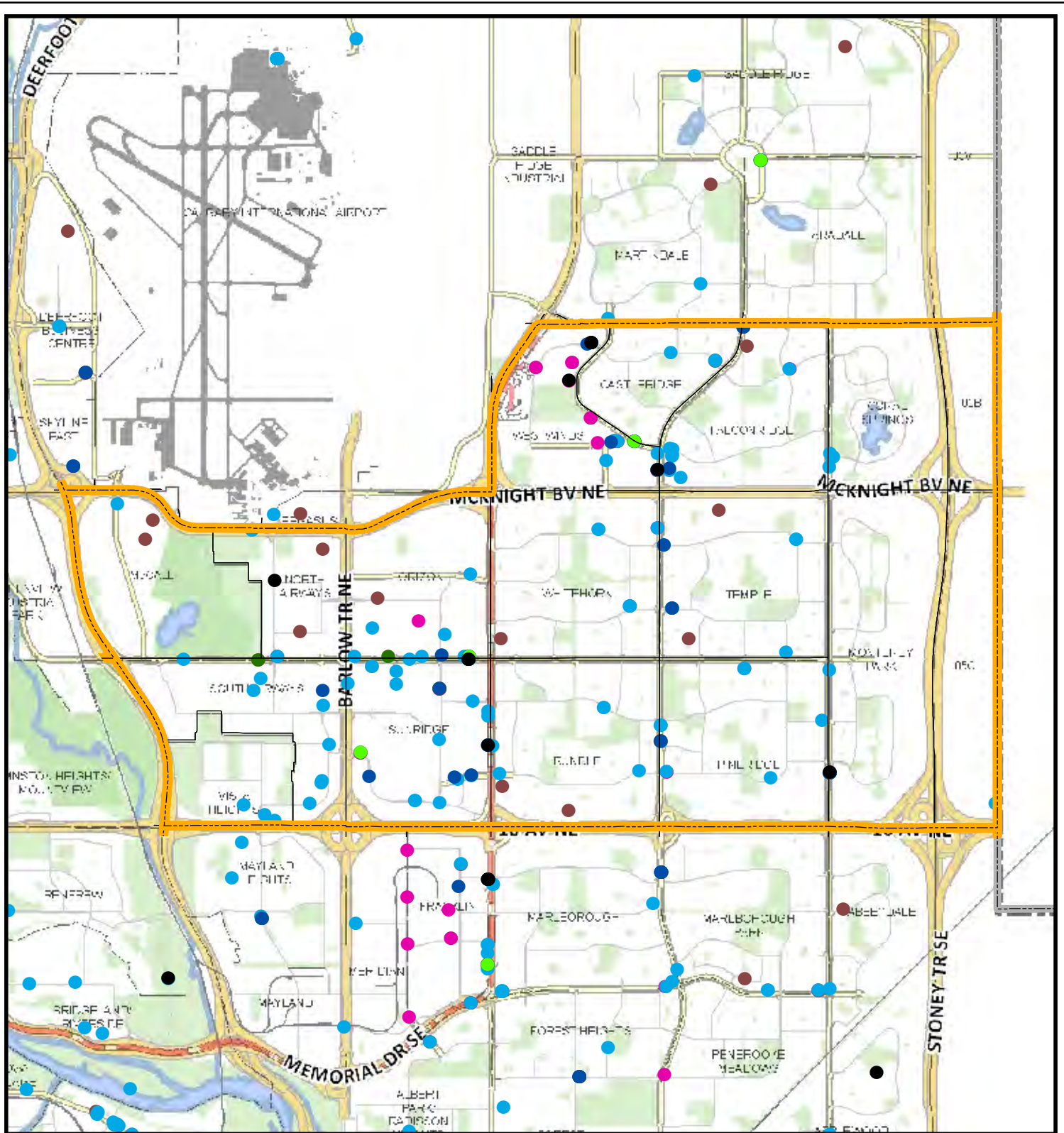
- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 4



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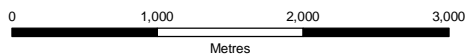
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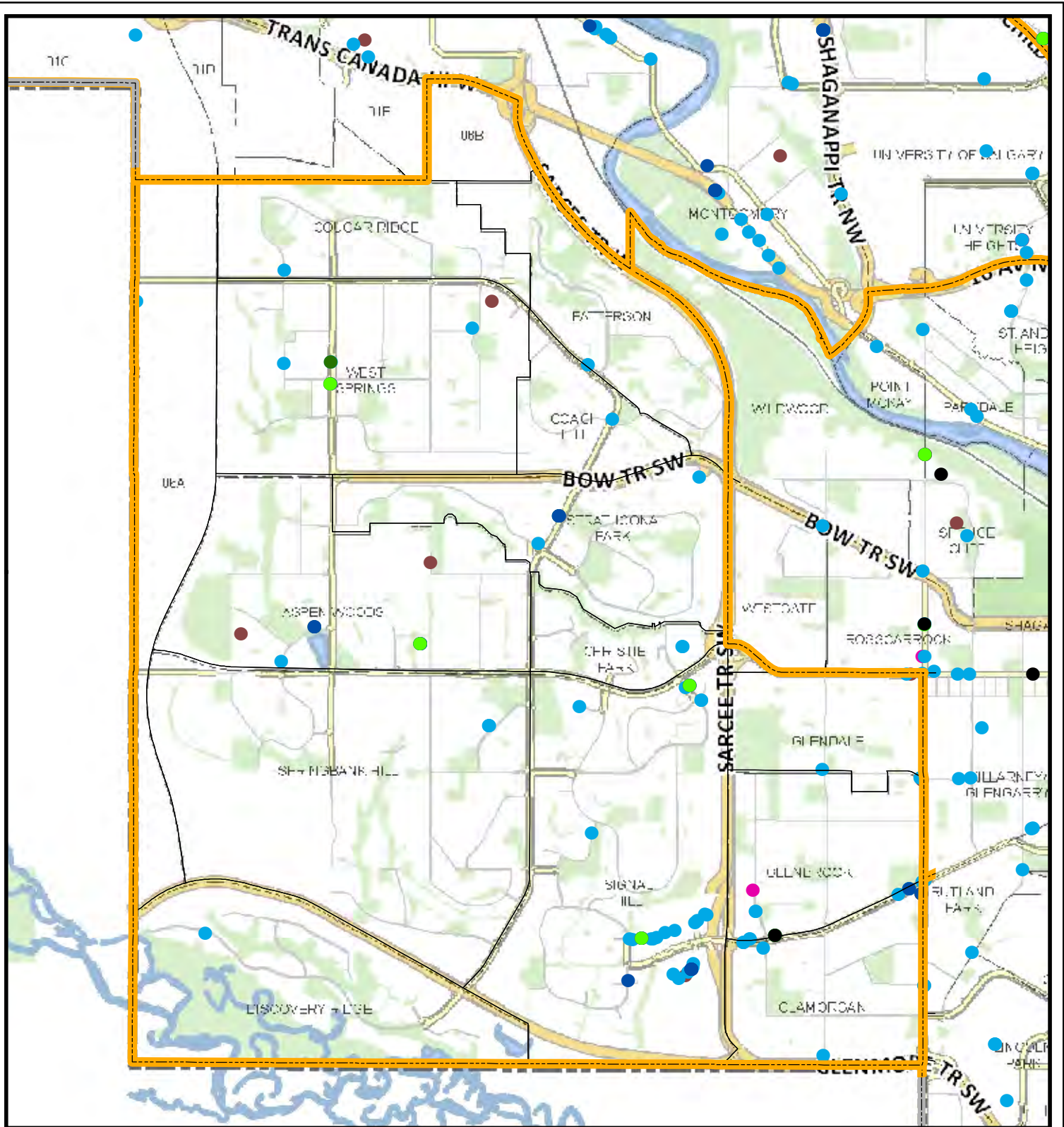
Map 7.24 - Food Retail Outlets by Type - Ward 5

Legend

- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 5



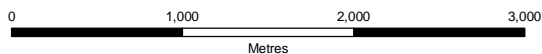
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Map 7.25 - Food Retail Outlets by Type - Ward 6

Legend

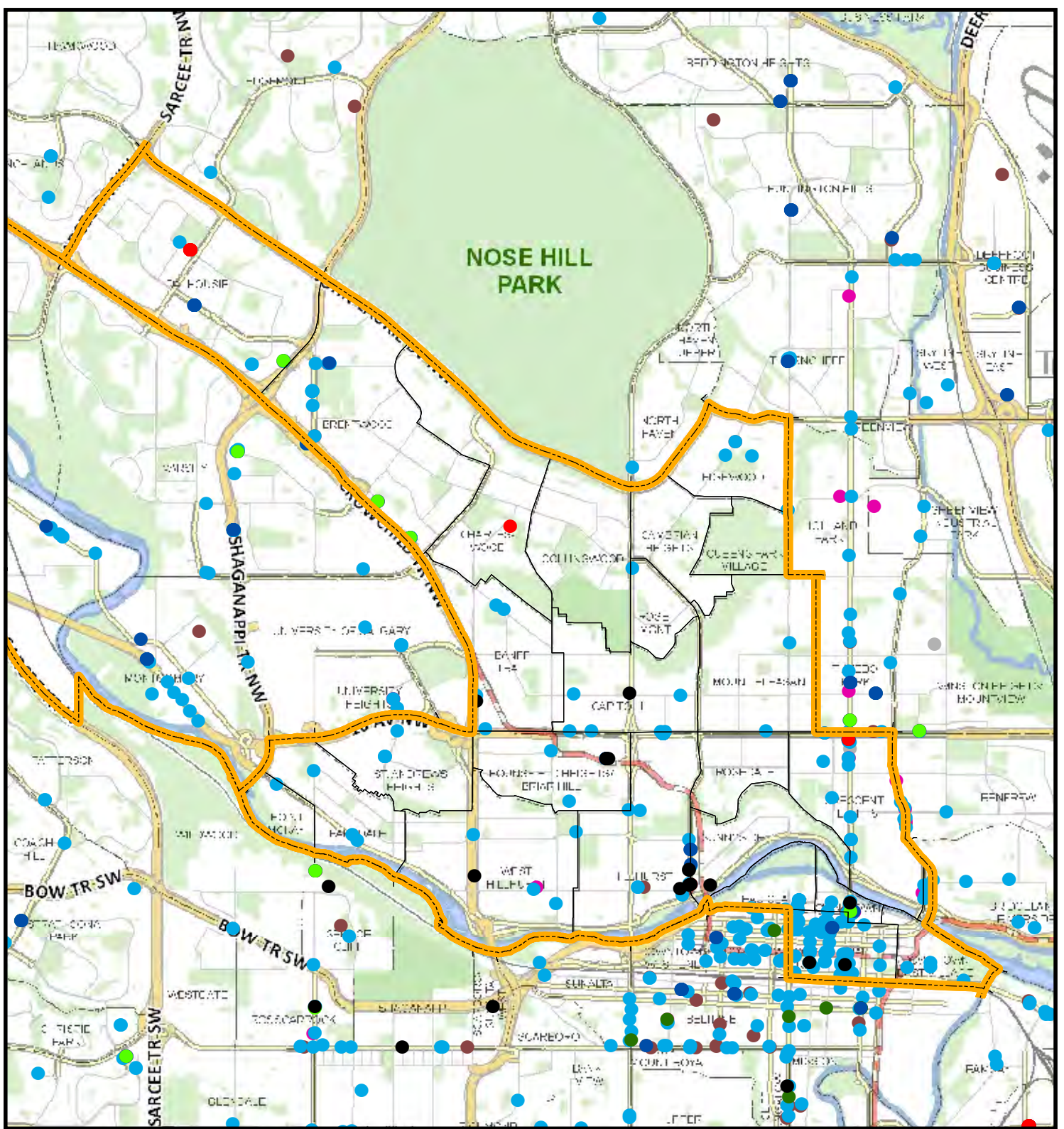
- Grocery Store
- Convenience Store
- Specialty Food
- Produce
- Market Vendor
- Deli
- Butcher
- Bulk Food
- Bakery
- ▭ WARD 6



Data: Alberta Health Services
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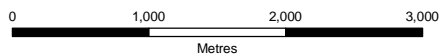
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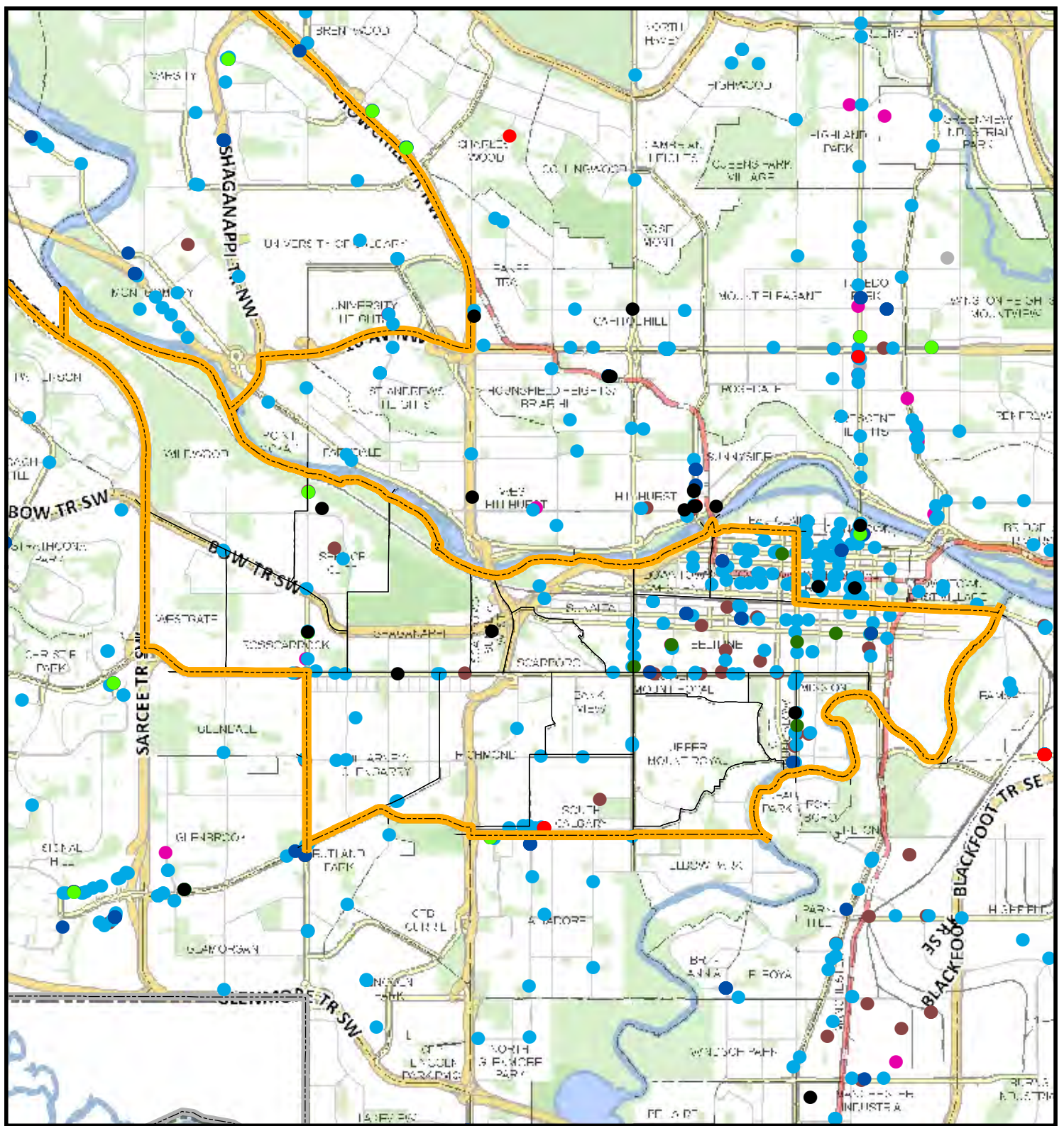
Map 7.26 - Food Retail Outlets by Type - Ward 7

Legend

- Grocery Store
- Convenience Store
- Specialty Food
- Produce
- Market Vendor
- Deli
- Butcher
- Bulk Food
- Bakery
- ▭ WARD 7



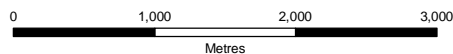
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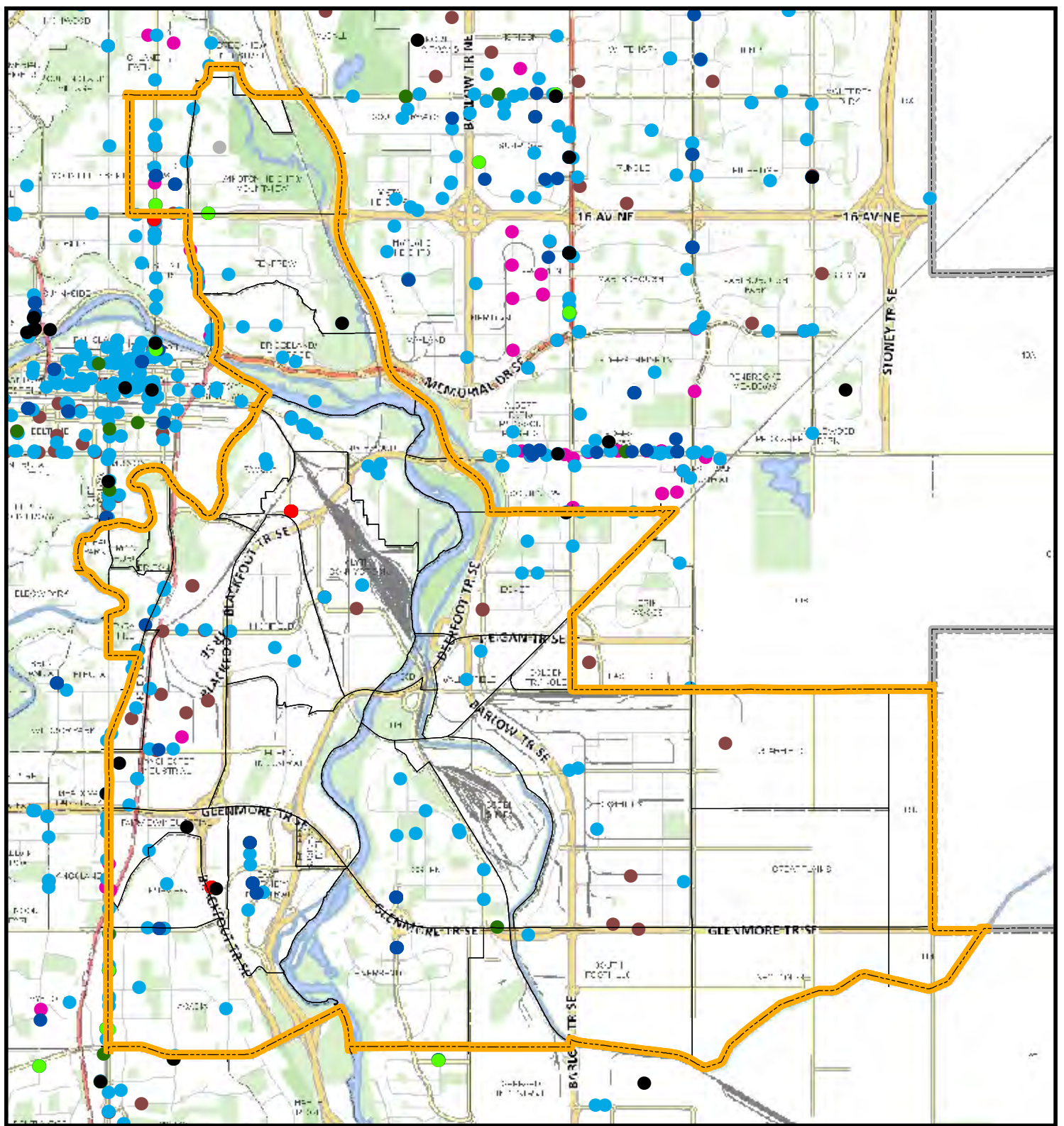
Map 7.27 - Food Retail Outlets by Type - Ward 8

Legend

- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 8



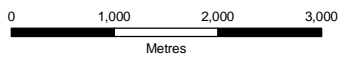
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Map 7.28 - Food Retail Outlets by Type - Ward 9

Legend

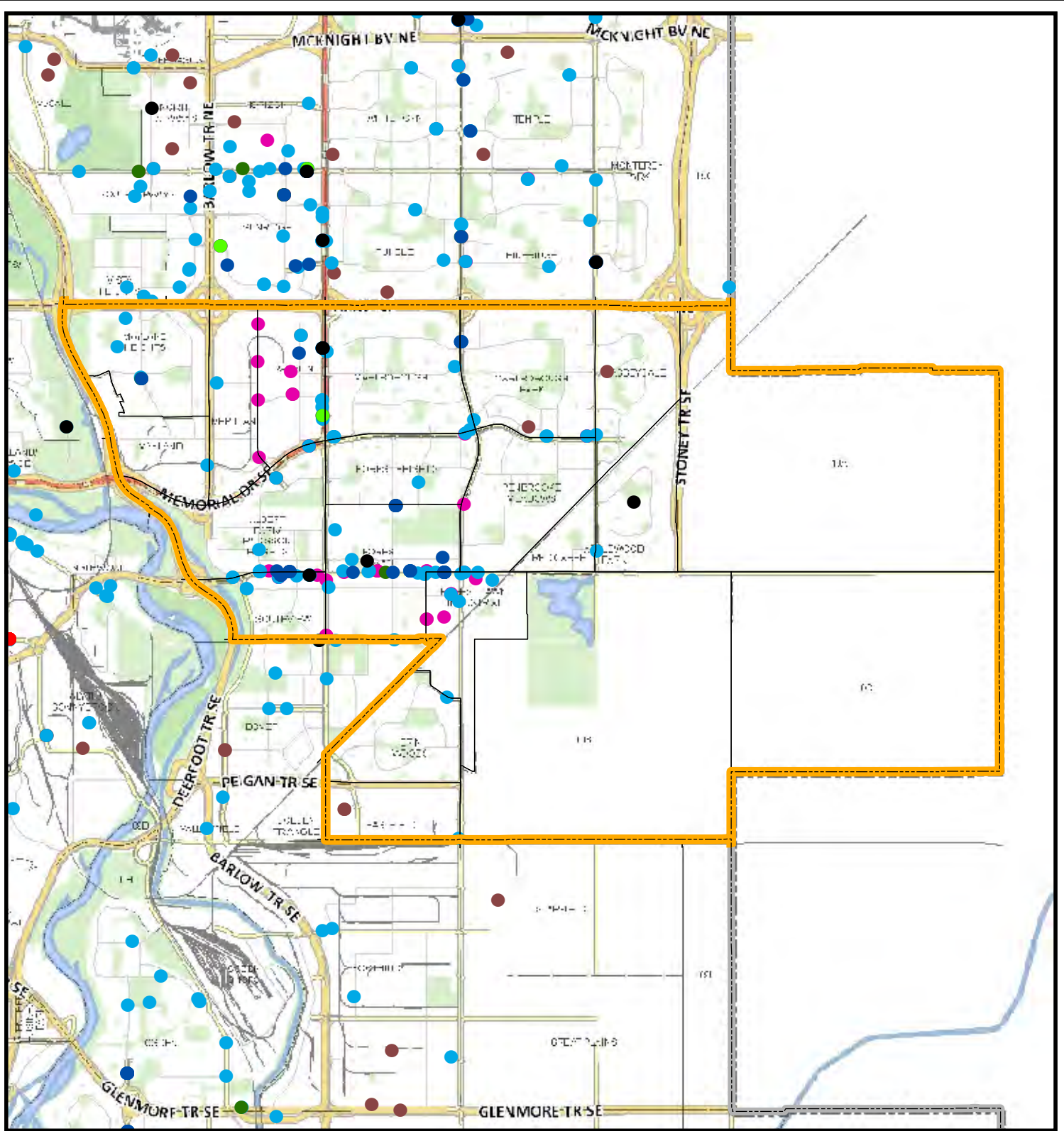
- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 9



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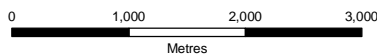
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Map 7.29 - Food Retail Outlets by Type - Ward 10

Legend

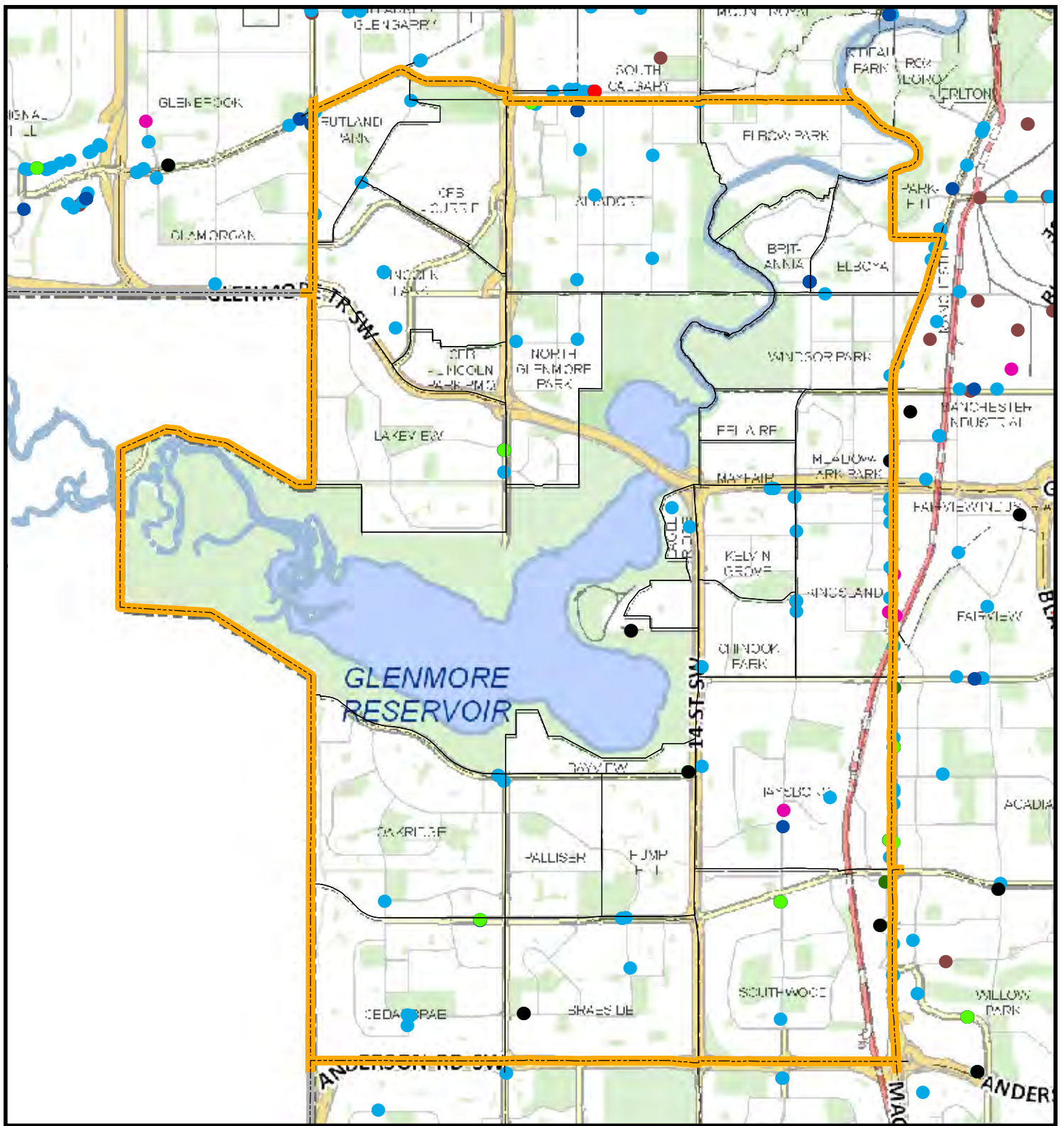
- Grocery Store
- Convenience Store
- Specialty Food
- Butcher
- Produce
- Bulk Food
- Market Vendor
- Bakery
- Deli
- ▭ WARD 10



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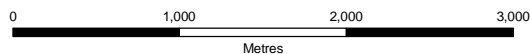
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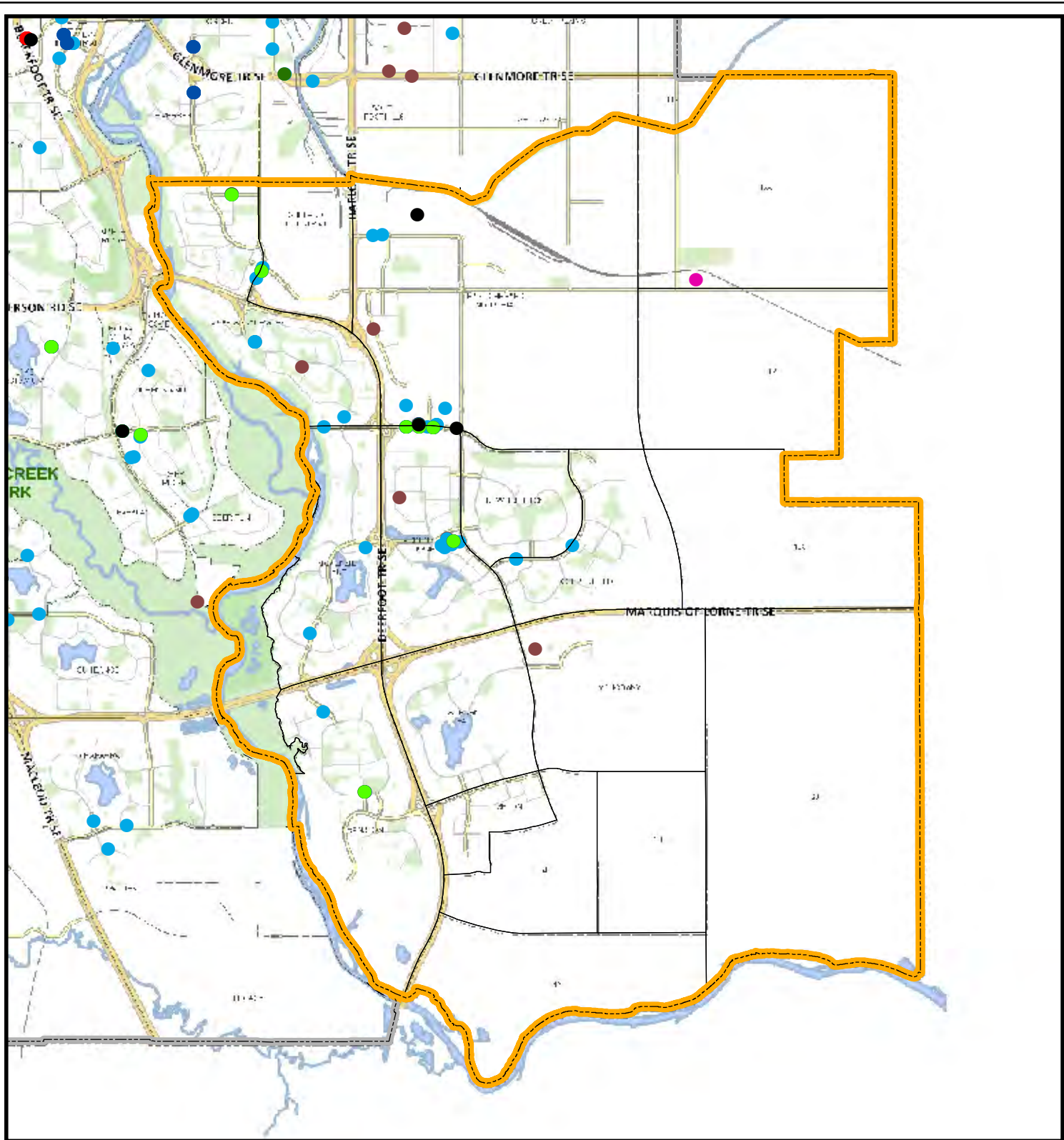
Map 7.30 - Food Retail Outlets by Type - Ward 11

Legend

- Grocery Store
- Convenience Store
- Specialty Food
- Produce
- Market Vendor
- Deli
- Butcher
- Bulk Food
- Bakery
- ▭ WARD 11



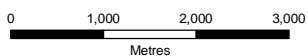
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Map 7.31 - Food Retail Outlets by Type - Ward 12

Legend

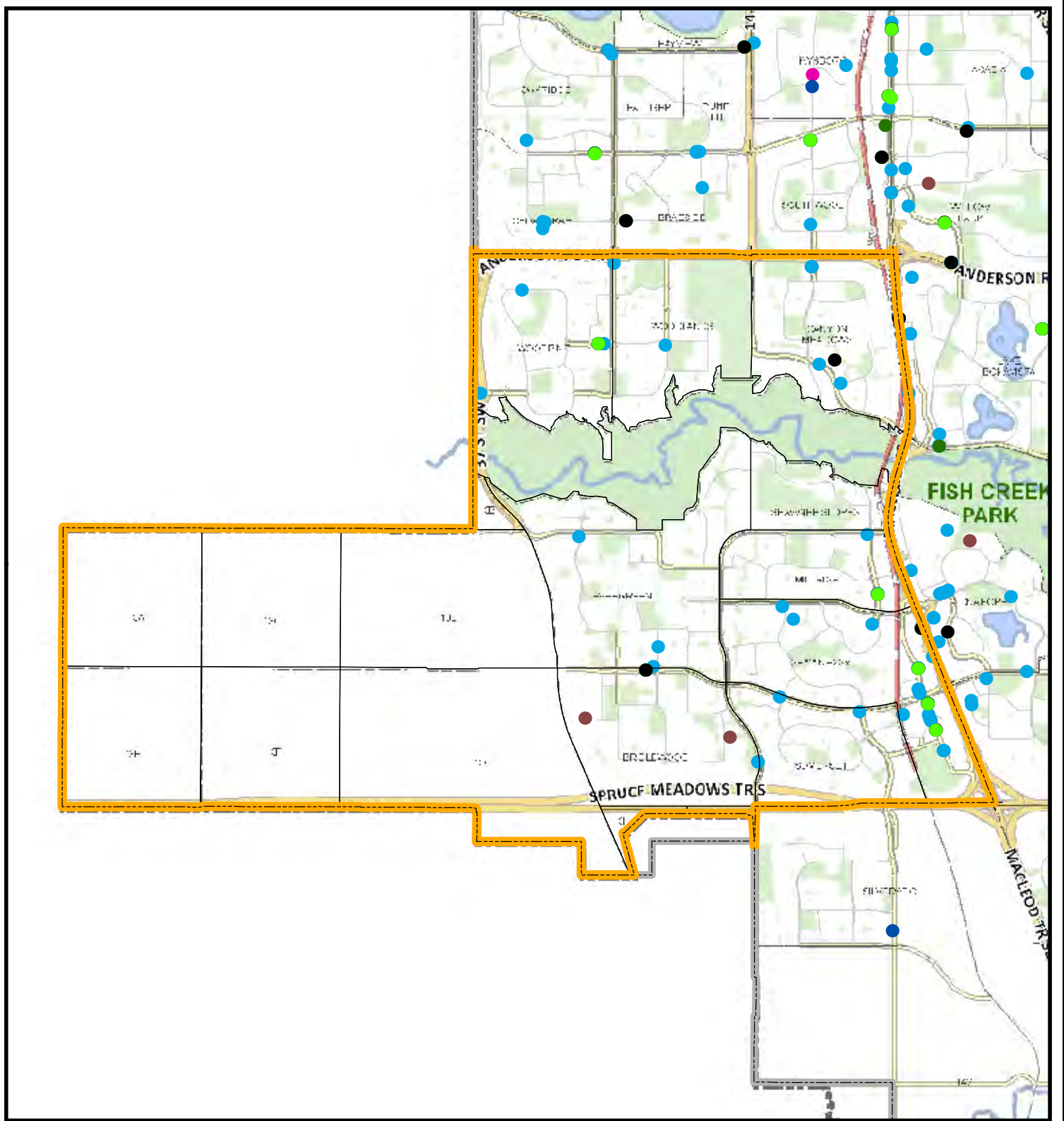
- Grocery Store ● Convenience Store
- Specialty Food ● Butcher
- Produce ● Bulk Food
- Market Vendor ● Bakery
- Deli WARD 12



Data: Alberta Health Services
Environmental Public Health database

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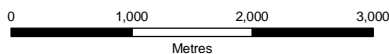
Date Printed: May 10, 2012



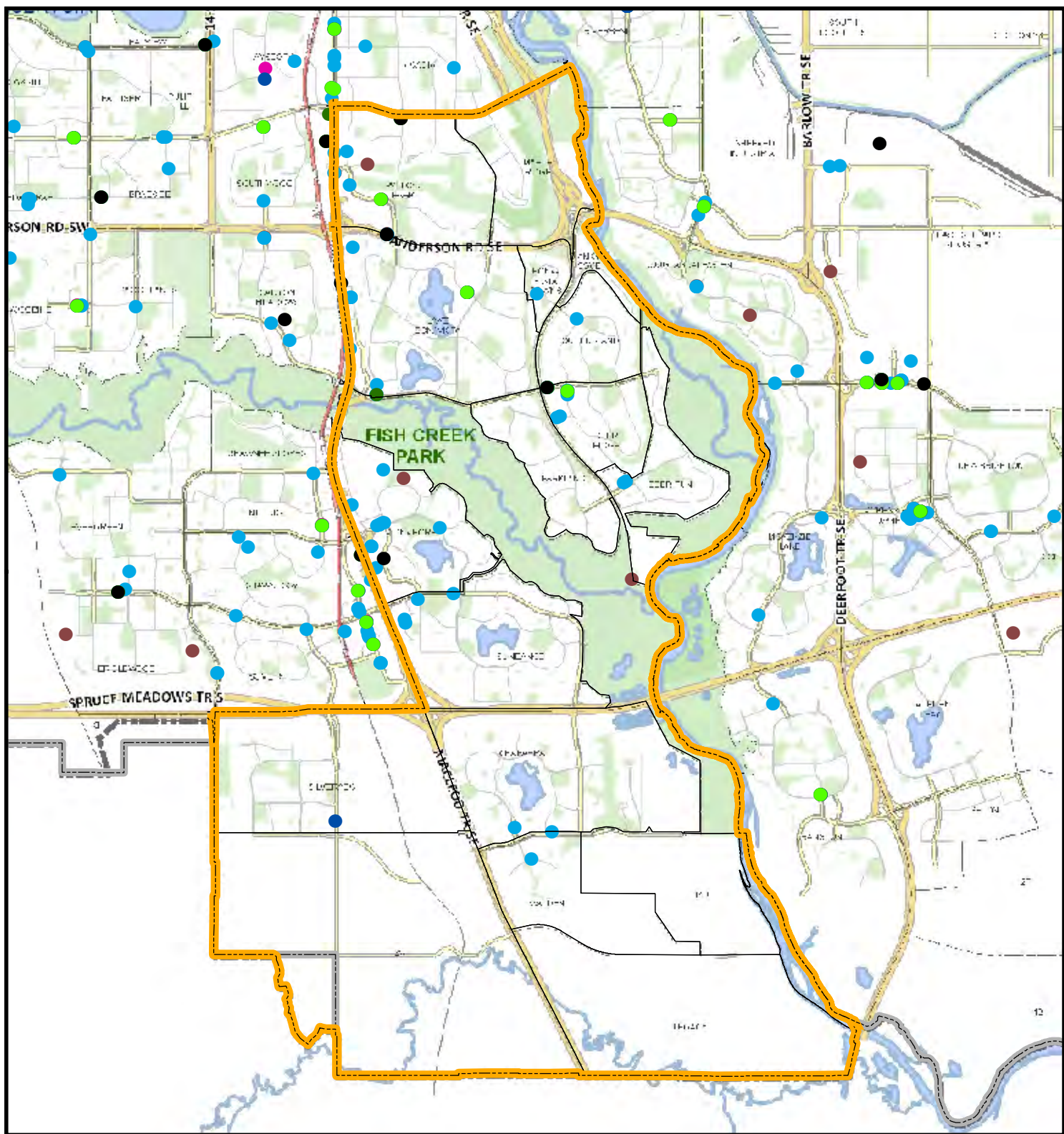
Map 7.32 - Food Retail Outlets by Type - Ward 13

Legend

- Grocery Store
- Convenience Store
- Specialty Food
- Produce
- Market Vendor
- Deli
- Butcher
- Bulk Food
- Bakery
- ▭ WARD 13



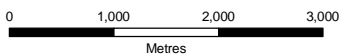
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Map 7.33 - Food Retail Outlets by Type - Ward 14

Legend

- Grocery Store ● Convenience Store
- Specialty Food ● Butcher
- Produce ● Bulk Food
- Market Vendor ● Bakery
- Deli ● WARD 14



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Data: Alberta Health Services
 Environmental Public Health database

Date Printed: May 10, 2012



8.0 CONSUMPTION

8.1 CONTEXT

This section provides baseline information, including context, issues and opportunities for consumption in the Calgary food system. This refers to the act of consumption and enjoyment of food, which can include food-related events and eating in both the public and private realms. Being able to select, prepare and cook minimally processed food from low in the food chain enables families to enjoy making healthy food choices, achieve good nutritional value for money, increase control over what they eat, understand where food comes from, begin to appreciate the important role of food producers in our society and contribute to protecting the environment. Preparing and sharing food also plays an important role in developing family and community relationships.

Food eating establishments in Calgary can be categorised into the following facilities:

- Restaurants
- Bars
- Caterers
- Delis
- Snack Bars
- Convenience store
- Institutional kitchen
- Community/church kitchen

This categorisation has been based upon the data sources available, which include an Active Facility Listing Report (as of January 2012) from the AHS 'Environmental and Public Health Database' used for the purpose of Health Inspections. The list does not include some specialised food files such as mobile food vendors or facilities that are under the federal jurisdiction for inspection. In addition to the food eating establishments above, this chapter also discusses the consumption of food in homes and in public places such as festivals and street food or vending machines.

Figure 8.1 outlines where the facilities from the AHS Active Facility Listing Report are located within the city and Figures 8.2 – 8.15 indicate where these facilities are located within each ward. It should be noted that, in some cases, one location has multiple facilities e.g. Chinook Centre. Where this is the case, only one point will be identified albeit there may be additional facilities of different types.

8.2 RESTAURANTS, BARS & CATERERS

Table 8.1 outlines the total number of food eating establishments within Calgary.

TABLE 8.1: TOTAL NUMBER OF FOOD EATING ESTABLISHMENTS IN CALGARY

Facility	Number of Facilities in Calgary ¹
Restaurants	4223
Bars	186
Caterers	91
Delis	81
Snack Bars	154
Convenience Stores	1072
Institutional Kitchens	647
Community/Church Kitchen	128

¹Based upon Active Facility Listing Report (as of January 2012) from the AHS 'Environmental and Public Health Database'



It should be noted that this data does include some duplication where for instance a bar and a restaurant for one property are listed as two separate files. In addition, all Community/Church Kitchens have been listed, however many of these kitchen facilities will not provide publicly available food preparation services. Table 8.2 identifies restaurant facilities from this data set with ten or more establishments located within Calgary and provides the number of these establishments. This shows that 44 restaurant franchises have ten or more establishments in Calgary, totalling 1104 of 4223 restaurants (over 26%).

This does not represent the significant number of franchises with more than one but less than ten establishments in Calgary that have not been included within Table 8.2. The data demonstrates that Calgary is a highly franchised city where national chains and associated policies and objectives are influential in the local food system and form a dominant section of the consumer market.

TABLE 8.2: RESTAURANTS WITH TEN OR MORE ESTABLISHMENTS IN CALGARY

Facility Name	Number of Establishments in Calgary ¹	Facility Name	Number of Establishments in Calgary ¹
7-11 Inc.	43	Mcmahon Stadium	26
A&W Food Service of Canada	40	Mr Sub	14
AFC Sushi	12	Opa Souvlaki	20
Arby's	10	Original Joe's	13
Bento Sushi	10	Panago Pizza	13
Booster Juice	18	Papa John's Pizza	11
Boston Pizza	25	Pizza 73	22
Canadian Pizza Unlimited	13	Pizza Hut	17
Chicago Deep Dish Pizza	14	Quiznos Subs	22
Dairy Queen	34	Ricky's All Day Grill	10
Domino's Pizza	16	Royal Canadian Legion	16
Earl's Restaurant	12	Scotiabank Saddledome	57
Edo Japan	22	Second Cup	30
Good Earth	22	Starbucks	74
Humpty's Family Restaurant	10	Subway Sandwiches & Salads	115
Jugo Juice	45	Swiss Chalet	11
KFC	21	Taco Time	22
Little Caesars Pizza	14	Thai Express	11
M&M Meat Shops	12	The Extreme Pita	16
Mac's Convenience Store	36	Tim Hortons	80
Marble Slab Creamery	11	Wendys	25
McDonald's Restaurant	39		

¹Based upon Active Facility Listing Report (as of January 2012) from the AHS 'Environmental and Public Health Database'

ETHNICITY CATERING

Story and photo courtesy of EthniCity Catering

EthniCity Catering is a distinctive type of social enterprise – a training business, operated by the Centre for Newcomers, that provides social integration services through a first-job experience for newcomers to Canada, primarily but not exclusively women. Immigrants who have not yet developed connections to social networks beyond their own cultural community, and who have had difficulty in entering the labour market because of language or cultural barriers, develop their communication and team-work skills, build their self-confidence, and connect to networks and resources in the wider community.

EthniCity Catering serves over 20,000 meals per year, providing Calgarians with high-quality, authentic multi-ethnic food, with menu items drawn from the traditional cuisines of the program’s participants. As a training business, EthniCity Catering “graduates” its employees as soon as they develop experience, and thus does not operate for profit; the program receives funding from the United Way of Calgary and Citizenship and Immigration Canada, in support of its purpose to reduce social isolation and enhance the social and economic integration of immigrants.



The social enterprise model allows the Centre to develop a program based on the needs of the clients, addressing the socio-economic sustainability of newcomer families. The business provides transitional employment to those with limited networks and little or no paid work experience in Canada, and thus breaks the cycle of "no Canadian work experience, no Canadian work." Participants in the EthniCity kitchen face a number of challenges, including limited English skills, lack of Canadian work experience, an unfamiliar culture, isolation and culture shock. While washing, chopping, kneading, shaping, cooking, and assembling the menu items, employees practice communication and teamwork skills appropriate to the Canadian workplace. One significant feature of the program is the strong connection that develops between participants from different countries, as they discover how each culture and individual is contributing to life in Canada. At the end of 10-12 weeks of part-time, regular employment, participants build on the connections and skills they have developed and move on to further employment, specialized training, or other opportunities.

8.2.1 Chefs

In 2011, Canadian chefs identified local, sustainable and healthy options as top of the list of menu trends in Canadian restaurants, Alberta included¹⁵⁸. Local, farm-branded and sustainable food products were also the top culinary themes in 2010. As a result, chefs and restaurant-goers are demanding more menu items from local sources. This movement may be the outcome of a number of underlying trends, from concern regarding environmental impact to belief that locally source foods deliver greater taste and freshness, to a desire to support the local economy.

However, sourcing local and sustainable food can be challenging for the Calgary chef. Stakeholder engagement clearly outlined that sourcing local ingredients can take significant amounts of time whilst at the same time small local businesses are burdened with taxes and regulations that impact already

¹⁵⁸ The Canadian Restaurant and Foodservices Association (2011) 2011 Canadian Chef Survey, conducted by independent market research firm BrandSpark International.



small profit margins, “*is it any wonder that Alberta is so dominated by chain-restaurants? They have economies of scale for their food supplies and have a chain-restaurant's advertising power to influence diners to a level that no independent can*” (stakeholder response, CalgaryEATS! January 2012). It was outlined that many local restaurants with a focus on local and sustainable food do not succeed because it is extremely hard on time and financial resources and the pay-off does not compare to that for the same commitment in other business. Community support by dining at restaurants and choosing items from menus which feature local and sustainably sourced food is a key way of enabling the local chef to support the local farmer and in turn a sustainable food system.

Despite these challenges, support for local business, arts and culture in Calgary is incredibly strong and continues to grow and this extends to the food scene, particularly in the downtown and surrounding urban core communities.

It is primarily these areas that are home to an increasing number of independent restaurants and chefs often featuring local and seasonal produce, incorporating their own herb and organic vegetable gardens and considering the sustainable impact of their menus and operations.

These are all elements used to promote each venue and from which success can be attributed. This is further supported by the recent progression of standards for the food service industry. One example is LEAF,¹⁵⁹ a third party certification created based on a need for a standardized method of evaluating a restaurant's environmental impact. SAIT Polytechnic School of Hospitality and Tourism became LEAF-certified in March 2012.

Diverse approaches to the traditional restaurant are also increasing in Calgary including the establishment of the Food Trucks¹⁶⁰ pilot program featuring as part of the headliner to The Food Network's EAT St. season-opener. This initiative was the result of a collaborative effort between vendors, various Business Revitalization Zones, The City of Calgary and many enthusiasts, addressing regulation barriers to allow this form of street food within areas of Calgary. Pop-up restaurants are another alternative restaurant experience that have become a trend in some North American and UK cities to showcase chefs who don't have a restaurant or are unemployed in a temporary location such as an art gallery. Calgary's first pop-up restaurant, CharPop opened for three days this January by chefs who do have permanent locations but as an alternative way to showcase the dining scene in Calgary.

8.2.2 Tourism

Tourism is a \$70 billion industry and employs over 600,000 people in Canada¹⁶¹. In Alberta, receipts from full service restaurants have increased in Alberta over the past ten years from 4,470.5 million in 2001 to \$6,745.8 million in 2010¹⁶². Although this data is not available for Calgary, more specific to Calgary are the results from the 2010 Conference Board of Canada study estimating that \$283,542,000 was spent by visitors to the Calgary Metropolitan Area (CMA) on food & beverage in restaurants and bars. This figure is estimated to have risen by 9.2% in 2011.

This industry represents a key focus for Tourism Calgary¹⁶³ who organise specific initiatives incorporating the food and beverage industry. One such program is The Big Taste¹⁶⁴, held annually in March, which

¹⁵⁹ <http://www.leafme.ca/index.php?/main/certification>

¹⁶⁰ www.yycfoodtrucks.com

¹⁶¹ Hume (2010) The Local Food Revolution, Municipal Knowledge Series

¹⁶² Alberta Agriculture Statistics Yearbook (2010), Alberta Agriculture and Rural Development, Economics and Competitiveness Division, September 2011 Available at: <http://www.agric.gov.ab.ca/flippingbook/agdex/853-10/html/index.html#/8/zoomed>

¹⁶³ <http://www.visitcalgary.com/>

¹⁶⁴ <http://www.downtowncalgary.com/the-big-taste.html>



showcases over 100 Calgary restaurants through advertising campaigns for fixed price menus over an 11-day period. 2012 is also the first year for their regional dining campaign; intended to support hotels and restaurants during the August month by building celebrations and packages around 'Great Experiences'.

People are attracted to a city for the unique attributes and offerings it presents. As such, small independent chefs and restaurants and the produce they serve that is unique to the region are a draw. Culinary tourism is the merging of tourism and regional cuisine, promoting regional food as a vital component of the tourism experience. The Alberta Culinary Tourism Strategy¹⁶⁵ was completed in 2009 and outlines a variety of culinary tourism strategies from agri-tourism adventures with visits to bison farms, learning how to harvest artichokes or hands-on ranching techniques to be implemented and supported by the Alberta Culinary Tourism Alliance. These are based on an existing range of successful programs delivered through such groups as Dine Alberta, ChompAroundAlberta.com and Growing Alberta. In April 2012, Tourism Calgary and partners hosted Calgary Night Out at Canada Media Market in San Francisco, a show hosted by the Canadian Tourism Commission to feature some of Calgary top chefs and artists showcasing this growing attraction in Calgary¹⁶⁶.

There is also significant local and regional media attention around food and restaurants in Calgary from Avenue magazine's 2012 Avenue Calgary Dining Guide, to book publications such as Foodshed, *An Edible Alberta Alphabet* (2012) by dee Hobsbawn-Smith and features of Calgary's Orchard Pilot in *Food and The City* (2012) by Jennifer Cockrall-King.

8.3 INSTITUTIONS

There are several major institutions within Calgary including municipal and provincial government offices, approximately 519 schools¹⁶⁷, 7 major hospitals or care centres, many long term care facilities, several post secondary institutions and multiple day cares.

This represents a significant opportunity for Calgary institutions to provide a consistent demand for local or sustainably sourced production. *Farm to Cafeteria Canada* is an emerging national network supporting and linking Farm to Cafeteria policy, practice and programs with the goal of 'increasing access to fresh, nutritious, locally and sustainably produced foods in public agencies'. *Growing Food Security In Alberta*¹⁶⁸ is creating a list of institutions in Alberta who are contemplating 'farm to cafeteria' approaches to their food services.

However, although an interest by large-volume and institutional purchasers in local procurement represents a significant business opportunity for local producers, they keep historical criteria such as cost, quality and delivery logistics as key determinates of purchasing and many barriers exist:

- A great number of larger-volume and institutional purchasers source product through wholesale distributors;
- Smaller producers typically cannot meet the minimum order (volume) and continuity of supply that wholesale distributors can;

¹⁶⁵[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/explore13590/\\$FILE/CulinaryTourismStrategyExecutiveSummary.pdf](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/explore13590/$FILE/CulinaryTourismStrategyExecutiveSummary.pdf)

¹⁶⁶ http://www.visitcalgary.com/sites/default/files/calgary_media_kit.pdf

¹⁶⁷ Calgary Board of Education website: <http://www.cbe.ab.ca/media/facts.asp#numschls> and Calgary Separate School Board http://www.cssd.ab.ca/default.asp?V_ITEM_ID=263

¹⁶⁸ <http://www.foodsecurityalberta.org/>



- Typically, it is not feasible for larger-volume and institutional purchasers to do business outside of their current streamlined, supply chain model as most larger-volume buyers do not have the capacity to receive multiple deliveries of product from individual suppliers throughout the week or to manage receipt and payment of multiple invoices from various individual producers. Another complicating factor is that many institutional buyers receive bonuses and rebates create a disincentive to purchase outside of their standard contracts.

The national Farm to Cafeteria group has designed a questionnaire as part of a survey that will be administered throughout Spring/Summer 2012 with interested institutions across Canada. Collaboration between the Calgary institutions in exploring this and understanding approaches to address the identified issues would be valuable.

There are also recent initiatives in Calgary associated with vending machines, which look to distribute more healthy, organic and also local produce in line with AHS's guidelines for child and youth nutrition. Schools and other facilities are sourcing healthy vending options from a variety of vending companies for example City Coin, Mr Vend It, Vendex Vending, h.u.m.a.n etc.

CHILD CARE & THE FOOD SYSTEM

The child care sector ranges from private, non-profit, to corporate, for-profit day cares, day homes, preschools, and out of school care (collectively called "child cares" for the purpose of this assessment). Child cares offer meals and snacks to children and span both the Institutional Food Service Sector (where minimizing cost is a reality for some) and the Community Food Sector (where facilities may be primarily non-profit and focus on social community benefits). Some child cares could also be considered as a part of the Charitable Food Sector, as those with financial constraints could benefit from free and/or low-cost meals.

According to June 2011 statistics from Alberta Children and Youth Services, there are 680 licensed child care programs in Calgary and area, which represents 28,137 spaces for children ages 0-4 years. Almost 50 % of Canadian children (6 months – 5 yrs) are supervised in non-parental child care programs. The trend shows an increasing number of children from households with lower income levels using child care for longer periods of time.

Therefore, child cares represent a huge opportunity for engaging families and young children about a sustainable food system. Further, the preschool years are a critical period of growth and a key time for the development of healthy eating habits. The child care setting provides a unique opportunity to shape sustainable eating habits and practices of Calgarians and some Calgary child care providers have expressed interest in providing healthful environments. Alberta Health Services is leading a Healthy Eating Environments in Child Cares Initiative, which presents a potential opportunity to collaborate.

EARTHBOXES AT MCKENZIE LAKE SCHOOL

Story and photo courtesy of Janet Henderson

McKenzie Lake School, in SE Calgary has 550 students from kindergarten to Grade 4. In 2010, a volunteer committee consisting of the vice-principal, teachers, health care providers and parents implemented an *EarthBox* program to teach the students and their families about healthy eating choices and wellness.

EarthBoxes are self-contained gardening systems that enable children to grow, prepare and eat tasty fruits and vegetables. 25 boxes, one for each classroom, were donated by Alberta Agriculture. Each classroom will plan their garden - from choosing the seeds, to deciding what they will do with their harvest. *EarthBoxes* fit within all grade levels of the school curriculum. The nutrition component addresses obesity and teaches healthy eating.



The horticulture skills teach children where their food comes from and the importance of buying local and thinking global. The entrepreneurial skills teach team building, marketing, and selling skills that prepares them for the work force. The students at McKenzie Lake plan to grow herbs to donate to the Food Bank and will document this project in their writing projects, photos and pictures.

From the Earthbox project sprung 2 years of healthy eating programming, frequent interactive presentations from Chefs, authors, growers and farmers. The school also works in partnership with local food businesses, equipment suppliers, farmers and hoteliers to expose students to healthy foods.

8.4 CELEBRATION OF FOOD

Food preparation and sharing offers the potential for a significant gain in the sense of community. It not only physically brings people together, often daily for family meals, but is also at the core of family occasions, cultural traditions, religious celebrations and community events.

Calgary has a high level of cultural diversity and its projected growth continues to be supported primarily through immigration. It is important for welcoming immigrants to provide the opportunity for these new residents to attain some comfort level quickly including, not only access to the local language and safe places to reside, but also foods that are familiar to them and may be part of their cultural heritage. Cultural diversity enriches the local food system. As minority groups grow, so does the business opportunity to serve diverse food tastes and these new businesses help to strengthen the local community and often offer an early foothold for the establishment of that culture in the community. Sharing and experiencing traditional foods from diverse cultures can help to break down barriers and support a sense of community.

Festivals and events which either celebrate food specifically or where food is a focus provide support to a vibrant city community and also act as an attractor to visitors and tourists. There is a growing recognition of the value of these events globally, from the Maine Lobster Festival to Melbourne Food and Wine festival or Taste of Chicago. In 2010 at Paris Nature Capitale, street artist Gad Weil closed the Champs Elysees to traffic and overnight coordinated delivery of 150,000 plants and 8,000 plots of earth for International Day of Biodiversity. The event was staged to remind Parisians that their food does not



come from the Grocery store shelves but from farms and it attracted 1.9million people. Calgary has one of the most famous agricultural shows worldwide, an attraction for international tourists, locals and also Royal Visitors in 2011. The Stampede is based on the celebration of Calgary’s agricultural roots and the importance of livestock and food in the development of western Canada. It also presents education opportunities for schools and families, year round such as Aggie Days and The Cattle Trail, a live animal display of beef cattle, enhanced by informative and engaging displays about the industry and the production program.

In October 2011, Calgary was designated as Cultural Capital of Canada for 2012. The goals of Calgary 2012 are to raise awareness of the richness of Calgary’s cultural assets, empower cultural celebration and participation in every community in Calgary, to build a stronger sense of identity and have local and national impact¹⁶⁹. This will include three major events throughout the year and in demonstration of the power of food to cultural celebration, one of these events will be a Harvest Festival over the Thanksgiving weekend; inviting all Calgarians to bring their own cultural traditions together.

There are a significant number of other festivals within Calgary celebrating food and examples are outlined within Table 8.3 (Note: this list is not exhaustive). Municipalities may contribute financially or offer civic facilities at little or no charge but there is little consistency across municipalities in terms of policies and procedures.

TABLE 8.3: EXAMPLES OF CALGARY FESTIVALS INVOLVING THE CELEBRATION OF FOOD

Festival	Month	Overview	Further Information
Taste of Calgary	August	An outdoor festival of global and local cuisine with local vendors in its 15th year at Eau Claire's Festival Plaza.	www.tasteofcalgary.com/
Calgary International BeerFest	May	Beer sampling with over 200 different types of beer combined with sample foods and Beer seminars featuring many local breweries and distributors such as Big Rock, Wild Rose Brewery, Brewsters.	www.get-a-life.ca/calgary-beerfest/
Marda Gras	August	New Orleans-themed Marda Gras Street Festival featuring the cuisine of New Orleans, complete with music, street level vendors, entertainers and cultural performers. www.mardaloopbrz.ca/index.php?option=com_content&view=article&id=51&Itemid=65	
Sun & Salsa Festival	July	Kensington businesses serve up over 500 gallons of 40 different salsas for the salsa tasting competition, supported by bands, vendors, dancers and activities.	www.visitkensington.com/sun-and-salsa/
Chinatown Street Festival	August	A combination of Food & Merchant Booth Tents and Entertainment featured on the Main Stage in the heart of Chinatown.	www.chinatowncalgary.com/ccma/
Taste of Jamaica	April	Each year, the Jamaican Canadian Association of Alberta proudly presents Taste of Jamaica, a fun-filled cultural expose featuring Jamaican food and lots of activity for the entire family at Thorncliffe Greenview Community Centre	www.jcaalberta.com/index.htm
Calgary	June	showcases Ukrainian arts, cuisine, and entertainment and	www.calgaryu

¹⁶⁹ <http://www.calgary2012.com/>



Festival	Month	Overview	Further Information
Ukrainian Festival		culture while highlighting true Ukrainian hospitality” based around dance and performance this also features cultural cuisine	krainianfestival.ca
imaginASIAN festival	May	Celebrates Asian Heritage Month since 2001 features film series, community events, bus tours and a wrap-up Gala where food is a critical item of the cultural events.	www.asianheritagecalgary.ca
Carifest	June	Showcases the arts and culture of the Caribbean. variety of events are scheduled including a carnival parade, food tastings, music and dance performances	www.carifestcalgary.com
Calgary Greek Festival	June	at the Hellenic Community Centre This festival, like ancient rite, is characterised by music, dance, athletic competitions, wine and, of course, food and therefore features homemade traditional greek dishes such as souvlaki, dolmades and arni souvla	http://calgaryhellenic.com/greek-festival
Calgary Turkish Festival	July	a full list of the flavours and dishes of turkey from Baklava to Turkish coffee in your “fincan” (finjan), is very small, similar to espresso cups, from the "cezve" (jazva) has a wide bottom, a narrow neck, and a long handle	www.calgaryturkishfestival.com/
Afrikaday!	August	Celebrating African culture for over the 20 years with events at various venues throughout the week, featuring African music, crafts and food.	www.afrikaday.com/
Garden Party and Village Festival	August	Held by the Brentwood Community Gardening Group this event strengthens neighbourly ties while highlighting for Brentwood residents many of the resources available.	http://brentwoodgardening.blogspot.ca/

8.5 SUMMARY

Calgary is home to a significant number of eating establishments. 44 restaurant franchises have ten or more establishments in Calgary, totalling 1104 of the 4223 restaurants (+26%). Calgary is a highly franchised city where national chains and their associated policies and practices are influential in the local food system and a dominant section of the consumer market.

Canadian Chefs identified ‘local’, ‘sustainable’ and ‘healthy options’ the top list of menu trends in 2011, as well as being the top culinary themes in 2010. As a result, chefs and restaurant goers are demanding more menu items from local sources. This movement may be the outcome of a number of underlying trends, from concern regarding environmental impact to belief that locally sourced foods deliver greater taste and freshness, to a desire to support the local economy.

Tourism plays a significant role within Alberta. While data is not available for Calgary, it is estimated that \$283,542,000 was spent by visitors to the Calgary Metropolitan Area on food and beverage in restaurants and bars and that figure is estimated to have risen by 9.2% in 2011.



TABLE 8.4: CONSUMPTION SUMMARY

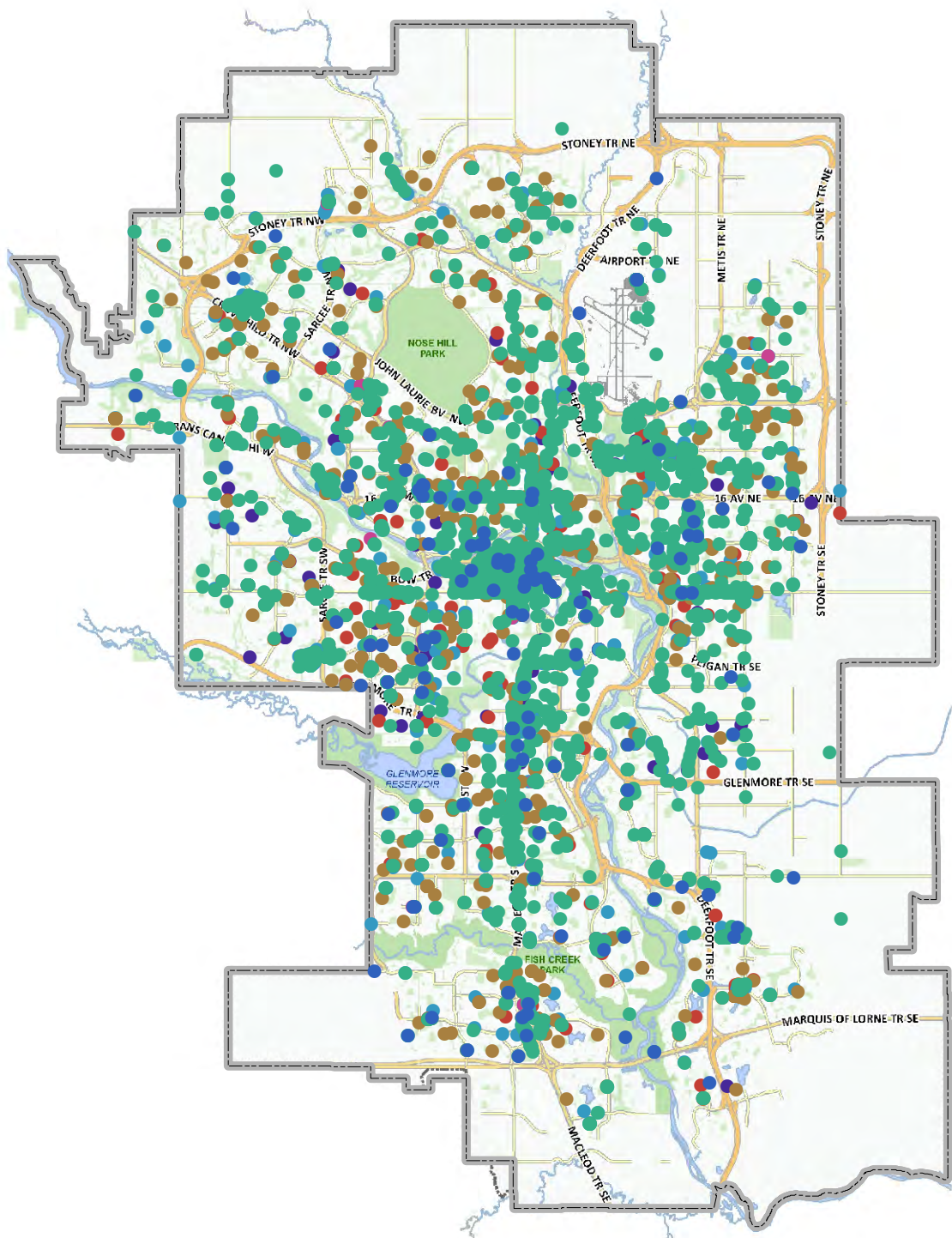
Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	Few Calgary institutions have incorporated policies or standards to address sustainable food within their procurement process.	The food procured, prepared and consumed at Calgary institutions e.g. universities, schools, government buildings, hospitals etc. presents a large opportunity for the Calgary food system. Initiatives like 'Farm to Cafeteria' exist to support and explore the potential for institutions to increase access to locally and sustainably sourced food. Other initiatives include h.u.m.a.n. healthy vending machines in schools etc;	<p>The City and County of San Francisco Department of Public Health passed several resolutions regarding the incorporation of sustainable food considerations:</p> <ul style="list-style-type: none"> • The Healthy and Sustainable Foods Policy and resolution (2006) in recognition of the important health benefits of sustainable foods. The policy included departmental nutrition, environmental and social justice standards for food at meetings and events, as well as methods for incorporating sustainable food procurement practices at institutions, San Francisco General and Laguna Honda Hospital. • The Foie Gras Resolution (2009) which commends restaurants that have removed foie gras from their menus. • The Healthy Food & Beverage Options in Vending Machines policy (2010) instructs departments to meet specific nutritional standards for all vending machines. • The Soda Free Summer Resolution (2010) 	<p>Collaborate with the Calgary institutions to explore farm to cafeteria approach to sourcing food.</p> <p>Develop/create a template or example of policy or procedure that Alberta municipalities can use to celebrate food and promote community collaborate, local food, healthy food etc.</p>
Planning and Land Use	Planning and land use policy and bylaws do not distinguish between different standards of food provision outlets.			
Transportation				
Environment				
Economic Development	There is no Restaurant Association in Calgary; this makes it more difficult for Tourism Calgary to connect with restaurants. Sourcing local and	There is strong support for local business, arts and culture and this extends to the food scene, particularly in the downtown and surrounding urban core communities. It is primarily these areas that are home to an increasing number of independent	The Township of Wellington North created 'The Butter Tart Trail' in celebration of the many small communities in their region that have a bakery that produces these iconic Canadian pastries – a CRINK economy.	Incorporation of information regarding 3 rd party certification such as LEAF for restaurants and food service providers within education programs.



	<p>sustainable food can be challenging for Calgary chefs, taking additional time and resources whilst burdened by taxes and regulations impacting the profit margin.</p> <p>A large number of institutional purchasers source products through wholesale and smaller producers often cannot meet the minimum order and continuity of supply to enter this market.</p>	<p>restaurants and chefs often featuring local and seasonal produce, incorporating their own herb and organic vegetable gardens and considering the sustainable impact of their menus and operations.</p> <p>There are a variety of emerging resources to connect chefs and institutions with local producers. The national Farm to Cafeteria group is exploring this issue and is conducting a survey in 2012 with interested institutions across Canada.</p> <p>Diverse approaches to traditional restaurants are increasing e.g. Food Trucks and Pop-up restaurants.</p> <p>There is recent development of standards for the food service industry e.g. LEAF, a third party certification created based on a need for a standardized method of evaluating a restaurant's environmental impact.</p> <p>Tourism Calgary organizes specific initiatives incorporating the food and beverage industry e.g. The Big Taste showcased over 100 Calgary restaurants and 2012 is the first year for their regional dining campaign. The Alberta Culinary Strategy was completed in 2009 and outlines a variety of culinary strategies from agri-tourism adventures.</p>		<p>Explore pop-up / pocket markets and more public market space to accommodate markets on city land.</p>
<p>Community and Social Programs</p>		<p>Calgary has been designated the Cultural Capital for 2012 and will include three major events throughout the year, one demonstrating the importance of food to cultural celebration; the Harvest Festival over the Thanksgiving weekend.</p>		<p>Springtime/ harvest festival school education programs</p>
<p>Education Programs</p>	<p>There is currently a lack of awareness within the general public regarding seasonal and local food when eating.</p>			<p>Educate consumers to ask questions about the food service, standards, ingredients origin etc.</p> <p>Develop a Calgary Seasonal Food Calendar to educate people about what is 'in</p>



				<p>season' locally.</p> <p>Complete a cost benefit analysis for consumers to see the benefit of local and/or sustainable food.</p> <p>Explore celebrity chef opportunities to help showcase local products.</p> <p>Provide funding/grants to develop curriculum related lesson plans for teachers and funding/grants for school field trips for farm visits.</p>
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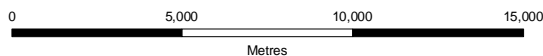


Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Snack Bar/Refreshment Stand
- Restaurant

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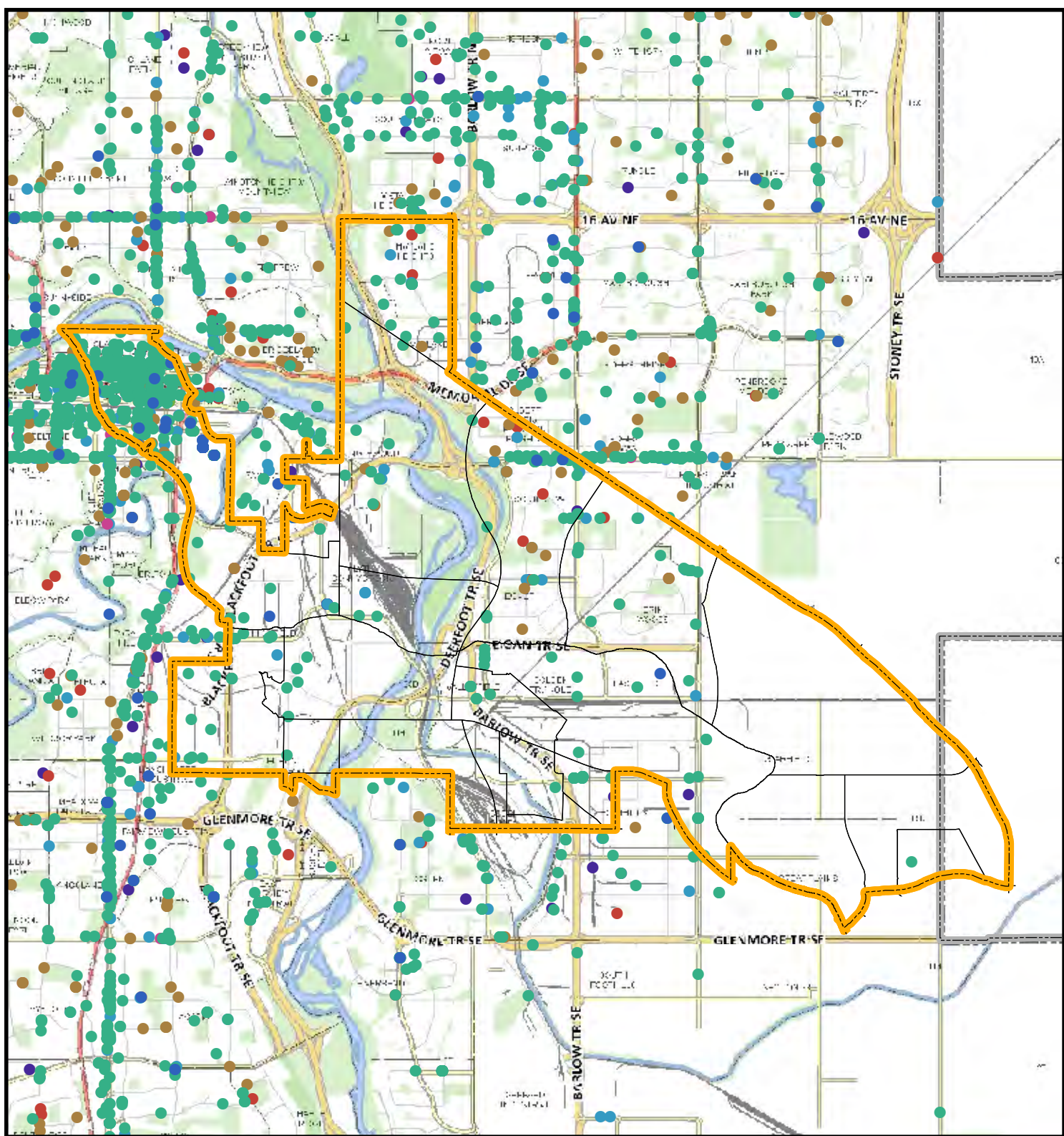
Map 8.1 - Food Consumption Locations by Type



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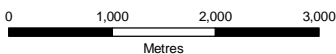
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- ▭ WARD 1

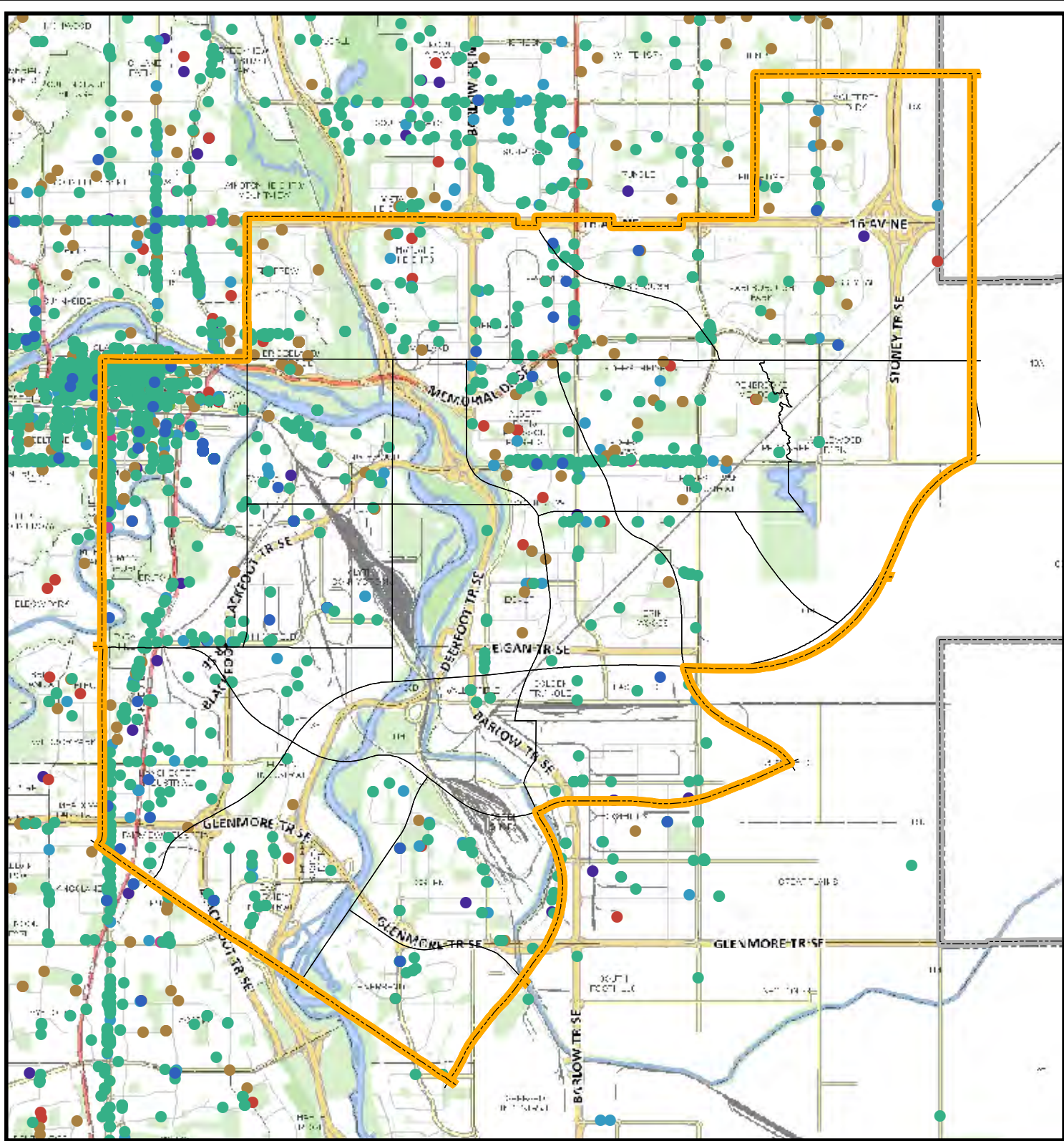
Map 8.2 - Food Consumption Locations by Type - Ward 1



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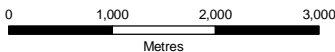
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 2

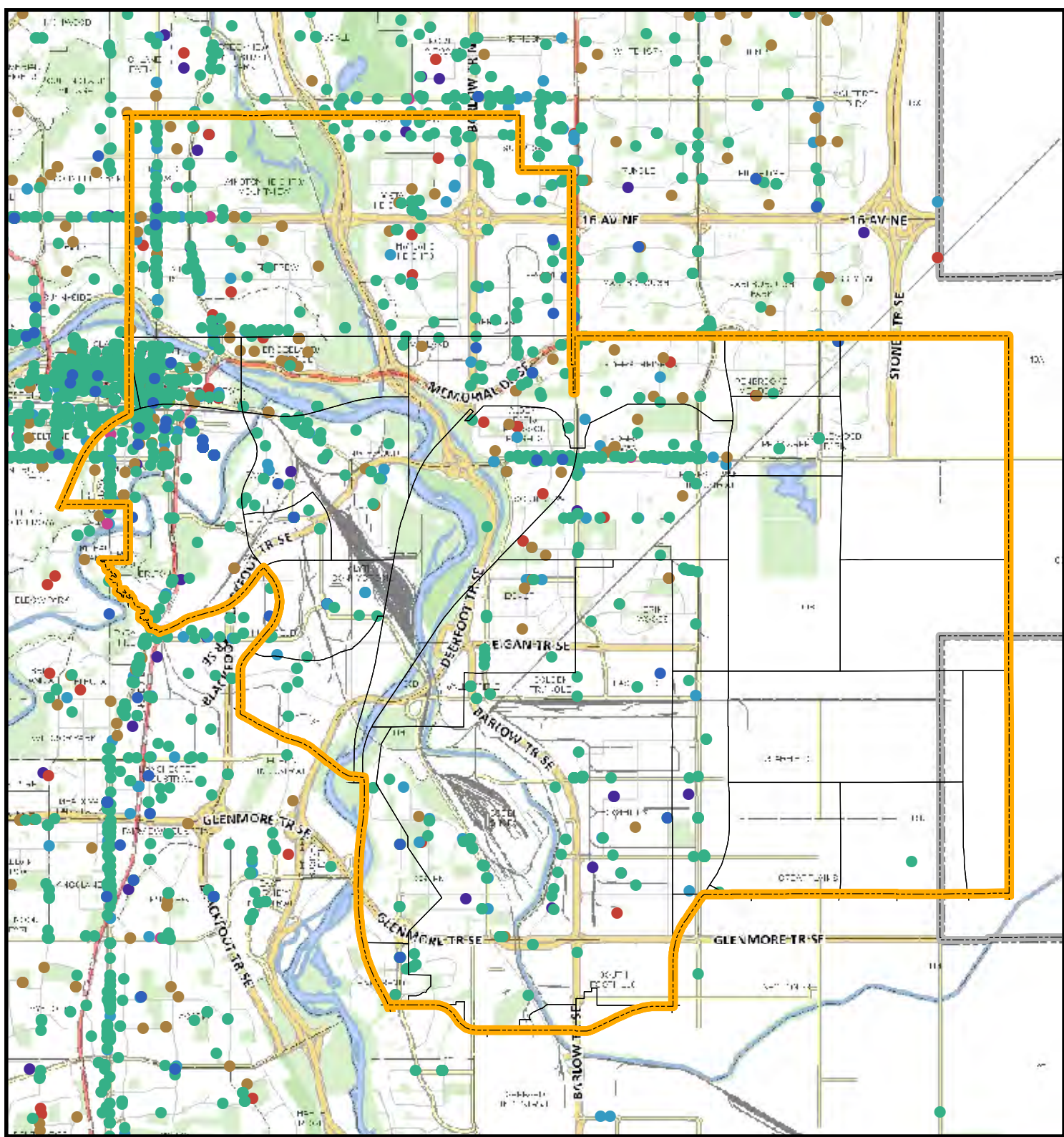
Map 8.3 - Food Consumption Locations by Type - Ward 2



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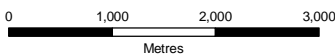
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 3

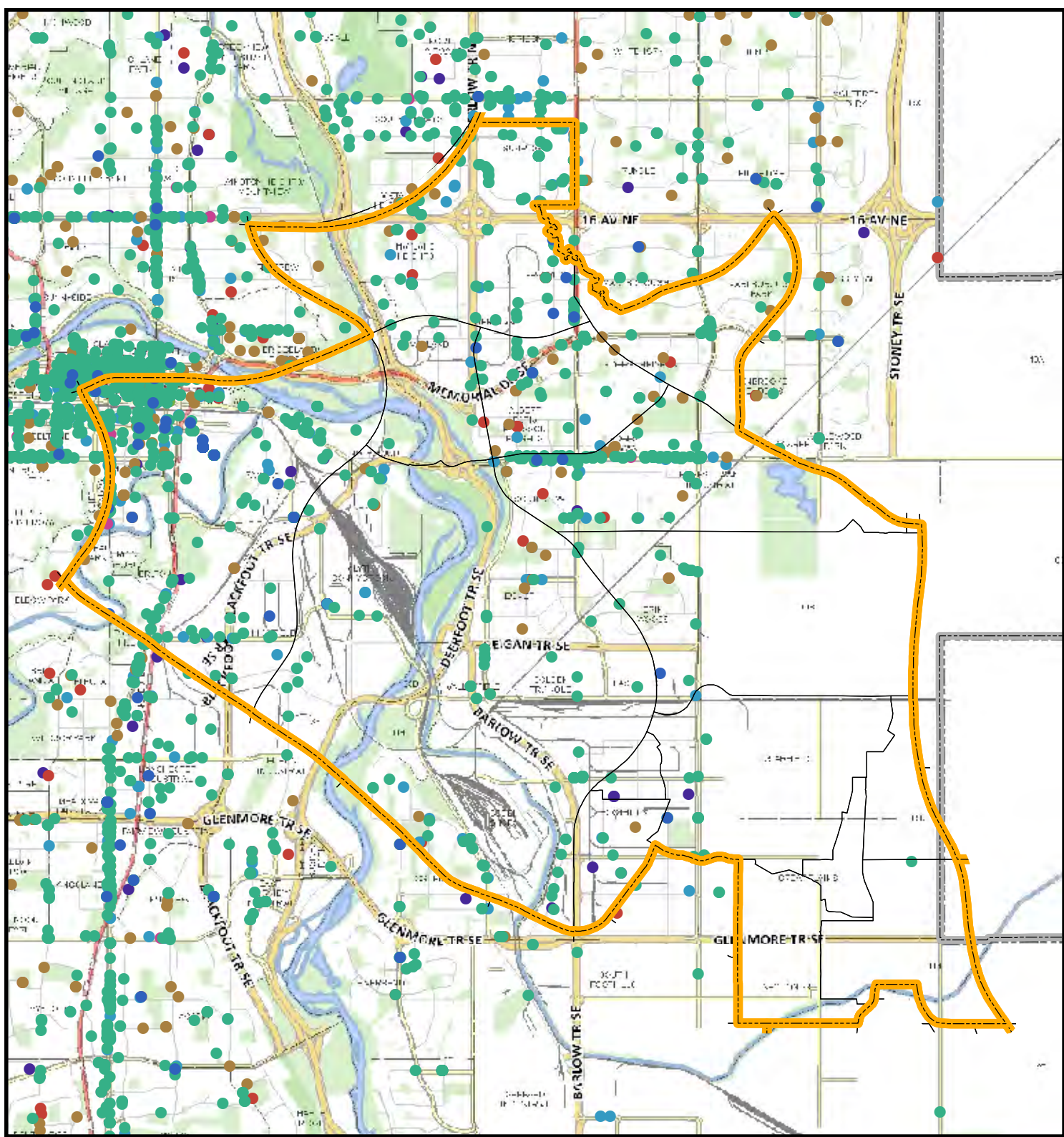
Map 8.4 - Food Consumption Locations by Type - Ward 3



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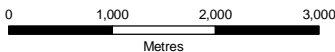
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 4

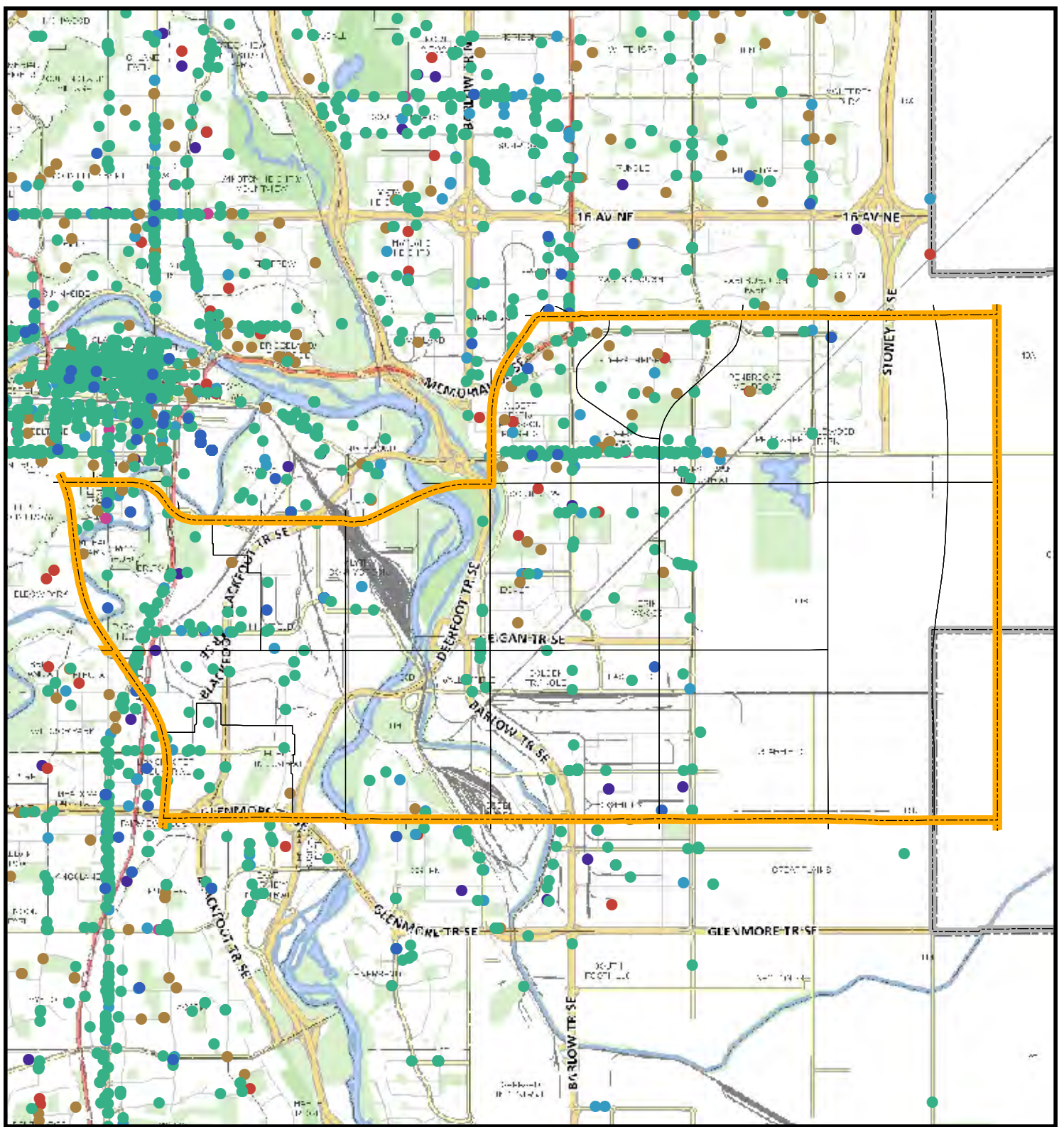
Map 8.5 - Food Consumption Locations by Type - Ward 4



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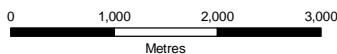
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 5

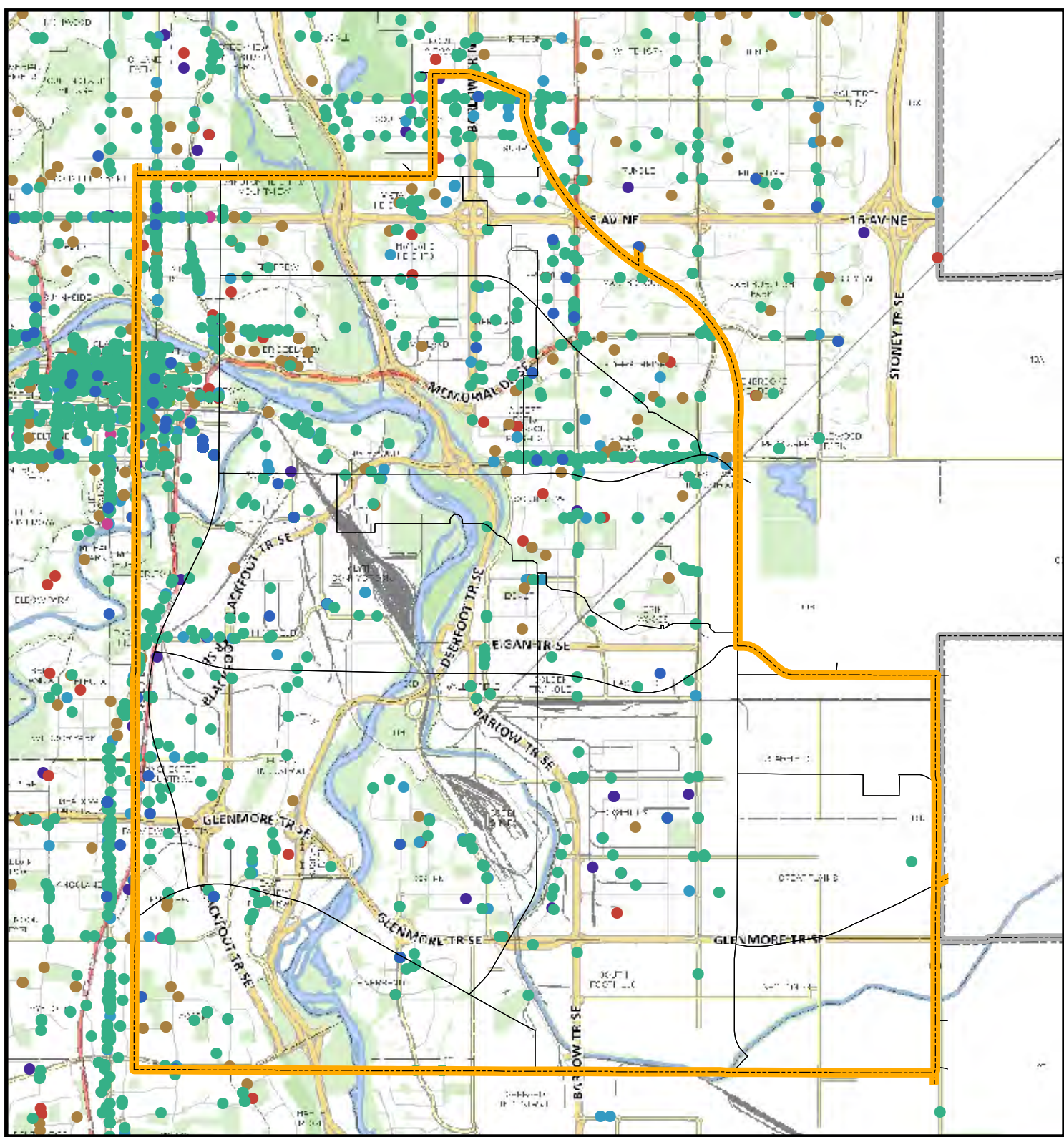
Map 8.6 - Food Consumption Locations by Type - Ward 5



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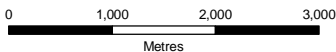
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 6

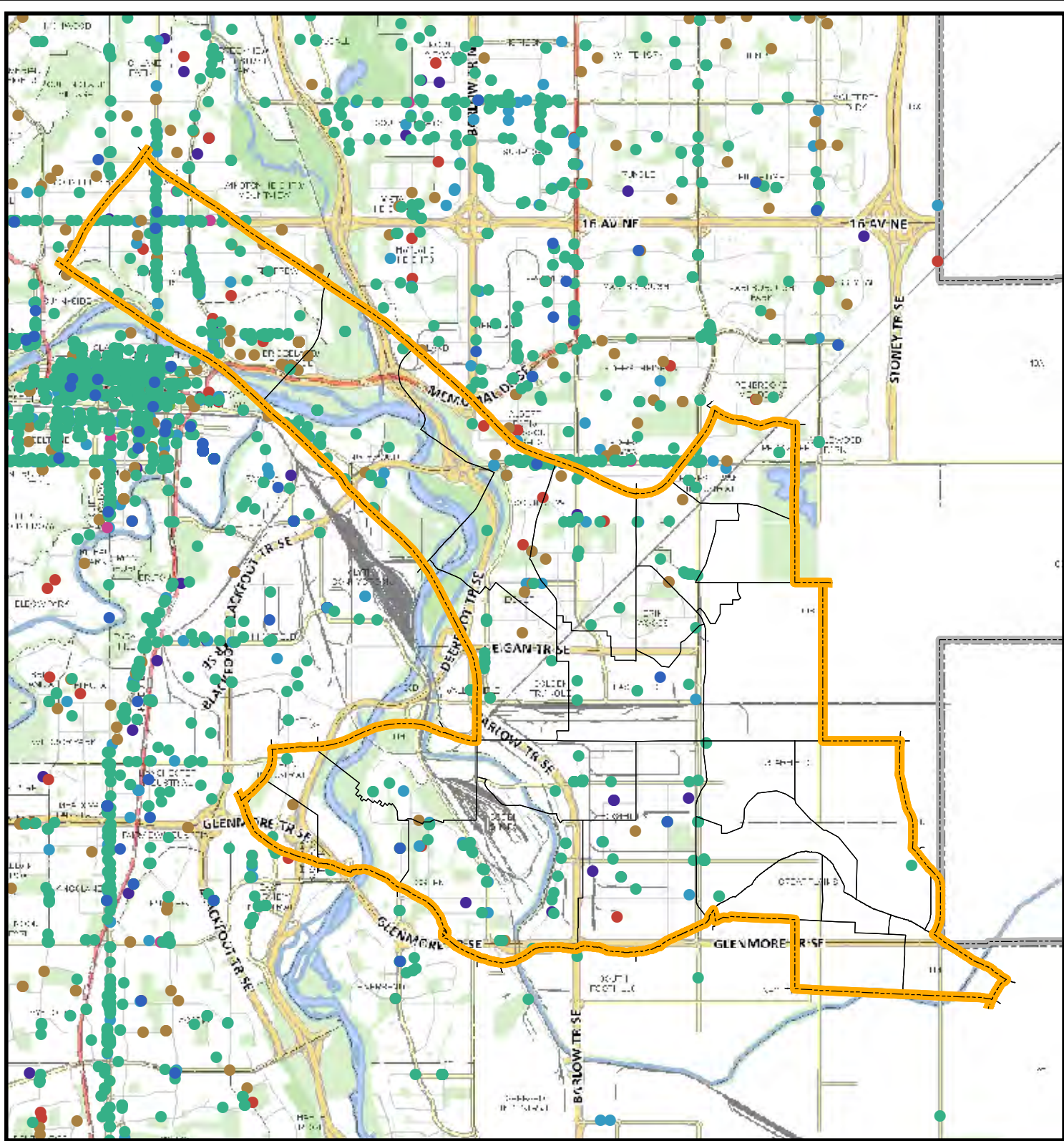
Map 8.7 - Food Consumption Locations by Type - Ward 6



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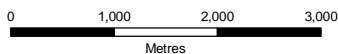
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 7

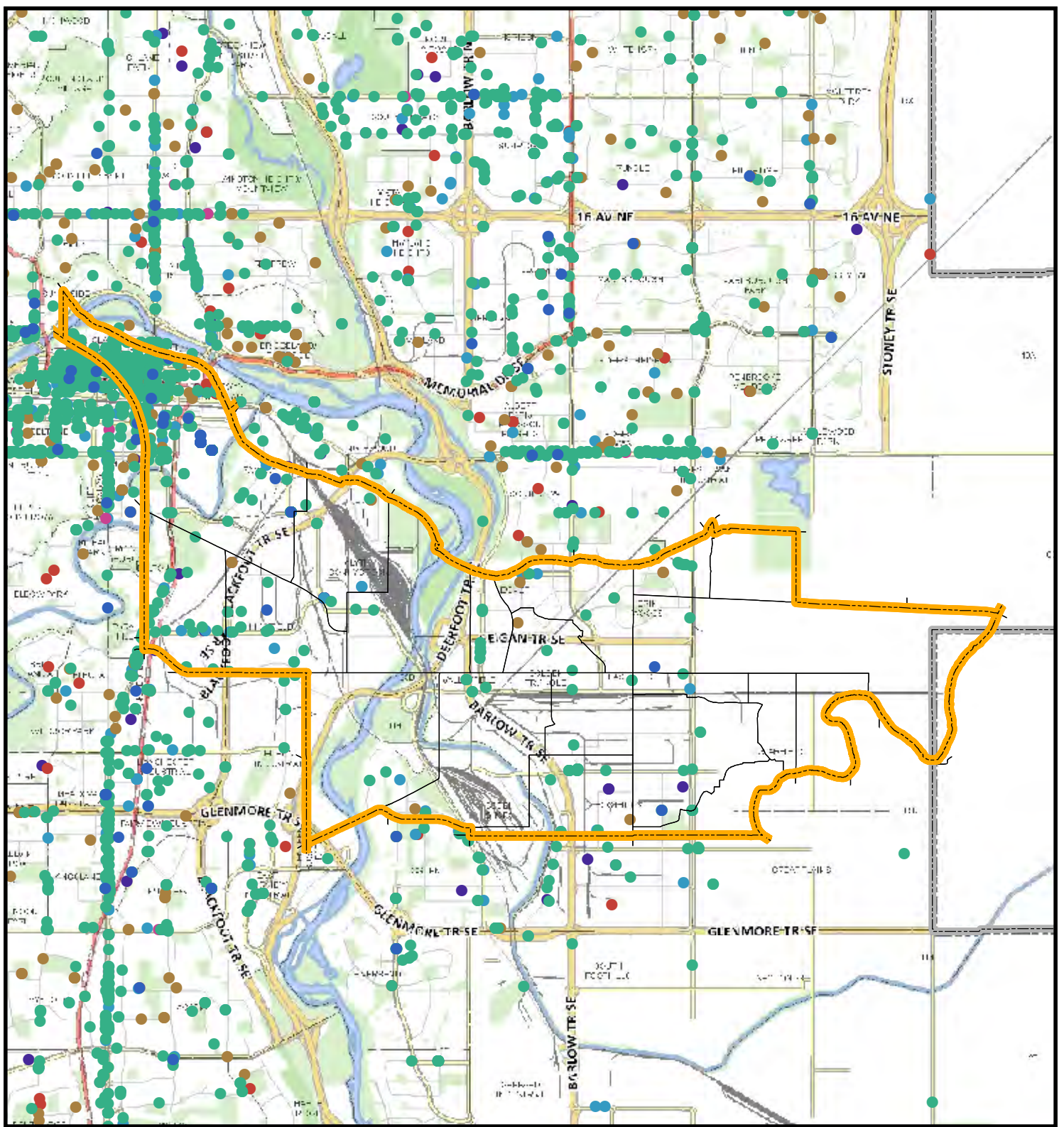
Map 8.8 - Food Consumption Locations by Type - Ward 7



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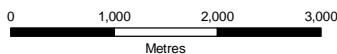
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 8

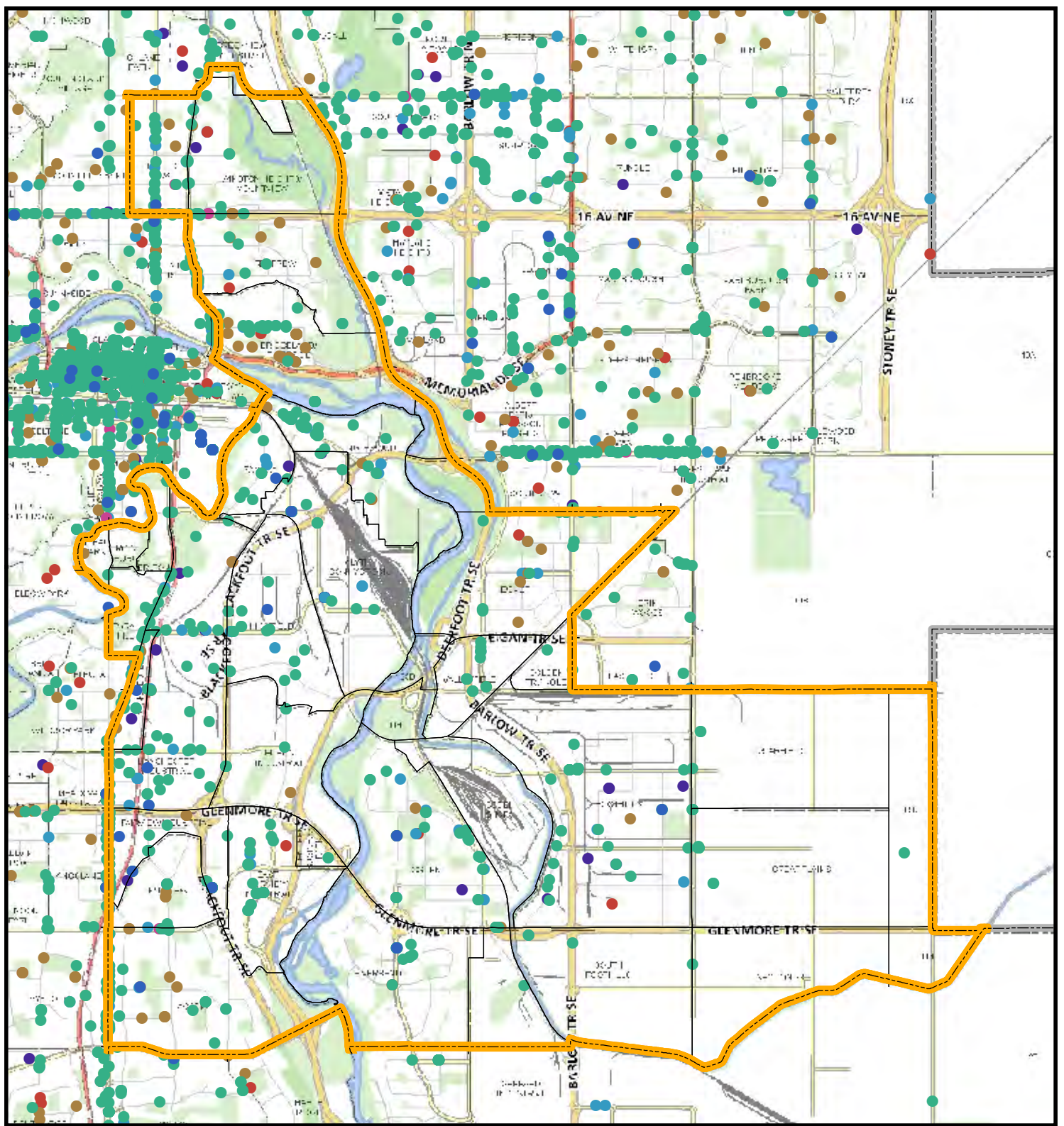
Map 8.9 - Food Consumption Locations by Type - Ward 8



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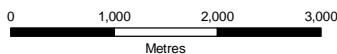


Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 9

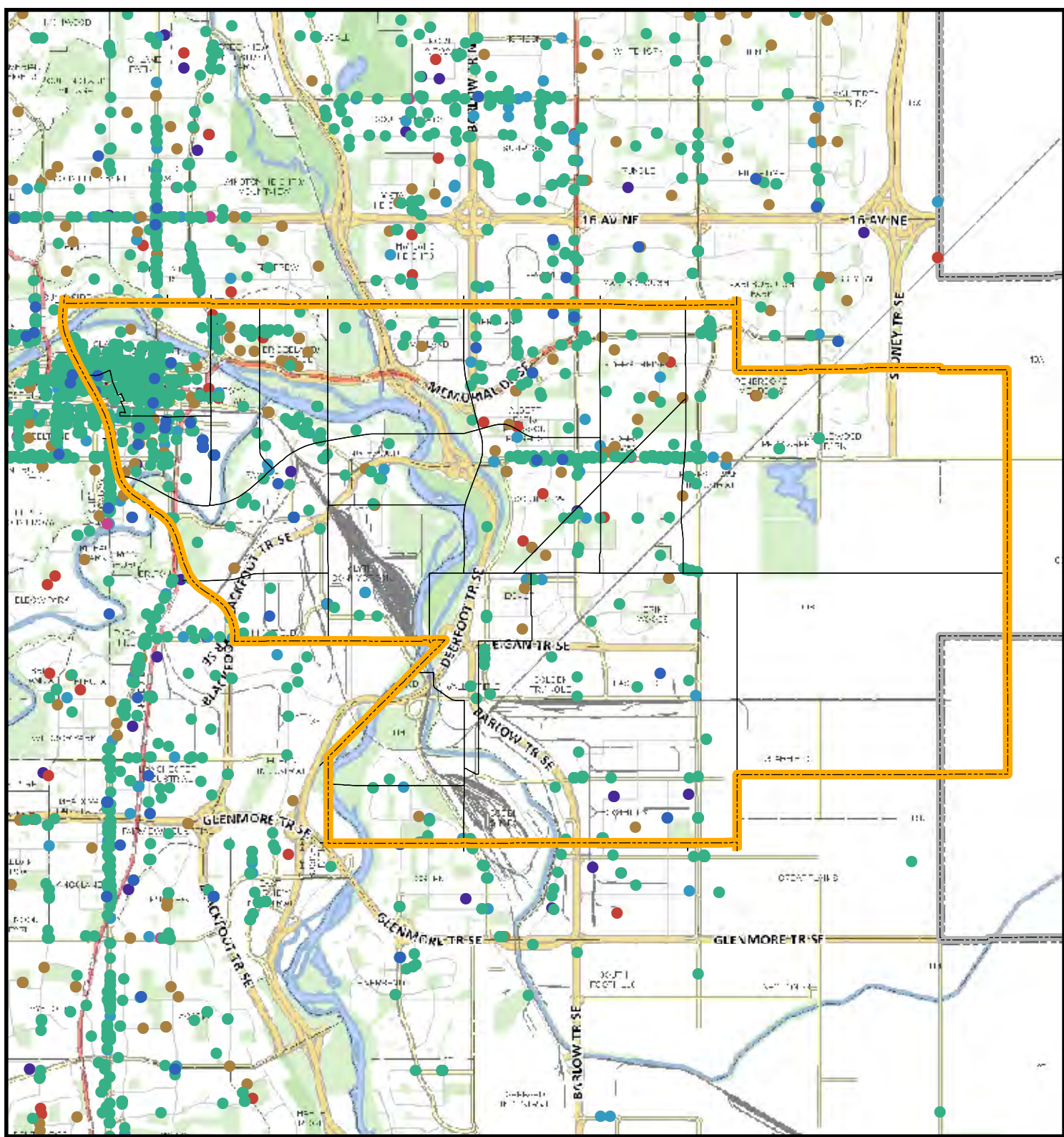
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Map 8.10 - Food Consumption Locations by Type - Ward 9



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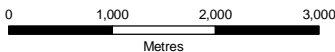
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 10

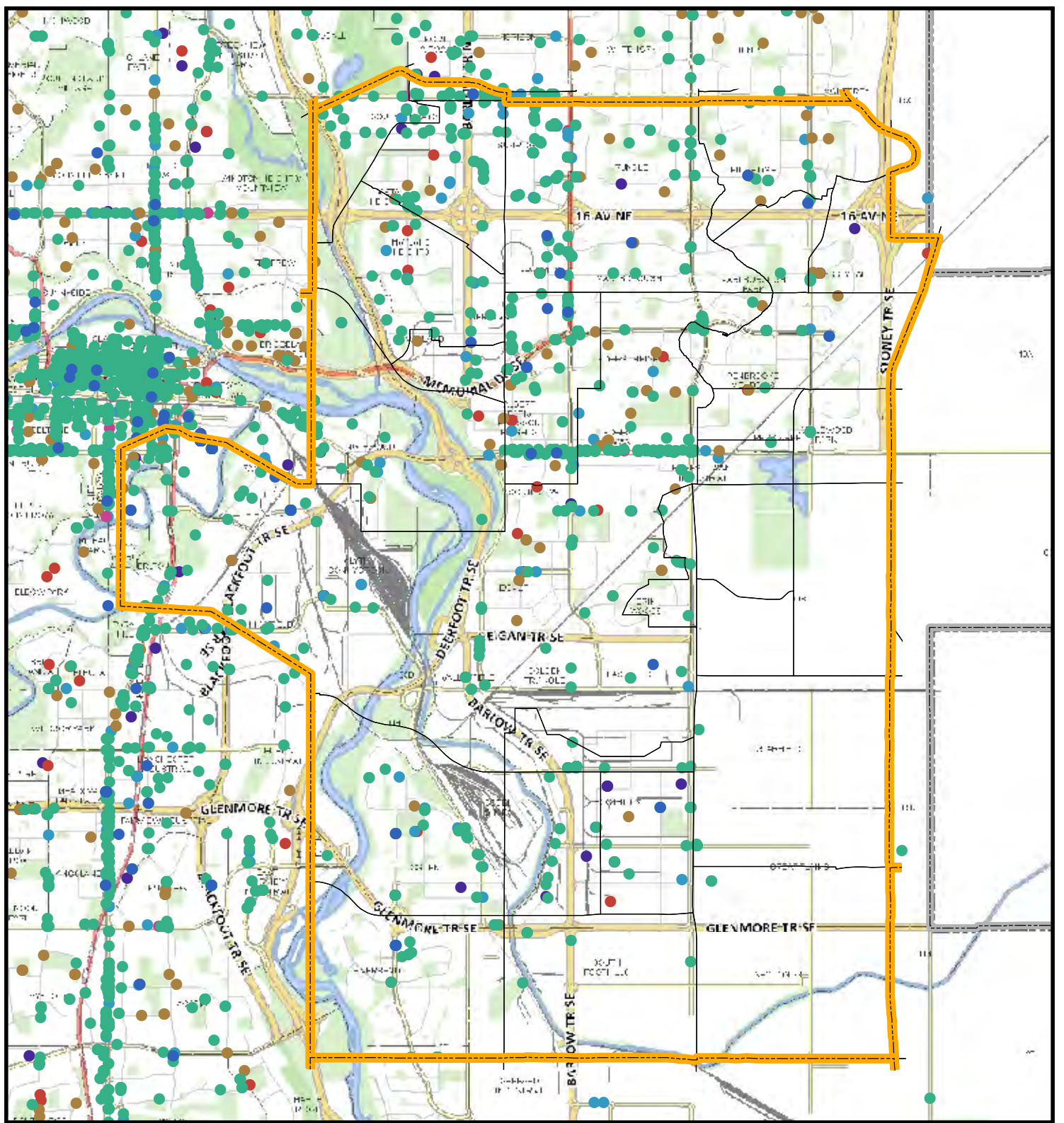
Map 8.11 - Food Consumption Locations by Type - Ward 10



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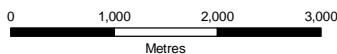


Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 11

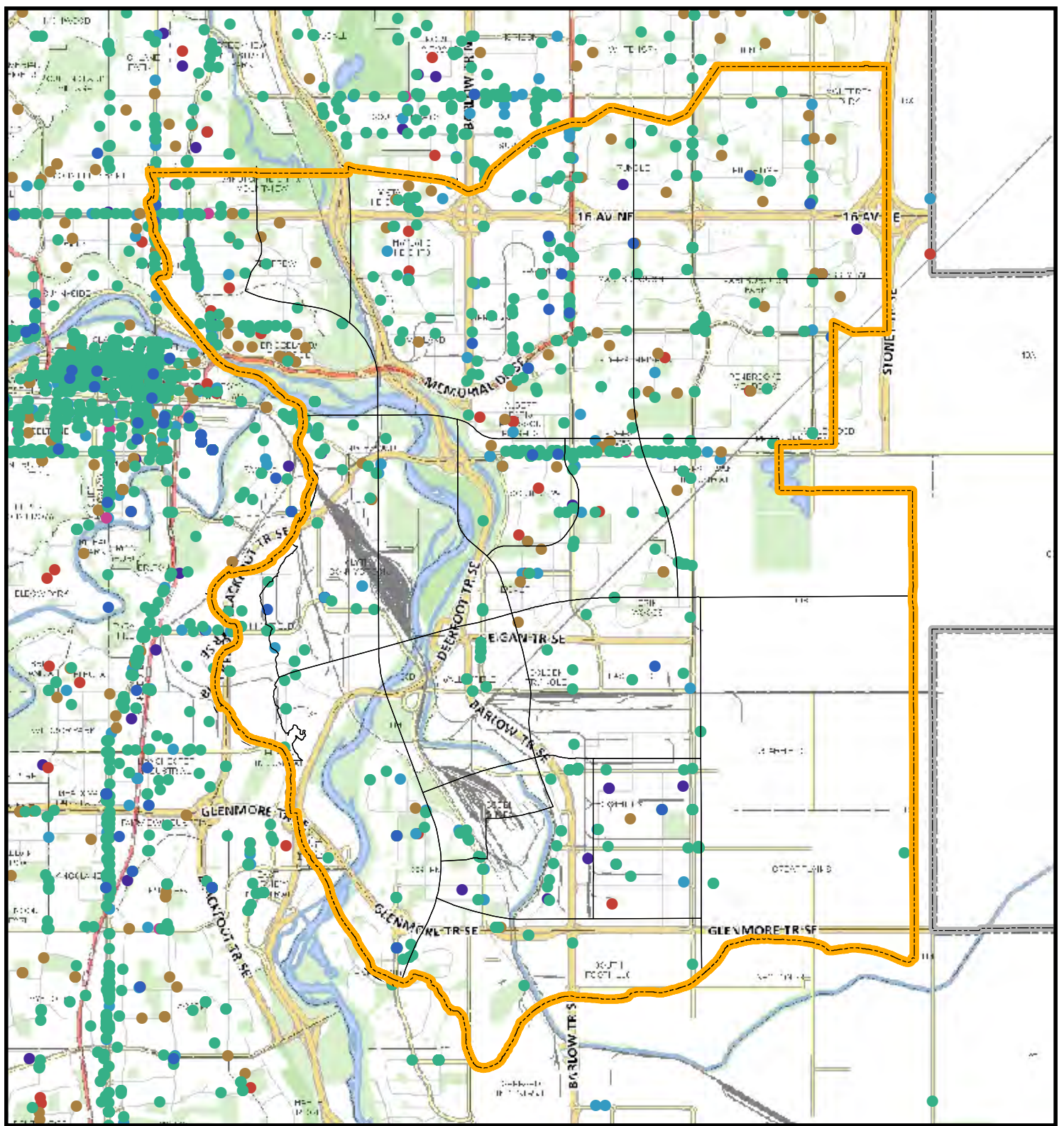
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Map 8.12 - Food Consumption Locations by Type - Ward 11



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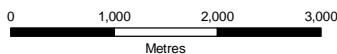


Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 12

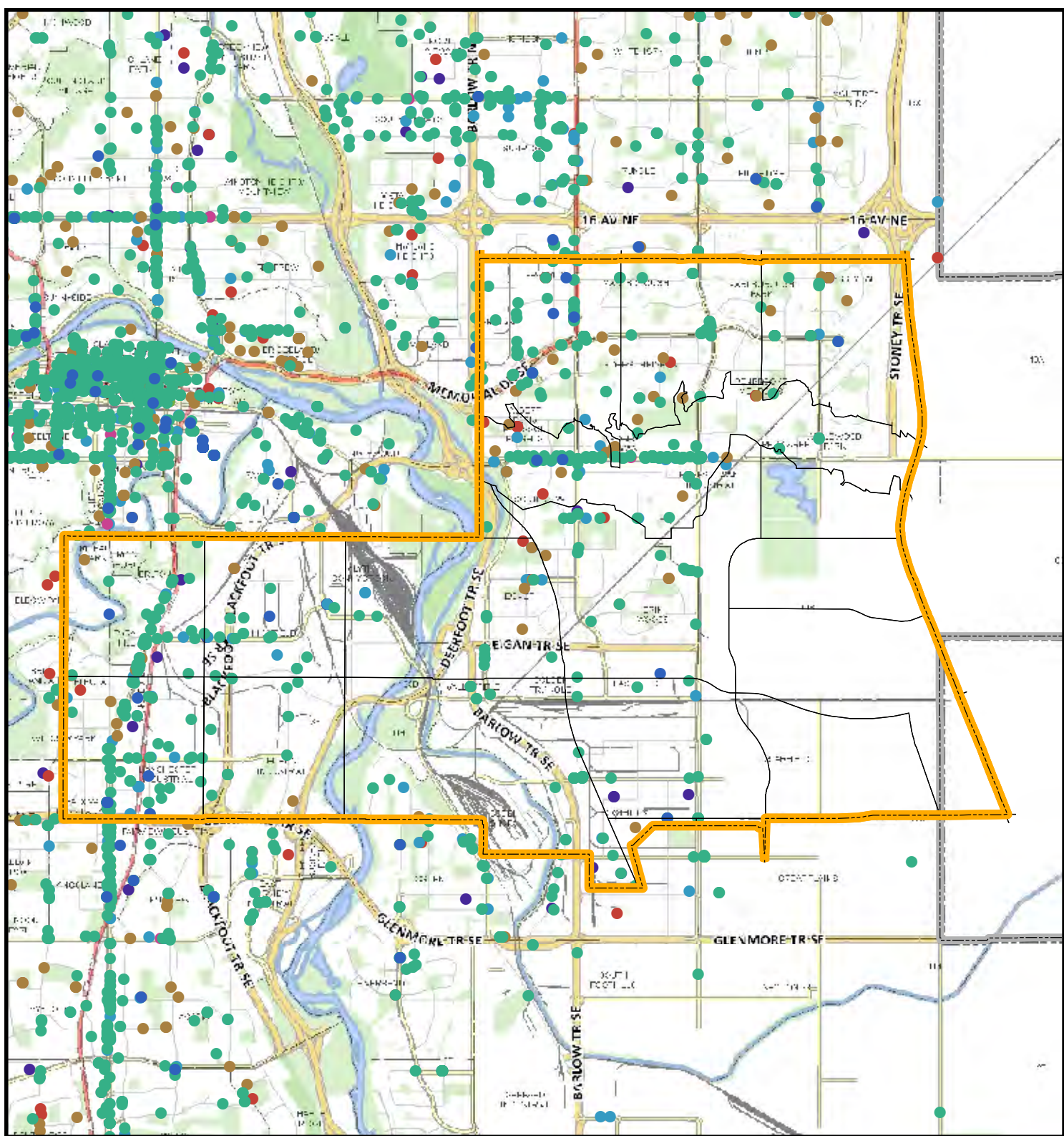
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Map 8.13 - Food Consumption Locations by Type - Ward 12



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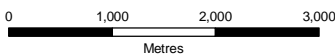
Date Printed: May 10, 2012



Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 13

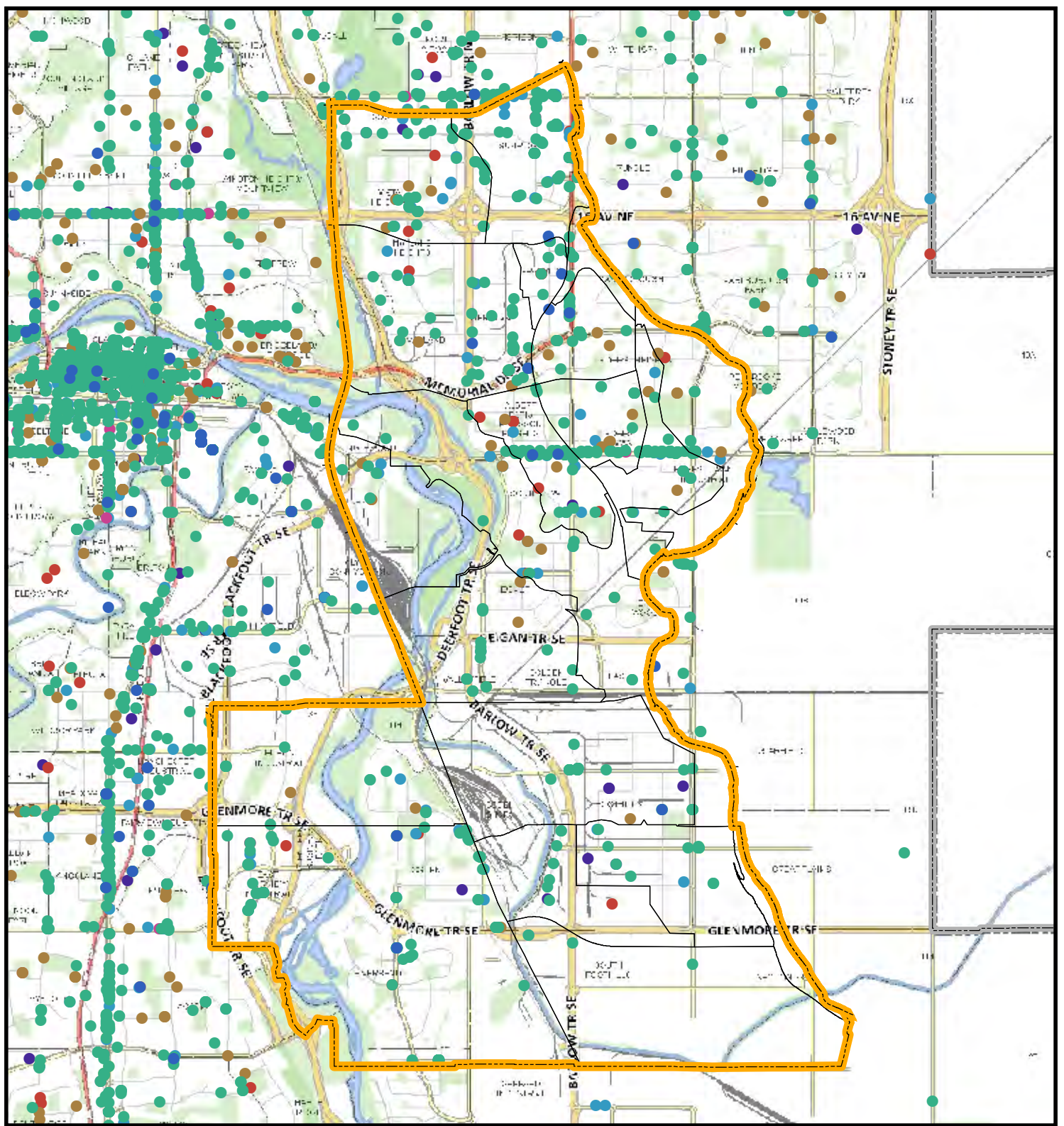
Map 8.14 - Food Consumption Locations by Type - Ward 13



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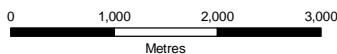


Legend

- Caterer
- Cocktail Bar
- Community/Church Kitchen
- Convenience Store
- Deli
- Institutional Kitchen
- Restaurant
- Snack Bar/Refreshment Stand
- WARD 14

Data: Alberta Health Services
Environmental Public Health database

Map 8.15 - Food Consumption Locations by Type - Ward 14



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9.0 FOOD WASTE RECOVERY

9.1 CONTEXT

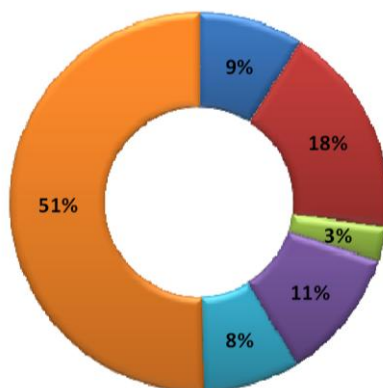
This section provides baseline information, including context, issues and opportunities for waste recovery in the Calgary food system. This refers to diversion, management, and use of organic waste. It also addresses to a lesser extent other, non-organic waste materials associated with food systems at the Canada level.

9.2 WASTE RECOVERY IN CANADA’S FOOD SYSTEM

An enormous amount of food is wasted unnecessarily in Canada and this occurs in every element of the food system and food value chain. The negative impact this waste has on our economy and environment is significant. It is not just food that is wasted but the energy, water, packaging and human resources used in production, processing, distribution, retailing, preparation and home storage/consumption. Although waste occurs in all industries, the extent of waste occurring in agri-food is higher than other industries; approximately \$27 billion of food waste alone finds its way to landfill and composting annually in Canada. This equates to approximately 40% of all Canadian food production and 2% of Canada’s Gross Domestic Product, which is greater than the value of all Canada’s agricultural and agri-food imports in 2007¹⁷⁰.

More than 50% of food waste in Canada is a result of food thrown away in Canadian homes. Studies have estimated that the vast majority of consumer food waste could be avoided and that, while approximately one-fifth of food thrown away includes items such as peelings, cores and bones, the rest was once perfectly edible¹⁷¹.

FIGURE 9.1: % OF FOOD WASTE CREATED THROUGH THE AGRI-FOOD VALUE CHAIN IN CANADA



Note: HRI = Hotel/Restaurant/Institutional food outlets
(Statistics Canada, 2010; Macdonald, 2009; VCMC, 2010)

¹⁷⁰ Gooch, M., et al. (2010) Value Chain Management Centre: Food Waste in Canada available at: <http://www.valuechains.ca/thinkpieces.htm>

¹⁷¹ Ibid

Reasons for this food waste include cooking or preparing more than is required, not consuming food in time and a lack of confidence to use leftovers. Majority of avoidable household food and drink waste are those that require or benefit from refrigerated storage, including raw meat and fish, ready meals, dairy products, fruit and vegetables and pre-prepared foods. Food waste is also attributed to retail management decisions linked to consumer pursuit of value, particularly through the use of price-orientated fliers as a marketing tool. This encourages consumers to buy in bulk beyond their needs, which then leads to increased waste (WRAP, 2010).

Canadian processors experience food waste for similar reasons in addition to receiving products that do not meet the required specifications, leading to the need to downgrade or discount in order to flow them to an alternative and often lesser value market.

A study by Womack and Jones (2005), the Lean Enterprise Research Centre (LERC, 2010), the Institute of Grocery Distribution (IGD, 2010) and the Value Chain Management Centre (VCMC) (Gooch et al, 2009) identified seven factors that create excessive waste along processed and fresh food value chains:

TABLE 9.1: WASTE TYPES AND CAUSATIVE FACTORS

Factor	Types of waste that occur as a result
Overproduction	Too much production and/or poor flow of products through the chain, often resulting in the need to discount in order to flow products through the system before they spoil. This can be as a result of risk management programs at the farm level and varied marketing regulations altering farmers’ need to respond to market signals and reducing the communication downstream to truly reflect customer demand.
Defects in products or equipment	Poor quality products, poorly operating equipment, communication errors, shortened shelf-life, poor delivery
Unnecessary inventory	Occurs at any point along the chain, including in households; creates excessive delay, poor customer service, long cycle times, excessive spoilage
Inappropriate processing	Incorrect procedures or systems, often when simpler approaches would be more effective
Excessive transportation	Excessive, often complex and costly movements of products or information
Waiting	Long periods of inactivity result in poor materials or information flow, long lead times, and increased spoilage
Unnecessary Motion	Poor design of any link or workplace along the chain, or the overall chain itself, often leading to lost or damaged items

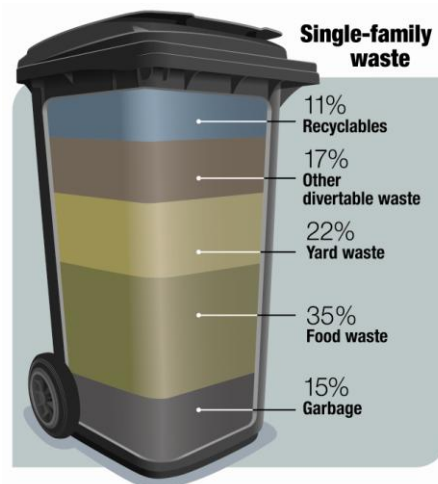
Source: Gooch, M., et al. (2010) Value Chain Management Centre: Food Waste in Canada available at: <http://www.valuechains.ca/thinkpieces.htm>

9.3 WASTE RECOVERY IN CALGARY’S FOOD SYSTEM

Although data is not currently available to map waste for the entire Calgary food system at the local level, it is available in relation to some aspects of food waste within the city boundaries. There are two main sources of food waste in Calgary; residential and Industrial, Commercial and Institutional (ICI).

Approximately 35% of the current single family waste stream (waste collected within the Black Cart program on a weekly basis) is made up of food waste as shown in Figure 9.2. In 2010 this equated to approximately 67,550 tonnes of food. Some of this food is suitable for human consumption. Approximately 28% of ICI waste is food waste (as disposed), which equates to approximately 90,160 tonnes/year¹⁷². Some ICI waste generators separate their organics (food waste) and have them delivered to the East Calgary landfill for composting. These customers need to be pre-approved and their weights recorded at the scale house with a charge of \$35/tonne. In 2010, 443 tonnes of ICI food waste were processed for composting at East Calgary landfill. Some ICI waste generators source separate their organics for processing on-site or at another, private composting facility. The sector is predominantly serviced by private garbage and recycling companies, and the data is currently not coordinated to report on the private waste diversion.¹⁷³

FIGURE 9.2: SINGLE FAMILY WASTE



Recycling and reusing of food matter provides a valuable resource within the framework of the food cycle and in achieving a closed-loop system. Diverting food waste from landfill has environmental, social and economic benefits. Organic materials in a landfill do not break down to become compost, but instead produce GHG emissions, take up space in the landfill, produce leachate and eliminate the opportunity to produce a value-added, marketable compost product that replenishes soil nutrients. Food can be diverted from landfill by either the redistribution of edible food for human or livestock consumption or the rendering of food waste into other products (e.g. soap) or composting.

Calgary Inter-Faith Food Bank is the most significant stakeholder in relation to the redistribution of edible food from industry sources (e.g. retailers, producers) to those in need in Calgary and the region. Their goal is to keep food out of landfill sites by cautiously recycling viable ‘non-retail quality’ food back into the food system. Food may be designated as ‘non-retail quality’ for a variety of reasons including damage to the outer packaging, though inner packaging remains intact (i.e. a cereal box is crushed while the inner bag is intact), consumer demand may fall short of the anticipated demand and the grower is left with unsold produce, there is an error in the packaging (i.e. misaligned printing, bar code change), a promotion or contest has ended and the stores can no longer display the product, or suppliers have an abundance of “seasonal food” left over at the end of the season (e.g. candy canes, Easter eggs)¹⁷⁴.

172 Note: for the purposes of this calculation ICI food waste includes that from multi-family housing

¹⁷³ Information provided by The City of Calgary Waste & Recycling Services

¹⁷⁴ Calgary Interfaith Food Bank website: <http://www.calgaryfoodbank.com/>



Between September 2010 and August 2011 Calgary Inter-Faith Food Bank distributed 4.5 million pounds (approximately 2,040 tonnes) of food to 62 food banks in south and central Alberta, Whitehorse and Yellowknife through their Regional Food Distribution Program, with 3.2 million pounds (approximately 1,450 tonnes) of food going to 99 Calgary-based charities through the BP Food Link Program. A full list of these charities and organizations can be found on the Calgary Inter-Faith Food Bank website at www.calgaryfoodbank.com. In addition they distributed 90,795 litres of milk and 2,821 containers of infant formula through the Children's Milk Program and Agency Initiative of the Children's Milk Program. They achieve this redistribution with only a 6% waste stream. This outlines a significant amount of waste diverted from City of Calgary landfills by their programs. However, despite this minimal waste stream, the Calgary Inter-Faith Food Bank is one of the three largest contributors to composting in The City of Calgary facilities. This is a result of both limited capacity at the existing facility in addition to a desire for a pure waste stream presented, which the Calgary Inter-Faith Food Bank are able to supply.

Community and regional agricultural production creates a market for composting, increasing the value of diverting food from landfills. This not only supports the vision for a sustainable food system in Calgary but also represents a significant opportunity to achieve the City of Calgary goal of diverting 80% of waste from landfills by 2020 for the residential sector. In addition to the food related targets in imagineCALGARY, there are three targets specific to waste management, which the 80/20 by 2020 plan supports.

Waste & Recycling Services (WRS) at The City of Calgary currently owns and operates small outdoor windrow composting facilities at each of their three landfill sites with an estimated combined capacity of 36,500 tonnes per year. These facilities accept zoo manure composting, wood waste from The City's Urban Forestry Program, limited commercial leaf and yard waste, limited commercial food, waste from the Leaf & Pumpkin Program (diverted approximately 2,195 tonnes in 2010) and trees from the Christmas Tree Program (diverted approximately 342 tonnes in 2010). They also currently provide support for backyard composting which is generally accepted to process 100kg of organic waste per backyard composter.

To ensure more substantial progression towards the waste diversion target, in March 2012, The City of Calgary Waste & Recycling Services began a Green Cart Food and Yard Waste Pilot program for approximately 7,500 homes. It is estimated that approximately 2,000 tonnes of food waste will be diverted from landfill with this pilot. The food waste will be processed by a private composter near Strathmore. The information from this pilot will be used to inform the development of a City Wide Food and Yard Waste Collection Program, contemplated for introduction in 2016. If this program is approved by Council, it is anticipated that approximately 46,000 tonnes of food waste will be processed, equating to approximately 23,000 tonnes of compost and this would be at a Calgary facility. It is unknown at this time if the facility will be constructed to maximum capacity immediately or take a modular approach for the anticipated waste supplied.

This focus in the short and medium term is on diversion of the food waste stream in the residential sector and is also dependent upon Council support. However, stakeholder engagement has begun in relation to addressing ICI organics diversion. Albeit, this will be implemented in the medium and longer term there is a strong desire and support from stakeholders in the food system to address this as soon as possible. The use of strategies to discourage the quantity of food suitable for human consumption or organics being sent to the landfill (e.g. increased rates) has also been identified in food system assessment engagement.

In addition to diversion of the solid waste stream within Calgary's food system, Calgro is a biosolids-to-land program created in 1983 as a joint venture between the province of Alberta and The City of Calgary.

This program uses biosolids produced as a by-product of the wastewater treatment plant's phosphorus removal process as a soil conditioner to enrich Calgary area farmland. This material can replace the need for chemical fertilizers on agricultural lands for as long as three years, removes organic matter and nutrients as part of the wastewater treatment system improving water quality discharged to the Bow River, preserves landfill space, and prevents the need for incineration that would impact air quality. Approximately 20,000 tonnes of biosolids are produced, transported and recycled on Calgary area farmland each year¹⁷⁵.

It is estimated that 30% of Calgary homes have a garburator type unit and that each unit diverts 136 kg per year to the wastewater treatment system. This totals an approximate amount of 18,360 tonnes in 2010. Technically, this, along with any food that is eaten by humans in Calgary will end up in the wastewater treatment system as biosolids and diverted back into the food chain in this way. However, garburators use significant amounts of energy and water to facilitate the removal of organics to the wastewater treatment system. Further, they add problem materials such as suspended solids, oils and grease to wastewater treatment plants and increase levels of Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD), using up the available oxygen in water, resulting in oxygen levels that are too low to support aquatic life. In addition, the process of biosolid treatment consumes significant amounts of energy and resources. Education programmes are critical to raise awareness of these issues, the value of composting and to help minimise the amount of food needing to be diverted.

Calgary is also supported by a variety of community driven waste diversion education programs. For example, Green Calgary¹⁷⁶ trains Calgarians in their Master Composter course so that they can provide guidance and assistance to other community members interested in starting their own home composting. The Master Composters also put themselves at the service of community gardens, which are generally equipped with their own compost heaps. Compost from these heaps is used to produce food in the gardens.

¹⁷⁵ Calgro, information available at: <http://www.calgary.ca/UEP/Water/Pages/Water-and-wastewater-systems/Wastewater-system/Calgro-biosolids/Calgro.aspx>

¹⁷⁶ <http://www.greencalgary.org/>

RIVER CAFÉ – WASTE RECOVERY



Story Courtesy of Kristi Peters Snider
Photo Courtesy of River Café

At River Café sustainable practices are embedded in everything they do. Food waste recovery is a critical part of reducing their impact on the environment. River Café has been saving and gifting their used coffee grounds to growers for years. Coffee grounds are an excellent fertilizer for carrots. The coffee grounds provide generous amounts of phosphorus, potassium, and magnesium to the soil, and help avoid insect infestations and other problems.

In 2005, River Café adopted a composting and recycling policy to divert all pre-consumer food waste from the Calgary landfill. Since then they have diverted more than 30% of their total landfill waste. Increasing recycling and composting practices has also supported the growth of P.E.L., a local compost and recycling pick-up business that caters specifically to restaurants and hotels in Calgary.



GREEN CALGARY: HEALTHY HOMES

Story courtesy of Green Calgary from Rhonda C

Our family participated in the Healthy Homes Program offered by Green Calgary in Spring 2011. We gained a tremendous amount through the program – so much so that it’s hard to know where to begin describing the benefits!

One reason I had asked for a Healthy Homes assessment was because I felt we had reached a plateau; we knew we were doing some things right, but also knew there was a lot more we could be doing. One thing we really appreciated was that our facilitator did a great job of affirming the things we were already doing for the environment. Healthy Homes did an excellent job of showing us where we could make further changes. They also gave us the tools and resources to assist us in those changes. While each of these changes is quite minor, their cumulative effect is staggering. When I think of how many thousands of litres of water are saved each year through the low-flow devices they installed and how many chemicals are being avoided just in our little home I’m awed.



Photo courtesy of Green Calgary

Some further changes our family has made as a result of our consultations include using our compost bin more. At one point, our family of five was throwing out one 22 litre white kitchen garbage bag a day. Now we dispose of one bag a week – and it’s rarely full! Another factor that contributed to this reduction is that we buy more of our groceries in a whole state, which requires much less packaging and the packaging we do get is almost all recyclable. We also loved the opportunity to try new eco-friendly products and how our Healthy Homes taught us to differentiate between products that are truly environmentally sound and products that employ “green washing”.

But perhaps the best benefit of participating in the Healthy Homes program is that we’ve joined an amazing new community. Having the ongoing support of Green Calgary in terms of inspiration, resources, and expertise is a gift beyond compare. I think everyone should participate in Healthy Homes! Just imagine!

9.3 SUMMARY

Although the imagineCALGARY food target relating to sustainability speaks specifically to food production, waste must be addressed in all elements of the food system from production, processing, distribution, access, preparation and consumption. This would also support the imagineCALGARY targets related to waste. Food is a significant portion of the waste stream in Calgary and must be addressed from multiple angles, including increasing public awareness of food waste issues and designing food waste recovery programs that meet the needs of different waste producers. Composting and associated education programs are underway at the municipal level but focus in the short and medium term on residential food waste diversion. As the ICI sector is the largest source of divertible materials and represents the largest remaining opportunity to achieve The City’s goal of 80% diversion to landfill, it also represents a significant opportunity to support the imagineCALGARY target and sustainable food system vision. In addition, data associated with non-food waste within the Calgary food system was not readily accessible. This data would be valuable to support appropriate strategies for the diversion of non-food waste within the food system (e.g. the re-use and recyclability of food packaging).



TABLE 9.1: WASTE SUMMARY

Potential Area of Intervention	Issues	Opportunities	Examples from Other Jurisdictions	Recommendations
Regulation, Legislation & Advocacy	It is often more cost effective to landfill than compost organics.	The City of Calgary is currently working on an ICI waste diversion strategy informed by research and stakeholders and will be delivered to Council by 2013.	<p>Nova Scotia - provincial legislation banning organics from landfills since 1998.</p> <p>Nova Scotia municipalities promote backyard composting and provide curbside organics collection to more than 76% of residents province-wide. This has led to job creation.</p> <p>In 2002 Toronto started The Green Bin Program - today over 510,000 homes in the Greater Toronto Area receive curbside organics collection. Each household now diverts 200kg of waste annually.</p>	<p>Work with members of the Calgary Regional Partnership (CRP) and the City of Edmonton to lobby provincial government to address policy and legislation on banning organics from landfill.</p> <p>Ensure key stakeholders from the food system are engaged as part of the ICI waste diversion strategy.</p> <p>Review policy and approach to make waste unattractive and composting and recycling more financially attractive in comparison.</p>
Planning and Land Use	Time lag between The City of Calgary composting pilot and the development of the facility for city wide implementation may impact the ability to keep citizens engaged and informed.			
Transportation	Logistics and distribution challenges diverting food suitable for human consumption from the waste stream to food programs.			Investigate the need for and development of transfer stations for redistribution of food that is not suitable for human consumption to composting facility. Plan the compost transfer routes in collaboration with food system stakeholders.
Environment	Limited size of existing City of Calgary composting facilities. There is a significant quantity of food waste that continues to be landfilled	The City of Calgary is currently working on an ICI waste diversion strategy informed by research and stakeholders and will be delivered to Council by 2013. There is	<p>Many restaurants recycle oils for biofuels.</p> <p>Re-sealable/re-usable packaging for in-store retail purchase e.g. ASDA</p>	Expand/support the Water Resources Fats, Oils and Grease (FOG) campaign to \



	<p>within the ICI sector</p> <p>Unnecessary and excessive packaging on food products.</p> <p>Data associated with packaging does not exist or is not accessible</p> <p>There is significant water and energy use associated with the use of garburators and a lack of awareness about their environmental impact and the alternatives via composting.</p>	<p>considerable interest by food system stakeholders in being engaged and supporting an ICI organics waste diversion strategy.</p> <p>Exploration of the commercial use of the resulting compost.</p> <p>City compost is currently available to the community garden program and city facilities, reducing costs associated with the purchase of compost.</p> <p>There are large quantities of available topsoil at City of Calgary landfills from the stripping and grading of land for new development. The quality of the topsoil and levels of contamination would need to be considered prior to use.</p> <p>A program exists for methane capture on landfills to reduce to some extent the impact of already landfilled organics.</p> <p>Financial savings from reduction in packaging and waste.</p>	<p>refill pouches for fabric conditioner.</p> <p>Food retail outlets that have developed single meal sizes to reduce waste packaging and food.</p> <p>Stores that charge for plastic shopping bags to act as a disincentive.</p> <p>Ottawa and Guelph have a complete ban on garburators and areas of Toronto have a ban depending on the piping system in various aged homes. Niagara discourages people from installing garburators.</p> <p>San Francisco issued a Permanent Phase-Out of Bottled Water Directive in 2007 prohibiting city departments and agencies from purchasing single service bottles of water and requiring that they switch from large bottle dispensers to bottle-less dispensers that use the city's tap water. The directive highlighted the wastefulness and unnecessary drain of environmental resources caused by the production, transport and disposal of bottled water.</p>	<p>Consider policies for reducing the environmental impact of the food system e.g. banning or charging for plastic bags, phasing out the use of bottled water etc.</p>
<p>Economic Development</p>			<p>The Courtland Commitment (UK, 2005) had 42 signatories by 2010 (representing 92% of the grocery retail sales) to reduce packaging and waste through industry collaboration. This resulted in 670,000 tonne food waste reduction and 520,000 tonne packaging reduction from 2005-2009 in spite of a 2% growth in the grocery sector each year and has a target of generating £1.1B in financial</p>	<p>Explore the economic development opportunities associated with composting city-wide program.</p>



			benefits for industry and consumers by 2011 (WRAP, 2010).	
Community and Social Programs	The volume of food suitable for human consumption which is currently wasted is significantly greater than the agency demand for food program.	Food program agencies and major grocery retailers have a good relationship in Calgary and the region with supporting initiatives in stores and daily distribution.	“Sell More, Waste Less” guides farm managers through the process of physically walking the value chain, then analyzing the performance of the operations to identify the causes of waste- 20% cost reduction and 10% sales increase through value chain improvements. (UK, WRAP)	Increase the information on what the food bank and food diversion programmes will accept. Explore potential waste audit programs within the various food sectors to assist with cost savings and waste reduction.
Education Programs	Composting is not yet a social norm in Calgary and there is a need for increased awareness about the 80/20 by 20/20 waste diversion targets and strategy and its importance. There is a lack of data on waste, composting habits and organizations. There is the perception that City scale composting is just a larger version of backyard composting without an understanding of the complexity. Food store packages rarely offer storage advice that would help to prolong the contents.	The success of the blue bin recycling program shows a desire and increased awareness by Calgarians to waste diversion programs which could easily be reflected in the current City of Calgary composting pilot. Early feedback for the composting pilot shows positive results. Calgary Community Kitchen education programs address storage and prolonging of food life. Green Calgary audits and assistance for small businesses and residents.	New York City spends a minimum of \$1 per person per year on waste and recycling education and this increases with the introduction of new programs. Sainsbury’s and Morrisons introduced materials designed to educate consumers on food storage and free in-store and on-line recipes for using leftovers. BOGOF (<i>Buy One, Get One Free</i>) on select fresh items (Tesco, 2010) offered a coupon that allowed customers to get their ‘free’ product within two weeks of the initial purchase.	Communication/education campaign developed in full Embed food waste education within the environmental stewardship programs provided by the Calgary Board of Education (CBE) to schools. Establish a centre of excellence regarding composting and waste diversion. Provide landfill tours to citizens. Incorporate waste minimisation and diversion education (e.g. recycling, composting) as part of employee training and orientation. Vermi-compost education for condo and apartment dwellers. Large-scale community canning sessions.



10.0 IMAGINE CALGARY MEASUREMENT RESULTS & GAP ANALYSIS

10.1 CONTEXT

The vision is to build a sustainable food system for Calgary and the region. This vision is articulated through the imagineCALGARY targets that relate to food. These targets illustrate issues Calgarians believe are important to address in achieving a vibrant and sustainable city:

1. by 2036, Calgarians support local food production
2. by 2036, Calgary maintains access to reliable and quality food sources
3. by 2036, 100% of Calgary's food supply derives from sources that practice sustainable food production
4. by 2010, 100% of Calgarians have access to nutritious foods
5. by 2036, sustainable urban food production increases to 5%
6. by 2036, the consumption of urban and regionally produced food by Calgarians increases to 30%

The previous chapters have provided a context for Calgary and the region and then an assessment for each element of Calgary's food system, discussing some key issues and opportunities and using these, along with best practices to make recommendations. This analysis and the resulting recommendations informing the action plan have been based upon the imagineCALGARY targets outlined as six principles:

1. Local
2. Accessible
3. Environmentally Sustainable
4. Healthy
5. Secure
6. Community Development

In addition to providing context and analysis of the issues and opportunities, the assessment was intended to develop clear definitions and a baseline for each of the imagineCALGARY targets and determine our progress in achieving them. Indicators are used to monitor the performance of targets and provide an indication of success in meeting them. As such, indicators have been identified for each of the targets. This section provides the results of the indicator baseline including a description, indicator identification, validation, gap identification (baseline/availability) and recommendation for next steps. It provides the status of the existing Calgary food system in relation to our vision and targets.

10.2 RESULTS

Overall, the assessment found that there is a significant lack of quantitative data related to the specific indicators outlined in the imagineCalgary targets. This is primarily related to the lack of information on food demand and supply by demographic and geographic characteristic.

There is data for the municipal districts and counties within the region that details farm output and some farming methods that could be used for an understanding of the level of sustainability. However, consistent, replicable time series of data does not exist on the actual production of different types of food produced within the Calgary region that are also consumed within Calgary and the region rather than exported. Nor does it exist for what is consumed within the region. As a result, a significant number of assumptions have to be made about the actual sources of food. This extends even to areas like the information available from local farmers markets. While there is solid data on where they are



located and when and how they operate. The information on the actual number and nature of vendors is weaker and the information on total sales is impossible to collect.

Where this is the case, a relative measure (i.e. a percent change from a given point in time) has been proposed as an indicative measure to report on the targets. Ultimately, these gaps clearly suggest that data collection processes need to be refined to source this type of information over time.

TARGET 1: BY 2036 CALGARIANS SUPPORT LOCAL FOOD PRODUCTION

Defining the target: For the purpose of this assessment *local* was defined as *products made, baked, grown, processed and sold in Alberta by Alberta producers*. Local within the national and global context. It is important to measure not only the expression or desire to support local food but also the action of supporting local food.

Current State:

Indicator	Validation/Sources	Status
1. Number of Calgarians that express support for purchasing local food	Hargroup Omnibus Survey Report, May 2010	<ul style="list-style-type: none"> 79% of Calgarians believe it is '<i>somewhat important</i>' or '<i>very important</i>' to '<i>purchase locally grown foods</i>'.
2. Number of Calgarians that actually purchase local food and what percentage of their main food shop is local	Hargroup Omnibus Survey Report, May 2010	<ul style="list-style-type: none"> 3.8% of Calgarians say that they purchase '<i>almost all</i>' of their total food locally grown food, 5.5% of Calgarians say that they purchase '<i>about three quarters</i>' of their total food locally grown food 21% of Calgarians say that they purchase '<i>about one half</i>' of their total food locally grown food 40.5% of Calgarians say that they purchase '<i>about one quarter</i>' of their total food locally grown food 29.3% of Calgarians say that they purchase '<i>none</i>' of their total food locally grown or they '<i>don't think about purchasing local food</i>' or they '<i>don't know</i>'
3. Amount/Percentage of local food purchased in comparison to the total amount of food purchased within Calgary	Surveys	Baseline not yet available

Indicators 1 and 2 would be measured through surveys conducted with the same survey questions and approach at set points over a period of time. These surveys could be based upon the survey questions used by HarGroup Omnibus in May 2010, using the 2010 results as a baseline to monitor progress. It should be noted that for the survey conducted in May 2010, Local food was defined in the survey as follows:

The term "local food" has become associated with a preference to growing your own food or purchasing food that has been grown by local producers closer to home.

For future surveys, the definition of local should be clarified as *Products made, baked, grown, processed and sold in Alberta by Alberta producers*.



Indicator 3 would be measured through an understanding of local food sales (\$ and/or quantity) within Calgary compared to total food sales (\$ and/or quantity). This would be more complex and require reporting by the range of food retail establishments from wholesalers to major grocery stores to farmers markets in order to determine progress. It should be noted that there will be a discrepancy between the stakeholders in indicators 1 and 2 versus indicator 3, as the first two indicators will be surveying residents of Calgary, whereas other ultimate end users (e.g. visitors to Calgary) would also be included in the results of indicator 3. In addition, this indicator would ideally need to capture the food purchases made through food consumption establishments like restaurants and cafeterias. It would be valuable to determine whether data could be made available from the food retailers and food consumption outlets in terms of either \$, quantity or a percentage of local versus total food procurement. Currently, most retailers and food consumption outlets do not collect or report on this data.

Recommendation:

Food consumption data suggests that the vast majority of food consumed in Calgary is from outside of Alberta. Actual data on sales or quantity of local versus total food is not readily available and more quantitative information in this area would be very useful. This will require collaboration with the major food retail and consumption establishments and their move to begin reporting on local and sustainable products.

TARGET 2: BY 2036 CALGARY MAINTAINS ACCESS TO RELIABLE & QUALITY FOOD SOURCES

Defining the target: reliability requires that there is a consistent supply of sufficient, safe, healthy and nutritious food that is not vulnerable to fluctuations such as high fuel prices, natural disasters or political events.

Current State:

Indicator	Validation/Sources	Status
1. Number/% of Calgarians that grow their own food	Hargroup Omnibus Survey Report, May 2010	33% of Calgarians grow their own food
2. Quantity of food produced (in tonnes and by type) from urban agriculture and food production	Hargroup Omnibus Survey Report, May 2010	There are 6 different classifications of urban agriculture/food production within Calgary. Results for the quantity of food produced were available for the following: <ul style="list-style-type: none"> ● Household Food Production – 33% of Calgarians grow vegetables, 33% grow herbs and 24% grow fruit/bERRIES. ● Community Gardens – no baseline at this time ● Institutional Gardens– no baseline at this time ● Small-scale Commercial and Semi-commercial – baseline data available on type and \$ value not for quantity, to be correlated ● Larger Scale agro-enterprises – baseline data available, to be correlated ● Multi-functional farms – no baseline at this time
3. Hectares of farm land	Census of Agriculture Canada	10, 374 hectares of cropland 5 hectares of fruit/ berries/nut production Other data not available



Recommendation:

The intent when looking at maintaining access to reliable and quality food sources is that there needs to be a diversity of food sourcing within Calgary to ensure reliability. This means there needs to be a balance of global, national and local sourcing in order to ensure stability is built in to the system (e.g. should a climatic disturbance, or fuel crisis occur globally, there is still capacity locally to maintain food production and accessibility for Calgarians). On-going collaboration to refine and identify indicators needs to continue.

TARGET 3: BY 2036 100% OF CALGARY’S FOOD SUPPLY DERIVES FROM SOURCES THAT PRACTICE SUSTAINABLE FOOD PRODUCTION

Defining the target: Environmental sustainability has been defined as the protection of air, land and water, critical for achieving healthy ecosystems by minimizing green house gas emissions, potable water use and waste and maximising efficient use of land, air quality, water quality and biodiversity. In addition, the food system should support community development and action taken locally to create economic opportunities in the community on a sustainable and inclusive basis.

Current State:

Indicator	Validation/Sources	Status
1. Certified Organic food as a % of total food purchased by Calgarians (\$ and/or quantity).	None	Although the number of certified organic farms is known for Calgary and the region (2 farms certified within Calgary and 12 farms certified within the Calgary CD#6 region), the total amount (\$ and/or quantity) of organic food purchased by Calgarians is currently unknown.

Recommendation:

There is not a complete detailed indicator set for the food system that addresses each aspect of sustainability or provides data to report on each specifically. Sustainability standards and certification programs exist including primarily Organics and Fair Trade in addition to those relating to specific food types such as Marine Stewardship Council Certified. However, it should be noted that a provincial organic certification standard is not available in Alberta, unlike other provinces in Canada. Therefore the Canadian Organics Standard is used. Data on food sales is available for organics within Alberta but not for the city or region and not currently for fair trade or other such standards.

Certified organic food is only one indicator in a suite of potential indicators that look at sustainable food production. Many practices that make up sustainable food production, such as appropriate rotational practices, zero-till, cover crops, biodiversity strategies, etc are critical in sustainable food production and organic production may or may not include these various practices. Currently, the data is not available. There are a number of initiatives in development, which attempt to quantify sustainability but these are not at the stage where they can be used to give current estimates for specific areas.

Further analysis of the individually certified organic farms can be completed but this would also require an understanding of what is sold within Calgary versus other local or export markets. In addition, the quantity of organics purchased by Calgarians that are not locally produced and processed would need to be identified from the major food retailers and consumption establishments.



It must be recognized that many local producers declare that they are practicing organic production without being certified. This is due to a variety of factors including, but not limited to, the cost and resource requirements for undergoing the organic certification process.

In order to address this imagineCALGARY target using organic as an indicator, collaboration with the major food retailers, consumption establishments and provincial government will be needed. Transparent and detailed reporting on sustainability indicators such as organics, water use, waste production, energy use, fair trade and Marine Stewardship Council Certified by the major food retailers and consumption establishments is necessary to report on this target. It will also be extremely important in communicating with the general public the progress each establishment is making in relation to these consumer demands. Labelling and certification is a valuable approach to raise awareness with citizens and to communicate progress in achieving objectives and targets.

TARGET 4: BY 2010, 100% OF CALGARIANS HAVE ACCESS TO NUTRITIOUS FOODS

Defining the target: Access to food has been defined as ensuring that all people, at all times, have physical, social and economic access to sufficient, safe, healthy and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This assessment addressed both physical and financial access to food and discussed the issue of household food insecurity.

Current State:

Indicator	Validation/Sources	Status
1. Number of Calgarians/residences and/or percentage of the Calgary population residing within a 1km radius of a major grocery store	Alberta Health Services facilities data set	There are 144,561 of approximately 300,000 residents (approximately 48%) in Calgary located within 1km radius of a major grocery store. (2012)
2. Number of Calgarians and/or percentage of the Calgary population accessing emergency food programs	Alberta Health Services facilities data set	<p>In 2011, 146,947 Calgarians received emergency food through the Emergency Food Hamper Program at the Food Bank alone.</p> <p>This does not account for the individuals accessing food through other programs or the redistribution of food from the Food Bank to other organizations for distribution.</p> <p>It is estimated that between one in six to one in ten households do not have access to adequate and nutritious food due to limited income. The presence of and need for emergency and charitable food programs demonstrates that 100% of Calgarians do not have access to nutritious foods within the existing market or community food system.</p>

Recommendation:

It should be noted that Indicator 1 does not address access to culturally appropriate foods or those foods associated with allergies or alternative diets. It has been assumed that these needs will be met



through the major food grocery store. Further analysis of this within the Calgary context would be valuable but has not been completed within this assessment. In addition, the indicator is limited by the fact that there may be facilities suitable for the provision of healthy and nutritious foods that are not included within the AHS facilities data set used for the analysis e.g. farmer’s markets. Supplementing this data set with appropriate facilities would address this concern in future analysis.

Given that emergency food programs such as those provided by the Calgary Interfaith Food Bank align with *Eating Well with Canada’s Food Guide* (AHS), this would mean citizens utilizing these programs do have access to nutritious food. However, it is also estimated that only 33% of those who are food insecure access a food bank. In relation to Indicator 2, a relative target could be set for a % decrease in the number of Calgarians needing to access emergency food programs by 2036, using 2011 as a baseline.

However, the complexity of household income related food insecurity is not truly expressed through this one indicator and there is significant research within the province currently underway related to suitable indicators associated with this issue. It is recognized that this provision is outside of the market food system and is a strategy to alleviate the symptoms of poverty. The actions identified within this assessment do not relate to poverty reduction (e.g. affordable housing, living wage etc) rather they aim to recognize the value and actions required to support the charitable food sector within the City.

It is recommended that collaboration with Alberta Health Services, community program organizations and other food sector stakeholders as part of the Poverty Reduction Initiative be used to develop appropriate indicators for income related household food security.

TARGET 5: BY 2036 SUSTAINABLE URBAN FOOD PRODUCTION INCREASES TO 5%

Defining the target: For the purpose of this assessment, urban food production has been classed as food production within the city of Calgary boundary. For this target it is important to measure not only food production but also the sustainable aspect of food production. However, similar restrictions will occur with the definition of sustainable as outlined for Target 3.

Current State:

Indicator	Validation/Sources	Status
1.Number/% of Calgarians that grow their own food;	Hargroup Omnibus Survey Report, May 2010	33% of Calgarians grow their own food
2. Area of land/% of total land within the city of Calgary that is employed in urban agriculture and food production;	Hargroup Omnibus Survey Report, May 2010	<p>There are 6 different classifications of urban agriculture/food production within Calgary. Results for the area of land were available for the following:</p> <ul style="list-style-type: none"> • Household Food Production – majority of citizens growing food (33%) are doing so in their front/backyard and the average front/backyard area for Calgary is 453m². With 390,629 low density residences in Calgary this equates to 50,395,129m² = 5040 hectares (assumptions outlined in Chapter 4: Production and it should be recognized that not all of this area will be currently being used for food production due to access pathways, patios etc). • Community Gardens – 3.89 hectares for public and private community gardens • Institutional Gardens - no baseline at this time



		<ul style="list-style-type: none"> • Small-scale Commercial and Semi-commercial & Larger Scale agro-enterprises – together these two categories include a total of 51,438 hectares from which a total of 25,698 hectares was cropped within Calgary • Multi-functional farms - no baseline at this time
3. Quantity of food produced (in tonnes and by type) from urban agriculture and food production;	Hargroup Omnibus Survey Report, May 2010	<p>There are 6 different classifications of urban agriculture/food production within Calgary. Results for the quantity of food produced were available for the following:</p> <ul style="list-style-type: none"> • Household Food Production – no baseline at this time • Community Gardens – no baseline at this time • Institutional Gardens – no baseline at this time • Small-scale Commercial and Semi-commercial – baseline data available on type and \$ value not for quantity, to be correlated • Larger Scale agro-enterprises – baseline data available, to be correlated • Multi-functional farms – no baseline at this time
4. % (in tonnes and by type) of urban agriculture and food production employs sustainability principles.	None	None

Recommendation:

Indicator 4 is critical for a sustainable food system, but because it has not been measured in the past, data and processes do not exist and it is therefore difficult to measure. When food is produced at the household or community level, this becomes more complex as it is unlikely this food would be officially certified as either organic or using another sustainability standard. This information is more likely to be sourced through surveys of urban farmers, community gardeners and individual gardeners regarding the farming methods employed e.g. use of herbicides and pesticides, practicing of permaculture and use of organics etc. It is therefore recommended that further discussion with stakeholders, as mentioned here, be conducted to establish the data sets.

TARGET 6: BY 2036, THE CONSUMPTION OF URBAN & REGIONALLY PRODUCED FOOD BY CALGARIANS INCREASES TO 30%

Currently there is no baseline data to identify how much urban and regionally produced food is consumed by Calgarians. There are estimates on what is marketed directly, but no data available for consumption. The indicators identified for Target 1 and the indicator related to urban food grown in Target 2 could be used to indicate the amount of local food consumed. This would require a slight amendment to the imagineCALGARY target to replace ‘urban and regionally’ with ‘locally’ using the definition for local as outlined within this assessment to relate to *Products made, baked, grown, processed and sold in Alberta by Alberta producers.*



11.0 ROLES FOR ACTION

The assessment has identified the issues and opportunities along with best practices from other jurisdictions to help us develop actions that will move us faster towards our vision. The action plan is intended to contain high-level actions, identifying the lead sector and a range of stakeholders. Groups leading on actions in conjunction with stakeholders will identify a more detailed scope, timelines and resource requirements at the time of action initiation. Implementing the action plan is not a municipal government responsibility alone, nor should we rely solely on the farmer, the chef or the provincial inspector; each and every Calgarian has a role to play.

The Calgary Food Committee (CFC)

The Calgary Food Committee (CFC) was established to guide and direct the development of the Food System Assessment and Action Plan. The outcome has been a collaborative effort. In moving forward in the implementation of the action plan, the governance structure and membership of the CFC will be reviewed and a new Terms of Reference established. The new CFC will coordinate the monitoring and reporting of the implementation of the Food System Assessment and Action Plan through the imagineCALGARY partnership. They will act as the ‘connector’, capturing both quantitatively and qualitatively the many actions being taken towards achieving the food targets and reporting on our progress. Through the Office of Sustainability, The City of Calgary will continue to be one participant on the CFC.

Food System Sectors and Stakeholders

There is a diverse range of stakeholder organizations, all of which play an important role in the Calgary food system. Because the food system is so complex, it was useful to categorize the stakeholders. They include: the market food sector, the institutional food service sector, the community food sector, the charitable food sector and the government sector. The lead sector was identified for each action, sometimes with specific organizations and with associated stakeholders. The CFC would connect with each lead organization in order to maintain the strategic link to the action plan.

The City of Calgary

The City of Calgary’s contribution to a sustainable food system occurs through regulation, legislation and policy as well through our role as advocate, leader and influencer. City of Calgary actions identified within the plan focus on removing barriers, providing support and aligning on-going work to the vision and principles of the food system assessment. This is intended to be accomplished within existing business unit work plans and approved budgets in collaboration with the Office of Sustainability, CFC and other appropriate food stakeholders.

12.0 RECOMMENDED ACTIONS

Calgarians have a vision for a sustainable food system and they articulated this through the imagineCALAGARY targets for food. This document has outlined where Calgary stands in relation to this citizen demand. We have not yet reached our targets, and, for some, we need to be more focussed on developing additional indicators, collecting the right data and communicating the right information effectively to monitor and report on our progress.

The Food System Assessment and Action Plan is not a static document. It establishes the strategic actions to help achieve the imagineCALAGARY targets and move towards the vision of a sustainable food system. Periodic updates must be made as information becomes available and the additional indicators are developed.

To evaluate progress towards the vision, indicators have been developed that relate to the imagineCALAGARY targets and food principles. They are intended to track the overall progress towards achieving the principles and vision of the Food System assessment. It is important to note that no one or two measures in isolation indicate process; a full set of indicators should be measured and reported in order to provide a comprehensive picture.

FIGURE 12.1: IMPLEMENTATION FRAMEWORK OUTLINING PRINCIPLES AND AREAS OF INTERVENTION FOR THE ACTION PLAN





A framework was developed with key stakeholder input in order to evaluate and prioritize potential actions in terms of the principles they are intended to help achieve. This framework highlights the value of actions in delivering against multiple principles, how the principles are integrated and the ability to leverage resources from various stakeholders through collaboration. A modified version was used to summarise the assessment findings for each system element and then to complete the action plan. The following table is a set of high-level actions that have resulted from gaps identified in the food system assessment.

TABLE 12.1: ACTION PLAN

		Action	Lead	Stakeholders	Alignment to Principles ¹⁷⁷
Potential Area for Intervention	Regulation, Legislation & Advocacy	<ol style="list-style-type: none"> Collaborate with Alberta Agriculture & Rural Development (AARD) on the Local Food System Needs Assessment Project, associated policy issues and directions. Include: <ol style="list-style-type: none"> Streamline policy and regulations; Communication and awareness of regulations. Review City of Calgary bylaws to determine if amendments would be required for alignment to the food vision and principles. 	<ol style="list-style-type: none"> Government Sector-AARD & Alberta Health Services (AHS) Government Sector-City of Calgary: relevant business unit 	<ol style="list-style-type: none"> CFC, City of Calgary, etc Multiple and dependent upon bylaw under review e.g. citizens, Calgary Horticultural Society, Calgary Humane Society etc 	<p>L, A, SS, ES, H, CD</p> <p>L, A, SS, ES, H, CD</p>
	Planning & Land use	<ol style="list-style-type: none"> Development of a Food Policy and associated strategies as part of the Calgary Regional Partnership (CRP) and Calgary Metropolitan Plan to influence development at the regional level. Embed the food system vision and principles as policies and strategies within growth management, land use planning and design through: <ol style="list-style-type: none"> considerations in any future annexation proposed; potential consideration within the Framework for Growth and Change; Land use policy plans, guidance and studies; Outline plan, development permit and building permit applications. 	<ol style="list-style-type: none"> Government Sector -CRP Government Sector- City of Calgary: <ol style="list-style-type: none"> Land Use Planning & Policy (LUPP) Directors for Integrated Growth Committee (DIGC) LUPP Development & Building Approvals (DBA) 	<ol style="list-style-type: none"> CRP members Office of Sustainability (OS), CFC and usual appropriate stakeholders for the relevant process 	<p>L, A, SS, ES H, CD</p> <p>L, A, SS, ES H, CD</p>

¹⁷⁷ L= Local, A = Accessible, SS = Secure Supply, ES = Environmentally Sustainable, H = Healthy, CD = Community Development



	Action	Lead	Stakeholders	Alignment to Principles ¹⁷⁷
	<p>3. Continued support for the Community Garden Program, Orchard Pilot and urban agriculture at both a city-wide and community level assisted by completion of Phase 2 of the land Inventory.</p> <p>4. The Corporate Real Estate Portfolio Review will provide a means of identifying City-owned land that may be suitable and available for urban agriculture.</p> <p>5. Explore land-share opportunities ranging from private yards/gardens to large-scale land-owners.</p> <p>6. Explore co-location opportunities and strategies to increase efficiencies and use of resources e.g. co-locating food processing facilities or industrial site waste heat generator co-locates by greenhouse development:</p> <ul style="list-style-type: none"> a. Commencement of site design and appropriate land use to enable co-location; b. Fostering collaboration between tenants and landowners in suitable co-location opportunities. 	<p>3. Government Sector - City of Calgary: Parks</p> <p>4. Government Sector - The City of Calgary - OS, Corporate Properties & Buildings (CPB)</p> <p>5. Dependent upon sites e.g. yard land share could be lead by Community Sector (community groups)</p> <p>6. a. Government Sector - City of Calgary: Office of Land Servicing & Housing (OLSH) b. Landowners</p>	<p>3. Calgary Horticultural Society, Community Associations</p> <p>4. All land- stewarded business units</p> <p>5. Multiple, dependent upon sites</p> <p>6. Multiple</p>	<p>L, ES</p> <p>L, A, SS, ES H, CD</p> <p>L,, A, SS, ES H, CD</p> <p>L, SS, ES CD</p>
<p>Logistics and Transportation</p>	<p>1. Explore and implement Food Hub(s):</p> <ul style="list-style-type: none"> a. Raise awareness, provide best practice examples, coordinate stakeholders; b. Use AARD inventory of local brokers and distribution companies to identify potential partnerships; c. Use open source logistics mapping to identify suitable sites within the region (large scale as well as community halls etc), routes and distribution networks. <p>2. Increase physical accessibility to food retail (reduce prevalence of food deserts):</p> <ul style="list-style-type: none"> a. Map access to grocery stores near walkable streets and primary transit service for households with no vehicle; 	<p>1. Government Sector- CRP & AARD, Market Sector and Community Sector</p> <p>2. Government Sector – City of Calgary: Transportation, LUPP & OS</p>	<p>1. CRP members, Rocky View County and Foothills MD, AARD producers, processors, distributors, retail food service purchasers (restaurants, grocery stores etc)</p> <p>2. Transportation, LUPP, Business Revitalization Zones (BRZ), Federation of Calgary Communities (FCC), Family and Community Support Services (FCSS), Poverty Reduction Team, Food Retail</p>	<p>L, A, SS, ES CD</p> <p>A, ES, SS, CD</p>



	Action	Lead	Stakeholders	Alignment to Principles ¹⁷⁷
	<ul style="list-style-type: none"> b. Use this with existing mapping to identify food deserts and prioritise areas of need; c. Develop a strategy to attract appropriate food retail outlets to areas of need; d. Design new developments to consider physical accessibility to food considering all modes of travel: driving, taxis, walking, cycling and transit. <p>3. Locate urban agriculture (particularly community gardens and allotment gardens) in close proximity to transit and users (walkability). Review the parking need and impact.</p>	3. Government Sector – City of Calgary: Parks & OS	<p>Business, Community Organisations (e.g. YWCA), OLSH Affordable Housing</p> <p>3. Citizens, community organizations, etc</p>	L, A, ES,CD
Environment	<p>1. Map the ecological footprint of our local food system built upon mapping at the source, supplier, retailer or restaurant level.</p> <p>2. Explore alternative fuel sources e.g. bio-fuels, electric/hybrid, right-sized vehicles etc for food distribution.</p> <p>3. Pilot the development of greenhouse technology in Calgary using sustainable methods such as waste heat.</p> <p>4. Review practices within Calgary that impact environmentally sustainable food production as necessary and appropriate.</p>	<p>1. Industry/ Market & Community Food Sector</p> <p>2. Market & Community Food Sector & Distributors</p> <p>3. Market and Community Food Sector & Institutions</p> <p>4. Government Sector: City of Calgary</p>	<p>1. Permitting, water, communities, potential markets, technology firms</p> <p>2. Community Sectors, City of Calgary – Environmental & Safety Management (ESM) Greenfleet</p> <p>3. Multiple</p> <p>4. Relevant City of Calgary business units</p>	<p>L, A, SS, ES CD</p> <p>CD</p> <p>L, ES, CD</p> <p>ES H</p>
Economic Development	<p>1. Coordinate and provide information about the availability of shared facilities for processing (equipment, space, transportation, labour, labelling etc).</p> <p>2. Skill building and knowledge sharing as part of green collar employment. Explore and expand opportunities for social enterprise and community economic development.</p> <p>3. Develop a Food Trust Fund and explore vouchers or Calgary dollars to redistribute dollars to food programming and support training school cooks, retrofitting kitchens and developing sustainable foods</p>	<p>1. Government Sector: Provincial, AARD</p> <p>2. Community Food Sector</p> <p>3. Community Food Sector</p>	<p>1. AARD, Market Food Sector and Community Food Sector stakeholders</p> <p>2. Community Food Sector stakeholders e.g. Momentum, Trico Foundation, social agencies, YWCA, EthniCity catering and the Retail Council of Canada.</p> <p>3. Community Food Sector stakeholders e.g. Momentum, Trico Foundation, social agencies, YWCA, EthniCity catering and the Retail Council of Canada</p>	<p>L, ES, CD</p> <p>CD</p> <p>A, SS, ES H, CD</p>



	Action	Lead	Stakeholders	Alignment to Principles ¹⁷⁷
	sourcing and menus (e.g. Jamie Oliver’s School Dinners).			
Community Programs	<ol style="list-style-type: none"> 1. Embed the food system vision and principles and food security as a constellation within the Poverty Reduction Strategy. 2. Support and expand kitchen provision, skill-building community kitchen programs and community gardens/rooftop gardens as part of affordable and attainable housing or housing support. 3. Institutions collaborate on the development of a Farm to Cafeteria/ School etc approach in Calgary. 4. Explore issues, opportunities and actions at a community level for supporting the food vision and principles. 	<ol style="list-style-type: none"> 1. Poverty Reduction Initiative: City of Calgary & United Way 2. Community Food Sector 3. Institutions and Government Sectors 4. CFC, and Community Food Sector 	<ol style="list-style-type: none"> 1. All poverty reduction stakeholders and access and preparation food system stakeholders 2. Community food sector stakeholders and City of Calgary 3. Multiple 4. Federation of Calgary Communities, community associations and citizens 	<p>A, SS, H, CD</p> <p>L, A, SS, ES, H, CD</p> <p>L, A, SS, ES H, CD</p> <p>L, A, SS, ES H, CD</p>
Education Programs	<ol style="list-style-type: none"> 1. Continued support by the Calgary Board of Education (CBE) for embedding environmental stewardship and associated programs such as edible gardens within curriculum delivery to an increased number of schools. 2. Mapping of school food gardens, schools with food education programs and those that use produce in school lunches. 3. Education program on seasonal local food nutrition etc e.g. develop a Calgary Seasonal Food Calendar to educate people about what is ‘in-season’ locally – educate consumers to ask questions of chefs, cafeterias, grocery stores etc (ongoing). 4. City-wide education programs and campaigns on food waste diversion, composting and associated energy and water use. Both City of Calgary and consistent support funding for partner programs e.g. Green Calgary. To increase the programs to collect data on changing norms. 5. 3rd party certification (e.g. LEAF) for restaurants and food service providers. 6. Expand labelling and marketing material associated with 	<ol style="list-style-type: none"> 1. Government Sector - Alberta Education and Calgary Board of Education (CBE) 2. Institutional Sector, CFC and Government Sector - CBE, AHS 3. Calgary Food Committee 4. Community Sector - Green Calgary and Government Sector - City of Calgary: W&RS 5. Market and Community Food Sector 6. Market Food Sector & 	<ol style="list-style-type: none"> 1. Multiple 2. Multiple 3. Multiple 4. Multiple 5. Government sector and citizens 6. Government sector & citizens 	<p>A, H</p> <p>L, A, ES H,</p> <p>L, H</p> <p>ES</p> <p>L, ES H, CD</p> <p>L, ES H, CD</p>



	Action	Lead	Stakeholders	Alignment to Principles ¹⁷⁷
	<p>sustainable food sources e.g. local marketing material in grocery stores.</p> <p>7. Collaborate with the universities and other post-secondary institutions for opportunities for on-going data collection, research and actions related to the food system assessment and recommended actions.</p>	<p>AARD</p> <p>7. Institutional Sector</p>	<p>7. CFC, Government Sector</p>	<p>L, A, SS, ES H, CD</p>
Governance	<p>1. Ensure the continuation of the Calgary Food Committee to steward the implementation of the action plan in the context of the imagineCALGARY partnership and the constellation model. Draft revised terms of reference and review of membership based on moving to an implementation mandate.</p>	<p>1. Calgary Food Committee</p>	<p>1. All stakeholders within the food system</p>	<p>L, A, SS, ES H, CD</p>
	<p>2. Develop and manage a web-based information source to share the findings of the food assessment and provide resources to the public.</p>	<p>2. Calgary Food Committee</p>	<p>2. Government Sector – City of Calgary</p>	<p>L, A, SS, ES H, CD</p>



13.0 SUMMARY

While most major cities in Canada have a strong agricultural history, a disconnect between the consumer and producer has grown over the last 50 years through intensification and globalisation of the food system. Citizen knowledge and awareness of the impacts and options available for each element of the food system has gradually declined and recognition of the value of the food system by cities has generally been absent. Policy makers, particularly at the local level, are not as familiar with food systems and as a result its importance in decision making is low. This has been the case for Calgary.

However, in recent years, awareness is increasing and the value of a sustainable food system and approaches to planning cities for food have begun to emerge in response to citizen action and demand. This is demonstrated through the progression of food system assessments by many North American cities over the past 5 years, associated with specific actions of support to their implementation be it policy, legislation, financing, incentives or advocacy.

Calgarians have a vision for a sustainable food system and they articulated this through the imagineCALAGARY targets for food. Their interest and passion for our food system is growing and the different levels of government and business are responding to this demand for knowledge and change. This food system assessment has outlined where we stand as a city in relation to this citizen demand. We have not yet reached our targets, and, for some, we need to be more focussed on collecting the right data and communicating enough of the right information to see how we are doing. This assessment has identified the issues and opportunities along with best practices from other jurisdictions to help us move faster towards our vision. However, this is not a city government responsibility, nor should we rely on the farmer, the chef or the provincial inspector alone – each and every Calgarian has a role to play. The vision is to build a sustainable food system for Calgary and the region. It will take every one of us to get there.



14.0 GLOSSARY

- Aeroponics:** a method of growing plants in an air or mist environment without the use of soil or an aggregate medium.
- Agricultural Tourism: or Agritourism** the act of visiting a working farm or any agricultural, horticultural or agri-business operation for the purpose of enjoyment, education or active involvement in the activities of the farm or operation.
- Allotment Gardens:** characterised by a series of garden plots rented out to individuals often offered for the purpose of food production. Parcels are cultivated individually and common areas are often managed through volunteer activities of the garden group. They are generally located outside of neighbourhoods.
- Animal Husbandry:** the agricultural practice of breeding and raising livestock.
- Animal Welfare:** the quality of life of an animal.
- Approved Food Establishment** a food establishment that; is a Alberta Agriculture licensed facility, or is a Registered facility with the Canadian Food Inspection Agency or is permitted by Alberta Health Services.
- Black water:** wastewater from toilets and kitchen sinks. This is not included in water reuse applications.
- Communal Community Garden** are free to participate, everyone shares in the gardening and the harvest, and portion of the harvest is donated to families and/or organizations to increase access to fresh, local food.
- Community:** a distinct geographical area of the City as defined by a fixed community boundary, designated with a Community Name and that is determined through the Land Development/Subdivision Process and approved by City Council. The term “Community” is typically used to describe a geographic area of between 5,000 and 20,000 residents that was planned comprehensively and developed over a period of time. The boundaries of a community are usually used to delineate community associations and statistical data collection boundaries. This term also emphasizes the bonds that link residents to each other and to the neighbourhood they call home, or to a group with which they share a common interest
- Community Economic Development** action taken locally to create economic opportunities in the community on a sustainable and inclusive basis.
- Community Garden:** A Community Garden is a piece of land gardened by a group of people (10 persons minimum) for the purpose of providing a garden experience/education to citizens of Calgary. They are offered in partnership between City of Calgary Parks and community-based organizations and are subject to all policies and bylaws governing public lands. Private community gardens are non-City gardens and may be operated by a private organization.
- Community Orchards:** a piece of land gardened by a group of people for the purpose of producing fruit on trees and shrubs for community benefit and education.



- Community Supported Agriculture (CSA) or Community Shared Agriculture**: is part of a growing social movement that encourages urban and rural citizens to share responsibility for the food that is grown. Consumers purchase shares in the farm operation where the farmers and consumers share the risks and benefits of food production.
- Consumption**: the act of consumption and enjoyment of food. This can include food-related events and eating in both the public and private realms. Being able to select, prepare and cook minimally processed food from low in the food chain enables families to enjoy making healthy food choices, achieve good nutritional value for money, increase control over what they eat, understand where food comes from, begin to appreciate the important role of food producers in our society and contribute to protecting the environment. Preparing and sharing food also plays an important role in developing family and community relationships.
- Distribution**: the movement of products from the producer or processor to the buyer. It refers to the distribution and storage of both raw and processed food and the retailing, wholesaling and purchasing of food products. This takes place from farms to grocery stores, markets and restaurants.
- Farmers Market**: a food establishment whose proposed operation has been approved by the Minister responsible for Agriculture as an approved Farmers' Market Program under the administration of that Minister's Department. It is a niche marketing channel which creates the opportunity for customers to buy Alberta grown food, crafts and homemade goods from the Alberta producer, crafter or entrepreneur. The resulting communication and sharing of information creates trust and builds a sense of community. The market is designed to become a destination and attraction which builds goodwill, sharing and community support reminiscent of the 'town square' of previous generations.
- Food Bank**: a non for profit organisation that operates exclusively to provide food to persons in need, provides food for consumption off the premises and does not process foods.
- Food Hub**: a centrally located facility which stores, markets and distributes locally produced and processed food
- Food Processing Plant**: a manufacturing facility that processes raw food products and changing them into a more marketable product or one that is more shelf stable.
- Food Security**: all people, at all times, have physical, social and economic access to sufficient, safe, healthy and nutritious food to meet their dietary needs and food preferences for an active and healthy life.
- Food Sovereignty**: the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems. It develops a model of small scale sustainable production benefiting communities and their environment. It puts the aspirations, needs and livelihoods of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. Food sovereignty prioritizes local food production and consumption. It gives a country the right to protect its local producers from



cheap imports and to control production. It ensures that the rights to use and manage lands, territories, water, seeds, livestock and biodiversity are in the hands of those who produce food and not of the corporate sector.

- Food Waste Recovery:** the diversion, management, and utilization of organic waste e.g. as an energy source and/or fertilizer using recycled nutrients. Recycling and reusing of food matter provides a value-able resource when considering food choices within the framework of the food cycle.
- Food Desert:** a district (rural or urban) with little or no access to foods needed to maintain a healthy diet but often served primarily by fast food restaurants and/or convenience stores.
- Food Miles:** the distance food travels from where it is grown to where it is ultimately purchased or consumed by the end user.
- Food System:** a network connecting food production, processing, distribution, access & preparation, consumption and food waste recovery.
- Grey water:** untreated or lightly treated domestic effluent, not including water from toilets or the kitchen for use on the property, particularly in subsurface landscape irrigation or toilet flushing.
- Harvested Rainwater:** rainwater that is captured from the roofs of buildings on residential property. It can be used for indoor needs at a residence, irrigation or both.
- Haul Back or Utilization:** an approach which ensures that delivery trucks are full both in delivering food items on an outward journey as well as on the return journey
- Healthy Food:** food and beverages listed in the Eating Well with Canada's Food Guide which emphasizes vegetable, fruits, whole grains, legumes, nuts, seeds, dairy, meats, fish and poultry. These foods are prepared and served in a way that supports national and provincial recommendations for sugar, sodium and fat.
- Home Delivery Service:** a market channel where farmers sell their products to a "middle man" who then delivers multiple farmers' products directly to the consumers' homes or to a specific drop off point. This channel gives farmers more access to a larger client base as well as allows their customers to get the local or organic food they want in a convenient manner.
- Household Food Production:** can range from growing herbs and some small vegetables inside the house in pots on window sills or within sun-rooms, to planting fruit and vegetables and herbs in the ground or raised beds in front and backyards.
- Hydroponics:** a method of growing plants without soil, using mineral solutions in water or an inert medium such as gravel or mineral wool.
- 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.
- Large-scale agro-Enterprise:** the conventional commercial agricultural production system from which majority of food consumed is sourced.



- Life Cycle Assessment:** is a process for evaluating the environmental impact, or ‘environmental footprint’ of a product from cradle to grave
- Local:** products made, baked, grown, processed and sold in Alberta by Alberta producers. The scope of the Food Assessment has been based around city, regional and provincial boundaries, recognizing national and international markets, climatic conditions and cultural/personal taste amongst other considerations.
- Multi-functional farms:** include fully functioning farms that may also offer additional elements such as tourism, educational opportunities or farm shops.
- Neighbourhood:** a distinct part of a larger community, containing up to 5,000 people. A neighbourhood is typically considered an area within walking distance of a local commercial area, school, park, transit station, etc. As “compact, pedestrian friendly and mixed use” areas, the neighbourhood becomes the building block from which enduring settlements are formed.”
- Organic:** an agricultural product that has been certified as organic by a Canadian Food Inspection Agency accredited Certification Body and therefore is produced using the methods outlined by the Canadian Organic Standards. Organic products sold within the province of origin are subject to provincial organic regulations, the *Consumer Packaging and Labelling Regulations* and the *Food and Drug Regulations*. The provinces of Quebec and British Columbia have organic certification systems in place, while other provinces are considering developing their own system.
- Permaculture:** is a design science that is guided by ethical principles and inspired by natural systems for creating sustainable human habitat. An expression of Permaculture is reconfiguring the land on which we live into opportunities for beautiful spaces that produce local food.
- Potable Water:** water that meets federal and provincial water quality standards for water delivered to utility customers.
- Processing:** the process of altering raw food stuffs to create a different, more refined product. Examples include preserving, cooking/baking, preparation, meat processing, grain milling and other value-adding operations at a variety of scales. All these changes require the use of energy and natural resources. Reasons for processing include the need to manage harvests, reduce waste, keep food safe and protect public health, improve palatability, feed large urban populations and feed rural and remote communities.
- Production:** the planting, growing, raising and harvesting of food, including urban and rural agri-culture.
- Rainwater Harvesting Systems:** an above ground or below ground storage system that collects, stores and distributes run-off of rain or snow from roofs
- Roadside Stands:** Roadside stands are usually located on the farm, and sell fresh products directly to consumers on a seasonal basis. Farm stores may operate year round, and may be located off the farm, where traffic is higher.



- Rooftop Garden:** a roof top or part of a roof top that is accessible to people for the growing of plants. Rooftop gardens can provide space for localized small-scale urban agriculture; a source of local food production in support of a sustainable food system for Calgary. Rooftop garden classifications include:
- Rooftop Planter Garden** - a rooftop garden with removable/non-fixed planting containers and/or raised beds using soil, hydroponics (a method of growing plants without soil, using mineral solutions in water or an inert medium such as gravel or mineral wool) or aeroponics (a method of growing plants in an air or mist environment without the use of soil or an aggregate medium).
- Green roof system for agriculture** - a rooftop garden consisting of specialized membranes, drainage barriers and growing medium as another layer of the roofing system used to support the growing of vegetation on top of buildings.
- Safe Food:** food which is free from pathogens that could cause foodborne illness.
- Small-scale: Commercial & Semi-Commercial Urban Agriculture** agriculture that is less than 809ha with gross income for the preceding fiscal year not in excess of \$5,000,000 and with fewer than 51 employees.
- SPINFarming:** Small *Plot Intensive* - a non-technical, easy-to-learn and inexpensive-to-implement vegetable farming system that makes it possible to earn significant income from land bases less than one acre in size.
- U-Pick Operations:** Customers come to the u-pick operation and harvest the produce, pay cash for it, and transport it home. This reduces the grocer's costs for harvesting, sorting and packaging. Alberta Farm Fresh Producers Association prepares a pamphlet listing all farms in the province as well a by geographical area, available at: www.albertafarmfresh.com.
- Urban Agriculture:** the raising, growing, processing and distribution of food and non-food products (or plants and animals) within city boundaries or in the peri-urban areas and around cities for both food and fuel production.
- Vertical Garden:** the growing of plants on, up, or against the façade of a building.



APPENDIX A: Roles & Regulatory Bodies in the Calgary Food System

Federal	Provincial	Municipal
<p>Canadian Food Inspection Agency</p> <ul style="list-style-type: none"> enforces the <i>Organics Products Regulations</i>, the <i>Consumer Packaging and Labelling Act</i> and regulations, the <i>Food and Drug Act</i> and regulations, the <i>Canada Agricultural Products Act</i> and regulations and the <i>Meat Inspection Act</i> and regulations manages animal health risks, plant resource base and production systems ensures food for out-of-province sales is federally regulated carries out federal inspections and enforces the food safety and nutritional quality standards established by Health Canada 	<p>Alberta Agriculture & Rural Development</p> <ul style="list-style-type: none"> facilitates the adoption of food safety systems and standards responsible for the <i>Alberta Land Use Framework</i> that recognizes the need to address the fragmentation and conversion of agricultural land <i>Explore Local initiative</i> government inspection prior to sale of all meat and poultry ensures appropriate safe food production and processing practices inspection of food processing establishments & licenses abattoirs facilitates the adoption of internationally accepted food safety systems/standards 	<p>Animal & Bylaw Services</p> <ul style="list-style-type: none"> enforces bylaws that relate to water, composting, gardening, animal care and habitat protection including <i>Community Standards</i>, <i>Responsible Pet Ownership and Parks and Pathways Bylaws</i> enforces the <i>Street Bylaw</i>, which pertains to specific types of vendors in order to prohibit unauthorized sales
<p>Health Canada</p> <ul style="list-style-type: none"> <i>Pest Management Regulatory Agency</i> regulates pesticides under the <i>Pest Control Products Act</i> and regulations establishes policies, standards & provides information on food borne illnesses and nutrition. Administers the provisions of the <i>Food and Drugs Act</i> 	<p>Alberta Environment</p> <ul style="list-style-type: none"> enforces Alberta's pesticide legislation allows municipalities to introduce by-laws that further restrict pesticide use responsible for the <i>Environmental Protection and Enhancement Act and Water Act</i> food processing facilities must be either approved or registered with the department 	<p>Development & Building Approvals</p> <ul style="list-style-type: none"> <i>Business Licensing</i> have licence categories for Market, Food Services - premises, Food Services - no premises, pushcart and distribution manager all of which allow the sale of food to the public
<p>Public Health Agency of Canada</p> <ul style="list-style-type: none"> Conducts outbreak surveillance and epidemiology 	<p>Alberta Health Services</p> <ul style="list-style-type: none"> approval required to obtain various licence categories investigates food-related complaints, assesses and determines the risk status of all food establishments to ensure compliance with the <i>Public Health Act Food Regulation</i> for commercial food establishments, farmers markets, bed and breakfasts manages restaurant inspections 	<p>Land Use Planning and Policy</p> <ul style="list-style-type: none"> enforces legislation related to farmer's markets and certain parked vendors
<p>Agriculture & Agri-Food Canada</p> <ul style="list-style-type: none"> works with provinces, territories and <i>Pest Management Regulatory Agency</i> to reduce human health and environmental risks associated with pesticides builds on international commitments which affect food security 	<p>Calgary Regional Partnership</p> <ul style="list-style-type: none"> approved the <i>Calgary Metropolitan Plan</i> which addresses land use and its potential impact on agricultural lands 	
<p>Natural Resources of Canada</p> <ul style="list-style-type: none"> checks pesticide use to protect natural resources 		
<p>Department of Fisheries and Oceans</p> <ul style="list-style-type: none"> protects fish habitats and oceans from pesticide contamination 		
<p>Environment Canada</p> <ul style="list-style-type: none"> studies pesticides in the environment 		



APPENDIX B: The City of Calgary’s Roles in Calgary’s Food System

Parks	<ul style="list-style-type: none"> ▪ Provides tangible support to community garden & orchard initiatives e.g. land, irrigation, education & development support. ▪ Selected residential material is collected and composted (e.g. Christmas trees, leaves and pumpkins) for city green spaces. ▪ Provides compost/mulch to community gardens. ▪ Community orchards pilot provides fruit trees in local parks which will be harvested by citizens. ▪ Healthy Yards program.
Land Use Planning and Policy	<ul style="list-style-type: none"> ▪ The <i>Municipal Development Plan</i> encourages community gardens, urban agriculture and promotes food production. ▪ The <i>Municipal Development Plan</i> promotes composting and promotes the use of renewable energy sources which would include energy from waste, policies contained within <i>Area Structure Plans</i> and <i>Area Redevelopment Plans</i> encourage composting.
Water Resources and Water Services	<ul style="list-style-type: none"> ▪ Provides water services, promotes the use of rain water harvesting for non food-production irrigation and collaborates to implement low-impact development strategies (e.g. rain gardens) in support of the <i>Stormwater Management Strategy</i>.
Community Neighbourhood Services	<ul style="list-style-type: none"> ▪ <i>Strong Neighbourhoods Initiatives</i> recognizes local food production and enhances community resiliency. ▪ Financially supports agencies that address social objectives and vulnerable populations including food assistance programs and agencies.
Environmental Safety Management	<ul style="list-style-type: none"> ▪ Eco-footprint local food campaign encourages citizens to purchase and grow local food. ▪ The eco-footprint local food campaign advocates the importance of local food and associated embedded energy as drivers for reducing Calgary's eco-footprint. ▪ The <i>Greenhouse Gas Plan</i> commits to corporate and community GHG reductions of 20% by 2020 and 80% by 2050- reduced embedded energy associated with local food will be addressed in the GHG plan.
Infrastructure & Information Services	<ul style="list-style-type: none"> ▪ Sustainable Building Policy - LEED accreditation points may be achieved by integrating local food production or green roofs in building site design.
Finance & Supply	<ul style="list-style-type: none"> ▪ Food is one of the commodity areas where the Sustainable Environmental and Ethical Procurement Policy is applied.
Transportation	<ul style="list-style-type: none"> ▪ The Calgary Transportation Plan aims to protect distribution access.
Waste & Recycling Services	<ul style="list-style-type: none"> ▪ 80/20 by 2020 target reduces waste to landfill through the recycling of organic material. ▪ Education programs to support the waste hierarchy. ▪ Sale of backyard composters to citizens. ▪ Partners with Green Calgary to offer composting education ▪ selected residential material is collected and composted (e.g. Christmas trees, leaves and pumpkins) for city green spaces ▪ Provides compost/mulch to community gardens.



APPENDIX C: Food System Assessments from Other Jurisdictions

Food System Assessment	Purpose and Findings
Food System Assessment for the City of Vancouver, 2005	<p>Purpose: To assess food security in terms of the availability and accessibility of food, and to explore ways of enhancing food security.</p> <p>Findings:</p> <ol style="list-style-type: none"> 1. Appreciable food insecurity exists in certain areas, e.g. the Downtown Eastside <ul style="list-style-type: none"> ▪ charitable food supply in these areas has issues of quality and availability ▪ grocery stores are abundant but poorly stocked ▪ residents have barriers to food preparation ▪ there is a need for easier access to inexpensive and healthy foods 2. Social enterprises (engaging the hungry in specific initiatives) have been adopted to address food insecurity 3. An overarching strategy is required to support and coordinate these initiatives in a new food system 4. Recommended strategy is to re-vision the food system with community playing a key role
Food Systems Assessment for Oakland, Ca: Toward a Sustainable Food Plan, 2006	<p>Purpose: Baseline analysis, with the goal of increasing local area food production to 30%</p> <p>Findings:</p> <ul style="list-style-type: none"> ▪ Oaklanders' expenditures on food equate to a small fraction of the region's agricultural production ... there is potential for the surrounding region (~300 mile radius) to supply most of Oakland's food needs ▪ There is substantial untapped food retail demand in those Oakland neighbourhoods underserved by full-service groceries, and relying on small food retail stores with relatively little fresh food.
Analysis for Developing a City-Wide Food and Agriculture Strategy for Edmonton, 2010	<p>Purpose: To respond to demand for a city-wide food and agriculture strategy</p> <p>Findings: Many city departments can play a role in developing the strategy, but no one department owns the food agenda. Several city departments have roles in conjunction with other orders of government, the region, non-government agencies and communities. Some interim tasks relating to land use can be initiated.</p> <p>The City of Edmonton is in the process of aligning strategic planning processes to ensure an integrated approach to city building in the future. Several corporate plans are in place that will address food issues from different perspectives:</p> <ul style="list-style-type: none"> ▪ The Way We Grow, adopted May 2010 ▪ The Way We live (people plan) - drafted ▪ The Way We Green (environmental strategic plan) - in preparation ▪ The Way We Prosper (economic development plan) - in preparation <p>It is anticipated that developing an integrated approach to move toward a city-wide food and agriculture strategy may take some time, since several of the above city plans are still under development. There is no one department where responsibilities will reside, therefore additional resources may be needed for integration and assignment of responsibility. The City's most effective role may be as facilitator, advocate and partner to the many organizations, jurisdictions and initiatives related to food that are already active.</p>
Richmond Food System Assessment: Environmental Scan and Action Plan, 2006	<p>Purpose: To assess Richmond's food system, identify available resources, and highlight where services and systems are not working well for residents, particularly vulnerable populations</p> <p>Findings: Agricultural Land Reserve (ALR) and other agricultural land is continually under pressure from development, and tension between urban and rural land use is constant.</p> <ul style="list-style-type: none"> ▪ 4,900 ha of Richmond's land base is in the ALR (34% of the city's land) ▪ agricultural land use in Richmond covers just over 3,000 ha ▪ remaining ALR land within Richmond is vacant or under non-agricultural uses, e.g. roads, institutions, golf courses <p>There is no standard curriculum for nutritional education in Richmond schools. A few schools access a</p>



Food System Assessment	Purpose and Findings
<p>City of Victoria Food System Discussion Paper, 2009</p>	<p>greenhouse or garden for student instruction and two schools have elective teaching cafeterias.</p> <p>Purpose: To present a synthesis of issues, opportunities and challenges relating to Victoria's food system, to provide direction for City of Victoria policy</p> <p>Findings: Development of an urban food system in a way that enhances social, ecological economic and nutritional health might include</p> <ul style="list-style-type: none"> ▪ a municipal policy to support development of an urban food system ▪ a comprehensive and coordinated set of municipal policies, regulations and programs intended to enhance the urban food system at its various stages <p>Priority initiatives for strengthening the food system were identified in several areas, including</p> <ul style="list-style-type: none"> ▪ Food Policy Development: <ul style="list-style-type: none"> - examine opportunities for developing a comprehensive food policy and associated action plan to support the development of Victoria's urban food system - explore opportunities for designating food policy responsibilities within the role of a City staff person - consider developing a food policy, action plan and other initiatives in collaboration with food system stakeholders - consider how the City can partner with existing community organizations and stakeholders to implement initiatives, including co-delivery of services ▪ Food System-Wide Initiatives: <ul style="list-style-type: none"> - explore potential for re-directing a portion of City grant funds to support urban food system-related projects - facilitate a broad discussion regarding the suitability of food system activities (allotment gardens, street food vendors, fruit trees and edible landscaping) for public parks, streets and sidewalks - explore information needs to support urban food system initiatives, including and updated food system assessment and inventory of potential food-producing lands - determine opportunities for City to engage in food policy and planning at the regional level, and establish inter-governmental collaboration.
<p>San Francisco Foodshed Assessment, 2009</p>	<p>A study was completed in 2008 focused on determining the potential of San Francisco to be self sufficient in producing their food within 100 miles of the city. This study was in response to the trend toward eating local, and to the concern that local farmland was being lost to urban development. Within 100 miles of San Francisco, there is a huge capacity for agricultural production. The food potential of this city and area is one of the highest in the United States. The lessons to be learned from this study include the following points:</p> <ul style="list-style-type: none"> ▪ the current food system is geared to deliver inexpensive, standardized food products; ▪ the “story behind the food” message has/is not being delivered; ▪ the primary challenge is to improve the access (physical and economic) to food of low-income consumers; ▪ to increase the consumption of local food, there must be much greater traceability capacity to identify the origin of the food production; ▪ consumer education is a key ingredient for educating individuals as to what foods are in season, nutrition, and locations of availability; and ▪ capital, know-how and infrastructure is necessary to enable consumers to transition to growing more for local, in addition to global markets.
<p>Towards A Healthy Community Food System for Waterloo Region, 2005 (Region of Waterloo Public Health)</p>	<p>A major assessment was done in the Waterloo region to document the state of the food system. A major focus of this assessment was with respect to issues of public health and nutrition, being funded primarily by the public health authorities. They define a healthy community food system as one in which the processes involved in the food system are integrated to enhance the environmental, economic, social and nutritional health of the geographic community.</p> <p>The assessment was focused on describing the objectives and strategies/ actions that they are taking to develop a healthy food system in the Waterloo Region. The major strategies they have developed are important lessons to be learned from this study.</p> <ul style="list-style-type: none"> ▪ Forge a dynamic partnership to implement a community food system plan. ▪ Strengthen food-related knowledge and skills among consumers.



Food System Assessment	Purpose and Findings
	<ul style="list-style-type: none"> ▪ Work with existing planning departments/government to address agricultural policy issues. ▪ Increase the availability of healthy food. ▪ Strengthen the local food economy.
Portland, 2002-2005	<p>Portland began in 2002 to become involved extensively in improving food security in the city. A first component was to do a community food assessment and a market basket survey to determine whether residents were food insecure, and if so, how gaps could be addressed. In 2004, the city commissioned an inventory of city owned lands that could be suitable for agricultural uses. This led to the Diggable City report and project, which has resulted in the development of extensive agricultural production in the city from this unused land, community gardens, and roof top gardens.</p> <p>Lessons to be learned from the food security efforts in Portland include:</p> <ul style="list-style-type: none"> ▪ there can be significant potential within the limits of the city for agricultural production; ▪ all stakeholders in the community must be involved and engaged; ▪ the city bylaws and policies must be harmonized and supportive; and ▪ there is a major role for entrepreneurship and education to ensure successful outcomes.
Gord Hume (2010) The Local Food Revolution, Municipal Knowledge Series	<p>Call to action is for municipalities to prepare 'Community Strategic Food Plans' – this should involve many civic departments actively and embrace senior government officials and the general public if it is to be successful. It should identify their local problems and weaknesses in this area and agree upon a series of actions to overcome the challenges. Elements should include:</p> <ul style="list-style-type: none"> ▪ Ensuring food security ▪ Making sure kids get a nutritious diet – working with schools to ensure physical activity ▪ Better connecting food suppliers and deliverers with social/charitable agencies and food banks ▪ Review the design of our neighbourhoods and streets ▪ Examine how food is disposed of ▪ Education and awareness – ▪ Engage more interest by health units ▪ Local economy and culture



APPENDIX D: Inventory of Calgary and Region Producers

Company/ Organization*	Location	Website
Alexandra's Butterfly Garden	Black Diamond	butterflygarden.ca
Beck Farms	Innisfail	innisfailgrowers.com/beck
Big Bend Market	157,2004 – 50 Ave Red Deer	
Blue Mountain Biodynamic Farms	Carstairs	
Boccalino Grotto Fine Foods	101, 50 Lincoln Park, Canmore	boccalinogrotto.com
Broek Pork Acres	Coalhurst & Lethbridge	broekporkacres@xplornet.com
Broxburn Café	Lethbridge	broxburn-vegetables.com
Broxburn Vegetables & Café	Cochrane	broxburn-vegetables.com
Buckler Farm and CSA	EagleHill, Olds	bucklerfarm@velocitynetworks.ca
Buffalo Horn Ranch	Hwy 817, Strathmore	buffalohornranch.ca
Bumbleberry Orchard Ltd	Strathmore & Others	fieldstonefruitwines.com
Calgary Coop	10615 – 48 Street SE, Calgary	calgarycoop.com
Carmen Creek	Okotoks	carmencreek.com
Chinook Honey	722 - 11 Ave SW	chinookhoney.com
Cookbook Company	Lethbridge	cookbookcooks.com
Creative Cleaver	6910 –6St SW Calgary/Pincher Creek	creativecleaver.ca
Diamond Willow Organics	Edmonton	diamondwillow.ca
Dunvegan Gardens	Bowden	dunvegangardens.ca
Eagle Creek Farm	Innisfail	eaglecreekfarms.ca
Edgar Farms	Fort McLeod	edgarfarms.com
Fairwinds Farm Ltd	Hwy 817, Strathmore	fairwindsfarm.ca
Field Stone Fruit Winery	Strathmore, Alberta	fieldstonefruitwines.com
Gouw Quality Onions	Vulcan	gouwwualityonions.com
Grainworks	Stettler	grainworks.com
Greidanus Honeybee Farm	Gull Lake	boomtowntrail.com
Gull Valley GH	South of Gull Lake, Alberta	gullvalley.ca
Heritage Harvest	High River	
Highwood Valley Ranch	Rockyview	highwoodvalleyranch.com
Hotchkiss Herbs & Produce	Eckville	hotchkissproduce.com
Hoven Farms/Market	5 farms – various	hovenfarms.com
Innisfail Growers	Okotoks	innisfailgrowers.com
Kayben Farms	Calgary	kayben.com
Leaf & Lyre	Innisfail	leafandlyre.com
Lunds Organic	Innisfail	lundsorganic.com
Nixon Honey Farm	Nobleford	nixonhoney.ca



Company/ Organization*	Location	Website
Noble Gardens	Nobleford	noblegardencsa.com
Noble Meadows	Nanton	On facebook
Paradise Hill Farm Market	Bowden area	paradisehillfarm.ca
Pearsons Berry Farm	Westaskiwin	pearsonsberryfarm.ca
Pine Haven Colony Sausage & Meats	Strathmore	none
Poplar Bluff Organic	Bon Accord, (Edm)	poplarblufforganics.com
Prairie Gardens	Edmonton region	prairiegardens.org
Ravenwood Ranch	Various	ravenwoodranch.com
Smoky Valley Cheese	Smoky Lake	smokevalleygoatcheese.com
Springridge Ranch	Pincher Creek	springridgeranchyakcrossbeef.blogspot.ca
Sprout Farms	Bon Accord	sproutfarms.ca
Sudo Farms	Lethbridge	None
Sundance Fields	Olds	sundancefields.com
Sunworks Farm	Armena	sunworksfarm.com
Sylvan Star Cheese Ltd	Red Deer	sylvanstarcheesefarm.ca
The Blooming Fields Didsbury	Didsbury	thebloomingfields.com
The Cheesiry	Lloydminster	osolmeatos.com/cheesiry
The Jungle Farm	Innisfail	thejunglefarm.com
The Jungle Farm/ Innisfail Growers	Innisfail	innisfailgrowers.com/thejungle
The Saskatoon Farm	DeWinton	saskatoonfarm.com
Thompson Small Farm	Sundre	thompsonsmallfarm.ca
Trails End Beef	Nanton	trailsendbeef.com
Winter's Turkeys	Dalemead	wintersturkeys.ca

* Note: This inventory is based upon information sourced from Alberta Agriculture and Rural Development, supplemented by Slow Food Calgary. It should be noted that this list is not exhaustive and there are other sources of information that may include additional producers.

Additional Producers may be found at the following:

- Alberta Bee Keepers: www.albertabeekeepers.org/
- Alberta Beef Producers: www.albertabeef.org
- Alberta Chicken Producers: www.chicken.ab.ca/
- Alberta Egg Producers: eggs.ab.ca/
- Alberta Elk Commission: www.albertaelkcommission.com/
- Alberta Farm Fresh Producers Association: www.albertafarmfresh.com/
- Alberta Farmers Market Association: www.albertamarkets.com/
- Alberta Lamb Producers: www.ablamb.ca/
- Alberta Pork: www.albertapork.com/
- Alberta Potatoes: www.albertapotatoes.ca/
- Alberta Whitetail & Mule Deer Association: www.albertadeer.com/
- Bison Producers of Alberta: www.bisoncentre.com/
- Slow Food Calgary: slowfoodcalgary.ca/
- Wild Rose Agricultural Producers: <http://www.wrap.ab.ca/>



APPENDIX E: Urban Egg Laying Hens: A Review of Canadian Municipalities

Urban Egg Laying Hens: A Review of Canadian Municipalities

Municipality	Regulations Defined in the Applicable Bylaw											
	Bylaw Status	Population*	Lot Size	Setback	Coop Specifications	Animal Care	Odours	Prevention of Composting	Waste & Wild Birds	Predators or Nuisance	Noise & Slaughtering	Access to Property
City of Richmond, BC	Allowed	<u>174,461</u>	Y	N	N	Y	Y	Y	N	Y	N	Y
City of Kamloops, BC	Allowed	<u>80,376</u>	Y	Y	Y	Y	Y	Y	N	Y	N	Y
City of Victoria, BC	Allowed	<u>78,057</u>	N	N	N	N	Y	N	N	Y	N	N
City of Vancouver, BC	Guidelines Under Review - Public Hearing	<u>578,041</u>	N	Y	Y	Y	Y	Y	Y	Y	Y	N
Halifax Regional Municipality, NS	Under Review	<u>372,679</u>	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B
City of London, ON	Prohibited (except prior to enactment of the bylaw)	<u>352,395</u>	N	Y	Y	Y	Y	Y	Y	N	N	N
City of Waterloo, ON http://www.city.waterloo.on.ca/DesktopDefault.aspx?tabid=599	Prohibited	<u>97,475</u>	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B
City of Toronto, ON	Prohibited	<u>2,503,281</u>	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B
City of Edmonton, AB	Prohibited	<u>730,372</u>	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B	NA B

* 2006 Statistics Canada Population Counts
 Y: Yes
 N: No
 NA: No applicable bylaw



APPENDIX F: Calgary Food Processors

Company/ Organization	Address	Major Products/Activities	Niche	Brands
ADM Milling Company	SE Calgary, AB	Flour, Bakery Mixes, Mill Feeds		Three Star, Triumph
Agristar Inc.	NE Calgary, AB	Fresh Potatoes, Dehydrated Potato Granules		Gourmet, Steakmate, Agristar
Alberta Barley Commission	NE Calgary, AB	Organization		
Alberta Beef Producers	NE Calgary, AB	Organization		
Alberta Cheese Company Ltd.	SE Calgary, AB	Specialty Cheese, Mozzarella, Ricotta, Cheddar, Feta, Provolone, Monterey Jack, Marble, Jalepeno Jack, Bocconcini	niche	Franco's, Sorento
Alberta Distillers Ltd.	SE Calgary, AB	Canadian Rye Whisky, Vodka, Neutral Spirits		Alberta Springs, Alberta Pure Vodka, Windsor Canadian, Banff Ice Vodka, Alberta Premium Rye Whisky, Tangle Ridge Canadian Whisky
Alberta Food Processors Association	SE Calgary, AB	Organization		
Alberta Processing Co.	SE Calgary, AB	Meat & Bone Meal, Blood Meal, Feather Meal, Poultry By-Product Meal, Feed Fat, Tallow, Hides		
Albion Fisheries Ltd.	NE Calgary, AB	Complete Line Fresh & Frozen Seafood (3500 Items)		
Arrowhead Spring Water Ltd.	SE Calgary, AB	Spring Water, Distilled Water, Reverse Osmosis Water		Arrowhead
Baker Boys	NE Calgary, AB	Thaw & Sell (Gourmet Cinnamon Rolls, Danish Pastry Products, Other Gourmet Baked Goods)	niche	Baker Boys
Bassano Growers Ltd.	NE Calgary, AB	Grower/Packer/Shipper of Alberta Produce & Potato and Carrot Products, Frozen Sliced & Diced Carrots & Potatoes		Bassano Gold, Bassano Growers Ltd.
Big Chief Meat Snacks Inc.	NE Calgary, AB	Beef Jerky, Beef Sticks		Big Chief, Private Label
Big Mountain Coffee Roasters Ltd.	SE Calgary, AB	Specialty Coffee (Organic, UTZ Certified, Specializing in Espresso Blends)	niche	Big Mountain
Big Rock Brewery	SE Calgary, AB	Ale, Lager, Cider, On-Site Restaurant		Traditional Ale, Grasshopper Wheat Ale, India Pale Ale, McNally's Extra, Warthog Ale, Black Amber Ale, Rock Creek Cider, XO Lager, Honey Brown Lager, Jack Rabbit Lager, (Special Edition Seasonal Brews)
Biscotti By Susan D.	SW Calgary, AB	Biscotti (Regular, Rice Flour, Organic)	niche	
Bon Ton Meat Market	NW Calgary, AB	Fresh Meats, Meat Pies, Sausage, Hamburger Patties		Bon Ton
Bouvry Exports Calgary Ltd.	SW Calgary, AB	Horses, Horsemeat, Horse By-Products, Bison Meat, Bison By-Products, Cattle, Beef, Halal Beef, Beef By-Products, Elk, Elk Meat, Hides	niche	Bouvry, Richelieu, Florence Packing, Springbank Bison
Bowness Bakery Alberta	NE Calgary, AB	Rye & Whole Grain Breads, Organic &		Bowness Bakery, Pretzeland



Company/ Organization	Address	Major Products/Activities	Niche	Brands
Inc.		Yeast-Free Breads, Pizza Shells, Pretzels		
Brassica Mustard Ltd.	NE Calgary, AB	Prepared Mustards		
Burnbrae Farms Ltd.	SE Calgary, AB	Table Eggs, Omega-3 Eggs		Burnbrae Farms, Naturegg
Byblos Bakery Ltd.	NE Calgary, AB	Pita Bread, Bagels, Baklava, Tortilla Wraps, Nan Bread, Pizza Shells, Paninis		Byblos, Balady, Lebanese Bakery
Cadcan Marketing & Sales Inc.	SE Calgary, AB	Hot Air Puffed Pasta Chips	niche	CheeCha Puffs, Gluten-Free CheeCha Potato Puffs
Calco of Calgary	NE Calgary, AB	Frozen Dumplings & Spring Rolls, Egg Rolls & Wonton Wraps, Fresh-Made Noodles, Chili Garlic Oil, Bean Sprouts, Fresh-Cut Vegetables & Salads		Mr. Egg Roll, Calco, Noodle Delights, Garden Delights, Dim Sum Delights
Calgary Italian Bakery Ltd.	SE Calgary, AB	Bread, Buns, Crusty Buns, Pizza, Pastries, English Muffins, Donuts, Bagels, Hearth Breads		Calgary Italian, Golden Rich, Traditional
Canada Beef Inc.	NE Calgary, AB	Organization		
Canada Bread Frozen Bakery Ltd.	SE Calgary, AB	Frozen Bread		Private Label
Canada Malting Co. Limited	SE Calgary, AB	Malt, Feed By-Products		
Canadian Cattlemen's Association	NE Calgary, AB	Organization		
Cantran Meat Ltd.	SE Calgary, AB	Fresh Meats, Processed Meats, Fresh Pork		
Carmen Creek Gourmet Bison	SE Calgary, AB	Bison Meat	niche	Carmen Creek, Grande Prairie Bison Co.
Cazuelitas Inc.	SW Calgary, AB	Latin Frozen Entrees & Frozen Side Dishes (Empanadas, Arepas, Tequenos)	niche	Latino's Best
Cedar's Deli Inc.	NE Calgary, AB	Hommous, Tzatziki, Falafel Patties, Stuffed Vine Leaves, Tabouli, Tahini	niche	Cedar's
Centennial Foodservice	SE Calgary, AB	Specialty Meat Products (Portion Control), Ground Beef, Lamb, Veal, Pre-Cooked Battered & Breaded Products, Hamburger Patties (Raw or Pre-Cooked), Protein Products, Foodservice		Centennial
Chocolaterie Bernard Callebaut	SE Calgary, AB	Chocolates, Chocolate Spreads, Sauces, Ice Cream Bars		Chocolaterie Bernard Callebaut, Chocolates by Bernard Callebaut, Private Labels
Clover Leaf Cheese Ltd.	NE Calgary, AB	Cheese Packaging		Clover Leaf, Rocky Mountain Private Labels
Co-op Feeds	NE Calgary, AB	Livestock Feeds, Poultry Feeds		Co-op, Challenger
Coca-Cola Bottling Company	NE Calgary, AB	Soft Drinks		Coca-Cola Classic, Diet Coke, Sprite, Diet Sprite, Minute Maid, Fresca, Canada Dry, Fruitopia, Nestea, Powerade, Barqs, Dasani
Coco Karamel Inc.	NE, Calgary, AB	Alfajores, Cake Toppers	niche	Coco Karamel
Copper Pot Creations Inc.	SW Calgary, AB	Gluten-Free & Allergen-Free Frozen Entrees	niche	
Cott Beverages Canada, div. of Cott Corporation	SE Calgary, AB	Canned & Bottled Soft Drinks, Spring Water		Cott, RC, Chubby, Aquel, Red Rain, Bone Chillin, Private Labels
Crumbz Foods Inc.	NE Calgary, AB	Bread Crumbs, Bread Cubes, Croutons, Seasonings		Crumbz, Private Label



Company/ Organization	Address	Major Products/Activities	Niche	Brands
dpb Baking Company	NE Calgary, AB	Cookies, Scones, Dessert Bars, Cakes, Loaf Cakes, Muffins		
Daniel's Bagel and Baguette Corp.	SE Calgary, AB	Specialty Breads, Dinner Buns, Bagels, Pretzels		
Decadent Desserts	SW Calgary, AB	Gourmet Cakes, Cheesecakes, Pies, Cookies, Wedding Cakes		
Delizia's Pasta Ltd.	SE Calgary, AB	Fresh & Frozen Pasta, Stuffed Pasta, Lasagna		Emilio's
Diabetic Depot	SW Calgary, AB	Cookies (Various, Love Bites Sugar Cookies), Nanaimo Bars, Pasta, Muffins (Various), Brownies, Cheesecakes (Various), Cakes (White, Chocolate, Carrot, Spice, Coffee), Butter Tarts		DD's Carb Counter Bakery, Diabetic Depot
Duck Worth Farm	SE Calgary, AB	Duck Eggs	niche	Duck Worth Farm
Egg Farmers of Alberta	NE Calgary, AB	Organization		
Engel's Bakeries Ltd.	NE Calgary, AB	Baked Goods, Frozen (Ready to Bake) Products, Danish, Muffins, Sausage Rolls, Cakes, Bread, Specialty Bread, Buns & Rolls		Engel's
Fairview Bakery 1987 Ltd.	SE Calgary, AB	Rolls (Sausage, Chicken, Vegetarian), Quiches, Puff Pastry, Meat Pies, Oatmeal Turnover Cookies, Croissants, Danish Strudel, Pepperoni Cheese Sticks, Breakfast Bundles (Scrambled Egg Rolls)		
Fleischmann's Yeast	SE Calgary, AB	Yeast, Baking Aids		Fleischmann's, AB Mauri
Flora Beverage Co. Ltd.	SE Calgary, AB	Stomach Bitters, Herbal Extracts, Herbal Tonics, Herbal Beverages, Custom Blending, Custom Manufacturing (GMP Approved)	niche	Bitterswede, Hoxsiac, Essex Botanical, Mojave Nectar, Private Label
Foothills Creamery Ltd.	SE Calgary, AB	Ice Cream, Cones, Frozen Yogurt, Butter		Foothills, Unique Cones, Rocky Mountain Cheese
Fratello Coffee Co. Ltd.	SE Calgary, AB	Coffee, Syrups, Granita, Chocolate, Teas		Fratello
Fresh Direct Foods (2010) Ltd.	SE Calgary, AB	Fresh, Peeled Vegetables & Fruit (Custom Cuts & Mixes)		Get Fresh, Crave Fresh
Ginger Beef Choice Ltd.	SE Calgary, AB	Chinese Foods		Ginger Beef Choice
Golden Happiness Bakery Ltd.	SE Calgary, AB	Asian Specialty Products		Golden Happiness Frozen Foods, Golden Happiness Bakery, Private Labels, Sweet Motives
Gonard Foods Ltd.	NE Calgary, AB	Chicken Products, Fresh & Frozen Poultry, Beef, Lamb, Pork Bites		Gonard Foods
Good Earth Cafes Ltd.	SE Calgary, AB	Baked Goods, Desserts		
Grande Prairie Bison Co.	SE Calgary, AB	Bison	niche	
Greenview Aquafarm Ltd.	SE Calgary, AB	Tilapia, Big Mouth Buffalo	niche	
Hilton Stone Distribution Corp	SE Calgary, AB	Pasta, Calzone, Pizza, Desserts		Coco Brooks
Horizon Meats	NE Calgary, AB	Beef, Pork, Poultry, Lamb, Fish, Ostrich, Buffalo, Wild & Domestic Turkeys, Fallow Deer & Elk, Albertan Tibetan Yak	niche	
Hung's Noodle House	NE Calgary, AB	Noodles, Rice Noodles, Chinese Deli		Hung's Noodle House
Infuse Cuisine Group Ltd.	SW Calgary, AB	Organic Breads & Baking, Prepared Meals, Gourmet Products		
Judy G Foods Inc.	SE, Calgary, AB	Low-Allergen Pizza, Gluten-Free Pizza	niche	Judy G Gluten-Free



Company/ Organization	Address	Major Products/Activities	Niche	Brands
		Crusts, Gluten-Free Pizzas (Roasted Mediterranean Artichoke, Pepperoni & Cheese, Ham & Pineapple, Lactose-Free Cheese Trio)		
Lakeview Bakery	SW Calgary, AB	Low Carb, Allergy-Free & Organic Baking, Rice Baking, Organic Spelt & Kamut Products, Bread, Buns, Cookies, Muffins, Cakes, Pies		Lakeview Bakery, Pyramid
Lassonde Western Canada (Div. of A. Lassonde Inc.)	SE Calgary, AB	Aseptic Juices & Drinks	niche	Oasis, Allens, Fairlee, Niagra
Lilydale Inc.	SE Calgary, AB	Fresh & Frozen Poultry Products		Lilydale Reg
Lloyd's Patty Plus	SE Calgary, AB	Jamaican Patties	niche	Lloyd's Patty Plus
Lucerne Foods Ltd., A Div. of Canada Safeway	SE Calgary, AB	Bread		Ovenjoy, Nature's Blend, Safeway, Safeway Select, Eating Right, "O"rganics
Lucerne Foods Ltd., A Div. of Canada Safeway	SE Calgary, AB	Fresh Sandwiches, C02 Sandwiches, Deli Trays, Co-Packer of Ckd Meats		Lucerne, Safeway
Mac's Convenience Stores Inc.	SE Calgary, AB	HMR, Sandwiches, Muffins, Breads		
MacEwans Meats	SW Calgary, AB	Scotch Meat Pies, Bridies, Black Pudding, Haggis, Slice Sausage, Meat Products (Beef, Pork, Poultry), Ayrshire Bacon, English Bacon		MacEwans
Mandarin Noodle Manufacturing Co. Ltd.	NE Calgary, AB	Noodles (Rice, Wonton, Steamed, Silver Needle, Shanghai, Udon), Rice Roll, Wonton Wrap, Eggroll Wrap, Lai Fan		Mandarin Noodle
Manuel Latruwe Belgian Patisserie Bread Shop	SE Calgary, AB	Bread, Pastries, Quiches, Croissants, Cakes, Cookies, Ice Cream, Sorbet		
McCormick Canada - Stange Division	NE Calgary, AB	Seasonings, Soup Bases, Meat Binders		Private Labels
Mother Dairy	NE Calgary, AB	Cheese (Paneer, Mozzarella), Ghee (Clarified Butter), Lassi Yogurt, Milk Badam, Rasmalai, Indian-Type Sweets, Whipped Butter, Popsicles (Kulfis)	niche	Mother Dairy, Amu
Old Dutch Foods Ltd.	SE Calgary, AB	Potato Chips, Corn Snacks, Pretzels		Old Dutch, Arriba, Rave, Restaurante, Dutch Crunch
Olivier's Candies Ltd.	SE Calgary, AB	Chocolates, Hard Candies, Brittles, Barks		Olivier's Chocolate
Parmalat Canada	SE Calgary, AB	Fluid Dairy Products		Private Label, Branded
PARMX Cheese Co.	SE Calgary, AB	Grated Parmesan Cheese, Grated Cheese Products, Shredded Parmesan Cheese, Grated Romano Cheese, Shredded Nacho Mix (Supreme & Regular), Cheddar Blocks, Mozzarella (Full Fat & Part Skim)		PARMX, Parmazello, Generic, Vincenzo's, Private Labels
Pepsi Beverages Canada	SE Calgary, AB	Soft Drinks, Spring Water		Pepsi, 7-Up, Crush, Aquafina, Gatorade
Pradera Natural Mexican Food Products Corp.	SE Calgary, AB	Flour Tortillas (Certified Organic Ingredients - Wheat, Whole Wheat, Spelt, Flax, Hemp), Empanada Shells, Fresh Salsas	niche	Tres Marias
Prairie Mill Bread Co.	NW Calgary, AB	Handmade Organic Grain Breads & Rolls, Yukon Sourdough, Cinnamon Rolls, Banana Bread, In-Store Milling	niche	Prairie Mill Bread



Company/ Organization	Address	Major Products/Activities	Niche	Brands
Pre Pak Meats of Calgary Ltd.	SE Calgary, AB	Meat Products		
Qeva Elk Velvet Antler	SE Calgary, AB	Elk Velvet Antler Products, Qeva Capsules, Joint Mobility Capsules for Pets, Qeva Elk Bites for Pets, Equineva Powder	niche	Qeva
Red Deer Lake Meat Processing Ltd.	SE Calgary, AB	Beef, Hog, Lamb, Buffalo, Goat, Sausage	niche	
Shamsane Pita Bakery Ltd.	SE Calgary, AB	Pita Bread		Shamsane
Siljans Crispy Cup Co. Ltd.	NE Calgary, AB	Mini & Maxi Croustades, Crispy Shells for Hors D'oeuvres & Desserts	niche	Siljans
Some Like It Hot Ltd.	NE Calgary, AB	Paste (Garlic, Ginger, Curry, Tandoori), Sauces (Cayenne Hot Pepper, Piri-Piri, BBQ, Jerk, Hot, Wing), Pickles (Mixed, Chili & Carrot), Mango Chutney, Marinade, Salsa		Grandma Shivji's Original, Discovery, 'Hatari' Papa Sparrow's, Scarlett Pepper, Acid Rain, Congo Cowboy, Alberta Crude, Some Like It Hot, Grissly Hot Sauce, Cafe Louisiana, Mother of All, Sam Canadian, Uncle Bigs, Zapato, Bull Dog, Gourmet Road Kill
Sons Bakery	SE Calgary, AB	Buns, Bread		
Sparks Egg Farms	RR6 Calgary, AB	Omega-3 Eggs, Shell Eggs, Value Added Eggs, Egg Products		Sparks Egg, Sparks Nutri-Egg, Eggsquisite, Eggcellence, West Best, Eggs-R-Us, Echo Egg, Gold Egg, Farmer's Finest
Spolumbo's Fine Foods & Deli	SE Calgary, AB	Sausages (Italian, Gourmet), Gourmet Products (Pork & Poultry)		
Sunora Foods Ltd.	NW Calgary, AB	Canola Oil, Canola Related Products, Other Food Oils		Sunora, Sunera, Zarera, Sunset
Sweet Results Canada Ltd.	SW Calgary, AB	Baked Snacks		Sweet Results
The Candy Tree Company	NE Calgary, AB	Gourmet Lollipops		The Candy Tree, Private Labels
Thomas Fresh Inc.	SE Calgary, AB	Produce Custom Bagging, Grading, Packing		Thomas Fresh, Premium Brand, Stampede Produce, Farmer's Pride, Nature's Pride, Vera's Kitchen, Roy's Best
Thumbs Up Foods Inc.	NE Calgary, AB	Samosas (Beef, Chicken, Vegetable), Cocktail-sized Samosas, Samosa Wraps, Whole Wheat Roti, Tamarind Sauce, Frozen Indian Ready Meals, Masala Roti, Butter Chicken Paste		Serenna's
Tian Fine Foods Inc.	SW Calgary, AB	Vegetarian Fusion		
Trophy Foods Inc.	SE Calgary, AB	Bulk & Packaged Nuts, Seeds, Dried Fruits, Candy		Trophy
Vitality Food Service Canada Inc.	NE Calgary, AB	Original Apple Cider Concentrates, Fine Juice & Beverage Concentrates, Ground Estate Coffees		Vitality, Sunsational, Sunkist, Boyds
Waggers Pet Products	NW Calgary,	Dog & Cat Treats	niche	Waggers Tid Bits, Waggers



Company/ Organization	Address	Major Products/Activities	Niche	Brands
Inc.	AB			Ambrosia Bites, Waggers Big Bits, Smitherines
Western Quality Meats	SE Calgary, AB	Beef, Poultry, Wild Game, Seafood		Canada Gold Beef
Weston Bakeries/Ready Bake Foods, Western Canada	SW Calgary, AB	Bread, Rolls, Frozen Dough		Country Harvest, Deli-World, D'Italiano, Wonder, Casa Mendosa
Wild Rose Brewery Ltd.	SW Calgary, AB	Craft Beer (Variety of Package Sizes)		Wraspberry Ale, Velvet Fog, Brown Ale, Wild Rose I.P.A., S.O.B., Wred Wheat, Alberta Crude Oatmeal Stout, Various Seasonals
XL Fine Foods	SE Calgary, AB	Value Added Processing, Foodservice, Portioned - Beef/Pork/Chicken, Custom Processing		XL Fine Foods, Mountain Creek Farms, Spring Creek Ranch
XL Foods Inc.	SE Calgary, AB	Carcass Beef, Beef Offals, Hides		
Zora's Lemonade Ltd.	SW Calgary, AB	Lemonade Concentrate		

Source: Alberta Agriculture and Rural Development: <http://www.agric.gov.ab.ca/app68/foodindustry>



APPENDIX G: Food Brokers, Western Canada

Name	Location	Type	Comments	Main Service Area
Elite International Foods Inc.	Calgary	Other	Branch Locations, Calgary and Edmonton. cover AB, North and Southeastern BC and YT	Western Canada
Shill'to's Grocery Brokers & Importers Ltd.	North Vancouver	Other		Western Canada
W.H.Escott Co.Ltd.	Winnipeg	Other	Branch Locations: Saskatoon and Calgary Cover Thunder Bay and Vancouver Organics and pioneering new lines	Western Canada
Bosa Foods	Vancouver	Retail	Grocery	Western Canada
Concord National Inc.	Calgary	Retail	Organic/Natural Foods, Meat, Produce, Grocery, Fast Food/HMR, Deli, General Merchandise, Frozen Foods, Dairy, Fish	Western Canada
Cyba Stevens Management Group	Calgary	Retail	Retail and Foodservice. Branch Locations, Edmonton, Richmond, Winnipeg, Toronto Grocery, Deli, General Merchandise, Frozen Foods, Organic/Natural Foods	Western Canada
Impact Sales and Marketing Inc.	Calgary	Retail	Branch locations: AB, SK, MB, ON & Western US Grocery, Deli, General Merchandise, Frozen Foods, Organic/Natural Foods	Western Canada
Lyndhurst Naturals	North Vancouver	Retail	Grocery, Deli, General Merchandise, Frozen Foods, Organic/Natural Foods	Western Canada
Murray Market Access	Delta	Retail	Branch location in Calgary Grocery, Deli, General Merchandise, Frozen Foods, Organic/Natural Foods	Western Canada
Network Sales Inc.	Calgary	Retail	Grocery, General Merchandise	Western Canada
Star Marketing Ltd.	Langley	Retail	Grocery, General Merchandise Expanding into the West	Western Canada
Terra International Food Inc.	Delta	Retail	Western Canada and the Yukon and NWT Grocery, General Merchandise	Western Canada
Westrow Food Group	Langley	Retail	Branch Locations: Calgary, Toronto, Vancouver/Langley Grocery, General Merchandise	Western Canada

Source: Alberta Food and Rural Development,

<http://www.agric.gov.ab.ca/app68/agriprocessors?cat1=Food+Brokers>



APPENDIX H: Food Retail Trade, Western Canada Market Shares of Major Retailers (%)

	Retail Type	Retail Group	Year Ending Oct. 1, 2010	Year Ending Oct. 1, 2011
Total Retail Trade			100	100
	Total Grocery Supermarkets		55-0 - 75.8	54-2 - 74.4
		<i>TOTAL CO-OP</i>	9-0 - 11.8	9-0 - 11.8
		<i>Calgary Co-op</i>	1-7 - 2.5	1-8 - 2.6
		<i>Federated Co-op</i>	7-1 - 9.1	7-1 - 9.1
		<i>OVERWAITEA FOOD GRP</i>	10-0 - 13.1	10-0 - 12.9
		<i>Overwaitea</i>	0-7 - 0.9	0-5 - 0.7
		<i>Buy Low Foods</i>	0-7 - 0.9	0-7 - 0.9
		<i>Coo'er's</i>	0-5 - 0.7	0-5 - 0.7
		<i>Save-On-Foods</i>	7-0 - 9.6	7-2 - 10.0
		<i>PriceSmart Foods</i>	1-5 - 2.1	1-3 - 1.9
		<i>CANADA SAFEWAY</i>	21-0 - 27.0	22-5 - 28.5
		<i>LCL NATIONAL</i>	32-0 - 41.0	32-3 - 37.3
		<i>RCSS WEST</i>	25-9 - 31.9	24-2 - 30.2
		<i>Extra Foods</i>	4-5 - 6.3	4-4 - 5.2
		<i>No Frills</i>	1-2 - 1.6	2-0 - 2.4
		<i>SOBEYS CANADA INC.</i>	10-0 - 12.6	10-3 - 13.3
		<i>Sobeys/IGA/Foodland</i>	8-0 - 9.4	8-4 - 10.0
		<i>HY Louie/IGA</i>	1-0 - 1.4	1-2 - 1.6
		<i>Thrifty Foods</i>	2-1 - 2.7	2-3 - 2.9
	Total Convenience & Gas		0-5 - 0.7	0-4 - 0.6
	Total REM Food Stores		1-0 - 1.2	1-0 - 1.2
	Total Drug Stores		7-6 - 9.8	7-4 - 9.4
		Total SDM	4-4 - 6.0	4-2 - 5.8
	Total Mass Merch with Supers		16-6 - 18.6	18-5 - 23.1
		<i>Total Wal-Mart</i>	13-9 - 17.9	17-0 - 21.2
		<i>Wal-Mart Division 1</i>	7-8 - 10.0	6-8 - 8.8
		<i>Wal-Mart Supercentre</i>	5-9 - 7.9	10-0 - 12.8
		<i>Zellers</i>	1-5 - 1.9	1-5 - 1.9
	Total Warehouse Clubs		15-3 - 19.3	15-0 - 19.0
		<i>Total Costco</i>	14-0 - 17.8	13-9 - 17.5
		<i>R.C.W.C.</i>	0-9 - 1.3	0-9 - 1.3
	Total General Merchandisers			
		<i>Canadian Tire</i>	0-7 - 0.9	0-7 - 0.9
		<i>Giant Tiger</i>	0-7 - 0.9	0-5 - 0.7

Source: ACNielsen Channel Watch



APPENDIX I: Provincially Approved & Public Farmers Markets & Current Vendors, Calgary

Market	Type	Current Vendors (as of April 2012)			
Airdrie Farmers' Market Location: Royal Canadian Legion Branch #288 508 3 Avenue Southeast, Airdrie, AB T4B 2C2 Seasonal	Public	Dietz Meats enSante Winery Field Stone Fruit Wines Italian Extra catering Harrison Farms My Bread Neudorf Colony crossfield AB Oxyoke Farms PawLicken Goodies Pearsons's Berry Farm	River rock Fudge Ruben Greenhouse Slepko's Apiary Souto Farms Sugar Creek Tim's Gourmet Frozen Pizza Ukrainian Fine Foods Gifts & Mor Catering Frontier Nutz & Candy Dor-Bel Foods Garment District Innisfail Growers	The Salt Cellar Kimbe'ly's Alterations & Custom Sewing Trapps Publishing Mozaic Fabric Art & Embroidery L & D Custom Picture Framing Airdrie Vegetarian Club My Rejuvenation Center Deju Enterprises Knit two Pearl too Nana Banana Bags	Magnetite Jewelry Quilts & Things Canada Cozies ' K's Woodcrafts Epicure Selections Norwex Scentsy Silpada Tupperware Heritage Makers Xango
Bearspaw Lions Farmers' Market Seasonal Location: Bearspaw Lions Clubhouse, 25240 Nagway Rd, Calgary	Provincially Approved	Bowden Chicken Bowwow's Bakery Buffalo Horn Ranch Camelot Haven Cowboy Popcorn Crystal Creations By Christine	Goldcoast Treasures Homestyle Beverages Iron Combination Janzen Casuals Laura Mclvor Designs Meg &	Mom Fudge Natures Utopia Norwex Enviro Products Paintbrush Farms Pat-A-Cake Pottery Cupboard	Prairie Mill Bread Shoestring Ranch Tim's Gourmet Pizza TSK Sandals
Calgary Farmers' Market Year Round Location: 510 ⁷ th Avenue SE	Provincially Approved	Rainbow Glass Big D's Smokehouse CribbageWorks Innisfail Growers Co-op Kabloom Flowers Simple Simon Pies Blu Seafood Bu-z - formerly Golden Lane Honey Fresh DELicious Lone Pine Colony Missing Link Extraordinary Sausage My "Escape" Art RiverBend Colony Silver Sage Beef Souto Farms Spragg's Meat Shop Sylvan Star Cheese The Pottery Cupboard The Silk Road Spice Merchant	TotaliTea – The Tea Boutique Twin Creek Colony Yum Bakery Ana's Kitchen Blush Lane Organics Bon A-Pet-Treat! Pet Bakery Cherry Pit Crufts Eclair de Lune Field Stone Fruit Wines Gia Minerals Hearts Choices MacFarlane's Olson's High Country Free-Range Bison Sensual Gems Sweet Home Washable Carpets Sweets By Nancy Terra Farms The Cucumber Man: Alf's Place	Greenhouse est. 1968 Tim's Gourmet Pizza Unique Expressions Wapiti Ways A Taste of Quebec Artistically Inclined Cinderella's Organic Housekeeping Cucina Italiana Eden Essentials Fratello Analog Cafe Going Nuts Good For You Snacks Gull Valley Greenhouses GullValley Kitchens Orchid Pastry Saskatoon Berry Farm The Cookbook Co. Cooks The Main Dish The Vitamin Cupboard Wayne's Bagels 2 Greek Gals Baba's Kitchen	Buttercream Bake Shoppe Calgary Mini Donuts Chilly Willy's Farmer's Daughter Frozen Bar Hello Candy Le Petit Mousse Crepes & Sandwiches Le's Homemade Vietnamese Los Chilitos Taqueria Margarita's Dishes Patsy Clark Farms & Essence of the Nile Perk N Beans Perk' n Beans Gourmet Coffee Shanghai Fine Food Shef's Fiery Kitchen Silver Sage Burgers Simply Good Eats The Stock and Sauce Co. Wild Fire Wings



Chestermere Farmers' Market Seasonal	Public	No Vendor Information			
Crossroads Farmers Market Location: 12-5 - 26 Avenue S.E. Calgary, AB T2G 1R7 Telephone: 403.291.5208 Year-round	Public	Latasia Reg'na's Fine Meats Victorian Epicure Bow 'ow's Bakery Say Cheese Fromagerie Cho'go's Produce Market Great Canadian Hot Sauce Silks & Stuff Flowers Simple Simon Pies Kelly Meats Paol'ni's Sausage & Meat Buffalo Cuts Good For You Snacks	Ray and He'en's Honey House The Beehive A Little Taste of Country Blyss Works Sic'le's Meats Pear'on's Berry Farm Twisted Cafe Blue Ridge Organic Greenhouses Charlene's Garden Ornaments	Clearview Colony Dekor Extra Imports E. C. Recycling Euro Pastry Gills Fresh Produce Handhills Colony Hill Top Farm Hungarian Deli Jenson Taber Corn Newdale Colony Raj Fresh Produce Ridgeland Colony	S & K Fruit Seasons Best Produce Souto Family Farms Springvale Colony Sugar Creek Kettle Corn Thiessens Taber Corn Verdant Valley Colony Yummy Co. Ukrainian Bakery
Fish Creek Park Farmers' Market Seasonal	Public	No Vendor Information			
Grassroots Northland Farmers' Market (Calgary) Seasonal Location: Northland Village, 5111 Northland Drive NW (corner of Crowchild & Shaganappi)	Provincially Approved	Ana's Kitchen Badger Ridge Greenhouse Barb'ra's Polish Kitchen Bee Prepared Honey Farms Big Rock Catering/Ukrainian Fine Foods Black Forest Baker/Crusty Bread Farm Ltd. Blush Lane Organics Blyssworks Inc Bre'da's Best Organics Dor-Bel Fine Foods Eagle Creek Farms	A Country Collection A Touch of India ALCLA Native Plant Restoration Inc. EnSante Organic Orchard and Winery Field Stone Fruit Wines Garden of Eden Produce Good for You Snacks Ltd Good Stuff Maple Products Green Side Up Highwood Valley Ranch Innisfail Growers Co-op	Italian Extra Catering Jam Goddess Jurassic Gems K & C Gourmet Stuff Lanyi Carpet Company/Sweet Home Washable Rugs Miche'le's Market My Bread Oakdale Colony P'k 'n Pak Produce (Lincoln Greenhouses Ltd.) Prairie Mill Bread Co. Ltd. Ravenwood Farm Fresh Meats	Red Neck Goat Ranch River Rock Fudge S&L Farmers Market Dist. S'am's Kitchen Solstice Berry Farm Suga' n'Spice GF Bakery Sugar Creek Kettle Corn Sunworks Farm Terra Farms 'im's Gourmet Frozen Pizza Tutor Doctor Wal'er's Own Produce Ltd
Hillhurst Sunnyside Farmers' Market Seasonal Location: HSCA 13-0 - 5 Ave NW Calgary, AB T2N 0S2	Provincially Approved	Bee Glade Farms Birds and Bees Wine and Meadery Brenda's Best Organics Bugsy's Produce Chinook Honey Coco Brooks Eagle Greek/Country Thyme	Full Bloom Herbals Harvest Hills Foods Hillhurst Sunnyside Daycare Highwood Valley Ranch Beef K and C Gourmet Stuff Kel-Lees MAD Crafters Michelle's Markets	Nobel Gardens Prairie Mill Bread Co. Red Neck Goat Ranch Shamm's Kitchen Sidewalk Citizen Bakery Sunnyside/Blue Mountain Twist Accessories Thai Manna	The Spanish Kitchen Thompson Small Farm Walkers Own Watermill Bakery Excellent Extras Ravenwood Meats Springbank Cheese Winter's Turkeys
Kingsland Farmers' Market (Calgary) Year Round Location:	Provincially Approved	Alf's Greenhouse, The Cucumber Man Avalon Orchards Benchland Orchards Big Tomato Produce	Broxburn Vegetables Ewe-Nique Farms Fallentimber Meadery Field Stone Fruit Wines	King's Orchard Little Purple Apple Lund's Certified Organic Vegetable Farm Newell Colony Eggs	Prairie Roots Certified Organic Chicken TR Greenhouses Smokey Valley Goat Cheese



7711 Macleod Trail South		Market Bowden Chickens	Greens, Eggs and Ham Hoven Certified Organic Beef Farm	Noble Meadows Farm Prairie Farms	Spragg Meat Shoppes Sylvan Star Cheese Vital Greens
Millarville Farm'rs' Market Seasonal	Provincially Approved	A'na's Hungarian Baking Barb'ra's Polish Kitchen	Dano Productions Fra'er's Flower Farm/Soup To Nuts	Country Kitchen Ja'ob's Cake-ups Mi"s""P" Gluten Free Pure Maple Products	Red Neck Goat Ranch Sa'my's Pies Thai Manna
Springbank Country Farmers' Market Seasonal	Public	No vendor information			

Source: Alberta Farmers' Market Association

Note: vendors at these markets change regularly; the vendors identified here represent the most current information available in April 2012.



APPENDIX J: Environmental Impact of Various Meals Sourced Locally and Internationally

Internationally-sourced meal		Locally-sourced meal	
Wine: Chianti (Italy)	Weight: 1.15kg Distance: 8,450km Total CO ₂ = 0.44 kg	Wine: Cabernet Sauvignon (BC)	Weight:1.15kg Distance:404km Total CO ₂ = 0.053 kg
Tomato Sauce (ground beef, tomato sauce, canned tomatoes) (Alberta, Ontario, USA)	Weight: 2.24 kg Distance:4,396 km Total CO ₂ = 0.353 kg	Tomato Sauce (ground beef, tomato sauce, canned tomatoes) (Alberta)	Weight: 2.24 kg Distance:515 km Total CO ₂ = 0.041 kg
Pasta Fresh –processed (Hamilton Ontario)	Weight :0.65 kg Distance: 3,380 km Total CO ₂ = 0.25 kg	Pasta Fresh (Calgary)	Weight: 0.65 kg Distance: 25 Total CO ₂ = 0.002 kg
Cheese – Parmesan (Italy)	Weight: 0.226 kg Distance: 8,450 km Total CO ₂ = 0.021kg	Cheese – Parmesan (Calgary)	Weight: 0.226 kg Distance: 25 Total CO ₂ = 0.001 kg
Caesar Salad (romaine lettuce, salad dressing, croutons, bacon crumbs) (Ontario, USA)	Weight: 1.709 kg Distance:9,670 km Total CO ₂ = 0.416 kg	Caesar Salad (romaine lettuce, salad dressing, croutons, bacon crumbs) (Alberta, USA, Saskatchewan)	Weight: 1.709 kg Distance:1,133 km Total CO ₂ = 0.05 kg
Bread - Packaged (Vancouver via air)	Weight: 0.907 kg Distance: 686 km Total CO ₂ = 0.23 kg	Bread - In store bakery	Weight: 0.907 kg Distance: 25 km Total CO ₂ = 0.003 kg
Ice Cream (Calgary)	Weight: 1.5 kg Distance: 25 km Total CO ₂ = 0.001 kg	Ice Cream (Calgary)	Weight: 1.5 Distance: 25 km Total CO ₂ = 0.001 kg
Strawberries (USA – California)	Weight: .454 kg Distance: 1,655 km Total CO ₂ = 0.086 kg	Strawberries (Calgary region)	Weight: 454 kg Distance: 75km Total CO ₂ = 0.004 kg
TOTAL GHG Average Distance	1.80 kg 2,824 km	TOTAL GHG Average Distance	0.155 kg 189 km



APPENDIX K: Calgary Food Programs Addressing Food Insecurity

Resource	Contact Details	Services
Pregnant Moms and Children		
Best Beginning	Ph: 403-228-8221 4715 - 8 Avenue SE www.albertahealthservices.ca	Support for pregnant women living on a low income Free food, milk and vitamins Free meals at weekly drop-in groups Talk with nutritionists, nurses, and social workers Connect to community resources Meet other pregnant women at groups
Calgary Inter-Faith Food Bank Prenatal Hampers	Ph: 403-253-2059 www.calgaryfoodbank.com	Prenatal hampers for women accessing a participating prenatal service provider - by referral only; Prenatal hampers are counted separately from regular hampers
Children's Milk Program	Ph: 403-253-2059 www.calgaryfoodbank.com	Calgary Inter-Faith Food Bank Society; Provides home delivery of fresh milk and formula to children and pregnant and nursing moms; Need referral by a health-based organization
ICU2 Program	Ph: 403-209-1930 neighbourlinkcalgary.com	NeighbourLink Calgary; Provides baby food, formula, diapers and supplies (based on need and availability)
Salvation Army Community Support Services	Ph: 403-220-0432 1826 36 St. SE ab.salvationarmy.org	Program called Infant Essentials; Provides formula and diapers
Youth		
EXIT Community Outreach & Resource Centre	Ph: 403-262-9953 117-7 th Avenue SW www.exitoutreach.woodshomes.ca	Offers free sandwiches and coffee; For youth ages 12-24; Sunday - 1:00 pm - 5:00 pm; Monday to Friday - 9:30 am – 5:00 pm
EXIT Youth Shelter	Ph: 403-509-2323 112 16 Ave NE www.youthshelter.woodshomes.ca	Food, shelter, clothing & washing; Accommodation for youth ages 12-17; 7 days/week, 4:00 pm – 9:00 am
Streetlight – Youth for Christ	Ph: 403-291-3179 Parks at 10 th Avenue and 1 st Street SE www.youthunlimitedcalgary.ca	Mobile drop in centre serving hot dinner; Monday and Thursday 8:00 pm - 11:00 pm
Individuals and Families		
Alex Community Health Centre	Ph: 403-266-2622 Unit 101, 1318 Centre Street NE www.thealex.ca	Calgary Inter-Faith Food Bank referrals ; Alex Spinz-Around Supplementary Food Program (available to individuals ages 16 and older only); Thursdays only - 10:30 am; 610 - 8 Ave. SE
Calgary Inter-Faith Food Bank	Ph: 403-253-2055 www.calgaryfoodbank.com	Food hampers up to 7 times a year; Hampers can be picked up from one of the 6 depots around Calgary and the main warehouse
Calgary Poppy Fund and Veterans Food Bank	Ph: 403-265-6304 #1 4539-6 th Street NE calgarypoppyfund.com	Food hampers for veterans and their dependents, including widows/widowers; Meals on Wheels vouchers for veterans in need for \$5.00 each Monday-Friday, 10:00 am - 3:00 pm
Hampers for the Homeless	Ph: 403-253-2059 www.calgaryfoodbank.com	Calgary Inter-Faith Food Bank provides food to various community agencies to deliver to homeless people; Food items provided are designed for easy consumption on the street
Muslim Families Network Society: Halal Food Bank	Ph: 403- 466-6367 www.MuslimFamiliesNetwork.com	Applicants can receive assistance 4-6 times a year through self-referral or referral by other organizations (Halal food bank operates 24/7); Applicants must make an appointment and meet specific criteria to receive assistance; Two annual food and clothing distributions



Resource	Contact Details	Services
NeighbourLink Calgary	Ph: 403-209-1930 neighbourlinkcalgary.com	Emergency food hampers are available; Volunteers deliver Food Bank food hampers
Salvation Army Emergency Food Shelf	Ph: 403-223-0432 1826 - 36 St. SE ab.salvationarmy.org	Emergencies only - basic foods; Available to people who have used maximum allowed Food Bank hampers or waiting for Food Bank appointment
Spinz-A-Round	Ph: 403-538-7380 ckpcalgary.ca	Perishable food is retrieved from retail outlets Non-profit agencies can pick up food to deliver to clients in need
St. Edmund's Anglican Church	Ph: 403-288-6330 8336-34 th Avenue NW sites.google.com/site/stedmundscalgary	Emergency food hampers for pick-up only; Monday and Thursday 9:00 am - 12:00 noon; Call in advance or walk-in
Weston A. Price Foundation	http://www.westonaprice.org/	
Drop-In Programs		
Calgary Drop-In & Rehab	Ph: 403-699-8240 423-4 th Avenue SE www.thedi.ca	Provides temporary overnight shelter, meals and snacks; Emergency food hampers available For ages 16 and up
CUPS (Calgary Urban Project Society)	Ph: 403-221-8780 128-7 th Avenue SE cupscalgary.com	Food available for participants in CUPS programs; Emergency food given to clients when available
Feed the Hungry	Ph: 403-218-5532 St. Mary's Cathedral Hall, 221-18 th Avenue SW www.calgarydiocese.ca/feedthehungry	Sunday dinner from 3:30 pm - 5:00 pm; Food hampers for the homeless available at dinner; ID required; Fruit and bread are available after dinner to all attendants
Inn from the Cold	Ph: 403-263-8384 #106-110-11 th Avenue SE www.innfromthecold.org	Registration 4:00 pm - 5:30 pm daily for temporary overnight shelter; Hot dinner, breakfast and bagged lunch for clients staying at the shelter; Preference given to families
Mustard Seed	Ph: 403-269-1319 or 403-767-2400 102-11 th Avenue SE (Downtown) 7025 44 th St SE (Foothills Shelter) www.theseed.ca/The-Mustard-Seed-Calgary.html	Breakfast, lunch and supper for program guests at downtown location; 7:00 pm supper for program guests at foothills location
Salvation Army Centre of Hope	Ph: 403-410-1111 420-9 th Avenue SE ab.salvationarmy.org	Free emergency accommodations including three meals each day; Low cost, nutritious meals available daily; Food hampers available weekly at the Centre of Hope; Food hampers are available to the absolute homeless in the community (non-clients only)
Transportation Solutions		
Access Calgary	Ph: 403-537-7770 www.accesscalgary.ca	Door-to-door shared-ride service; For people unable to take public transit; Must have an application completed by a doctor followed by an interview for qualification; All Calgary Transit bus passes and bus tickets can be used as methods of payment, cash is not accepted
Calgary Transit	Ph: 403-262-1000 www.calgarytransit.com	Call for information on: How to get places without using a car; Transit route maps and schedules; Low-Income Monthly Transit Pass; Yearly low cost seniors' transit passes
Additional Services Information		
The City of Calgary Street Survival Guide 2011	403-268-CITY (2489) www.calgary.ca	
Health Link	(403) 943-5465 or 1-866-408-5465	Talk to a public health nurse about health related questions; 24 hours a day, 7 days a week
Community Connection	Ph: 211 www.211calgary.ca	Call 211 and get connected to the community services you need



Resource	Contact Details	Services
Alberta Health Services	www.albertahealthservices.ca	

Source: Alberta Health Services, January 2012, *Food Resources in Calgary 2012 - Emergency Food*

Resource	Contact Details	Services
Low Cost Food Programs		
Blackfoot Farmers Market	Ph: 403-243-0065 5600 - 11th Street SE www.blackfootmarket.ca	Low cost local produce Open May 21st to October 31st Market hours: Saturday: 8:00 am – 5:00 pm Sunday 10:00 am – 4:00 pm Easy bus route access
Calgary Meals on Wheels	Ph: 403-243-2834 http://www.mealsonwheels.com	Daily hot and cold meals delivered Monday-Friday, 11:00 am – 1:00 pm; Chopsticks (traditional Chinese meals) on wheels available; Call for prices and for more information on meal options
Calgary Urban Harvest Project, Calgary Fallen Fruit Rescue Program	Ph: 403-483-9797 http://calgaryharvest.com	Collects unused fruit from Calgary's trees during the fall harvest season Donates fruit to volunteers and various community organizations
Good Food Box	Ph: 403-538-7380 www.ckpcalgary.ca	Fresh fruits and vegetables at lower costs; Check website for contact information for closest depot location 40-45 lbs food for \$30.00; 30-40 lbs food for \$25.00; 25-30 lbs (single/senior) food for \$20.00; 150 sites around the city
Community Collective Kitchens		
Calgary's Cooking	Ph: 403-538-7380 www.ckpcalgary.ca	Families meet to plan and make meals either once or twice a month; Download application from website; waiting lists apply; Over 22 kitchens in Calgary; Costs under \$2.00 per person per meal
Collective Kitchens	Ph: 403-943-6753	Participants of collective kitchens meet to plan, shop and prepare low cost, healthy meals; Training sessions for coordinators of Collective Kitchens; Information on how to set up and run a Collective Kitchen
Dashing Dishes	Ph: 403-471-1395 www.dashingdishes.com/calgary	Provides ingredients and equipment to make a variety of meals (8-12 meals); Attend a session at a listed community centre to assemble meals for take home; Costs average \$3.50-\$5.50 per person per meal; Visit website for more information and to register
Junior Chef's	Ph: 403-276-9981 http://www.boysandgirlsclubsofcalgary.ca	The Boys and Girls Clubs of Calgary; Teaches children food and kitchen safety and easy to cook recipes; Boys and girls ages 6 - 17
Hillhurst Sunnyside Community Association	Ph: 403-283-0554	Food workshops and skills building, Community Shared Agriculture, Good Food Box distribution, HSCA Spin-A-Round, community kitchen, monthly free chilli night, communal community gardens and orchards.
Lunch Programs for Children		
Brown Bagging for Calgary's Kids	Ph: 403-264-7979 www.brownbaggingit.org	The FEED KIDS program delivers free lunches to over 70 schools in Calgary
FANS (Food and Nutrition in Schools)	Ph: 403-520-1516 http://www.boysandgirlsclubsofcalgary.ca	The Boys and Girls Clubs of Calgary; Provides food to hungry children in select schools across Calgary



Resource	Contact Details	Services
Tummy Tamers	Ph: 403-538-7386 http://ckpcalgary.ca	At select Park N' Play locations, open from July to August; Provides a free hot lunch and snack; Children learn about nutrition and healthy living
Community Gardens		
Calgary Horticultural Society – Community Garden Resource Network	Ph: 403-287-3469 ext. 227 E-mail: communitygardens@calhort.org www.calhort.org	Information on public and private community gardens in Calgary; Low cost learning opportunities on how to grow vegetables, herbs and fruit in Calgary; Resources on implementation of community gardens
Neighbourhood Supports		
Alex Community Health Centre	Ph: 403-266-2622 Unit 101, 1318 Centre Street NE http://www.thealex.ca	
Bow West Community Resource Centre	Ph: 403-216-5348 (Bowness) Ph: 403-374-0448 (Ranchlands) 7904-43 Avenue NW, #14-1840 Ranchlands Way http://www.bowwest.com	
Heart of the Northeast Resource Centre	Ph: 403-293-5467 2623-56 Street NE http://www.aspenfamily.org	
Inner City Community Resource Centre	Ph: 403-536-6558 922-9 Avenue SE	
Millican-Ogden Community Association Family Resource Centre	Ph: 403-720-3322 2734-76 Avenue SE http://www.moca-frc.org	
North Central Community Resource Centre	Ph: 403-275-6666 ext. 221 or 222 520-78 Avenue NW http://www.weconnectyou.ca	
North of McKnight Community Resource Centre	Ph: 403-293-0424 95 Falshire Drive NE http://www.northofmcknightcrc.ca	
South West Communities Resource Centre	Ph: 403-238-9222 #42-2580 Southland Drive SW http://southwoodconnects.ca	
Sunrise Community Link Resource Centre	Ph: 403-204-8280 701 Erin Woods Lane SE http://www.sunriselink.org	
West Central Community Resource Centre	Ph: 403-543-0555 3507A-17 Avenue SW http://calgaryclosetohome.com	
Transport Solutions		
Access Calgary	Ph: 403-537-7770 www.accesscalgary.ca	Door-to-door shared-ride service; Must have an application completed by a doctor followed by an interview for qualification; Attendant pass for people accompanying passengers with special needs; All Calgary; Transit bus passes



Resource	Contact Details	Services
		and bus tickets can be used as methods of payment, cash is not accepted
Calgary Transit	Ph: 403-262-1000 www.calgarytransit.com	Call for information on: How to get places without using a car; Transit route maps and schedules ; Low-Income Monthly Transit Pass; Yearly low cost seniors' transit passes
Additional Services Information		
The City of Calgary Street Survival Guide 2010	403-268-CITY (2489) www.calgary.ca	
Health Link	(403) 943-5465 1-866-408-5465	Talk to a public health nurse about health related questions; 24 hours a day, 7 days a week
Community Connection	www.211calgary.ca	Call 211 and get connected to the community services you need
Alberta Health Services Website	www.albertahealthservices.ca	

Source: Alberta Health Services, January 2012, *Food Resources in Calgary 2012 - Low Cost Food*



APPENDIX L: School Food Programs

- **Breakfast Programs:** A variety of models for school breakfast programs exist, as there is frequently an identified need for such programs within school communities. These programs may be supported by a school district or an individual school, but more often are supported by external granting programs such as Breakfast for Learning, Breakfast Clubs of Canada, and the Food and Nutrition In Schools (FANS) that is operated by the Boys and Girls Club of Calgary. School Breakfast should be provided as a non-judgemental, non-stigmatizing universal program that allows any child to participate regardless of reason.
- **Lunch or Snack Programs:** In some schools, lunch or snack items may be provided at a low/no cost for students. Examples of programs within Calgary that support this includes FANS, Brown Bagging for Calgary's Kids, and the Hot Soup Program from Meals on Wheels.
- **Regular/Daily food sales:** Depending on the level and size of the school, food and beverages are often sold through cafeterias, canteens (cafeterias with limited ability to prepare foods), vending machines, or special food days (e.g. bringing food in from restaurants). These services may be operated by the school, parent councils or through external contractors. Selling food and beverages may be a source of revenue for schools or contracted food service providers.
- **Culinary Arts Programs:** Some high schools have specialized programs that focus on skill-building related to food preparation. Students are working towards food services certification to gain employment in the food industry. Students prepare foods for sale in the cafeterias in order to develop their skills.
- **School Fundraising:** Food is sometimes used for school fundraisers; in most cases, school district policy states that when this is the case, food should aim to meet the Alberta Nutrition Guidelines for Children and Youth.
- **School/community gardens and container gardening:** These projects are sometimes supported by granting programs, such as the Alberta Healthy School Community Wellness Fund, and often involve partnerships between the school and community associations. As well, the Alberta Agriculture Initiative *EarthBox Kids* is one resource available to support these projects. School gardens can be a tool for teaching curriculum, learning life skills and increasing the consumption of fruits and vegetables.
- **Reverse Lunch/Play First then Lunch:** This approach is a change in the order of lunchtime and playtime at schools. Schools who adopt reverse lunch have students play and be active first, and then eat lunch. Research shows there are many benefits to this change in the timing of lunch such as improved behaviour, improved nutrition, litter less on school grounds and outside the school, and students return to the classroom calmer and ready to learn^{178,179,180}.
- **Waste Free Lunches and Snacks:** These programs promote the use of reusable food containers, drink containers, utensils, and napkins. Schools incorporate environmental stewardship curriculum links and promote less costly, healthier options for students.

Some additional information on school and youth programs can be found in the following:

Alberta Health Services – School Nutrition <http://www.albertahealthservices.ca/2925.asp>

¹⁷⁸ Bergman EA, Beurgel NS, Femrite A, Englund TF, Braunstein MR. Relationships of Meal and Recess Schedules to Plate Waste in Elementary Schools. *Insight, National Food Service Management Institute* 2004 Spring;R-124(04):1-6.

¹⁷⁹ Cline AD, Harper W. Meal timing affects food consumption by participants in the school lunch program. *Journal of the American Dietetic Association* 2008;S3(9):A74.

¹⁸⁰ Getlinger MJ, Laughlin CVT, Bell E, Akre C, Arjmandi BH. Food waste is reduced when elementary school children have recess before lunch. *Journal of the American Dietetic Association* 1996;96(9):906-908.

