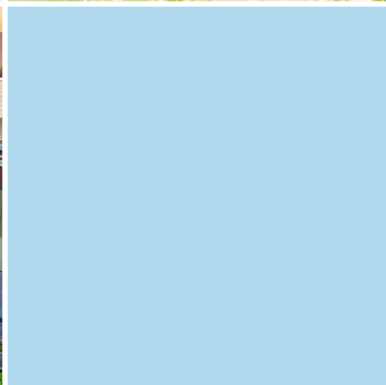
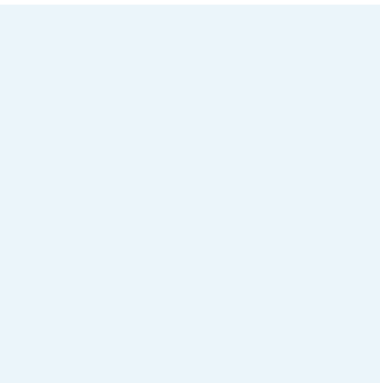


Mapping UBC Food Assets Final Report

August 2018
Wendee Lang, UBC Wellbeing Scholar, 2018

Prepared for: Dr. Tara Moreau, UBC Botanical
Garden
Leadership Team: Liska Richer, SEEDS &
David Speight, UBC Food Services





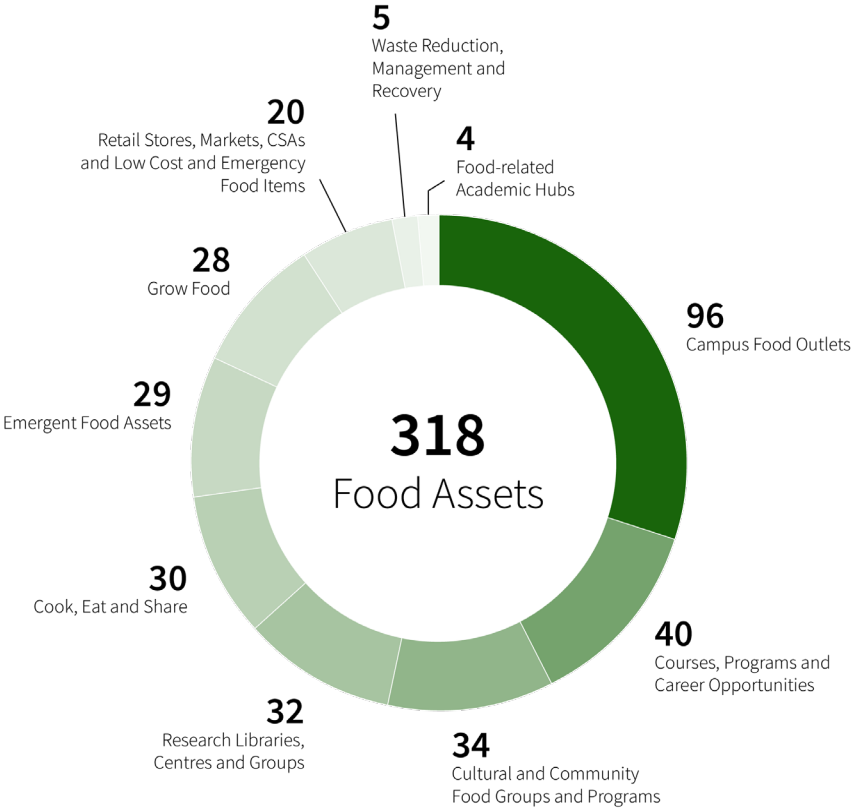
Source: UBC CCM

Executive Summary

A leading education institution, the region's largest employer, and a pseudo-municipality, the University of British Columbia (UBC) boasts a complex campus food system. Achieving sustainability in this sector is key not only to achieving the institution's own health and environmental goals but affecting change at other levels of government. However, understanding the breadth of this system is challenging. Using an asset mapping methodology, this project visualizes UBC's food landscape, focusing on what it has and in the process, illuminating gaps.

The project's final output, the UBC Food Asset Map for the Vancouver campus, identifies 318 assets across 10 thematic areas as demonstrated in **Chart A**.

Chart A Campus Food Asset Distribution



Note: Numbers indicate the amount of recorded food assets in each layer.

Whereas many food asset maps are centred around food security, this map differs in that its primary use is as an evaluation tool. This means that it must touch upon all aspects of the campus food system, from food outlets to courses and programs and beyond. As a result, the map is a resource for those interested in UBC's food landscape and a tool of collaboration for asset managers and stakeholders.

Though the main purpose of this project was to build the map, doing so has identified strengths and weaknesses in the campus food system. While future research would complement this work, a preliminary analysis illustrates the importance of policy in driving asset creation as well as areas for future development.

UBC promotes land-based teaching and learning in a variety of policy documents, allocating space, funding and institutional support for related initiatives. As a result, the university is home to a diversity of food system-focussed research, courses, and programs that interface with key learning hubs such as the UBC Farm and the UBC Botanical Garden. Similarly, promotion of nutritional wellbeing through the institution's commitment to the Okanagan Charter and subsequent development of the Action Framework for a Nutritionally Sound Campus has resulted in a growing diversity of nutrition-focussed food assets.

Gaps exist around food programming for international and Indigenous students. As UBC grows enrollment in both groups, opportunities exist to develop initiatives that reflect the unique food security needs of each. Additionally, food recovery programs and those that support food workers could help the university achieve its goal of developing a sustainable and integrated food system.

Future research should seek to comprehensively analyze the campus food system and develop a series of clear objectives that can help achieve the vision contained in UBC's 20-Yr Sustainability Strategy. As UBC has the potential to affect change at different levels of government, it may also want to explore creating a virtual food hub. This hub could centralize food system-related work and focus on communicating it to an external audience.

The food system is a meeting point for sustainability and nutrition goals. This project builds upon a desire to visualize UBC's work in this area, and future research should seek to use this tool to evaluate the landscape and determine future opportunities. Doing so will help UBC achieve its ambitious sustainability and wellbeing goals while potentially inspiring other levels of government to do the same.

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1.0 Introduction

The University of British Columbia (UBC) has a strong reputation as a sustainability leader, a quality that integrates closely with its goal of becoming a health promoting university. Both of these areas influence and are influenced by the campus food system, and comprehensive knowledge of the University's food assets and system gaps can help move UBC's goals forward.

This is the intention of the UBC Food Asset Map for the Vancouver campus. By visualizing and baselining what the University has, the project seeks to reveal what it does not and where potential for actions in support of health, justice and sustainability goals exist. The project also seeks to build connections and networks between asset managers and stakeholders, who may use the map as a tool of collaboration, revealing synergies and interactions between programs, initiatives and resources.

Created in collaboration with the UBC Botanical Garden, UBC Food Services, and Social Ecological Economic Development Studies (SEEDS), and funded through UBC Wellbeing as a Wellbeing Scholars project, the map provides insight into the unique nature of campus food systems. Incorporating direct and indirect feedback from more than 40 individuals, the map identifies 318 assets across 10 thematic areas. This map differs from others of its kind for its integration of academic teaching, learning and research resources, specific to the university. Though many food asset maps (e.g. Vancouver Coastal Health, North Shore and Squamish-Lillooet food asset maps) speak to a food security audience, the UBC Food Asset Map aims to inform a broader group of students, faculty, staff and residents interested in supporting the institution's sustainability and health goals.

Hosted by sustain.ubc.ca, this is a living object and continuous input will be sought by UBC Botanical Garden and SEEDS after the official project end date of August 10, 2018.

1.1 Asset Mapping Framework

Asset mapping is a positive and community-based way of understanding an area's sectoral capacity by identifying what is valuable to that community (Freedgood, Pierce-Quinonez & Meter, 2011). The methodology originally emerged from Asset-Based Community Development (ABCD) and Sustainable Livelihoods approaches, and typically rests on the philosophy that "all individuals, physical structures, natural resources, institutions, businesses, or informal organizations can play an effective role in addressing important matters in the local community" (Briggs & Huang, 2017, p. 195-196). Assets themselves are identified relative to the sector being examined, as well as the map's purpose and audience (Golden Horseshoe Food and Farming Alliance, 2016).

Based in an area's strengths, asset mapping can also be used to initiate dialogue between community members, fostering a network of collaboration among participants (Briggs & Huang, 2017) (Freedgood, Pierce-Quinonez & Meter, 2011). Understanding the asset base can help community leaders define strategies that work with what they have, rather than building programs from the ground up.

Though this methodology may not lend well to academically-rigorous uses, it is an effective way of baselining and increasing awareness about the size and scope of a sector or system and may also be useful for attracting new business and opportunities, revealing the breadth of stakeholders, and increasing public knowledge (Centre for Community Health and Development, 2011) (Golden Horseshoe Food and Farming Alliance, 2016). Food asset mapping is an increasingly popular tool in food system work and can be used to inform strategic planning exercises.

1.2 Asset Mapping Approach

Parill, White, Vodden, Walsh and Wood identify four steps to creating an asset database, which can then be geolocated and mapped (2014):

1. Create a project team
2. Categorize assets
3. Gather information about assets
4. Build and maintain the database

For the purposes of this project, an additional step (defining the term “food asset”) was added between steps one and two. After steps one through four are complete, the asset map can be mobilized to evaluate the sector in question and determine future actions, either through informal review or a more structured exercise, such as a strategic planning process (see **Section 6.0** of this report).

2.0 Background/Literature Review

2.1 Literature Review: Campus Food Systems

2.1.1 *Why are campus food initiatives important?*

University campuses have an important role to play in increasing the sustainability of local and regional food systems. As places of experimentation and research, universities may have the flexibility and resources to serve as incubators for sustainable food projects, “pioneering new nodes in an alternative food chain for local regions” (Barlett, 2011, p. 102). These institutions also possess large ecological footprints and changes to procurement, for instance, can have widespread effects. Increasing the sustainability of food systems also disseminates and legitimizes critiques of traditional structures, which may effect policy change at local, regional and/or state/provincial levels (Barlett, 2017).

Often, sustainability initiatives arise out of concern for a variety of issues including campus carbon neutrality, pesticide use and soil erosion, biodiversity, local economy and farmland preservation (Barlett, 2011). A desire to support the health and nutrition of the student body also often informs campus food initiatives (Barlett, 2011). This can result in a switch to organic and sustainably farmed foods that are higher in nutritional content and to more plant-based meals (Barlett, 2011). Supporting the wellbeing of students can also be a social justice issue and advocacy can result in greater access to culturally important and affordable food and food-specific financial assistance, among other initiatives.

As universities are tasked with preparing students for participation in democratic social processes, they are also well positioned to shape future food system leaders (Pothukuchi & Molnar, 2014). This can have positive impacts on food governance, further impacting sustainable decision-making at larger scales (Pothukuchi & Molnar, 2014).

2.1.2 *What are common campus food initiatives?*

Campus sustainable food projects often include a selection of the following initiatives (Barlett, 2011):

- Urban agriculture and university farms
- Community and communal gardens
- Shared kitchens and cooking classes
- Institution-to-farm procurement
- Best value procurement (where decisions are made in the best overall interest of the university and end users)

Projects often take the form of sustainable dining service procurement and menu design, land-based learning programs and courses, direct-marketing (e.g., farmers markets and community supported agriculture), student-led community gardens, and campus farms (Barlett, 2011).

2.1.3 *What is necessary to ensure initiatives are successful?*

Several factors help ensure the longevity of sustainable campus food projects. The first involves transparent monitoring and evaluation. As stated by Barlett, “published goals and clear metrics allow accountability and transparency - perhaps the most important steps towards major impact” (2011, p. 107). Including these targets in institutional plans with clear reporting mechanisms can also help ensure success (Pothukuchi & Molnar, 2014).

Institutions further demonstrate their commitment to sustainable food systems by investing in academic food programs (Barlett, 2011). These programs can help develop food citizenship in students while also building public awareness of food issues and legitimizing critiques of conventional systems (Barlett, 2011). Complimenting these programs with “co-curricular” activities such as farm tours and community programming can also help bind campuses to neighbouring municipalities and regions, further disseminating sustainable ideas (Barlett, 2011).

2.2 Literature Review: Student Food Security

Key to discussions of sustainable food systems is food security, an outcome of the food system (Toth, Rendall & Reitsma, 2016). This is defined as the “limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways due to a lack of money or other resources” (Payne-Sturges, Tjaden, Caldeira, Vincent & Arria, 2018, p. 349). Students who are food insecure may experience negative health, academic and housing issues compared to secure peers, which can adversely impact university retention, student wellbeing and graduation rates (Payne-Sturges, Tjaden, Caldeira, Vincent & Arria, 2018, p. 349).

In Canada, according to a report published by Meal Exchange, 39% of Canadian post-secondary students experience a form of food insecurity, with 30.7% moderately food insecure and 8.3% severely so (Silverthorn, 2016). The most common barriers to food procurement include the cost of food, tuition fees and housing costs (Silverthorn, 2016). However, lack of access to cultural and traditional foods also poses a threat to food security. Nearly one third of respondents in the meal share study indicated they experience limited access to this type of sustenance (Silverthorn, 2016).

For Indigenous and racialized students, food insecurity rates are significantly higher, with 56.4% of Indigenous students identifying as food insecure (Silverthorn, 2016). Universities across Canada continue to build Indigenous enrollment and access to traditional foods and knowledge, as well as opportunities to celebrate culture through food, are key components of creating a supportive academic environment (Cullen, Hatch, Martin, Wharf Higgins, & Sheppard, 2015). Necessary to success is a holistic approach to food security that embraces emotional, spiritual and mental health in addition to the physical (Elliot & Jayatilaka, 2011).

In a recent study of University of Guelph and Waterloo international students, researchers found that this group also experienced higher than average rates of food insecurity. This was varied based on the cultural attitudes of students and the degree of cultural dissimilarities between the student’s home and host country (Stewin, 2013) (Amos & Lordy, 2014). For many, food insecurity was a result of high international tuition rates, lack of access to culturally important food, and lack of information about shopping for and using Canadian food (Stewin, 2013). Not being able to source and prepare traditional foods also compromised the ability of students to express and maintain their cultural identities (Amos & Lordy, 2014). As a result, students experienced depression, homesickness and identity loss, hunger, weight loss and/or gain, and at times were forced to compromise their religious beliefs to eat (Stewin, 2013). As universities seek to increase international enrollment, ensuring access to traditional foods and food preparation facilities, as well as opportunities to express culture through food will become increasingly important.

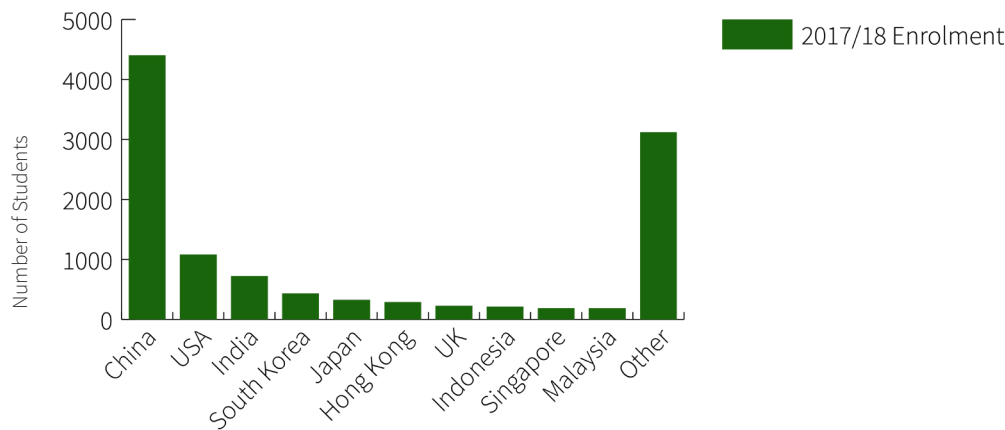
3.0 Contextual Analysis

3.1 Demographic Analysis

In the 2017/18 academic year, 44,378 undergraduate students and 9,941 graduate students were enrolled at UBC’s Vancouver campus, totalling 55,780 (UBC, 2018a). Of these, 1,191 students identified as Aboriginal, marking a 20% increase in domestic Aboriginal undergraduate students and a 4% increase in graduate students since 2013/14 (UBC, 2018a).

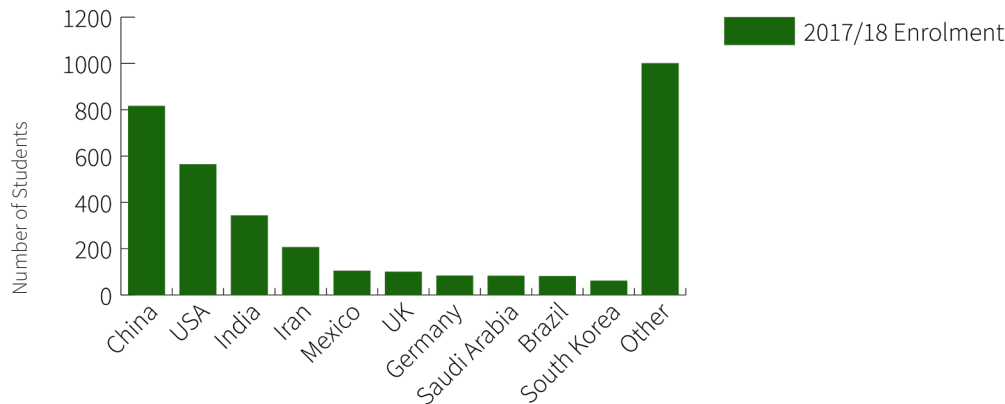
A total of 14,685 international students from 162 countries attended UBC Vancouver during this time. This 11% increase over the previous year means that one of four undergraduate students now hails from beyond Canada (UBC, 2018a). The most common country of citizenship for international students is China (36%) followed by the USA (11%) and India (7%) (see **Chart 3-1** and **3-2** for the number of undergraduate and graduate students enrolled, disaggregated by country of citizenship) (UBC, 2018a).

Chart 3-1 2017/18 International Undergraduate Students by Country of Citizenship



Note: 139 countries represented by “other” category

Chart 3-2 2017/18 International Graduate Students by Country of Citizenship



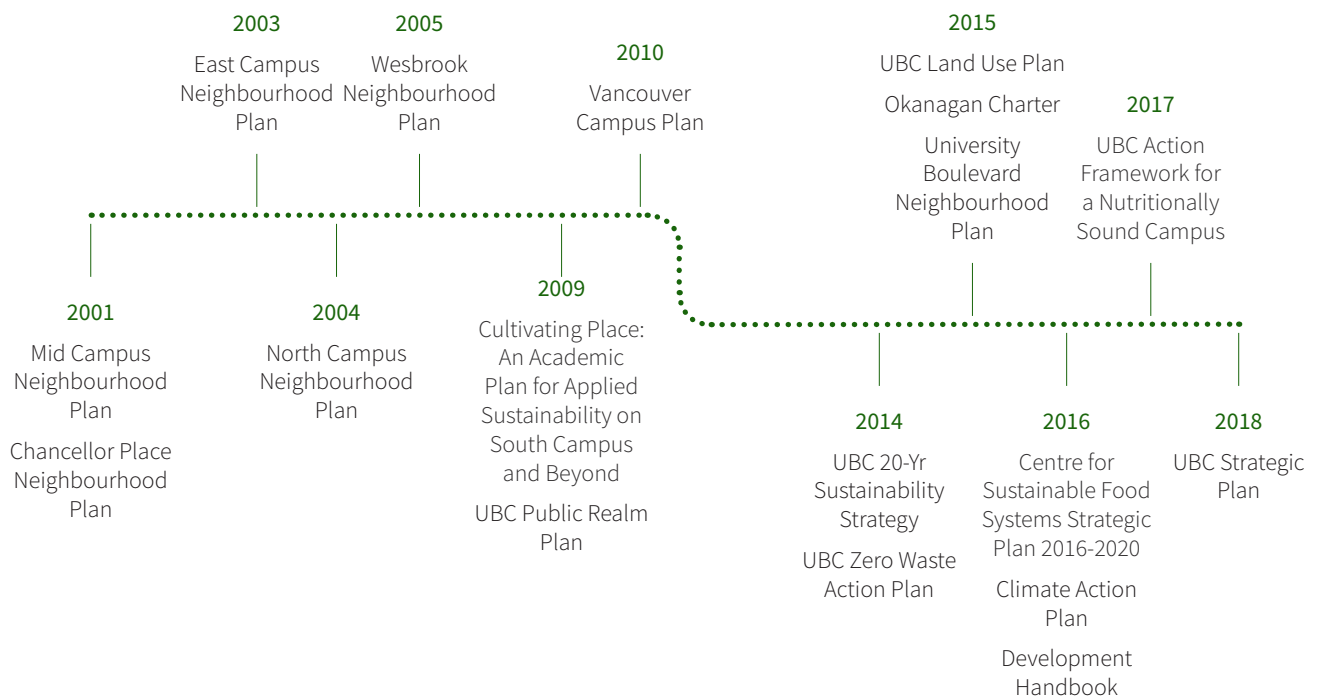
Note: 105 countries represented by “other” category

When classes are in session (September–April), UBC hosts a daytime population of more than 78,000 (UBC, 2017b). This figure includes the campus’ more than 11,000 permanent residents, who grew by 32% between 2011 and 2016, and 12,000 students housed on-campus (UBC, 2017b). Of those living in residential areas, the majority are aged between 20 to 39 (UBC, 2017b). Approximately 30% of residents speak Chinese languages most often at home, a figure twice that of Vancouver, while fewer than 50% of individuals speak English most commonly (UBC, 2017b).

3.2 Policy Review: UBC Policy Scan

In order to inform my project, I conducted a review of UBC policy pertinent to the campus food system (Table 3-2). While food is tangentially mentioned in a variety of policies, plans and strategies (for example, in the goal to create a “sustainable campus”), my focus was on direct reference to food and the food system. Provided below is a summary of the most relevant information, organized by six dominant themes, with a detailed description included in Appendix A.

Table 3-2 Reviewed UBC Policies



3.2.1 Theme 1: Land-based Learning and Knowledge Development

Development of land-based learning programming and infrastructure is a theme that runs through UBC’s Land Use Plan, the Vancouver Campus Plan, Cultivating Place, and the Centre for Sustainable Food Systems (CSFS) Strategic Plan 2016-2020. To support this mandate, the Land Use Plan provides a ‘Green Academic’ land use designation, which “identifies those academic lands on campus that will be kept primarily as open areas to support land-based teaching, research, community engagement and athletics as well as ancillary buildings and structures” (UBC, 2015, p. 11). This category includes food system infrastructure such as the Botanical Garden, the southward alignment of Totem Field and the UBC Farm (UBC, 2015). Development of academic areas must be in line with this plan (UBC, 2015) and is reinforced by Policy 9 in the Vancouver Campus Plan, which requires retainment of the BioScience Reserve in South Campus and the south half of Totem Field for land-based research and teaching projects (UBC, 2010).

Supporting the mandate of these plans, Cultivating Place and the CSFS Strategic Plan 2016-2020 provide detailed recommendations and steps to build the South Campus into an “academically rigorous and globally significant” place of learning and research (UBC, 2009a, p. 2). For Cultivating Place, this vision includes (UBC, 2009a):

- Connection to existing curricular and co-curricular learning opportunities in partnership with the University Sustainability Initiative
- Expanded non-degree practicum and youth education programming
- Expanded on-campus and community-based research

Land-based teaching, learning and research is also a strategic focus of the CSFS Strategic Plan (CSFS, 2016). This centres largely around supporting community-based and academic research, increasing food literacy on the UBC campus and beyond, and serving as an advocate for sustainable food systems (CSFS, 2016).

3.2.2 *Theme 2: Health and Nutrition*

Sustainable food systems are connected to health and nutrition in the UBC Action Framework for a Nutritionally Sound Campus, informed by the Okanagan Charter’s health-focussed calls to action (UBC, 2015). This framework espouses a vision of a “nutritionally sound” campus, defined as one that “increases intake of safe, healthy and sustainable food; supports development of nutrition skills and knowledge; and promotes health and wellbeing for all members of the UBC community” (UBC, 2017, p. 5). To do so, the document sets forward four main goals, which target vegetable and water consumption and aim to eradicate food insecurity while building cooking skills (**Appendix A**).

3.2.3 *Theme 3: Food Services*

Policies and initiatives that support a diverse landscape of food services are included in UBC’s Land Use Plan, the Vancouver Campus Plan, the UBC Development Handbook, the Public Realm Plan for the Vancouver Campus and the University Boulevard and Chancellor Place neighbourhood plans. The Land Use Plan designates food services an approved use within Academic lands and in the commercial centres of Neighbourhood Housing Areas (UBC, 2015). This is supported by the Development Handbook, which includes this use in high density residential/commercial areas of Chancellor Place and the Village Commercial areas of Wesbrook Place (UBC, 2016b).

The Vancouver Campus Plan connects food services to social activities, and in Policy 17 seeks to develop this use in proximity to social space as a way of animating mixed-use hubs (UBC, 2010). This connection is also made in the Public Realm Plan for the Vancouver Campus, which seeks to coordinate “food outlets and lively indoor activities” to “bring life to adjacent outdoor social spaces” (UBC, 2009b, p. 12).

3.2.4 *Theme 4: Landscaping and Community Gardens*

Gardens are an approved use on Academic lands as per UBC’s Land Use Plan, and community gardens a required use in Useable Neighbourhood Open Space according to the Development Handbook (UBC, 2016b). As a result, community gardens are an encouraged sustainability element in the majority of neighbourhood plans. In addition to this, the Vancouver Campus Plan and the Public Realm Plan require increased use of edible plants in landscaping (UBC, 2010) (UBC, 2009b).

3.2.5 *Theme 5: Sustainable Food Systems*

The need to create an environment that specifically supports sustainable food systems is included in UBC's 20-Yr Sustainability Strategy, Cultivating Place, and the CSFS Plan 2016-2020. In the Sustainability Strategy, Strategic Goal 2 envisions integration of "campus-scale energy, water, waste, and food systems" that provide "improved quality of life" for UBC community members and "enhanced ecological integrity" (UBC, 2014a, p. 6). In Strategic Goal 5, "UBC models a sustainable and integrated food system" that balances "environmental, social, and economic outcomes and assesses the impacts of food production, transformation, and consumption on environmental, personal, and community health" (UBC, 2014a, p. 7).

This vision is supported by Cultivating Place, which seeks to build the South Campus into a living laboratory showcasing sustainable land use management (UBC, 2009a). In order to do so, the CSFS Strategic Plan focuses on supporting sustainable agriculture by increased biodiversity, green technology and pest management innovation, seed production and improved energy efficiency (CSFS, 2016).

3.2.6 *Theme 6: Food and Container Waste Management*

This theme is included in Strategic Goal 2 from the 20-Yr Sustainability Strategy, noted above, and actioned through UBC's Zero Waste Action Plan and the Wesbrook Place Neighbourhood Plan. This is done largely by increasing food scraps collection across campus (compost from which is used in UBC landscaping and Wesbrook community gardens where possible), piloting initiatives that reduce barriers to food scraps collection, conducting waste audits for food scraps contamination, and implementing multi-stream waste sorting, collection, infrastructure and communications across campus (UBC, 2014b).

3.2.7 *Theme 7: Greenhouse Gas (GHG) Reduction*

UBC's Climate Action Plan 2020 pledges to explore "opportunities to address emissions reductions related to food" in Priority Action 5, and ambitions to "develop low-carbon food menus, or carbon ratings on food choices, at dining halls" in Actions for Future Consideration 1 (UBC, 2016a, p. 29). However food-related emissions, defined as Scope 3 emissions, are not directly measured (UBC, 2018b).

4.0 Research Approach (Methodology)

4.1 Food Asset Definition

To define the term “food asset” in the context of UBC, I completed the following:

1. Background research
2. Key conversations with the project team
3. Online survey

4.1.1 Background Research

In addition to reviewing relevant, academic literature and UBC policy, I conducted a review of **Table 4-1** asset maps to understand methods of categorization and definitions currently in use.

Table 4-1 Reviewed Food Asset Maps

Vancouver Coastal Health Food Asset Map	Nantucket Food Asset Map
North Shore Food Asset Map	Access to Food in Alberta Provincial Map
Squamish-Lillooet Food Asset Map	Greater Fredericton Food Asset Map
Cowichan Valley Food Asset Map	Grey County Agri-food Asset Map
Regina Food Asset Map	Cape Breton Food Asset Map
Golden Horseshoe Food and Farming Alliance (GHFFA) Regional Agri-food Asset Map	

Food asset definitions used in the above maps were highly changeable based on the context, scale and audience. For example, many of the maps included in **Table 4-1** speak to an audience interested in increasing food security, while the GHFFA map is oriented towards sector-specific, agricultural assets. These contexts and overall goals exert a strong influence on the maps’ respective definitions.

As the context of the UBC Food Asset map straddles the line of a university and a municipality (due to the unique status of UBC), I augmented this research by searching for food asset maps depicting other university campuses. I should note as well that my work expands on the existing UBC food asset map, which identified food service outlets and waste management facilities. In sum, nine universities were examined, chosen for their AASHE platinum and gold status and inclusion in an examination of campus food systems by Barrett (2011).

Of the external universities surveyed, only the University of California Berkeley (UCB) used mapping as a tool to illustrate the campus foodscape. This map shows “the locations of the most important food-related services and facilities at UBC Berkeley, from crucial Basic Needs Services like the UC Berkeley Food Pantry, to campus gardens, eateries and self-service facilities (water refill stations, microwaves, and lactation rooms) inside campus buildings” (UCB, 2018).

Seven municipal food policies were also reviewed (**Table 4-2**) for their specific and clearly defined use of the term “food asset.” This was not an exhaustive search, and further research is required to compare and contrast a wider sample in order to gain a fulsome understanding of this term’s use. However, of those reviewed, the term “food asset” was only clearly defined in the 2013 City of Vancouver Food Strategy. The City of Vancouver is currently redefining this term and intends to augment its use with a number of principles that support the City’s food goals, draft versions of which further informed my project’s definition.

Table 4-2 Municipal Food Policies Reviewed

Vancouver Food Strategy (Vancouver)	Food and Urban Agriculture Study (Edmonton)
Edible Edinburgh: A sustainable food city plan (Edinburgh)	Food Action Plan (Seattle)
Food City (Melbourne)	Calgary eats: A food system assessment and action plan for Calgary (Calgary)
Eating here: Greater Philadelphia food system plan (Philadelphia)	

4.1.2 Key Conversations

Informal conversations were held with the core project team, which includes David Speight (UBC Food Services), Liska Richer (SEEDS) and Tara Moreau (UBC Botanical Garden).

4.1.3 Online Survey

An eight question, online survey was distributed to 14 key stakeholders. This survey remained open from June 19 to July 3 and is included in **Appendix B**.

4.2 Food Asset Mapping

Assets for the map itself were gathered via the following:

1. Internet web searches
2. Informal conversations
3. Online stakeholder and asset manager review

Using key words based on the project’s food asset definition categories and relevant UBC publications, the majority of food assets were identified via web searches. Clarification on assets was then sought through informal conversations with asset managers and knowledge holders.

Prior to plotting the map, various mapping platforms were researched. Google MyMaps was chosen for its ease of use, SEEDS’ familiarity with the platform, and the fact that the software is free of charge and frequently updated by Google.

Once a draft asset map was plotted and hosted (with limited visibility) on sustain.ubc.ca/draftassetmap it was reviewed by the project team. When this feedback was integrated, a request for review was sent to 93 stakeholders and asset managers. These individuals were chosen based on their involvement in the campus food system and their role in managing assets included on the map. Every effort was made to contact all asset managers, however gaps exist. Participants were asked to provide feedback between July 4 and 13 using the online review form, a copy of which is included in **Appendix C**.

5.0 Findings

5.1 Food Asset Definition Survey

The UBC Food Asset Definition Survey was sent to 14 individuals and completed by nine (64% response rate). Organizations affiliated with the University Neighbourhoods Association, Centre for Sustainable Food Systems, the Orchard Garden, Sprouts and SEEDS were represented in this sample, while three individuals wished to remain anonymous.

A variety of themes emerged in response to the question of how the term “food asset” should be defined in the context of UBC, all of which are listed in **Table 5-1** below. While there was widespread agreement that a food asset (being it in the form of a program, resource, or entity) should engage the food system, the distribution of other themes was more diverse.

Table 5-1 Food Asset Definition Themes

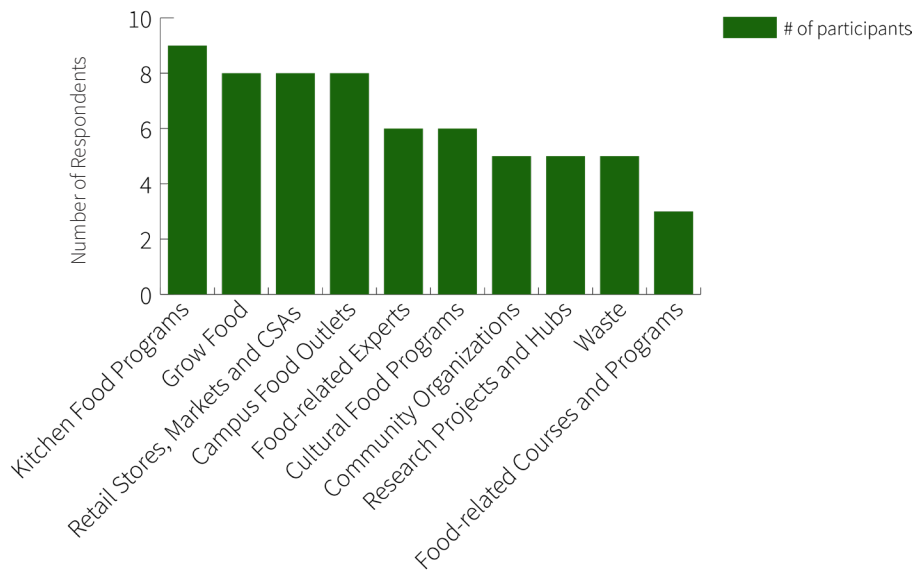
Sustainability	Growing food
Wellbeing	Preparing, sharing, eating
Nutrition / healthy food	Connection to land and learning
Justice and affordability	Building community
University values	Cultural importance
Food system (food production, processing, distribution, consumption, knowledge sharing, waste management)	

The role of a food asset in supporting the campus’ nutritional wellbeing was mentioned by several respondents. This could include resources that “nurture healthy food choices and healthy eating habits” and provide access to nutritious foods, as well as “hubs or nodes of energy and resources” that “promote physical and mental health.”

Two individuals also spoke to the importance of justice and affordability into their definitions. For one respondent, the options and resources offered by the UBC Vancouver campus meant that a food asset could be enhanced to support assets that were specifically “sustainable, affordable and healthy... (not just a typical grocery store or expensive dining unit).” Related to justice, the importance of culturally important food was raised by one respondent.

When asked which of a provided list of categories (see **Appendix B**) should be included in the food asset definition, consensus among respondents varied as illustrated by **Chart 5-1**. All participants agreed that kitchen food programs such as food skills workshops and kitchen access should be included, while seven respondents also agreed to the inclusion of places for growing food; retail stores, markets and CSAs; and campus food outlets. However, there was less agreement among other categories, with the majority of individuals eliminating food-related courses and programs from the definition.

Chart 5-1 Categories Respondents Feel Should be Included in the Food Asset Definition



In regard to categories missing from the survey, individuals expressed a need for including events (e.g., Apple Festival and Pumpkin Carving), emergency food items for those who are food insecure, and storing food ways and food traditions. Two respondents also requested the “waste” category be more specific, divided into “food recovery programs,” “organic waste management,” and “food container waste management.”

Six respondents indicated that the food asset map would support their work, with many speaking to the ability of the map to reveal what is happening across campus and help build connection between programs. One respondent also expressed a desire to have the map printed so physical copies could be distributed to community members.

Based on this information and the background review, I created a working definition of the term, which informed the project:

A food asset is a resource, facility, program, place, knowledge hub or service that supports a food system (from field to fork to compost) and may provide people the opportunity to learn about, grow, access, cook, eat, share or dispose of healthy and culturally important food. Food assets should be integrated to build community and enhance the environmental, economic, social and nutritional wellbeing of the UBC Vancouver campus.

This definition was then broken into 10 dominant themes and a range of related sub-categories, which assets were divided into (see **Section 5.2** for further information).

5.2 UBC Food Asset Map

5.2.1 Consultation

In order to provide additional map detail and to ascertain how and if individuals would use the food asset map, I conducted a second phase of consultation. In this stage, 93 food stakeholders and asset managers were asked to review the map, a draft version of which was hosted online at sustain.ubc.ca. While only 28 respondents completed the review, a relatively low response rate (approximately 30%), this should not discredit the results for the following reasons:

1. The review request was in some instances sent to multiple individuals in an organization, who indicated through personal communication that a single respondent would provide feedback.
2. The request was active for eight business days due to the constrained project timeline.
3. The request was submitted during the summer, when staff, faculty and students are often absent from the university.

Of those who responded, the majority (71%) were not UBC students, and of those who were, none were international students. This, combined with a preliminary analysis of the map, indicates that further outreach to international students will be needed.

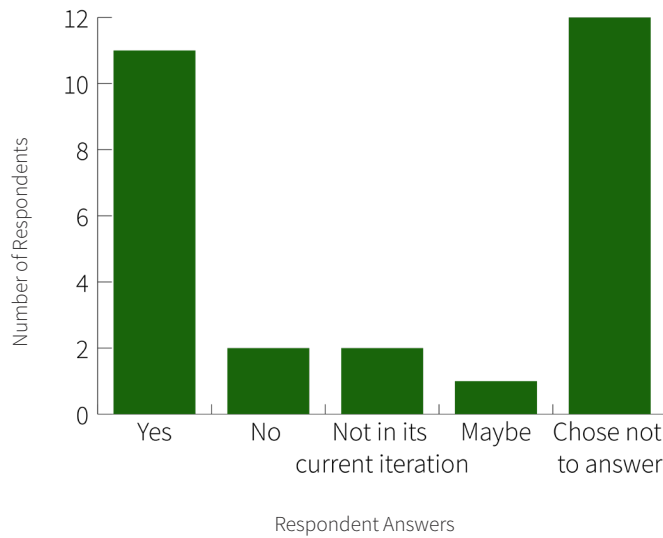
Much of the feedback received was related to changes in wording, precise asset locations, and the addition of several new assets, such as the Orchard Commons rooftop garden. A distinction was also made between use of the term “wellness” (a historic descriptor at UBC) and the more current and preferred use of “wellbeing.” Feedback also indicated that additional instructions around how to use the map would be helpful.

Some respondents provided extensive feedback on the map’s usability, with five individuals indicating the map’s information was compromised by the limitations of the software. Many of these respondents indicated they would prefer if the map could be filtered to narrow the topic of interest, though MyMaps does not permit this beyond turning map layers on and off. One respondent suggested creating individual maps based on each of the layers as a way of making them more specific to their target audience. I’ve included this suggestion in **Section 9.0** as a recommendation for future project stages. The map database has also been posted alongside the final (master) map at sustain.ubc.ca as this allows users to filter information.

Many respondents also suggested providing additional asset detail. This could include opening hours, the type of food offered, and dietary accommodations. This suggestion has been included in **Section 9.0** as a recommendation for future actions.

When asked if the map would support the work of respondents, 11 of the 28 participants indicated that it would, while 12 chose not to respond (**Chart 5-2**). Of these, six stated the map would help them connect with and form new relationships with food stakeholders and asset managers on campus, and five proposed using it as a resource for new and existing students. One respondent also indicated that completing a similar map for the Okanagan campus would be beneficial.

Chart 5-2 Answers to the Query of Whether or Not the Map will be Useful to Respondents' Work



Two individuals noted they would not use the map, while two stated that it is not useful in its current iteration.

5.2.2 Final UBC Food Assets

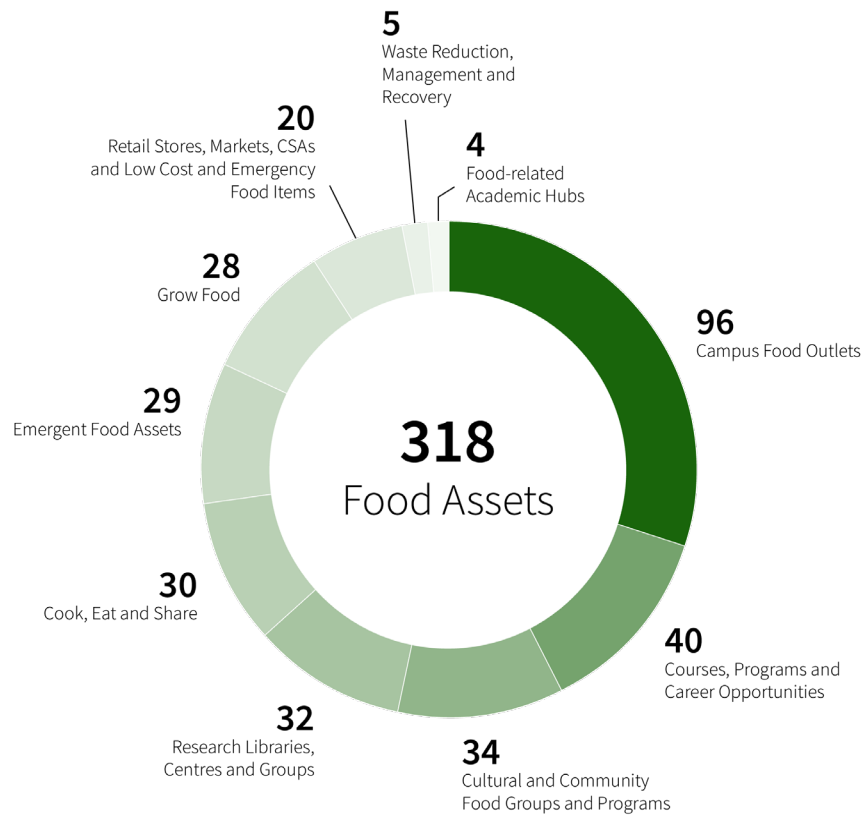
The UBC Food Asset map is organized into 10 layers, with categories specific to each layer nested within. These categories evolved in tandem with the food asset definition and were drawn from a variety of sources (see **Section 4.1**) and definitions for each can be found in **Appendix D**.

As a whole, use of these categories and layers is meant to replicate the diversity of the campus food system, however some assets were not suitable to either the mapping methodology or the project's maintenance constraints. For instance, rather than map individual academic experts, only expert hubs are included. This was done to limit the work required to maintain the map.

The ubiquity of many assets suitable to the “waste reduction, management and recovery layer” alternatively did not suit the purposes of this map. To decrease food container waste and encouraging food scraps diversion UBC's Zero Waste Action Plan focuses in large part on increasing the number of multi-stream waste receptacles on campus. Currently, there are more than 700 receptacles on campus, a number that makes this type of asset inappropriate to the medium. However, I have tried to gesture to these initiatives in other ways, and the waste reduction methods employed by UBC Food Services and AMS Food and Beverage are included, for instance, in category definitions.

In total, 318 assets are mapped across a range of categories, as indicated by **Chart 5-3** and detailed in the following sections. As stated in the introduction, this map is intended to be a living object and I estimate that the number of assets will continue to change as revisions and additions are made.

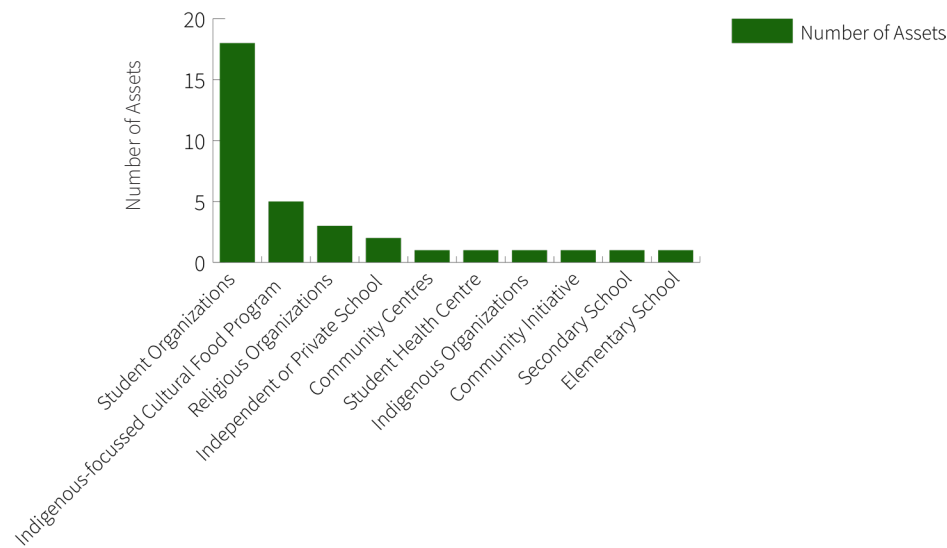
Chart 5-3 Distribution of Food Assets



5.2.2.1 Cultural and Community Food Groups and Programs

The project’s asset inventory suggests that the majority of cultural and community-based assets are led by student organizations (e.g., Common Energy, Sustainability Ambassadors, UBC Food Society, etc.) (Chart 5-4). However, a large number of assets in each category does not necessarily correlate to a healthy food system. For instance, while the campus is home to four schools, this may very well be sufficient to support the approximately 3,000 school age children who reside at UBC permanently. Alternatively, though there are six Indigenous-focussed cultural food programs and organizations on campus, I question whether this can support the university’s 1,191 Aboriginal students, particularly as many are concentrated on the south side of campus, far from a number of residences. Further analysis of the communities served by groups and programs identified in this layer would be helpful for evaluating the efficacy of the current system.

Chart 5-4 Distribution of Cultural and Community Food Groups and Programs



It should be noted that none of the assets in this layer specifically serve the international student community. While this is a diverse group, studies have shown that international students have specific food needs, and programming around shopping in Canada and celebrating culture through food can help this group achieve food security. This lack of programming is noted in **Section 5.3** as an emergent gap in UBC’s food system.

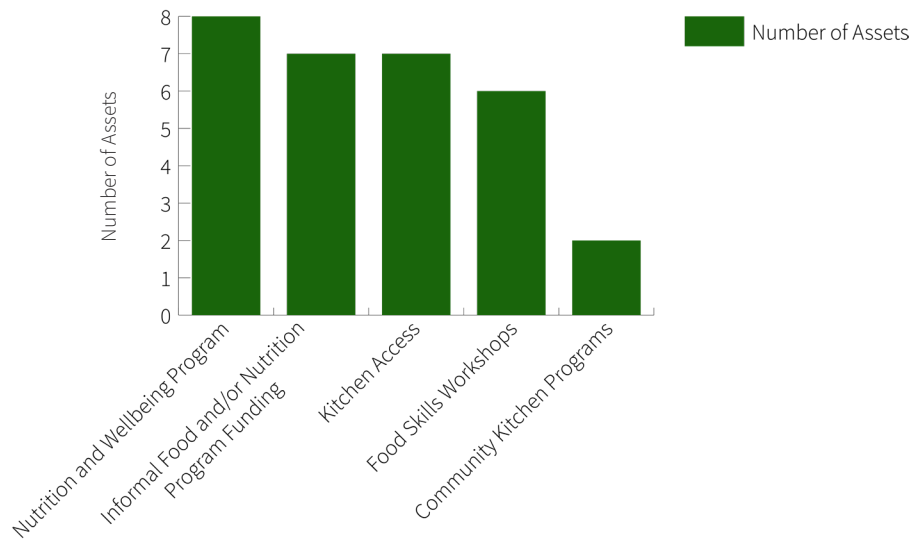
5.2.2.2 Waste Reduction, Management and Recovery

Though this project was not well-suited to mapping waste-related assets, it does detail several initiatives related to food waste reduction (Sustainability in Residence program), organic waste management (food scraps collection and the in-vessel composter) and food container waste management (food container collection). However, I was unable to identify any sustained food recovery projects. This has been noted as a potential gap in **Section 5.3.3**.

5.2.2.3 Cook, Eat and Share

This project’s asset inventory indicates the majority of those pertaining to cooking, eating (and preparing) and sharing food are related to nutrition and wellbeing (e.g., Wellness Peers, Student Residence Registered Dietician, etc.) (**Chart 5-5**). A number of funding sources also support food skills and nutrition programming, such as the AMS Clubs Benefit Fund and the Healthy Workplace Initiative Program. This may be due to the strong policy attention this area has received, which followed its adoption of the Okanagan Charter’s health-focussed calls to action (**Section 3.2.2**).

Chart 5-5 Distribution of Cook, Eat and Share Assets



In regard to kitchen access, increasing these assets may support programming for international and Indigenous students, especially when combined with the campus’ active student body. Providing students low barrier, programmable kitchen spaces can help provide infrastructure for celebrating culture and traditional knowledge through food while supporting wellbeing goals.

5.2.2.4 Emergent Food Assets

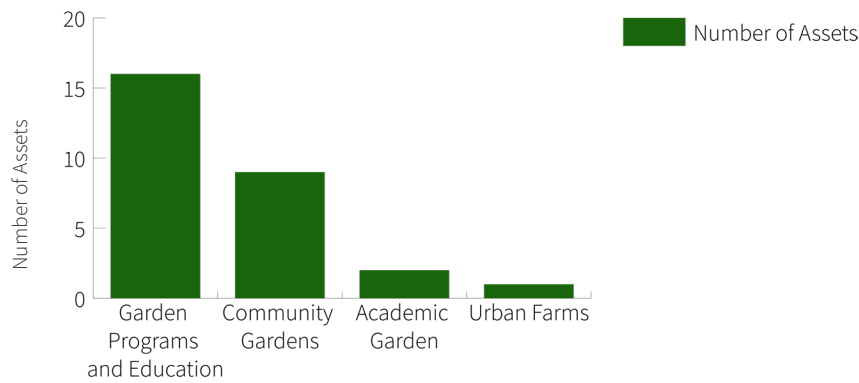
The purpose of this layer is to provide space for emerging food topics. At the moment, the layer currently hosts one category, emergency (disaster) food provision. This is managed by Student Housing and Hospitality Services (SHHS) at their 29 food service locations. Variables such as the time of year, time of day, available infrastructure (e.g., power, gas), nature of the disaster and number of individuals to feed control which locations would be activated in an emergency. In emergency situations where infrastructure is available, the central commissary would be used to feed the campus. UBC is also exploring a mobile food services program, in which Vancouver Coastal Health approved kitchens would transport food to various locations, but this is still under development.

5.2.2.5 Grow Food

This project indicates that the majority of assets related to growing food are centred around garden programs and education, likely due to the role land-based teaching and learning plays in UBC policy (**Section 3.2.1**) (**Chart 5-6**). These include workshops from CSFS and Roots on the Roof, to those offered by the UBC Botanical Garden and more.

Community gardens are also numerous and often go beyond the traditional model of individual plots, serving as a space for community building and education among students and residents. These assets are strongly supported by UBC’s Land Use Plan and other related planning documents, and further land-based teaching and learning goals.

Chart 5-6 Distribution of Grow Food Assets

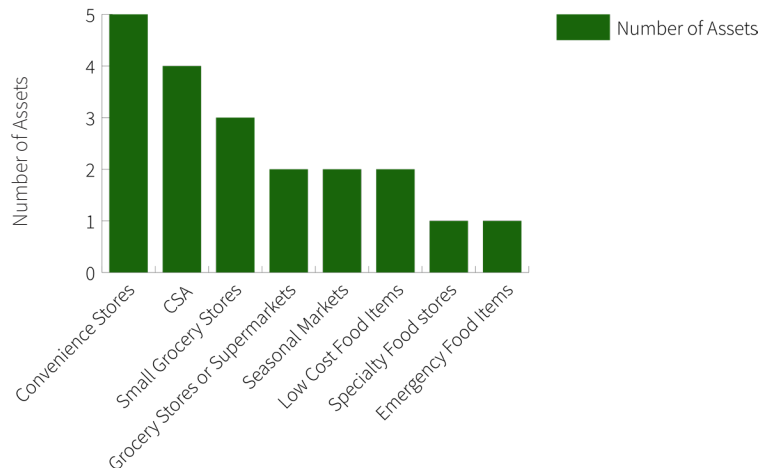


Similar to **Section 5.2.2.1**, a small number of assets in a certain category, such as urban farms or academic gardens does not indicate an unhealthy food system.

5.2.2.6 Retail Stores, Markets, CSAs and Low Cost and Emergency Food Items

As indicated by **Chart 5-7**, there are a large number of convenience stores located on campus (e.g., Corner Store [UBC Bookstore], Gage Mini Mart) and a small number of grocery stores (H-Mart Express and Save-On-Foods). Further analysis as to the satisfaction of communities served by these retailers would be helpful for understanding the efficacy of this system. UBC is home not only to a diversity of international students, but a large number of recent immigrants, and a lack of international options may not suit these communities. Additionally, convenience stores have a reputation of being more expensive than larger retailers and an evaluation of these through an economic lens would be helpful for understanding whether or not this system is sustaining community members adequately. Additionally, it would be interesting to understand whether or not increasing the number of affordable retailers would help decrease use of the AMS Food Bank, which is currently rising.

Chart 5-7 Distribution of Retail Stores, Markets, CSAs and Low Cost and Emergency Food Items



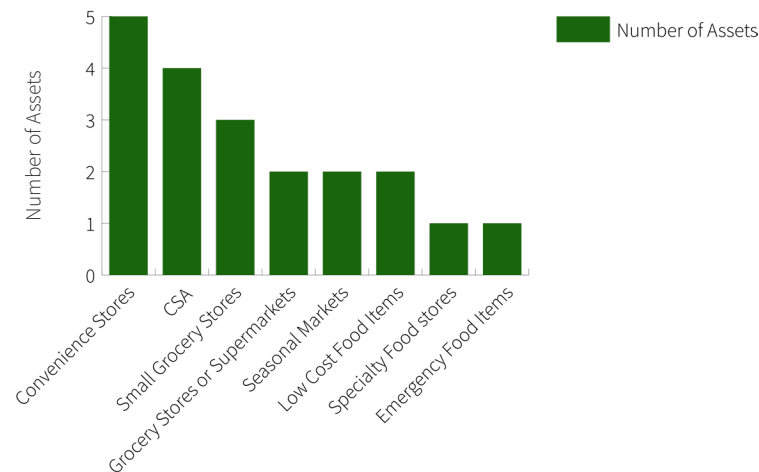
UBC also has a number of CSA options and seasonal markets, which work in service of its sustainable food system goals. Student-led organizations and/or gardens such as the Orchard Garden, Roots on the Roof and Sprouts help connect community members to local growers, support the regional food system and can strengthen food citizenship, particularly among students.

5.2.2.7 Campus Food Outlets

The vast number of assets within the campus food outlet layer qualify as “other establishments.” These are organizations that are not operated by UBC Food Services or AMS Food and Beverage or run by a student group, and do not use a franchise business model. Examples include Mahony & Sons, Jamjar Canteen and The Delly. These groups are not bound to advance UBC’s sustainability or nutrition goals, and waste reduction and environmental commitments differ among them.

While the purpose of this project is not to evaluate food outlet models, an analytical comparison of food worker wages and benefits across these asset categories would be useful for understanding how the campus is supporting food workers in this aspect of the food system. This analysis could also illuminate new avenues for food worker advocacy.

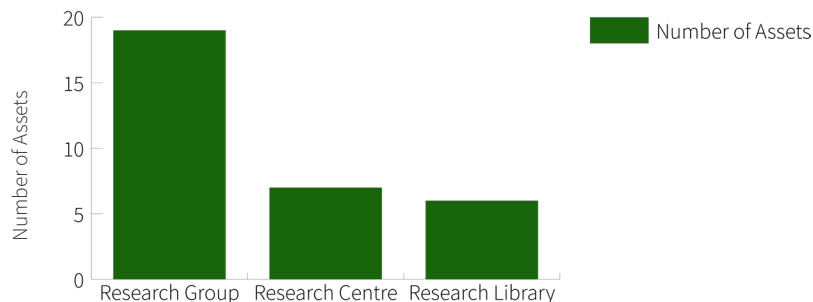
Chart 5-8 Distribution of Campus Food Outlet Assets



5.2.2.8 Research Libraries, Projects and Centres

This project indicates that assets pertaining to research libraries, projects and centres fall predominantly within the research group category (e.g., Fisheries Economics Research Unit, Food Sovereignty Research Group, etc.) and touch upon many aspects of the food system (Chart 5-9). Research libraries include both physical (e.g., Woodward Library) and virtual (e.g., SEEDS Sustainability Library) assets, and are specific to those that directly support the food system.

Chart 5-9 Distribution of Research Libraries, Centres and Groups



5.2.2.9 Food-related Academic Expert Hubs

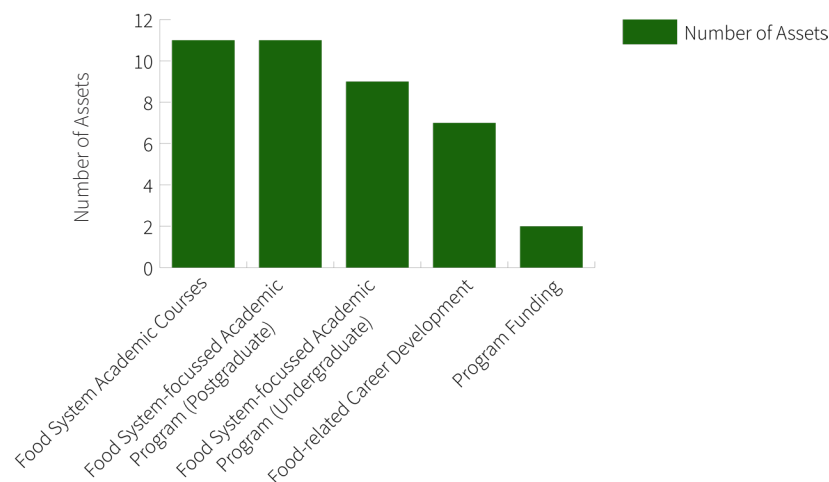
The purpose of this layer is to demonstrate the concentration of food-related academic experts at UBC, and to provide a link to those identified by the university. The university is a leading institution in food research and boasts diverse academics and publications, and the four expert hubs and resources included in this layer are not indicative of the number of actual experts at UBC. The number of experts was limited to decrease the work required to maintain the asset map, as updating individual changes is too taxing considering our resources.

5.2.2.10 Courses, Programs and Career Opportunities

This inventory indicates that most of the assets pertaining to food system-focussed courses, programs and career opportunities are courses in various departments (e.g., PLAN and ANTH courses related to the food system) and postgraduate degree programs (e.g., Food Science [M.Sc.], Land and Water Systems [MLWS]), etc.). However, a number of programs at the undergraduate level are also offered, primarily through the Faculty of Land and Food Systems.

Food-related career development programs are those that offer professional experience and are not degree programs. These include the Horticulture Training Program and Food Systems Career Development Internships. It should be noted that programs such as UBC Work Learn and UBC Sustainability Scholars, while they do often offer food system-related opportunities, are not wholly made up of these types of positions.

Chart 5-10 Distribution of Courses, Programs and Career Opportunities Assets



5.3 Emerging Gaps

Though an evaluation of the campus food system is not within the scope of this project, I have identified a number of emerging gaps.

5.3.1 Programming for International Students

International students have specific needs with regard to food security and programs specifically targeting this group are lacking at UBC. For many international students, access to, sharing and celebrating traditional foods can be key to maintaining their cultural identity, managing culture shock, and staying healthy in a new environment.

At the University of Reading, the International Food Project has created a website with resources related to food. This includes information on common United Kingdom foods, things to think about before students leave home, and tips for eating out and shopping in Reading, including places to purchase specialty foods, such as halal meats (University of Reading, 2018).

At Wilfred Laurier University, the Global Kitchen Initiative serves as an international food hub, hosting events and workshops, and offering teaching space coordinated by Laurier International (WLU, 2018). Examples of programming include Make and Take, where members of Laurier International, the university community and residents of the greater Waterloo region invite students to gather and prepare meals for the forthcoming week (WLU, 2018). Food as a medium of culture is an underlying theme in much of the programming, including their The Foods I Eat series (WLU, 2018). Here, members of the university and broader multicultural community are invited to share stories and food from their native cultures over a meal (WLU, 2018).

As UBC's international student community continues to grow, providing resources that support the diverse wellbeing needs of these students will be key.

5.3.2 Programming for Indigenous Students

The UBC Farm has taken a strong role in decolonizing the food landscape and developing programming, such as the xw'íc'ásəm: Indigenous Health Research and Education Garden, that supports Indigenous community members. However, more opportunities exist to work with individuals from Indigenous backgrounds to develop programming that serves Indigenous students in particular. Encouraging the sharing and trade of traditional foods and celebrating through cultural feasts can be key to ensuring students distanced from their home communities feel safe and welcome (Elliot & Jayatilaka, 2011). Further to this, programming should seek to incorporate the entire system of Indigenous foodways, including harvest, preparation and consumption (Elliot & Jayatilaka, 2011).

Feasts have emerged as a popular way of celebrating Indigenous culture in Canadian universities. For example, Simon Fraser University's Indigenous Student Centre hosts an Honouring Feast annually (SFU, 2018). Intended to celebrate Indigenous students in their degree completion, the event features a keynote address and students are encouraged to wear their traditional regalia to both the feast and convocation (SFU, 2018).

Similarly, Indigenous students and staff share a Friday feast once a month at Dalhousie University's Indigenous Student Centre (Williams, 2018). For attendees, this event can be an opportunity to access Indigenous foods that are difficult to find in Halifax, while also providing a safe space to dialogue about their day-to-day student experiences (Williams, 2018).

Funding specifically dedicated to supporting UBC's mission of providing a culturally safe environment for Indigenous students could help grow this type of programming on campus. Increased kitchen access could further provide the necessary infrastructure for such events.

5.3.3 Food Recovery Initiatives

There are a large number of active waste-reduction initiatives active at UBC. However, in my research I was unable to identify permanent food recovery programs. In 2017, a SEEDS project explored this issue and facilitated a connection between UBC Food Services and the AMS Food Bank, recommending the partnership persist past the project's end (Lu, Kwan, Annejohn, Brown & Tran, 2017). Since then, UBC's Engineers Without Borders has developed "Scrapless," an app that matches students with excess food from suppliers, which is poised to begin beta testing, so it is clear that this landscape is evolving (Engineers Without Borders, 2017).

The campus food system is vast and challenges around partner participation, liability, infrastructure, timing and client expectations may be barriers to food recovery programs. However, a number of universities have successfully delivered programs that seek to repurpose unwanted food. For instance, Embark, a student-led non-profit organization that operates from Simon Fraser University, has created what they call a Food Rescue program. This initiative collects surplus and un-salable (by food industry standards) produce from Nesters Market and redistributes this food to students at SFU Burnaby either for free or by donation (Embark, 2018).

The University of Arkansas also operates a large food recovery program, which includes publication of “Food Recovery: A legal guide” by the university’s law school (Ochoa, 2014). This document outlines a relevant law that protects organizations who practice food recovery from civil and criminal liability, resolving these questions (Ochoa, 2014). The law school also educates stakeholders as to the legal side of food safety and labeling, taxation of food donations and other relevant aspects in order to demystify the topic (Ochoa, 2014). Such resources could prove useful to the multitude of campus food outlets at UBC, who likely understand the topic differently.

5.3.4 Programs Supporting Food Workers

UBC’s Supplier Code of Conduct contains specifications regarding freedom of association and maximum hours worked per week, alongside a requirement that suppliers pay workers minimum or prevailing industry wages. However, programs that lend transparency to the conditions, wages and benefits of food system workers are, from my research, limited. As UBC does engage in sustainable procurement and has had success in affecting positive change through its supply chain, this may be an issue of communication rather than a lack of programming. Further research into how universities can best illuminate this sector and support food workers may be necessary.

6.0 Evaluation of Food Assets

Though some researchers have indicated the need for new ways of measuring and understanding the pattern, connectedness and effectiveness of asset-based approaches, a strategic planning approach can provide a roadmap for doing so (Glasgow Centre for Population Health, 2012). Two methods of mobilizing this approach are provided in **Section 6.1** and **6.2** below, though they share several commonalities. First, proper evaluation of the asset map must be driven by objectives in pursuit of a strong vision for UBC’s future food system. Using a variety of UBC policies, I have provided a working list of objectives based on the 20-Yr Sustainability Strategy vision in **Appendix E**.

Second, indicators used to measure the success of assets against objectives must be realistic and agreed upon by the community (or stakeholders) (Glasgow Centre for Population Health, 2012), though assets lacking baseline data will be difficult to measure. The evaluation process should also engage a sufficient number of diverse community members, particularly local leaders. Data measuring participation should be tracked to ensure this goal is satisfied (Sigerson & Gruer, 2011).

Evaluation also poses challenges, such as finding appropriate data that can map to food system goals and measure the direct and indirect effect of programs on community members (Glasgow Centre for Population Health, 2012). Measurement and evaluation is also a time-consuming stage of the strategic planning process. Resources must be allocated to the process and the methodology accurately documented if the process will pass to multiple student researchers.

Gaining community consensus on definitions of program “success” may also be difficult, as will be applying this to evolving assets. However, if the evaluation process is reflective and adaptive to lessons learned, these challenges can be overcome.

6.1 Strategic Planning Process

This process was popularized through a joint collaboration between UN-Habitat and EcoPlan International Inc. This model leads the project team and stakeholders through the following steps (EcoPlan International Inc., 2005):

1. Assembling the project team and planning the process
2. Stakeholders and participation
3. Situation analysis
4. Visioning
5. Setting objectives
6. Identifying and evaluating strategy options
7. Action planning and strategy documentation
8. Plan implementation
9. Monitor and evaluate
10. Adjust and modify

Within this process, assets identified in UBC's asset map would be measured against food system objectives using indicators developed by stakeholders and the project team. This would enrich the situation analysis of the campus food system and help direct action planning. Guidebooks detailing this process can be found on the UN Habitat website in the form of five comprehensive guidebooks.

6.2 Learning, Evaluation and Planning (LEAP)

The LEAP framework is a simpler version of the strategic planning process described in **Section 6.1** and includes the following five steps (Barr & Dailly, 2006).

Step 1: What (now) needs to change?

In this step, stakeholders craft a vision informed by needs or problems with the current system. The vision should be described in terms of desired outcomes and should be envisioned by those who will benefit from the change (Barr & Dailly, 2006).

Step 2: How will we know?

Stakeholders identify and agree on indicators that will allow them to determine whether or not outcomes have been achieved and conduct a baseline study (Barr & Dailly, 2006). Evidence collection should be built into all future procedures (Barr & Dailly, 2006).

Step 3: How will we do it?

Stakeholders determine actions that will move them towards their vision. This includes identifying resources, detailing methods that will create change, and specifying actions stakeholders will take in pursuit of goals (Barr & Dailly, 2006).

Step 4: Are we doing it?

This is the monitoring stage of the process, where actions are measured against outcomes using defined indicators (Barr & Dailly, 2006).

Similar to the strategic planning process, the UBC Food Asset Map could be used as a tool to determine the current state of the system and what needs to change, and for understanding the resources available to stakeholders in action planning.

7.0 Limitations

This project was limited in a number of ways, detailed in the following sections. Suggested next steps based on these limitations are provided in **Section 9.0**.

7.1 Timeline and Consultation

This project was conducted over 250 hours from May to early August. Ideally it would have been useful to engage with stakeholders via focus groups or a public open house before and after the map's creation, though the timeline did not permit this. Engagement at the beginning of the process would have been helpful for better understanding the needs of the community and shaping the project around the audience, as well as developing relationships and contacts. Within this study, university staff are over-represented, while students, particularly international and Indigenous students, are under-represented. By consulting with individuals/groups at the beginning of the project, I think I may have been more successful connecting with a more diverse group while fostering project buy-in.

In-person consultation after a draft map had been created would have been useful not only for sussing out additional assets and revisions, but for understanding community-determined priorities for future study. This consultation may also have provided insight into which assets are most valuable to UBC from the perspective of various groups (students, staff, faculty and residents).

Completing the project in the summer may also have impacted the project's digital engagement, as I found it difficult to reach student groups such as the International Student Association.

7.2 Google MyMaps

Google MyMaps has many attractive features. It is available free of charge, frequently updated, and poses few barriers to new users. As the map will be updated in the future by individuals who may not be versed in GIS, this final point was important to the project team. However, I question whether the map's purpose as a standalone resource for campus food assets integrates well with this software.

For instance, MyMaps limits maps to 10 layers, a number that does not reflect the complexity and diversity of the campus food system. As a result, I combined assets in ways that were not necessarily preferable or natural. Additionally, when multiple points are situated at the same location within a layer, MyMaps will only display one. This proved problematic for food hubs such as the UBC Farm and the Faculty of Land and Food Systems, which contain a myriad of food assets, often within the same layer. To work around this limitation and ensure all assets were visible, I moved points slightly to ensure their latitude and longitude were not identical. However, locations are not exact.

Perhaps the most significant limitation to this software is that assets cannot be tagged or searched by keyword. This makes it difficult to, for example, search for free food without using the exact map terminology of emergency food items. Posting the master asset spreadsheet alongside the map will allow users to search a wide range of terms and filter assets based on their needs, though this takes away from the visual purpose of the map. A recommendation suggesting development of a custom GIS solution to replace MyMaps is provided in **Section 9.0**.

7.3 Resources and Maintenance

This map must be maintained to remain relevant, however the degree of maintenance afforded by UBC Botanical Garden and SEEDS' resources is as yet unknown. This affected the map's design in that I aimed to limit maintenance requirements wherever possible.

7.4 Project Scope

This project is constrained to the boundaries of UBC's Vancouver campus, however the campus food system extends far beyond this. It would be interesting to map where campus ingredients originate, in order to understand exactly how far the food system extends, while also providing information on regional growers. In 2010 Yale University created an institutional map that included local growers in order to facilitate local food purchasing, while also making visible the region's food production capacity. I think a similar purpose would benefit UBC, particularly the independent campus food outlets and retailers who may be enticed to order regionally. Once a methodology for doing so is complete, it would also be interesting to extend this to the Okanagan campus as well.

8.0 Summary

UBC's campus food system is diverse, a result of strong policy direction, proactive campus planning, and student and staff activism. One of Canada's largest universities and the region's biggest employer, efforts to increase community wellbeing and campus sustainability through food have helped shaped conversations at other levels of government and will continue to do so. As UBC moves closer to becoming a health-promoting university, how it communicates its path to success to those not embedded in the institution will be key to affecting change beyond its boundaries.

The UBC Food Asset Map provides an example of one way this can be done. Asset-based mapping can visually represent successes and achievements while also serving as a tool of evaluation and collaboration. This map showcases the diversity of the campus food system by illustrating the its diversity. It also reveals the way singular institutions such as the UBC Farm, the Botanical Garden and Sprouts are working across different areas.

This map further illustrates the importance of policy. In promoting land-based teaching, research and education in various policy documents, UBC has developed a multitude of assets in these areas, backed by funding and institutional support. This is similarly true of assets supporting the university's health promoting goals. Programs to improve the nutritional wellbeing of students, staff and faculty are numerous and founded on the Okanagan Charter and the subsequent Action Framework for a Nutritionally Sound Campus.

Regardless, gaps exist. However, the purpose of the map is to reveal these and to enrich a situational analysis of the university's food landscape, which could help guide future action. Pursuing a comprehensive evaluation of UBC's strengths and weakness and designing a path forward with strong stakeholder engagement is a reasonable next action. Strategic planning methodologies offer a means to do so, which can help the university achieve its ambitious nutrition and sustainability goals.

9.0 Recommendations

Opportunities for future research that build on this project are numerous and are expanded upon below.

9.1 Additional Map Detail and Assets

A number of individuals have suggested adding additional detail to the food asset map, which could include:

- Accessibility information such as opening and closing hours, (to serve the campus' permanent residents), and physical accessibility information for patrons with differing levels of mobility. It would also be helpful to note which outlets or resources provide services in multiple languages to serve the university's English as a Second Language community.
- Availability of dietary preferences and type of food offered, which could include tagging assets with keywords such as "vegetarian," "vegan," and "halal" if these options are offered. One individual also suggested tagging outlets that offer "Chinese" food or "pizza" to help users filter by preference.
- Some users felt that campus food outlets and retailers should be distinguished by "affordability." This requires further research to define "affordability" considering the wide socio-economic differences among students, staff, faculty and residents.

A number of community members also suggested adding new assets. These could include edible landscaping, vending machines, and lunch spaces with notes around available cooking infrastructure (e.g., microwaves). Additionally, as suggested in **Section 7.4**, mapping the campus food system beyond UBC's limits would provide additional detail while increasing transparency.

9.2 Improved Map Usability and Maintenance

A number of map users have expressed a desire to filter assets by type and keyword, a feature not offered by Google MyMaps. For the map to succeed as a standalone object (as opposed to a series of audience-specific maps), I encourage exploration of custom GIS solutions that can accommodate this request.

An alternative GIS solution should aspire to be user friendly to those maintaining the map. I would suggest assuming these individuals will not be proficient in GIS and would encourage developers to create a companion document detailing how to use the software. The UBC Botanical Garden and SEEDS should also create a plan explaining who will maintain the map (e.g., by a work study student) and aim to update it on an annual basis. Creating a form for the website that allows individuals to submit new assets or suggest revisions would also help with maintenance.

9.3 Comprehensive Food System Analysis

Completing a comprehensive analysis of UBC's food system is a key next stage, preferably through a strategic planning process that uses the map as a tool. This would require development of a comprehensive food vision for the campus and a number of objectives, against which assets and programs could be evaluated. This type of analysis would provide a clear path forward for future program development and help ensure resources are efficiently used.

9.4 Virtual UBC Food Hub

UBC is a forward-thinking campus in terms of sustainable food system development. A diverse range of actions are currently being led by various departments, organizations, programs and individuals. However, in researching this topic, I found these efforts to be somewhat diffuse and at times difficult to locate. Creating a virtual hub that centralizes these initiatives in a single location and provides regular updates on the university's food system objectives could help showcase this work, connect decision-makers with asset managers, and support food system research. Food.berkeley.edu offers a good example of what this might look like.

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Appendix A

UBC Policy Relevant to Food Systems

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
UBC Land Use Plan	Legal context: For so long as the Land Use Plan is in effect, the Board of Governors must ensure that all agreements entered into by the University - all rules, resolutions or similar authorities issued or adopted by the Board of Governors - and all permits, licences and land development undertaken or authorized by the Board of Governors are not inconsistent with the Land Use Plan. The Land Use Plan sets out areas for Academic activities, which are consistent with the Vancouver Campus Plan and areas for Neighbourhood Housing where non-institutional development can take place in conformity with the approved Neighbourhood Plan for the appropriate neighbourhood housing area. These area plans and the campus plan must be consistent with the Land Use Plan. Each of the neighbourhood plans contain provisions for any variances between a neighbourhood plan and the Land Use Plan. In these cases, the Land Use Plan will prevail.				
	4.1.2 Green Academic: The 'Green Academic' land use designation identifies those academic lands on campus that will be kept primarily as open areas to support land-based teaching, research, community engagement and athletics as well as ancillary buildings and structures. These spaces are distinguished from other typical academic areas characterized by buildings such as libraries, classrooms, offices, student social space, food outlets, gymnasiums, pools and laboratories. This 'Green Academic' category includes the UBC Farm, the Thunderbird Athletic Fields, Thunderbird Stadium, the Botanical Gardens, that portion of Totem field aligned southward of the southernmost edge of the west parking lot beside SW Marine Drive, and other significant green academic areas including green edges referenced in Section 4.1.2.4.	4.1.2	11	2015	https://planning.ubc.ca/vancouver/planning/policies-plans/land-use-governance-documents/land-use-plan
	4.1.3 Academic: The "Academic" land use designation identifies those parts of campus to be used for teaching, research, and other uses needed to support the academic mission of the university and academic life. These uses would include but not be limited to: academic and medical buildings, classrooms, libraries, offices, recreation facilities, research facilities, student social space, support services, administration buildings, parkades, cultural facilities, student residences, research laboratories, campus-as-a-living laboratory projects, commercial services needed by the academic community (e.g. bookstore, conference centre, hotels, food services, retail and service commercial), multi-tenant research and service facilities, and UBC support services (e.g. plant and utility facilities, district energy systems, fire, police and ambulance facilities, power substations, transit facilities, and future rapid transit).	4.1.3	13		
c) Commercial uses will typically be those generally needed by the resident population in the immediate area such as food services (bakery, delicatessen, eating establishments, etc.); personal services (cleaners, financial institutions, hair salons, etc.); and other retail outlets oriented to the population of the residential area (clothing, garden supplies, tailors, etc.).	4.1.6.2	16			

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Vancouver Campus Plan	Public realm designed with nature: ... "use of more native and edible plants in low maintenance, simple landscaping schemes will be encouraged along w/ working towards a pesticide-free regime in campus landscape maintenance"	3.1 Sustainable Campus	7	2010	https://planning.ubc.ca/sites/planning.ubc.ca/files/documents/planning-services/policies-plans/VCPUpdate2014_Part3.pdf
	Public realm and open space: Landscaping that uses more native and edible plants as well as low maintenance and pesticide-free practices will reduce water and chemical use and increase the biodiversity on campus.	2.2 Sustainable Actions and Outcomes	12		
	Policy 9 The BioScience Reserve in South Campus and the south half of Totem Field will be retained for land-based research and teaching projects. In addition, the research precinct in South Campus will be reserved for specialized research activities.	3.1 Academic	18		
	A key component of creating a more vibrant campus is providing food services in proximity to places where people linger, such as informal learning spaces, outdoor plazas and commons. Food services can also act as a draw to places like the new mixed-use hubs.	3.4 Mixed Uses and Hubs	22		
	Food and social activities are a natural synergy. Therefore, hubs and the campus core are preferred locations for future permanent food and beverage facilities. Lounge facilities of various types will be permitted and encouraged within new hubs, including one liquor licensed lounge or pub in each hub, subject to user group demand and prevailing licensing regulations on campus.	3.4 Mixed Uses and Hubs	23		
	Policy 17 Mixed-use hubs, featuring independent-style student housing, child care, recreation facilities, food services and social space, and appropriate academic uses will be developed at the sites identified on Map 2-2 Student Housing Land Use to foster social interaction and provide needed support services within a short walk of all academic precincts.	3.4 Mixed Uses and Hubs	23		
UBC Development Handbook	TN5.2 Specialty food services are a permitted use	TN5	TN-5	2018	https://planning.ubc.ca/sites/planning.ubc.ca/files/documents/planning-services/policies-plans/UBC%20Development%20Handbook%20-%20April%202018%20-%20Amended.pdf
	SC4.2 Specialty food services are a permitted use	SC4	SC-9		
	SC5.2 Required uses for the System of South Campus UNOS: space allocation for community garden plots managed by the University Neighbourhoods' Association	SC5	SC-10		
UBC 20-Year Sustainability Strategy	Strategic Goal 2: The integration of campus-scale energy, water, waste, and food systems is linked to improved quality of life for students, staff, faculty and campus community and to enhanced ecological integrity.	Operations and Infrastructure	6	2014	https://sustain.ubc.ca/sites/sustain.ubc.ca/files/uploads/CampusSustainability/CS_PDFs/PlansReports/Plans/20-Year-Sustainability-Strategy-UBC.pdf
	Strategic Goal 5: UBC models a sustainable and integrated food system that equally values environmental, social, and economic outcomes and assesses the impacts of food production, transformation, and consumption on environmental, personal, and community health	UBC Community	7		

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Climate Action Plan 2020	Priority Action 3: Continue implementation of the Zero Waste Action Plan and the associated engagement program in order to further reduce emissions from waste management.	5.8 Complementary Opportunities	29	2016	https://planning.ubc.ca/sites/planning.ubc.ca/files/documents/planning-services/policies-plans/CAP_Exec%20Summary.pdf
	Priority Action 5: Continue to explore opportunities to address emissions reductions related to food	5.8 Complementary Opportunities	29		
	Actions for Future Consideration 1: Develop low-carbon food menus, or carbon ratings on food choices, at dining halls.	5.8 Complementary Opportunities	29		
UBC Public Realm Plan for the Vancouver Campus	Outdoor Informal Social and Learning Spaces: ...Coordination with food outlets and lively indoor activities will bring life to adjacent outdoor social spaces...	The Five Priority Elements	12	2009	https://planning.ubc.ca/sites/planning.ubc.ca/files/documents/planning-services/policies-plans/PublicRealmPlan-Final_0.pdf

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
UBC Zero Waste Action Plan	Increase the extent and convenience of recycling and food scraps collection infrastructure, addressing gaps in collection systems and making existing systems more convenient for users. Implement multi-stream waste-sorting and collection infrastructure and communications across campus by the end of 2015, with food scraps collection at all significant generation points by mid-2015. To accommodate ongoing changes in recycling services and materials, maximize flexibility in the design of infrastructure and programs.	Executive Summary	3	2014	2014 https://sustain.ubc.ca/sites/sustain.ubc.ca/files/uploads/CampusSustainability/CS_PDFs/RecyclingWaste/Zero_Waste_Action_Plan%202014%2010%2003%20final.pdf
	Action 1 Implement multi-stream waste sorting and collection infrastructure and communications across campus by end of 2015, targeting food scraps collection at all significant generation points by mid-2015.	5.1 Targets and Milestones	12		
	Action 1 Provide food scraps collection (including soiled and compostable paper and packaging) to all buildings on campus by mid-2015	5.2 Operational Waste Targets	15		
	Action 1 Reduce waste generation and increase waste diversion through composting and recycling within residential buildings Action 3 100% participation of UNA residential buildings in UNA composting program, and 100% availability of recycling service in UNA residential buildings to a defined level of service (to be determined), with concurrent sustainability outreach and education programs	5.4 UNA waste reduction goals	18		
	7.2.1 Enhance food scraps collection in student residences by updating or fine-tuning infrastructure and increasing participation rates	7.2 Infrastructure - organics	21		
	7.2.2 Provide food scraps collection for all core buildings including kitchens and lunch-rooms, with regular pick-up, and in public realm waste-sorting stations where possible	7.2 Infrastructure - organics	22		
	7.2.3 Investigate and pilot strategies to reduce barriers to food scraps collection for users	7.2 Infrastructure - organics	22		
	7.6.3 Waste audits for food scraps contamination and other diversion opportunities	7.6 Performance Monitoring	25		
UBC Action Framework for a Nutritionally Sound Campus	GOAL 1: UBC community members choose to consume at least three different vegetables each day	Vision for a nutritionally sound campus	5	2016	http://wellbeing.sites.olt.ubc.ca/files/2016/10/FN_Action_Framework_2017.pdf
	GOAL 2: UBC community members choose to drink water to quench their thirst most often	Vision for a nutritionally sound campus	5		
	GOAL 3: UBC community members learn to prepare five UBC signature dishes	Vision for a nutritionally sound campus	5		
	GOAL 4: No member of our community experiences hunger due to severe food insecurity	Vision for a nutritionally sound campus	5		

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Cultivating Place: An Academic Plan for Applied Sustainability on South Campus and Beyond	TL1 Expanded Student Opportunities and Curricular Development: Work with the proposed University Sustainability Initiative (USI) to connect to existing curricular and co-curricular learning opportunities on South Campus and to develop new opportunities. The proximity of the farm system to the main campus offers accessible experiential and transformational learning for students who are able to directly link sustainability theory with practical applications through field studies on site. The curricular and co-curricular learning on South Campus will be expanded to provide students in the natural and physical sciences as well as the arts, social sciences, and humanities the opportunity to immerse themselves in the processes and practices of sustainability that come into focus at the intersection of land, food, and community. Student opportunities range from general exploration and analysis of the farm-forest-community system to specific active research projects on site. Student-directed projects at both the undergraduate and graduate level will actively contribute to the evolution of South Campus. Working with the proposed University Sustainability Initiative (USI), opportunities for expanded sustainability-related courses will be identified and connections formalized with existing UBC Farm-related courses. Farm staff and USI staff will work collaboratively with Faculty to develop new courses and modules that incorporate experiential learning, and diversify and develop curricular requirements to offer flexible and integrated learning experiences	Goal area 2: Teaching and Learning - Recommendations	7	2009	http://fs-ubcfarm.sites.olt.ubc.ca/files/2010/08/Cultivating-Place.pdf
	TL3 Farm-Integrated Residential College: Develop a vision for residential undergraduate and graduate colleges offering immersive experiential learning. Situated in close proximity to the Farm, residents would be selected for their commitment to sustainability and their likely contributions to the college community. Scholarship opportunities would bring learners of all backgrounds to contribute.	Goal area 2: Teaching and Learning - Recommendations	8		
	TL5 Practicum Courses: Develop the UBC Farm's existing practicum program to offer certification for non-degree program students, and offer modular integration for students registered in degree programs. Link co-op opportunities to existing support network of professionals.	Goal area 2: Teaching and Learning - Recommendations	8		
	RP1 Enhanced on-campus land-based research: Work with the proposed University Sustainability Initiative (USI) to build upon the UBC Farm's extensive field research programming to a broadened network of interest and expertise. The UBC Farm site will continue to enhance UBC's laboratory-based and theoretical research by offering complementary field research opportunities. The site will maintain a wide range of land-use types, ranging from intensive crop cultivation to natural forest, to respond to increasing demand from a range of disciplines to maximize opportunities for relevant field study. The farm site will continue to provide space for traditional controlled plot-based field study, and opportunities for landscape-scale and community-scale research.	Goal area 3: Research, discovery and partnerships - Recommendations	10		
	RP4 Green Technology Innovation: Leverage the farm's unique status as an accessible urban field research site to partner with academic, professional, private-sector, civil society, and government organizations. Pursue the responsible application and shared dissemination of innovative green technologies as components of larger strategies to reduce our individual and collective ecological footprints. Focus on knowledge-intensive land, clean energy, and material management strategies that can be disseminated to a wide range of biophysical and socioeconomic contexts, generating economic spin-off opportunities.	Goal area 3: Research, discovery and partnerships - Recommendations	11		

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Cultivating Place: An Academic Plan for Applied Sustainability on South Campus and Beyond	RP5 A Land-Based Aboriginal Engagement Strategy: Expand and enhance the on-site programming for aboriginal participants, supporting specific research objectives of the Institute for Aboriginal Health and the recommendations contained in UBC's Aboriginal Strategic Plan. International indigenous links will include engagement with the existing Mayan garden project, with the goal of providing a suite of land-based Aboriginal community health programs. Academic links to on-site aboriginal initiatives, including research projects and community service learning participation, can be expanded beyond the Faculty of Land and Food Systems to meet university-wide strategic goals for aboriginal engagement.	Goal area 3: Research, discovery and partnerships - Recommendations	11	2009	http://fs-ubcfarm.sites.olt.ubc.ca/files/2010/08/Cultivating-Place.pdf
	RP6 Engage Learners of All Ages: Expand scope and support for K-12 and intergenerational educational programs as well as broad-based community engagement, with specific programs involving aboriginal communities, university residents including seniors, and international visitors. Activities will support the Department of Curriculum and Pedagogy's research objectives and enable other faculties expanded community service learning and community-based action research opportunities	Goal area 3: Research, discovery and partnerships - Recommendations	11		
	RP7 Leverage the UBC Farm's position as a point of community engagement to develop new Community-Based Research: Focus on expanded opportunities for community-based action research (CBAR), community service learning (CSL), and research into the university's role as an agent of change at the intersection of land, food, and community.	Goal area 3: Research, discovery and partnerships - Recommendations	11		
	APP1 Living Laboratory Showcasing Sustainable Land Use Management: Adopt site management principles that complement this plan, and link to academic opportunities. Principles will include metrics that can be quantitatively evaluated and include mandates to: Maintain and increase both natural richness and diversity at the genetic, species, community, and structural levels; Ensure that the Farm system is net energy positive/net carbon negative, contributing to a reduction in UBC's GHG emissions, and a net contributor of clean water to the campus; Improve the quality and availability of soil suitable for crop cultivation, and strive to minimize reliance upon non-renewable energy and materials for operations; Ensure that built development or infrastructure adheres to and positively impacts these site-wide management principles, and meets or exceeds standards such as those in the LEED Platinum framework; Through active stewardship of the fields and forests, create opportunities for research and education on globally significant sustainability issues (i.e., carbon sequestration in soils, clean energy development using renewable biological feedstocks, environmental remediation through establishing plant communities, urban water and nutrient cycling.); Use the design and implementation of activities at the Farm to provide 'complete' learning problems for students, building the skills and understanding to solve complex sustainability issues; Ensure that the natural, cultivated and built environment inspires wellbeing, creativity and reflection within the University and broader community	Goal area 4: Application - Recommendations	13		
	APP2 Community Sustainability Demonstration: Link with adjacent and on-campus uses to create innovative models and research opportunities for sustainable community development. Identify opportunities where the provision, storage, and transfer of energy, water, carbon, nutrients, food, and amenities between different components of adjacent areas can contribute towards UBC's sustainability goals. Use the physical provision of food, fibre, or fuel (i.e., to CIRS cafeteria or UBC Food Services) as a conduit for learning and discovery.	Goal area 4: Application - Recommendations	13		

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Cultivating Place: An Academic Plan for Applied Sustainability on South Campus and Beyond	APP5 Farm-Branded Innovative Revenue Generation: Develop and diversify a range of academically-linked, on-site enterprises to help finance site programming. Recognize the value of a "UBC Farm" brand and enhance its capacity to increase the value of goods and services derived from the Farm. Appropriate enterprises can help provide an academically useful microcosm, integrating economic dimensions of the system into learning objectives and research opportunities, while retaining a student-centred approach. The foundational and financially self-sustaining "working farm" will support overarching UBC Farm academic goals. Revenues from sales of goods and services assist in securing financing for the most promising ventures, particularly those with potential for spin-off development. The UBC Farm "brand" will also assist in student, alumni, and community engagement	Goal area 4: Application - Recommendations	14	2009	http://lfs-ubcfarm.sites.olt.ubc.ca/files/2010/08/Cultivating-Place.pdf
Centre for Sustainable Food Systems Strategic Plan 2016-2020	Optimizing nutrient management and improving soil quality in organic production systems.	1. Long-Term Research Station for Agroecological Innovation	3	2016	http://lfs-ubcfarm.sites.olt.ubc.ca/files/2013/05/CSFS-Strat-Plan-4-page-in-house-print-oct-11.pdf
	Protecting biodiversity in agricultural systems by enhancing ecosystem services, through new approaches for integrated pest management and agroforestry.	1. Long-Term Research Station for Agroecological Innovation	3		
	Improving energy efficiency of greenhouse agriculture facilities using agricultural waste	1. Long-Term Research Station for Agroecological Innovation	3		
	Increasing food security and resiliency through the Seed Hub research program, which will improve local seed production and new climate resilient crop cultivars.	1. Long-Term Research Station for Agroecological Innovation	3		
	Vertical Integration: collaboration between the agri-food industry and UBC across the supply chain from organic agricultural cultivation, food pilot processing, and culinary arts, to food services, retail and export markets	2. The Food and Beverage Technology Centre at the "Barn"	3		
	Jobs and Training: the facilities and network of knowledge experts will foster food and beverage entrepreneurs, and be a training ground for food technologists and scientists at the undergraduate and graduate levels	2. The Food and Beverage Technology Centre at the "Barn"	3		

Policy Document	Food-related Excerpt	Section	Page(s)	Year	Link
Centre for Sustainable Food Systems Strategic Plan 2016-2020	Health and Sustainability: the processing facility will integrate with UBC Farm's sustainable food production capacities with a particular focus on food safety, diet and nutrition, sensory innovation, and value-added BC agricultural products. The centre will promote food and beverage security for domestic and export markets by building local capacity.	2. The Food and Beverage Technology Centre at the "Barn"	3	2016	http://fs-ubcfarm.sites.olt.ubc.ca/files/2013/05/CSFS-Strat-Plan-4-page-in-house-print-oct-11.pdf
	The Indigenous Health Research and Education Garden (IHREG) focuses on issues of shared priorities and concern to Indigenous Peoples and UBC including food security, environmental sustainability, ethical frameworks, cultural resilience, and ways of knowing.	3. Land-Based Knowledge Systems and Health	4		
	Curriculum Development and Public Programming in Sustainability Education brings together farm-and community-based research collaborations and interdisciplinary hands-on learning. The CSFS facilitates UBC's development of academic programs in sustainable food systems education through the UBC-Wide Sustainable Food Systems undergraduate Minor and the Integrated Studies in Land and Food Systems Graduate Program	3. Land-Based Knowledge Systems and Health	4		
	The Global Food Dialogues Seminar Series supports cross-disciplinary engagement across UBC's faculties, students, and community.	3. Land-Based Knowledge Systems and Health	4		
	Global farming system assessment to evaluate the agronomic, socio-economic, and environmental trade-offs of various farming system characteristics such as organic farming, farm size, intercropping systems, and landscape-scale farm management.	4. Global Sustainable Food Systems Research and Policy Innovation	4		
	Statistical crop modeling to evaluate the impacts of climate change on crops across North America, India, and the globe	4. Global Sustainable Food Systems Research and Policy Innovation	4		
	Food sovereignty and food security: policy pathways that link the "right to food" - especially for the urban poor - to the "right to produce and market food" using fair, sustainable and equitable models of food production and distribution.	4. Global Sustainable Food Systems Research and Policy Innovation	4		

Appendix B

Food Definition Survey



Welcome to the UBC food asset survey!

We are interested in better understanding the food system at UBC, and the university's landscape of food assets. You will be presented with several questions, which will allow us to define the term "food asset" in the context of UBC. Your answers will inform our project, "Mapping UBC Food Assets," sponsored by UBC Wellbeing as part of the Sustainability Scholars program. This project is being completed by graduate student Wendee Lang under the direction of Dr. Tara Moreau and in collaboration with SEEDS and the UBC Food System Project. The final project will be presented at a Sustainability Scholars symposium at UBC in September and the UBC food asset map hosted by SEEDS at sustain.ubc.ca.

The survey should take between 5 to 7 minutes to complete. Your participation in this research is voluntary. You have the right to withdraw at any point during the project, for any reason, and without any prejudice. If you would like to contact the Principal Investigator in the project to discuss this research, please e-mail Wendee Lang at wendee.lang@gmail.com.

By proceeding onward, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose

to terminate your participation in the study at any time and for any reason.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- I consent, begin the study
- I do not consent, I do not wish to participate

Should we choose to use your response in the project's final outputs:

- I wish to remain anonymous.
- I may be named, but I wish to review the output prior to its public release.
- You may use my name and I do not require approving the final output prior to its public release.

How do you define the term "food asset" in the context of UBC Vancouver?

Which of the below categories do you believe should be included in the definition of "food asset"? Drag the applicable items into the UBC Food Asset box.

Items

Community organizations

Waste

UBC Food Asset

Kitchen Food Programs
(e.g., food skills
workshops, kitchen
access, etc.)

Cultural food programs
(e.g., Indigenous
focussed programs)

Growing food (e.g.,
community gardens)

Retail stores, markets,
and CSAs

Campus food outlets
(e.g., cafes, restaurants,
dining halls)

Research projects and
hubs

Food-related experts

Food-related courses and
programs (academic and
professional)

Please specify any categories that should be added in addition to those in the previous question.

Would you or the groups/departments you are affiliated with make use of a UBC food asset map? If so, please describe how you imagine this tool would support

your work.

Please indicate your name and/or organization/department.

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Appendix C

Draft Food Asset Map Review Form

DRAFT UBC Food Asset Map

Stakeholder Review



Welcome to the Draft UBC Food Asset Map Response Form

Please review the DRAFT UBC Food Asset Map prior to completing this form. The map can be accessed

here: <https://sustain.ubc.ca/draftfoodassetmap>

Thank you for reviewing the Draft UBC Food Asset Map. You will now be presented with an opportunity to provide feedback on the map and identify any additional assets and/or revisions. Your answers will inform our project, "Mapping UBC Food Assets," sponsored by UBC Wellbeing as part of the Sustainability Scholars program. This project is being completed by graduate student Wendee Lang under the direction of Dr. Tara Moreau and in collaboration with SEEDS and the UBC Food System Sustainability Initiative. The final project will be presented at a Sustainability Scholars symposium at UBC in September and the UBC food asset map hosted by SEEDS at sustain.ubc.ca.

Your participation in this research is voluntary. You have the right to withdraw at any point during the project, for any reason, and without any prejudice. If you

would like to contact the Principal Investigator in the project to discuss this research, please e-mail Wendee Lang at wendee.lang@gmail.com.

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Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- I consent, begin the study
- I do not consent, I do not wish to participate

Should we choose to use your response in the project's final outputs:

- I wish to remain anonymous.
- I may be named, but I wish to review the output prior to its public release.
- You may use my name and I do not require approving the final output prior to its public release.

Please indicate any additional food assets you believe should be added to the Draft UBC Food Asset Map.

Please indicate any revisions you wish us to make to assets identified on the Draft UBC Food Asset Map.

Will you or the groups/departments you are affiliated with make use of a UBC Food Asset Map? If so, please describe how you imagine this tool will support your work.

Are you a UBC student?

- Yes, I am a domestic UBC student.
- Yes, I am an international UBC student.
- No, I am not a student.

Please indicate your name and/or organization/department.

Appendix D

Food Asset Category Definitions

Asset Category	Definition
Cultural and Community Food Groups and Programs	
Community Centre	Community centres provide local residents space to learn about and prepare food, and provide programs that contribute to a healthy lifestyle. (Adapted from Vancouver Coastal Health definition)
Community Initiative	Community initiatives may provide education or advocacy work in support of the food system.
Elementary School	Elementary schools are Vancouver School Board publicly funded school for grades K-8. They are procurers of food and provide food access to young learners. They may also provide provide food literacy services. (Adapted from Vancouver Coastal Health definition)
Independent or Private School	Independent or private schools are alternatives to publicly funded schools and may charge a fee for students to attend. They are procurers of food and provide food access to young learners. They may also provide provide food literacy services. (Adapted from Vancouver Coastal Health definition)
Indigenous Organization	Indigenous organizations provide health and/or food-related support Aboriginal UBC community members.
Indigenous-focussed Cultural Food Program	Indigenous-focussed cultural food programs deliver food programming from an Indigenous perspective and may serve members of Indigenous communities or the broader public.
Religious Organization	Religious organizations included here are those that provide meals to UBC community members.
Secondary School	Secondary schools educate students through grades 8 to 12 and are publicly funded by the Vancouver School Board. They are procurers of food and provide food access to young learners. They may also provide provide food literacy services. (Adapted from Vancouver Coastal Health definition)
Student Health Centre	Student health centres provide a diverse selection of health services available to students.
Student Organization	Student organizations provide food-related advocacy, education, services and/or resources to the UBC community and are primarily operated by students.
Waste Reduction, Management and Recovery	
Organic Waste Management	Organic waste management programs and facilities manage and process campus organic waste.
Food Waste Reduction Initiative	Waste reduction initiatives aim to reduce waste generated by food scraps, packaging, and/or excess water use.
Food Container Waste Management	Food container waste collection and processing facilities provide infrastructure necessary for reducing campus waste.
Cook, Eat and Share	
Community Kitchen Programs	Community kitchens are spaces where individuals can prepare and share food as a group. (Adapted from Vancouver Coastal Health definition)
Food Skills Workshops	Food skills workshops support and provide spaces for learning about food, nutrition and/or food practices. (Adapted from Vancouver Coastal Health definition)
Informal Food and/or Nutrition Program Funding	Funding sources for informal food and/or nutrition programs.
Kitchen Access	Spaces, both those available for free or with a charge, where individuals and groups can access kitchen spaces. (Adapted from Vancouver Coastal Health definition)
Nutrition and Wellbeing Program	Nutrition and wellbeing programs support and enable learning about food nutrition principles.

Asset Category	Definition
Emergent Food Assets	
Emergency (Disaster) Food Provision	Student Housing and Hospitality Services food service locations are maintained in a way that allows their activation in an emergency, based on the most appropriate locations, service capacity and needs of the displaced population.
Grow Food	
Academic Garden	Academic gardens are temporary gardens provided on academic lands, which allow space for outdoor teaching and collaboration.
Community Garden	A community garden is a place open to the public, where students, staff, faculty or community members grow and maintain edible and ornamental plants. In many cases the food is for the garden's individual members, however some gardens use a collective model in support of food security goals. (Adapted from Vancouver Coastal Health definition)
Garden Programs and Education	Garden programs provide educational space to both learn about and practice growing food.
Urban Farm	Urban farms differ from gardens in the scale at which food is grown and the profit-driven purpose of producing food. (Adapted from Vancouver Coastal Health definition)
Retail Stores, Markets, CSAs and Low Cost Food	
Convenience Stores	Convenience stores offer a limited choice of food items, often including snacks, soft drinks and other mostly processed products. Some stores also sell a limited assortment of canned goods, produce, bread, eggs, dairy products, and international foods. (Adapted from Vancouver Coastal Health definition)
CSA	Community Supported Agriculture allows community members to purchase a share in a farm at the beginning of the growing season, which entitles them to produce on a regular basis throughout its duration.
Emergency Food Items	Initiatives that provide no cost food items for those who are food insecure.
Grocery Stores or Supermarkets	Grocery stores or supermarkets are typically chain-owned and offer a wide selection of fresh, dried, frozen and packaged food. They usually include non-food household products. (Adapted from Vancouver Coastal Health definition)
Low Cost Food Items	Initiatives that provide food items at a reduced or free rate when compared to mainstream markets. (Adapted from Vancouver Coastal Health definition)
Seasonal Markets	Seasonal markets offer locally grown produce based on what is seasonally available. They do not operate throughout the year but respond to production cycles. (Adapted from Vancouver Coastal Health definition)
Small Grocery Stores	Small grocery stores offer a wide selection of fresh, dried, frozen and packaged food. They may specialize in cultural foods from other countries. (Adapted from Vancouver Coastal Health definition)
Specialty Food Stores	Specialty food stores are those that specialize in selling a specific type of food. (Adapted from Vancouver Coastal Health definition)
Campus Food Outlets	
AMS Food and Beverage	AMS Food and Beverage owns and operates a number of food and drink eateries that provide healthy and sustainable options. All fresh seafood procured by AMS Food and Beverage meets Ocean Wise standards, while all coffee and tea offered by outlets is certified Fair Trade. Outlets also offer 15 to 25 cent discounts to customers who use their own reusable food and beverage containers. All disposable containers are biodegradable or recyclable.
Franchise Outlets	Food franchises located on campus.
Other Establishments	
Student-run Outlet	Student-run food outlets are independently run by members of the student body and often contain a significant volunteer labour component.

Asset Category	Definition
UBC Food Service Outlet	UBC Food Services is a 100% self-funded, ancillary department of UBC. All fresh seafood procured by UBC Food Services meets Ocean Wise standards, while all coffee and tea offered by outlets is certified Fair Trade. Outlets also offer 15 to 25 cent discounts to customers who use their own reusable food and beverage containers and provides free tap water to consumers. All disposable containers are compostable, and coffee containers and lids are recyclable. Approximately 60% of ingredients are locally sourced.
Research Libraries, Centres and Groups	
Research Centre	Research centres are non-departmental units created for the purpose of facilitating collaborative research and learning.
Research Group	A research group is a collective of individuals pursuing a specific topic related to the food system.
Research Library	A research library is a collection of research that pertains to various food-related topics.
Food-related Academic Hubs	
Expert Hub	Hub of experts specializing in a facet of the food system.
Courses, Programs and Career Opportunities	
Food System Academic Courses	Academic courses that focus on one or multiple aspects of food systems.
Food System-focussed Academic Program (Postgraduate)	Degree programs that include a focus on singular or multiple aspects of food systems.
Food System-focussed Academic Program (Undergraduate)	Degree programs that include a focus on singular or multiple aspects of food systems.
Food-related Career Development	Professionally-focussed opportunities designed to prepare students for careers in food-related fields.
Program Funding	Funding available to students or faculty that can be used towards development of academic courses.

Appendix E

Working Food System Objectives

Objective	Sub-objective	Note
(1) improve nutritional well-being	Enables access to healthy food	Can include: (1) access to organic, sustainably grown foods; (2) access to plant-based foods; (3) nutrition-focussed campaigns and initiatives
	Provides opportunity to consult with professional health care providers about nutrition and diet	
	Provides opportunity to learn about nutrition	
(2) promote food security	Enables access to low cost and/or free food items and meals	
	Facilitates access to emergency food resources	
	Augments food buying power of students	E.g., Sprouts bulk buying club
	Augments supply and quality of food for emergency food programs	
	Provides financial support specific to food access	
	Provides information on shopping, cooking and eating	
	Enables sharing of common issues or challenges related to cooking, shopping and consuming food in Canada	E.g., discussion board
	Provides resources for independent cooking	
	Provides access to culturally appropriate foods	
	Enables access to traditional foods	Can include: (1) harvest; (2) preparation; (3) consumption
	Provides opportunities for traditional knoweldge sharing	
	Provides access to food-related resources, programming and items in multiple languages	
(3) create food systems that support economic and community development	Provides infrastructure that improves campus food production and distribution	
	Promotes and supports community gardening and urban agriculture	Can include: (1) existence of these resources; (2) farmer's markets; (3) CSAs
	Reduces barriers to food businesses or farmers to increase profitability	
	Supports minority famers	
	Sustainable purchasing initiatives	Can include: (1) purchase of Fair Trade products; (2) local/regional procurement
	Maintains and enhances individual and collective food knowledge and skills	Can include: (1) campus food system educational initiatives; (2) opportunities for hands-on learning related to the food system
	Creates community economic development opportunities across the livelihoods continuum	
	Celebrates and honours food knowledge	e.g., lectures, farm events
	Enables sharing and celebrating Indigenous culture through food	
	Enables sharing and celebrating of different students' culture through food	

Objective	Sub-objective	Note
(4) ensure sustainable food systems	Reduces waste associated with food	Can include: (1) compostable or recyclable packaging; (2) incentives to bring reusable containers; (3) reduced packaging
	Sustainable purchasing initiatives	Can include: (1) purchase of Fair Trade products; (2) purchase of sustainably harvested seafood; (3) purchase of sustainably raised meats
	Promotes or participates in local purchasing initiatives	
	Promotes and supports community gardening and urban agriculture	Can include existence of these resources
	Provides opportunities for land-based teaching, learning and research related to food systems	
	Provides resources that accelerate food system sustainability research	
	Fosters and supports the intellectual development of students pursuing careers in food system sustainability	
	Food recovery initiative	
	Reduces barriers to food businesses or farmers to increase profitability	
	Maintains and enhances individual and collective food knowledge and skills	Can include: (1) campus food system educational initiatives; (2) opportunities for hands-on learning related to the food system; (3) funding for initiatives that provide opportunity for learning and skill development
	Improves ecological health	
	Improves food system resilience	
(5) support food workers	Food workforce development program	
	"Improves pay and benefits for food workers" (FP NYC)	
	"Protects legal rights and health and safety of food workers" (FP NYC)	
(6) strengthen food governance and food democracy	Strengthens food citizenship (e.g., academic programs)	Can include: (1) academic programs; (2) food system working groups; (3) community based research
	Transparent goals and reporting (where food comes from, worker pay, etc.)	
	Increases community participation in food policy or governance	Can include: (1) Initiatives that build connections between students and student or institution-led community sustainable food system initiatives; (2) initiatives that build connections between university and general public
	Strengthens connection between university and governments at various scales in the context of food system planning or policy	