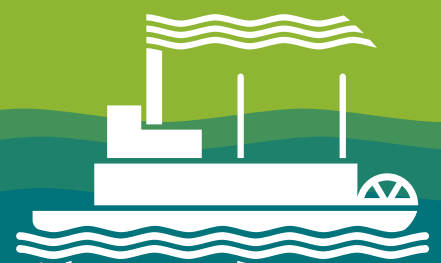




CITY OF WHITEHORSE

LOCAL FOOD & URBAN AGRICULTURE STUDY BACKGROUND INFORMATION



OCTOBER 2020

Whitehorse

Acknowledgments:

This *Background Information* document was prepared as a resource for the City of Whitehorse's *Local Food and Urban Agriculture Study*. The City gratefully acknowledges the financial assistance provided to this project by the *Canada-Yukon Growing Forward 2 Fund* and the *Canadian Agricultural Partnership*, along with the technical support provided by the Government of Yukon Agriculture Branch, Larissa Lychenko Consulting, RavenQuest Consulting, and Tetra Tech Canada. A big thank you is further extended to the many other local governments, organizations, associations, businesses, and residents who have contributed input through the project's engagement process. Additional information resources are available online at: whitehorse.ca/localfood.



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1.0 Overview and Context

In 2016, the City of Whitehorse (the City) embarked on a process to take a dedicated look at the organization's municipal tools (e.g. plans, bylaws, policies, grants, programs, events, facilities, services, and products) and assess how these can be strategically aligned to support a stronger local food system, within the urban context of Whitehorse. The goal has been to develop a *Local Food and Urban Agriculture Study* (LFUAS) that features a 10-year work plan of potential actions the City can take on or support other organizations to implement.

This *Background Information* document has been prepared as a resource for the project, drawing together input collected through engagement activities and information available from online and print sources. This document is intended to highlight the City's connections to the food system, and describes many of the interconnected components and assets that make local food happen in and around Whitehorse; it is not intended to portray a complete account of the local food scene. Additional information resources are available online, including extended public input summaries.

The process of developing the LFUAS has been led by staff in the City's Planning and Sustainability Services department. Engagement activities occurred between June 2016 and November 2018, and have included the following:

- > **17 City interviews** held with employees from departments across the organization that work on food and agriculture related themes.
- > **47 external interviews** held with staff at other governments, organizations, associations, businesses, and individuals involved in food and agriculture projects.
- > **Public Survey 1** held in August and September 2016, which invited residents to respond to questions about how they participate in the local food system, challenges they have encountered with regulations, and interests they have for future pursuits. **159 responses** were received.
- > **Public Survey 2** held in April and May 2017, which asked residents questions about food access, community gardens, and the City's compost program. **296 responses** were received.
- > **3 focus group sessions**, with 2 held in fall 2017 and one held in fall 2018, on the topics of hens, bees, and indoor agriculture and processing. **21 people** participated.



1.1 Guidance to Create the *Local Food and Urban Agriculture Study*

The City's 2015 *Whitehorse Sustainability Plan* and 2015 *Community Economic Development Strategy* both included implementation items for the City to develop a food and agriculture focused document geared at helping Whitehorse advance its social, economic, and environmental goals. Relevant sections from these documents are provided below.

Whitehorse Sustainability Plan (2015)

Goal 12: Resilient, Accessible Food Systems – production, processing, distribution, and sales of local, healthy food to all residents.

- > **Rationale:** Increasing local food production, processing, and consumption makes Whitehorse less vulnerable to weather-related supply interruptions, creates more local, green jobs, and reduces food insecurity.
- > **Ideas for action:** 1) Work with partners to identify specific regulatory changes to help growers, and 2) Explore brownfield farming and alternative methods of growing.
- > **Jurisdiction:** The City can influence food-based businesses and activities, but has little influence over production, regulation, and consumption.
- > **Approach:** Develop an *Agriculture Plan* to define the City's role, potential actions, and key partnerships. Begin initiatives to encourage local production and processing, facilitate partnerships, and share resources.

Other sustainability goals in the plan that relate to local food and urban agriculture include:

- > 1: Strong Downtown and Liveable Neighbourhoods
- > 6: Dynamic and Diverse Culture, Heritage, and Arts
- > 7: Social Equity: Affordable Housing and Poverty Reduction
- > 10: Diverse Local Economy
- > 11: Zero Waste

Community Economic Development Strategy (2015)

Goal 1: Improving the Local Business Climate

- > **1,F:** Facilitate the development of an agriculture and food production strategy within the City and surrounding area.
- > **Purpose:** To diversify the local economy and reduce dependence on food importation.
- > **Activities:** Create strategy to “grow” the commercial agriculture sector within the City of Whitehorse and surrounding areas.
- > **Description:** Barriers to the development of the local agricultural industry are numerous, but opportunities are too. The City can play a leadership role in bringing stakeholders together to explore how the City of Whitehorse can help grow the local commercial agricultural sector.

1.2 City Tools, Assets, and Activities that Connect to Food and Agriculture

An organizational scan occurred early in the study process to identify the various ways that the City is involved with local food and urban agriculture. City tools, assets, and activities that connect to the food system include:

Plans (5):

- > *Official Community Plan (2010)*
- > *Regional Parks Plan (2014)*
- > *Whitehorse Sustainability Plan (2015)*
- > *Community Economic Development Strategy (2015)*
- > *Chadburn Lake Park Management Plan (2017)*

Bylaws (11):

- > Zoning Bylaw (12-20)
- > Animal Control Bylaw (01-01)
- > Maintenance Bylaw (17-09)
- > Fees and Charges Bylaw (14-36)
- > Business License Bylaw (17-24)
- > Parks and Open Spaces Bylaw (15-20)
- > Waste Management Bylaw (18-05)
- > Sewer and Storm Utility Bylaw (13-56)
- > Building and Plumbing Bylaw (99-50)
- > Firearms Bylaw (06-17)
- > Water Utility Bylaw (13-57)

Policies (5):

- > Lease, Encroachment, and Property Use Policy (2013)
- > Parks Maintenance Policy (2015)
- > Festivals and Special Event Grant Policy (2016)
- > Environmental Grant Policy (2017)
- > Breast Feeding in City Facilities (2019)

Grants (2):

- > Environmental Grant
- > Festivals and Special Event Grant

Programs and Events (4):

- > Food for Fines
- > Mobile Food Vendor Sites
- > Street Eats Festival
- > Active Living Programs

Facilities (5):

- > Kitchens (Frank Slim Building, Takhini Arena, and Mount McIntyre Recreation Centre)
- > Commercial food concessions (Frank Slim Building, Takhini Arena, and Canada Games Centre)
- > Compost production facility

Services and Products (6):

- > Permitting for public and private lands
- > Lease management
- > Trail and park maintenance
- > Facility rentals and maintenance
- > Organics waste collection
- > Compost production and sale

1.3 City Departments that Work on Food and Agriculture Themes

The following City departments carry out administrative and operational responsibilities related to the tools, assets, and activities identified in section 1.2:

- > Planning and Sustainability Services
- > Land and Building Services
- > Water and Waste Services
- > Bylaw Services
- > Engineering Services
- > Parks and Community Development
- > Recreation and Facility Services
- > Operations



1.4 Planning Context and Demographics

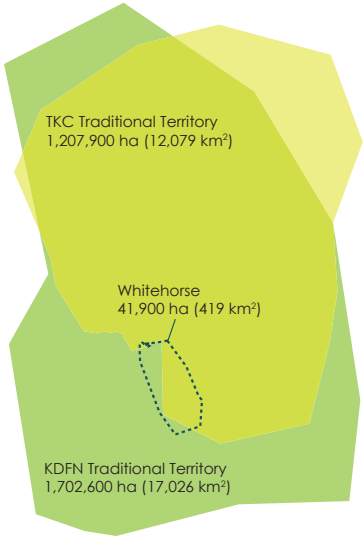
Traditional Territories and Local Governments

Whitehorse is located in southern Yukon (Map 1), within the traditional territories of the Kwanlin Dūn First Nation (KDFN) and the Ta'an Kwächän Council (TKC) (Map 2). Five governments have jurisdiction in Whitehorse: the City, KDFN, TKC, the Government of Yukon (YG), and the Government of Canada (GC). Each government is involved with supporting various aspects of food and/or agricultural activities through regulatory, administrative, programming, funding, and/or other support and service provision roles.



Population and Demographics

In December 2019, the population of the greater Whitehorse area (including residential areas located close to the city and the community of Marsh Lake) was 32,774 people, representing ~78% of Yukon's total population¹. The area is becoming increasingly multicultural. In 2019, approximately 15% of residents identified as being Indigenous (includes those who provided band numbers and/or self-identified as First Nations, Métis or Inuit in YG administrative records)². In 2016, ~10% of residents identified as being part of a visible ethnic minority group other than Indigenous; an increase of ~3% from 2011. Larger ethnic communities include Filipino, South Asian, and Chinese³.



Cost of Living

Housing affordability continues to be a significant challenge in Whitehorse, particularly for lower and fixed income households. Between 2004 and 2017, the average cost to purchase a single detached home in Whitehorse rose from \$184,000 to \$443,000 (adjusted for inflation), while the cost to purchase a condominium rose from \$127,000 to \$319,000⁴. Higher purchasing costs have translated to higher rental costs.

**Maps 1 and 2:
Whitehorse within
Yukon and First Nations
Traditional Territories**

The 2019 'living wage' for Whitehorse residents calculated by the Yukon Anti-Poverty Coalition was \$19.07/hour⁵, contrast to the regulated minimum wage for Yukoners of \$12.71/hour in the same year. The 'living wage' rate serves as an indicator for the affordability of living within a community. The rate is equal to the hourly pay that a household requires to meet its basic needs after accounting for government transfers and deductions from income. The methodology's reference family consists of two working adults and two children. Living costs include expenses for shelter, food, and other basic household necessities. A federal study in 2012 found that approximately 16% of Whitehorse residents were living in poverty⁶.

Household Food Insecurity

The PROOF Food Insecurity Policy Research Centre at the University of Toronto estimated that 16.9% of Yukon households were food insecure in 2017/18, based on the latest data available from Statistics Canada. Yukon had the third highest prevalence of food insecurity in Canada behind Nunavut (57%) and Northwest Territories (21.6%). Experiences of food insecurity include missing meals, reducing food intake, or compromising on the quality, quantity, or selection of food due to lack of food or money to purchase food. Experiences also include worrying about running out of food before having access to more food or more money to purchase food⁷.



1.5 Food Security Work

There are many local government departments, organizations, associations, and community groups in and around Whitehorse that are actively working on food security topics, including:

- > Arctic Institute of Community-Based Research
- > Yukon Anti-Poverty Coalition
- > Zero Waste Yukon
- > Growers of Organic Food Yukon
- > Agricultural Association of Yukon
- > Yukon Young Farmers
- > Fireweed Market Society
- > Yukon University Cold Climate Innovation Centre
- > Community gardens (Downtown, Valleyview, Whistle Bend, and Takhini North)
- > Victoria Faulkner Women's Centre
- > Whitehorse Food Bank
- > Yukon Food for Learning Association
- > Potluck Food Co-op
- > TKC: Health; Lands, Resources, and Heritage
- > KDFN: Health; Heritage, Lands, and Resources
- > YG: Agriculture; Environment; Health and Social Services; Economic Development; Culture and Tourism; Education
- > GC: Agriculture and Agri-Food; Food Inspection Agency; Jordan's Principle

Yukon Food Security Roundtable, May 18-19 (2016)

In 2016, the Arctic Institute of Community-Based Research held an event in Whitehorse titled *Working Together Towards a Food Secure Yukon* that brought together 79 delegates from across governments, organizations, and other sectors in Yukon, and beyond, to gather perspectives, experiences, and ideas on food security themes. Several delegates from the City participated. A two-day Roundtable session produced the following vision for food security in Yukon:

- > *"We believe in a food secure, food producing and food sharing Yukon where the land and the waters are harvested and protected. Through the wise use of resources, every person has dignified, affordable access to sufficient food to sustain a healthy, happy, and productive life. Yukon leaders and citizens work collaboratively to ensure food is generated by a robust network of local gardeners, farmers, hobby growers, hunters and fishers, businesses and advanced systems that preserve and distribute food."*¹⁸

The event report features 50 recommendations grouped as Local Actions (23), Territorial Actions (22), and Practices and Processes (5). Recommendations fall under the themes of:

- > Food access for all
- > Self-sufficiency
- > Support for local food producers
- > Addressing planning and policy development
- > Encouraging community gardening and greenhouses

Food Network Yukon

Representatives from governments and community groups come together every 6-8 weeks in Whitehorse at meetings of the Food Network Yukon to exchange news on food projects, and to discuss challenges and opportunities. The network was established by the Yukon Anti-Poverty Coalition following a panel discussion in 2014 that recognized *World Food Day* during *Poverty and Homelessness Action Week*⁹. The City participates in the network via a staff representative from the Planning and Sustainability Services department.

2.0 Our Local Food Scene, at a Glance

Research studies focused on Yukon's agriculture sector have indicated that only ~1-2% of the food consumed in Yukon is commercially produced within the territory^{10, 11}. Local food is also grown seasonally in community and residential gardens, and the region is abundant with wild foods and medicines that make important contributions to Yukon diet and culture. This section provides an overview of current and historical information on local components of our food system.



2.1 Local Components of the Food System

Figure 1, below, indicates the local components of Yukon's food system and many of the food assets within reach of Whitehorse residents. Common resource paths that link between components are also shown. The following sections describe each component and highlight the diversity of activities that occur within the system.

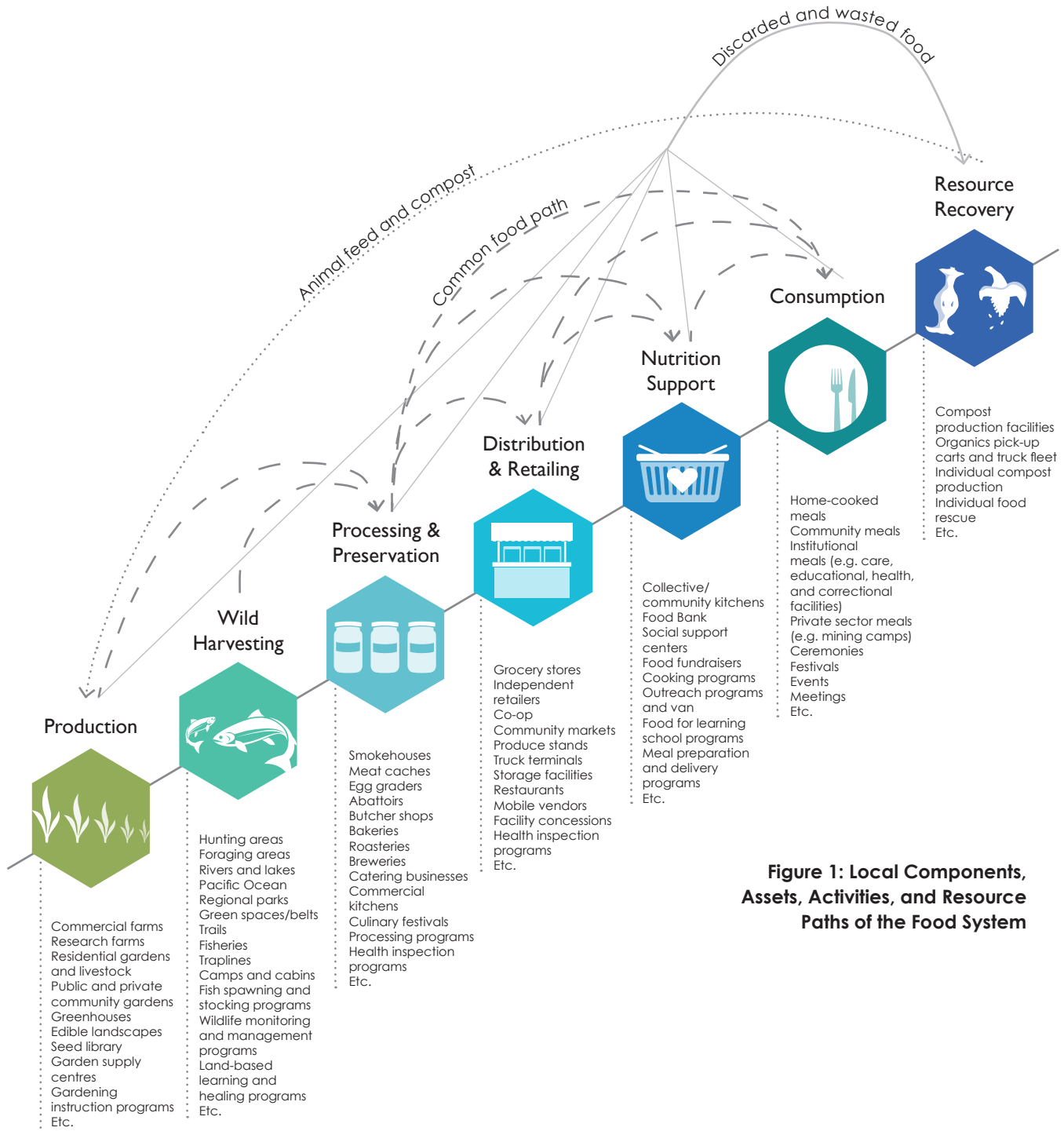


Figure 1: Local Components, Assets, Activities, and Resource Paths of the Food System

2.2 Production

A peak in Yukon's agricultural productivity occurred during the days of the Klondike Gold Rush. The influx of ~100,000 prospectors to the Klondike region over the span of the rush (1897-99) led to several farms establishing in the Dawson City area. Some fell away as prospectors left the region, while others carried on supplying Yukon with locally grown foods. Until the mid-1950s, farms around Dawson City, Mayo, and along the Yukon River produced crops that were transported to consumer markets by sternwheeler. Construction of the Alaska Highway, and the ease at which imported foods could be obtained from the south, led to a reduction in Yukon farming and greater reliance on foods produced out of territory¹². A resurgence of interest in farming occurred in the 1970s¹³, which continues today, led by research and innovation.

Yukon's short growing season, cool conditions, nutrient-deficient soils, and high operating costs present many challenges for crop production in the territory. The YG Agriculture Branch provides technical support to help producers overcome barriers, much of it tested and demonstrated at a research farm located north-west of Whitehorse near the junction of the Hot Springs and Mayo Roads. The Yukon University's Cold Climate Innovation Centre also provides support to the industry by developing production technologies that are helping to boost northern food security.

Commercial Agriculture

The majority of Yukon soils suited for agriculture have formed in deposits of fluvial origin, with the best soils found in the Dawson, Pelly-Mayo, and Watson Lake regions. Many farmers choose to be close to Whitehorse, instead, for the access it provides to retailers and consumers, and for the opportunities to earn off-farm income. Over 70% of the territory's agricultural land dispositions are located within 60 km of the city. The largest cluster is in the Takhini River Valley area¹⁴.

Statistics Canada reported 142 Yukon farms in the 2016 Census of Agriculture, which was up 9% from the 130 farms reported in 2011, and marked a departure from the downward trend in the number of farms recorded in previous census years¹⁵. In 2018, Yukon's crop and animal production sectors contributed \$3.3 million to the territory's Gross Domestic Product¹⁶.

While hay production continues to dominate Yukon's agricultural industry, a variety of foods are also grown and raised in the territory at the commercial scale. Produce includes broccoli, cauliflower, kale, and other leafy greens. Tomatoes and cucumbers are grown in greenhouses, and micro-sprouting businesses have popped up adding locally-grown shoots to grocery shelves. Local potatoes, carrots, and other root vegetables that store well can be purchased into the winter months until supplies run out. Yukon honey and birch syrup are novelties popular with residents and tourists, alike. Local eggs and meat (including poultry, pork, rabbit, beef, bison, and elk) are available at several stores, but are more commonly purchased directly at farms. Dairy can be bought from the Yukon's only creamery, located in the Klondike Valley.

Several Yukon First Nations are involved in the agriculture industry, leading with innovative projects that provide food to citizens and communities. Tr'ondëk Hwëch'in First Nation established a teaching and working farm near Dawson City in 2014 that has expanded to include vegetable production, berries, and small animal husbandry. Carcross Tagish First Nation's Porcupine Creek Farm has been in operation since 2017, spanning over 153 acres of mixed habitat with a focus on raising livestock and growing crops. Na-cho Nyäk Dun First Nation is renewing its agricultural activities with a farm and berry field in Mayo¹⁷.

A small amount of commercial food production occurs within Whitehorse city limits. Yukon Gardens, near the junction of the Alaska Highway and Hamilton Boulevard, sells greenhouse-raised produce and food plant seedlings, along with gardening and landscaping supplies. At Icy Waters Fish Farm, located down Fish Lake Road, arctic char is raised for sale to local restaurants and stores; the farm also operates a hatchery that exports fish eggs to the global aquaculture market. In Marwell, Solvest, a solar technology company specialized in energy generation for remote locations, operates a hydroponic farm contained within a sea can that supplies herbs and leafy greens to clients through a subscription box.



Government of Yukon Agriculture Branch and Policy (2020)

The YG Agriculture Branch was created in 1986 to assist with development of the territory's agriculture industry. In addition to its research activities, the branch provides producers with extension services, develops policies and regulations, administers agricultural land disposition, delivers training programs, conducts soil testing, and is responsible for inspections and enforcement¹⁸.

The Agriculture Branch works closely with the YG department of Environment Animal Health Unit on livestock matters, and with other YG departments involved in food and agriculture. Collaboration occurs with the federal departments of Agriculture and Agri-Food Canada and the Canadian Food Inspection Agency to provide industry funding and ensure that food safety standards are met by producers and processors.

The work of the Agriculture Branch is administered in accordance with the *2020 Yukon Agriculture Policy: Cultivating Our Future*, which is the fourth iteration of this territorial policy. The policy states the following in regards to YG's relationship with municipalities:

- > Municipalities... have an important role to play in agriculture development within communities, including activities such as planning agriculture lots and developing community gardens.
- > YG will work with municipalities... on agricultural matters, including support for increasing agriculture production and land availability, and will continue to provide advice and education.
- > In municipal areas, zoning bylaws (pursuant to the *Municipal Act*) define which agriculture and accessory activities are permitted on agriculture parcels.¹⁹

Amongst its provisions, the policy provides the framework for how farmers can apply to acquire Crown land for agricultural uses through spot applications and within planned agricultural areas. Agricultural leases are also available, responding to industry needs for lower-cost land options.

Local Food Strategy for Yukon (2016)

In 2016, YG released a territory-wide *Local Food Strategy for Yukon*. The goal of the document is to increase the production and use of locally-grown vegetables, meat, and food products, with an implementation horizon of 2016-2021. The document is structured around the local food system components of production, processing, distribution, access, consumption, and resource/waste recovery.

The objectives of the strategy are to:

- > Create initiatives that enhance resiliency and responsiveness in the agri-food sector.
- > Develop a framework that offers local food producers opportunity and market access.
- > Promote local food so that it is conspicuous and widely available.
- > Inform consumers about the value of supporting a local food system.

The strategy reinforces the Agriculture Branch's activities to work collaboratively and supportively with communities, municipal and First Nation governments, and food production sectors to achieve territory-wide objectives. In addition to supporting the commercial agriculture sector, the strategy encourages community and backyard food production (e.g. non-commercial gardens, greenhouses, and community/urban gardens)²⁰.

The Agriculture Branch has recently initiated work on developing an updated food self-sufficiency indicator that can be used to track future growth of the industry's commercial production sector.

Official Community Plan (2010) Agriculture Designation and Soil Potential in Whitehorse

A total of 76.8 ha (~0.8 km²) of land within Whitehorse is designated Agriculture in the City's 2010 *Official Community Plan* (OCP), representing ~0.2% of the total municipal land base (41,900 ha/419 km²). The designation is split between two areas indicated in orange on Map 3, next page. One of the designation areas consists of 37.3 ha (~0.4 km²) of vacant Commissioner's land, located at the north end of the city near Cousins Airstrip. This area contains Class 5 soil that has some known potential for soil-based agricultural production, though lack of a formal road connection and servicing remain barriers to activation. The other portion of the designation is similarly sized at 39.5 ha (~0.4 km²), located next to Fish Lake Road. This is where Icy Waters Fish Farm operates on five unconsolidated parcels. The area is identified as having Class 7 soil.

In other parts of Canada, soil-based commercial cultivation typically occurs in areas where Class 1 to 4 soils are found (assessed according to the Canadian Land Inventory system). In Yukon, Class 4 and 5 soils are used due to lack of availability of better classes. The range of produce that can be successfully grown is smaller, and there is greater need to use climate and soil enhancers. Class 6 and 7 soils (lowest classes in the system) are considered to be unsuitable for cultivation, and are more efficiently used for non-soil based agriculture. A potential effect of climate warming could be the transition of Yukon soils into higher classes with greater agricultural potential. Yukon's average temperature increased by 2.3°C between 1948 and 2016, with winter temperatures increasing by 4.3°C²¹. Precipitation rates are expected to increase and become more variable²². An increase in the presence of crop pests migrating north could also occur²³.

A comprehensive soil assessment of Whitehorse was completed in 1997 that describes capabilities and limitations of soil units throughout the municipality. Soil units that contain some Class 5 soil (the best available within Whitehorse) are indicated in green on Map 3. The display shows that additional areas with Class 5 soil exist outside of the current extent of the OCP's Agriculture designation. Areas with the highest agricultural potential, but likely limited to perennial forage and cold-season vegetable production, are differentiated with the darker (kelly) shade of green. Developed, privately owned, Settlement Land, and Regional Park areas have not been excluded.

Soil class is just one of many factors to consider when assessing an area's agricultural potential. Other factors include land tenure, water access, road and utility servicing, taxation rates, and farm eligibility for producer assistance programs. Further field assessments would need to occur to confirm the suitability and feasibility of expanding the OCP's Agriculture designation to additional areas. The City has obtained LiDAR data that could be used to help inform future analysis.

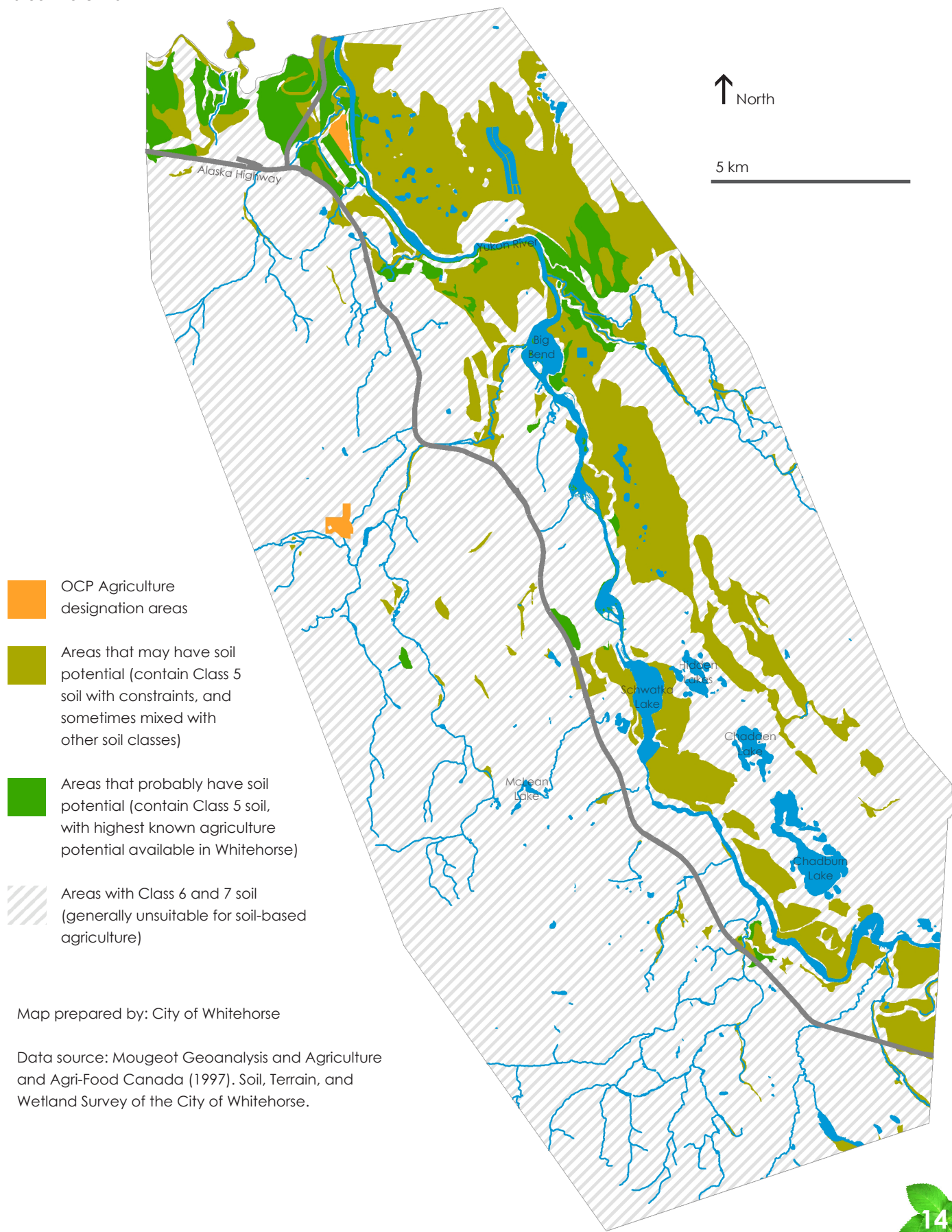
The OCP states a general directive to "Support Local Food Production" and includes the following policies for the Agriculture designation (references to non-soil based production would need modification to take greater advantage of soil potential):

- > 17.1.1 The purpose of the Agriculture land use designation is to foster the development of local food production. This may be accomplished by leasing land for non-soil based agricultural pursuits and other related uses.
- > 17.1.2 A maximum of two residential dwelling units per lot may be permitted within the Agriculture designation.
- > 17.1.3 Any applications made for non-soil based agricultural activities should be carefully considered in terms of economic and market viability and should be discouraged as a means of obtaining a site for residential settlement. All applications are subject to the Yukon Agricultural Policy, which is administered through the Government of Yukon.

For all other land use designations, the OCP states the following policy on food production:

- > 17.2.1 To support local food production, community gardens, community greenhouses, and non-soil based agricultural pursuits may be allowed in all designations, subject to zoning controls.

Map 3: OCP Agriculture Designation Areas and Soil Potential



- OCP Agriculture designation areas
- Areas that may have soil potential (contain Class 5 soil with constraints, and sometimes mixed with other soil classes)
- Areas that probably have soil potential (contain Class 5 soil, with highest known agriculture potential available in Whitehorse)
- Areas with Class 6 and 7 soil (generally unsuitable for soil-based agriculture)

Map prepared by: City of Whitehorse

Data source: Mougeot Geoanalysis and Agriculture and Agri-Food Canada (1997). Soil, Terrain, and Wetland Survey of the City of Whitehorse.

Public and Private Community Gardens

Community gardens play an important role in Whitehorse's food and social scene by providing opportunities for residents to grow their own food, interact with other gardeners, and build relationships. The City is involved by providing low cost land leases and grants to associations willing to take on the responsibilities of developing and managing gardens. The municipal Environmental Grant is available to help cover project costs, and funding is available through territorial and federal sources.

Three public community gardens operate on City-owned land in the neighbourhoods of Downtown (72 plots), Valleyview (24 plots), and Takhini North (8 plots). Another garden operates in Whistle Bend through a lease administered by YG, using a communal plot growing model. Subscription to gardens is high, and waitlists sometimes occur. A list of location ideas for potential new gardens was generated through Public Survey 2 and can be found in the survey's *What We Heard* document, available online.

Private community gardens also exist throughout Whitehorse and are typically reserved for the residents or affiliates of the property on which they are located. Examples are found in the yards and amenity spaces of the Lewes Village Condominiums, Seventh Day Adventist Church, Yukon Conservation Society, and Yukon Anti-Poverty Coalition.

Residential Gardens and Livestock

Many Whitehorse residents are active in producing a varied amount of their own food. Seventy percent of respondents to Public Survey 2 indicated getting at least some of their weekly summer diet from a garden plot located at their residence or elsewhere. The survey is likely to have drawn a high representation of gardening enthusiasts, but is nonetheless an indication that Whitehorse is a city that likes to garden.

Core residential areas contain an eclectic mix of raised beds, greenhouses, berry bushes, and the occasional hen coop, restricted to a 6-hen maximum. In country residential neighbourhoods, where densities are lower and land parcels are larger (0.5 ha and over), agriculture is pursued at greater scales and intensities for hobby and homesteading purposes. Many residents in these areas keep produce gardens and livestock. Regulations are least restrictive in the Country Residential 1 zone, which allows for the keeping of any number of hens, roosters, bees, pigs, rabbits, goats, and other small and large livestock. The nuisance provisions of the City's Maintenance Bylaw are used for enforcement when disturbances occur to neighbouring properties.

Edible Landscaping

The City has introduced edible landscaping onto several public grounds as a productive alternative to ornamental plantings. Residents can help themselves to the kale planted in Shipyards Park in Downtown, raspberries and chives on the Rhine Way roundabout in Takhini North, and berries and rhubarb in the edible garden planted next to the Millennium Trail in Riverdale. Interpretive signs provide information on the species of plants and their different uses, along with messaging about food security goals and objectives. Edible landscaping can also be found in the yards of many private developments across the city.

2.3 Wild Harvesting

Whitehorse and its wilderness surroundings are filled with naturally occurring foods and medicines that have sustained First Nations people in the region for millennia. Before the establishment of Whitehorse as a settlement, the headwaters of the Yukon River were home for the Tagish Kwan and a regular meeting place for other First Nations who came to trade with them, such as the Tlingit, Kaska, Han, Gwich'in, and Tutchone. Archaeological digs at Annie Lake and Fish Lake confirm the existence, and continual use, of seasonal hunting and fishing camps for more than 5,000 years. With a culture based on mobility, the First Nations of the area used trails and favourite fishing and camping spots on a seasonal basis²⁴.

The health and abundance of the wild resources, and the opportunity and ability of First Nations to harvest them, have fluctuated greatly as a result of the environmental and anthropogenic events, developments, welfare systems, and policies that have shaped the region's history.

Events and Developments

Volcanic eruptions that occurred in the Saint Elias Mountains area in Alaska at approximately 1900 and again 1200 years ago are believed to have had a dramatic effect on the food sources available to local populations. Widespread dispersal of volcanic ash would have covered vegetation and forced wildlife and people to leave the affected areas in search of resources elsewhere. As people moved, other populations would have also been dispersed through contact. The migration associated with these eruptions is believed to explain the oral history and linguistic similarities that exist between Yukon First Nations and the Athapaskan-speaking Navajo and Apache of the south-western United States^{25, 26}.

Events and developments in more recent history have also had a significant impact on the availability and quality of wild food sources. Amongst them:

- > The swell of prospectors that passed through the region during the Klondike Gold Rush overwhelmed resources and decimated wildlife populations as people hunted for food and trophies. Seasonal hunting turned into a year-round activity, making wildlife harder to find for local populations²⁷.
- > The construction of the Whitehorse hydroelectric dam on the Yukon River (1956-58) significantly reduced salmon populations by obstructing the migratory route of fish that travel from the Bering Sea to north-eastern British Columbia. A fish ladder and spawning programs are now vital to ensuring that stocks regenerate each year. The creation of Schwatka Lake above the dam flooded fish camps, a significant berry-picking area, and habitat abundant with small game, such as grouse and gophers²⁸.
- > Mining, urbanization, and transportation works, such as tramways, rail lines, and highways, have all marked the landscape in ways that have resulted in the loss and fragmentation of wildlife habitat. The opening of new routes led to population growth and access to retail goods that resulted in significant cultural changes.
- > The safety of ingesting some wild foods has been affected by contaminants introduced into the environment, such as residuals of the Polychlorinated Biphenyls (PCBs) used on rail lines²⁹ and Dichlorodiphenyltrichloroethane (DDT) used for mosquito control (1950s-70s)³⁰.

Global climate change is also having a pronounced effect on natural food sources and First Nations access to them. Observations recorded in communities across Yukon and northern BC, through projects coordinated by the Arctic Institute of Community-Based Research, include decline in certain fish species as well as changes to quality, behaviour, and locations. The composition of forest and forage areas is changing, in some cases due to lack of groundwater regeneration and changing precipitation patterns. Land infrastructure is being affected, with erosion and permafrost melt threatening trails and roads used for harvesting and other cultural pursuits³¹.

Residential and Day Schools, and the Sixties Scoop

Canada's welfare systems and social policies have had many lasting and damaging effects on First Nations people, including impacts to traditional food systems. The church and government-mandated attendance of Indigenous children and youth at day and residential schools (for Yukon, from the turn of the twentieth century until the mid-1970s) removed students from their families and traditional way of life. Opportunities for the intergenerational transfer of cultural and ecological knowledge were disrupted with the goal of assimilating youth into dominant Canadian culture. Similar impacts occurred as a result of the "Sixties Scoop" (1950s-1980s), which removed Indigenous children from their families and communities for placement into foster homes and adoption by non-Indigenous parents.

Today, the land-based learning and healing programs organized by KDFN, TKC, and other Yukon First Nation governments and organizations are helping to revive and strengthen the harvesting skills of current generations through opportunities that reconnect citizens with their land and traditions. Some programs integrate agricultural practices demonstrated at teaching farms to further promote concepts associated with subsistence living and healthy eating.

Wild Resources and Harvest Areas

For many Whitehorse residents, and particularly for First Nation citizens, wild resources play an important role in contemporary diet, culture, and community life. Sixty-three percent of respondents to Public Survey 2 indicated getting at least some of their weekly summer diet from foraged sources. Fifty-five percent indicated that someone in their household was active in fishing or hunting in the prior 12 months. Thirty-five percent indicated that someone in their household had success in harvesting game or fish.

Popular foraging areas are found throughout Whitehorse's green spaces, including within the five areas designated in the OCP as Regional Parks and along the many wilderness trails that span the city. Berries (e.g. high and low bush cranberries, blueberries, juniper berries, soap berries, strawberries, and dogwood), mushrooms, spruce tips, rose hips, sage, mint, roots, lichens, and barks are amongst the many food and medicine resources found in these areas. Raspberries and rhubarb can be found growing wild in neighbourhood lane ways, particularly in the Downtown and Riverdale neighbourhoods.

Anglers enjoy fishing in Whitehorse lakes stocked with kokanee and rainbow trout (Long Lake, Chadden Lake, and Hidden Lakes 1 and 3) and the other 15 stocked lakes in Yukon³². Some residents travel to Alaska to harvest other freshwater and saltwater fish and crustaceans, including salmon, halibut, crab, and shrimp.

Hunting with firearms is prohibited within Whitehorse municipal limits, as per the City's Firearm Bylaw, but residents have access to hunting grounds within a day's commute to outlying locations in Yukon, British Columbia, and Alaska. Game animals include bison, moose, sheep, goat, caribou, grizzly and black bears, deer, elk, and various types of smaller game.

Fishing and hunting activities in Yukon are licensed, monitored, and managed by YG's Department of Environment. First Nation governments are involved with authorizations and monitoring on Settlement Lands, and wildlife management planning within their Traditional Territories.

Some First Nation governments also work on projects that seek to restore traditional food sources and the heritage and cultural connections to them. KDFN, for example, initiated a spawning program in 2019 to restore chinook salmon in the Takhini and Ibex Rivers³³. Since 2009, TKC has been releasing fry to restore chinook in Fox Creek, a lake-head tributary of Lake Laberge³⁴. In 2019, the two governments began a collaboration with Carcross/Tagish First Nation to develop a community-based salmon management plan for the Southern Lakes region, with support from the Yukon River Panel³⁵.

2.4 Processing and Preservation

A variety of local businesses and organizations are involved in value-added food and beverage processing, in and around Whitehorse. Coffee roasting, baking, and meat processing are a few examples. Butcher shops are particularly busy in the fall as they process the game meat brought in by clients. Brewing and distilling businesses have brought beverage activity and tasting experiences out to two of the city's industrial areas (Marwell and Mount Sima).

Some processors and brewers combine imported ingredients with flavours produced or foraged in Yukon. Caterers and restaurants are responding to consumer interests by offering menu options sourced from local farms or harvested in the area. The annual Yukon Culinary festival and industry conferences showcase local expertise by featuring chefs, producers, and farmers from around the territory.

Many residents are involved in processing and preserving activities through do-it-yourself activities. Sixteen percent of respondents to Public Survey 1 indicated they are involved in activities such as pickling and jam-making, which allow for local harvests to be stored and enjoyed during colder months.

The City offers several cooking and processing classes through its Active Living programming to help residents develop their food skills. Classes take place in the City's three kitchen facilities, located in the Frank Slim Building (at Shipyards Park), Takhini Arena, and Mount McIntyre Recreation Centre. Each kitchen offers a different equipment grade and can be booked for rental by food businesses. A fourth kitchen is in the planning stage for a new reception centre at the Robert Service Campground.

2.5 Distribution and Retailing

Whitehorse's most prominent function in the local food system is as a place of commerce, where producers reach retailers and consumers, and as a distribution node for goods trucked to other communities in Yukon and British Columbia. Residents have access to six full service grocery stores, several smaller independent food retailers, and two seasonal produce stands. Many residents in outlying communities commute into Whitehorse to make food purchases.

From May to September, residents have access to a weekly market operated by the Fireweed Community Market Society in Shipyards Park on the waterfront in Downtown. The market is a popular draw for residents and tourists, and serves as an incubator for small businesses by providing opportunity to test product ideas before making more substantial financial investments. A social hub for vendors and consumers, the market can also be a place of exclusion to residents that are unable to afford market prices³⁶.

The market is part of Whitehorse's growing and vibrant mobile food vendor scene. To support small businesses, the City has developed a program to manage vending sites in three other areas of Downtown (the Waterfront Wharf, Rotary Park, and Third Avenue at Steele Street). Permits are issued each spring through a lottery system. The program has expanded since its inception in 2013 to include eight sites and an annual, week-long Street Eats Festival that takes place on Steele Street, next to City Hall. This multicultural festival served an estimated 5,000 meals in 2017, and has shown momentum with an estimated 10,000 meals served in 2019.

2.6 Nutrition Support

The health and wellness challenges faced in Whitehorse are similar to those faced in other Yukon communities. Challenges include managing chronic conditions such as obesity, diabetes, heart disease, and high blood pressure³⁷. Many health conditions are linked to having insufficient access to healthy foods, with food affordability being a significant barrier to better health. A 2017 study by YAPC estimated the weekly cost of healthy eating for a family of four in Whitehorse was \$274.78 in that year³⁸; ~20% more expensive than average food costs in southern British Columbia³⁹. Affordability is an even greater challenge in smaller Yukon communities, where food costs were found to be almost 60% higher than in southern British Columbia.

A growing number of Whitehorse residents depend on the nutritional support services that are concentrated in Downtown. The Whitehorse Food Bank provides emergency food to over 1,300 people each month⁴⁰. Prepared meals for are available at several support organizations, including the Whitehorse Emergency Shelter, Victoria Faulkner Women's Centre, Sally and Sisters (at the Food Bank), Youth of Today Society, and Boys and Girls Club. Emergency food is delivered by the Many Rivers Outreach Van, and meal delivery services are available through Meals on Wheels. Les Essentielles and YAPC offer collective community kitchen programs to help build the food literacy, planning, and preparation skills of their clients.

Thousands of pounds of food are donated each year to nutrition programs by grocery stores, producers, and community members, including fresh produce grown at community and private gardens. Changes to territorial regulations and a pilot project (Hunters for the Hungry) have opened doors for game meat to also be donated. This program involves a partnership between YG Conservation Officers, Yukon Fish and Game Association, Yukon Outfitters Association, and Off the Hook Meat Works. Meat is brought to the licensed butcher, where it is processed and then distributed to nutrition support organizations⁴¹.

2.7 Consumption

Whitehorse retailers indicate that appetite for locally produced food is strong and the benefits of eating local are generally well understood by customers. Many are even willing to pay a little extra for a 'local' stamp on their food. The biggest barriers for increasing the consumption of local products are tied to generating enough supply to meet the demand for local products and providing year-round availability.

Responses to Public Survey 2 indicated that residents consume the greatest amount of local food during summer months, not surprisingly, at the time of year when local food is produced and most available. Many respondents indicated they eat at least a portion of their weekly diet from local sources throughout the year, which can include game, fish, and foraged foods.

When asked about what the most important factors are when making food purchase decisions, survey respondents indicated that price, taste, supporting the local economy, nutrients, and convenience (e.g. one-stop shopping) were top considerations. Having more availability of fresh, preserved, and processed local foods were listed amongst the ways to increase consumption of local products; lower food prices, greater variety, and more personal time to grow, harvest, and/or process food were also listed.

2.8 Resource Recovery

Approximately 26% of the waste generated in Whitehorse is organic material, which includes expired foods, scraps from processing and cooking, food-soiled paper, and yard waste⁴². Resource recovery requires assessing and recognizing the full life-cycle value of organics to ensure they can be used to their potential. The first step is to channel foods that are in edible, pre-expiry condition to donation centres and support services. Several grocery stores are active on this front, regularly supplying essential foods to the nutrition support network. Some residents participate by developing informal food rescue relationships directly with retailers, or by 'dumpster diving' despite this being a prohibited activity.

Once food is considered waste, diversion from the landfill becomes the primary focus. The City initiated a volunteer curbside organics collection program in 1998, followed by a neighbourhood pilot program in 2001. A regular curbside organics collection program was initiated in 2002 that services the majority of residences within the urban containment boundary. A commercial collection program began in 2014.

Organics are processed at the City's waste management facility into high-quality compost suitable for agricultural use. A total of 2,386 cubic yards of compost was sold in 2019, available in bulk loads and 20 litre bags. City compost was listed with the Organic Materials Review Institute in 2017, reaching a significant milestone for the product in quality recognition. In much of Yukon, the topsoil layer is thin with little organic content, making locally produced compost an economical and efficient opportunity to supplement soil with essential nutrients and improve its fertility.

Many respondents to Public Survey 2 gave positive reviews for City compost, indicating that it worked well in their gardens and that they would recommend it to fellow gardeners. Suggestions were offered for product improvement relating to the need for educational information on compost application for best-use, more product screening to remove debris, and waste-free purchase options for small units. Interest was also expressed to see the product marketed alongside imported compost products sold at garden centres.

3.0 Values, Challenges, and Opportunities

The LFUAS' engagement process revealed key values, challenges, and opportunities the City considered in developing goals and potential actions to support a stronger local food system. This section provides a brief summary.

3.1 What Does 'Local Food' Mean to You?

Food planning documents from across Canada feature a variety of definitions for 'local food' shaped by the unique regional context, agricultural landscape, and food distribution network of each place. The values associated with supporting 'local food' tend to be more consistent. Public Survey 2 included questions geared at developing an understanding of what 'local food' means to Whitehorse residents.

Some respondents associated the term exclusively with a measure of distance, while others provided a more fluid concept that factors in considerations such as product type, seasonal availability, connection to producers, and personal involvement in producing or harvesting food.

When asked about the geographical reach of the term, the majority of respondents indicated locations within 550 km of Whitehorse, which includes parts of northern British Columbia and eastern and southern Alaska. Some respondents indicated that since moving to Whitehorse, their concept has expanded to reflect the limited availability of goods produced in Yukon, and to accommodate interests in maintaining a diverse diet. The principle of 'the closer, the better' was frequently referenced.

Figure 2: What Does 'Local Food' Mean to You? Select Responses from Public Survey 2



3.2 Challenges

The following is a summary of key challenges that emerged from the study's engagement activities relating to City jurisdiction or influence.

Policies, regulations, and permitting:

- > Jurisdictional overlap exists between different levels of government for agriculture related policies and regulations, which can make it difficult for people to know where to look for regulations (e.g. livestock keeping and food vending).
- > Agricultural land within Whitehorse has been rezoned and subdivided for residential use due to lack of firm policy to preserve this type of land.
- > Regulations in the City's Zoning Bylaw regarding food and agriculture activities could use clarification (e.g. differences between commercial and hobby agriculture); some definitions and specific use regulations are missing (e.g. abattoirs, apiaries, market gardens, and indoor agriculture).
- > Regulations on boulevard and median use are unclear relating to food installments on public lands.
- > Properties in urban areas are not allowed to have certain kinds of small livestock (e.g. bees and goats), but some residents are interested to have them.
- > Hen and coop regulations could use revision to be more practical to Whitehorse's winter context and to encourage compliance with the permitting system.
- > The 6 and 12 month business license options are not well suited to shorter-term, occasional food vending.

Commercial agriculture:

- > Some farmers are interested to have access to land within Whitehorse to grow/raise food, but land availability, access, regulations, and startup costs are prohibitive.
- > Yukon's farming community is getting older and retiring; opportunities are needed to get young people interested in food production to support industry succession.
- > Rules are unclear about indoor agriculture allowances, which discourages investment and development.

Community gardens:

- > There is a limited amount of plots in community gardens and greenhouses, and some residents have limited access to them for social, financial, mobility, or other reasons.
- > Building gardens and greenhouses is expensive, and resources are needed.
- > Connecting gardens to municipal water services is ideal, but expensive.
- > Leasing land from the City and YG for gardening can be a complicated process, and requirements are not compatible with smaller-scale projects.
- > Garden associations need financial and technical help to get started, and need information resources on how to access and manage land.
- > Funding sources often do not assist with land purchase, rental, or operating costs, just special projects; this can make it difficult for associations to sustain ongoing programs.
- > Late turn-on and early shut-off of municipal water connections means lost productivity.
- > Vandalism and theft of produce happens at the gardens each year.

Community kitchens:

- > There is a need for easy and inexpensive access to commercial grade kitchens for processing and preserving food (e.g. cooking, canning, pickling, jam-making) to suit a variety of business and programming needs and interests.

Environment and wildlife:

- > Lack of restrictions on pesticide use can lead to soil and water contamination from agricultural projects, as well as from other commercial and residential pesticide applications.
- > Commercial and residential scale food and agricultural activities (e.g. compost production, fruit bearing plants, livestock keeping, game processing) can attract wildlife.

Foraging areas:

- > Foraging areas and activities need more recognition in City planning processes, along with recognition of the historical damages caused to traditional food systems.
- > Trails provide access to foraging resources, but can contribute to overharvesting and other damage.
- > Some foraging areas have been depleted by businesses using local ingredients in their products.
- > Residents are not always aware of when they are on YG, City, or Settlement Land; information resources on protocols are needed, and sustainable and respectful practices need to be promoted.

Organics recovery, waste, and compost:

- > Current regulations make it too easy and cheap for food to be thrown away, instead of donating it or using it for compost production or animal feed.
- > City compost sells out and is not always available at the start of the gardening season.
- > City compost could use more screening to eliminate plastic debris.
- > Purchase locations and units for City compost could use adjusting for better convenience.
- > Alternative purchase methods for City compost could be explored to reduce plastic packaging.

Food access and connections:

- > Reliance on imported foods creates vulnerability to environmental and economic events.
- > Residents want to eat local food, but there is not a lot being produced locally, and most of the limited amount of local food available at grocery stores is seasonal.
- > Some residents go hungry, and do not have access to fresh food or gardening opportunities.
- > Some residents produce more food than they need, and should be encouraged to donate.
- > Lack of knowledge and skills can be barriers to involvement, expansion, and diversification of food production activities.

3.2 Opportunities

The following is a list of opportunities and suggestions frequently mentioned through engagement activities:

- > More community and communal food and agriculture facilities (e.g. gardens and kitchens) could occur in residential, commercial, and institutional settings (e.g. educational and correctional).
- > Vacant and underutilized lands and rooftops could be used for food production.
- > There is a lot of expertise, research, and innovation occurring in Yukon that can be capitalized on.
- > Offering incentives, subsidies, and tax benefits for residents to grow food could encourage more people to get involved.
- > Edible gardens on public lands are good for raising awareness and producing food that everyone can take and learn from.
- > Locally produced soil amendments can be encouraged and promoted in addition to local food.
- > The sharing economy (e.g. for tools, seeds, plantings, land, and produce) can support local growers.
- > Helping residents to build their harvesting and agriculture skills (e.g. foraging, producing, processing, soil building, livestock keeping, wildlife attractant management) can help to boost local capacity.
- > Making food spaces and activities socially and mobility accessible makes our city more inclusive.
- > Innovative new food donation and distribution models that are working well in other cities could work in Whitehorse, too.

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