

Pathways to a Hub and Spoke Food Hub Model in the City of Vancouver

Intersecting of Climate Resilience, Social Equity, and Circular Economy

May, 2022

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1. Introduction

Key Terms

Food Hub - According to the United States National Food Hub Collaboration, “A regional food hub is a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand.” ¹

Circular Economy - According to the World Economic Forum: “A circular economy is an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems, and business models.” ² The Ellen MacArthur Foundation expands this definition, specifically in the context of food systems: “A circular economy for food mimics natural systems of regeneration so that waste does not exist, but is instead feedstock for another cycle.” ³

Climate Resilience - The Urban Sustainability Directors Network defines resilience as: “The ability of people and their communities to anticipate, accommodate and positively adapt to or thrive amidst changing climate conditions and hazard events. Resilient communities enjoy a high quality of life, reliable systems, and economic vitality, and they conserve resources for present and future generations. The term resilience is often used interchangeably with emergency preparedness and response, but these elements only address part of this important concept.” ⁴

Resilience Hub - Developed by Kristin Baja at the Urban Sustainability Directors Network, “Resilience Hubs are community-serving facilities augmented to support residents, coordinate communication, distribute resources, and reduce carbon pollution while enhancing quality of life. Hubs can meet a myriad of physical and social goals by utilizing a trusted physical space such as a community center, recreation facility, or multi-family housing building as well as the surrounding infrastructure such as a vacant lot, community park, or local business. They provide an opportunity to effectively work at the nexus of community resilience, emergency management, climate change mitigation, and social equity while also providing opportunities for communities to become more self-determining, socially connected, and successful before, during, and after disruptions.” ⁵

Objective

This report is intended to illustrate potential pathways towards the implementation of a hub and spoke food hub model in the City of Vancouver. Opportunities are often presented as a menu of options for City leaders and partners to consider as a food hub vision for Vancouver continues to evolve. The objective is for this Report to serve as a reference map and compass to support future work in this space.

This report will cover the following topics:

1. Historic barriers to food hub implementation in Vancouver
2. Current needs in the Vancouver food ecosystem
3. Opportunities to address highlighted barriers and fill needs through a hub and spoke model
4. Circular business models that can enhance food hub funding streams
5. Recommendations and potential paths forward

Acknowledgements

This study would not have been possible without the leaders across the Vancouver food ecosystem who shared their expertise and perspectives for this study. Thank you all for your leadership in this space and for taking the time to inform and guide this work. Full acknowledgements can be found [below](#).

Methodology

For this project, 39 interviews were conducted with partners across the Vancouver food ecosystem. The interviewed parties as well as other potential partners in this space are shown in greater detail in [Appendix C](#). Perspectives included:

- 12 Organizations with a direct stake in the New City Market and/or the Food Exchange District Food Hub Proposals
- Six City of Vancouver Departments
- Seven Organizations based out of Produce Row and the False Creek Flats
- Nine regional leaders in food production and distribution
- Seven regional leaders in equitable food policy
- The B.C. Ministry of Agriculture, Food and Fisheries' BC Food Hub Network

Interview questions varied by individual but focused on three main areas:

- 1) Barriers to food hub implementation
- 2) Remaining gaps in the Vancouver food ecosystem, and
- 3) If and how a food hub or network of hubs could support the work the individual's organizations is doing or planning to do in the future.

These interviews were supplemented by a thorough literature review and desktop research. The study also highlighted lessons learned from established food hubs throughout the U.S. and Canada.

2. Background: The Vancouver Context

2.1 Historic Barriers to Food Hub Implementation

The food hub concept has been a topic of discussion in Vancouver for over twenty years; this has materialized into two proposals, one by the Vancouver Farmers Market (New City Market) and the other by the Greater Vancouver Food Bank (Food Exchange District). Even with those proposals, the concept has yet to implement at scale. Small scale attempts to pilot the food hub concept include: 1) VFM Direct, an aggregation and distribution services led by the Vancouver Farmers Market and FarmFolk CityFolk, and 2) the Greater Vancouver Food Bank’s pilot of a neighbourhood food hub model. Neither project found long term success. Accordingly, this section seeks to identify key barriers to food hub implementation.

Throughout this project, three primary barrier themes emerged:




-  **Model Clarity** - Uncertainty around goals, primary gaps the model intends to fill, and identification of primary beneficiaries
-  **Connectivity** - Siloed approaches to hub design and implementation
-  **Economic Obstacles** - Fiscal viability and securing long-term funding

Table 1 below outlines these barriers in greater detail, with table color corresponding to the affiliated barrier theme.

Table 1: Historic Barriers to Food Hub Implementation

1. Uncertainty around site role and goals	2. Uncertainty around site leadership	3. Uncertainty around the City’s role
<ul style="list-style-type: none"> • Scale of project proposals were too large for what was realistic and practical. • Uncertainty around specific goals of the Hub; aspirationally trying to be all things for all people. 	<ul style="list-style-type: none"> • Objective creep: uncertainty and indecisiveness around who the primary food hub lead organization would be. • Inflexibility between lead players’ visions for the Hub. 	<ul style="list-style-type: none"> • Burdens associated with project exploration placed on local organizations with limited capacity. • Absence of a clear project champion within the City.
4. Logistical complexity	5. Equity	6. Institutional buy-in
<ul style="list-style-type: none"> • Challenges making the business case for a food hub. • Changes in City leadership resulting in insufficient buy-in from City leaders with veto power. 	<ul style="list-style-type: none"> • An insufficient focus on equity and food access; lack of prioritization of marginalized populations. • Underemphasized commitment to reconciliation and Indigenous food sovereignty. • Significant alignment with the charitable food model. 	<ul style="list-style-type: none"> • Insufficient buy-in and support from local institutional beneficiaries; Land use pressures compounding the need of such a significant investment to deliver a high return on investment, not only for project funders but also for the city, the surrounding community and regional corporate players.

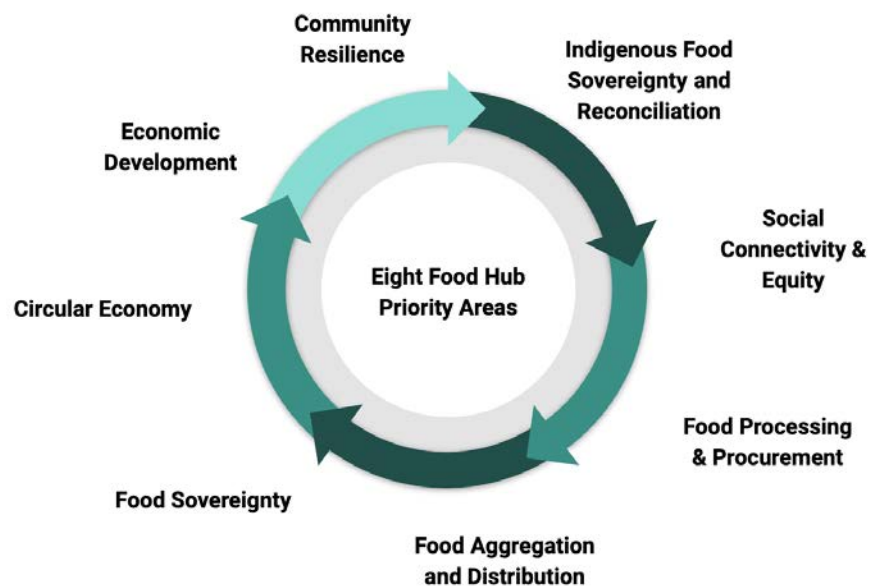
7. Systems-level design	8. Siloed Approach	9. Making the business case
<ul style="list-style-type: none"> • Insufficient consideration for the whole Vancouver food system and potential synergies among various players beyond the core Hub operators. • Insufficient alignment with City of Vancouver priorities and capabilities. 	<ul style="list-style-type: none"> • Siloed approach within the City and between the City and partners. • Poverty mentality in terms of resources for city food enterprise; unwillingness by some to be bound by expectations and desires of other organizations. 	<ul style="list-style-type: none"> • Difficulty justifying investment given competing needs and interest for central land within the City. • Concern around having a sufficient variety and scale of multi-use opportunities maximized throughout the week (and perhaps even all times of day).
10. Funding and finance	11. Risk	12. Site-specific challenges
<ul style="list-style-type: none"> • Difficulty securing funding to cover the upfront costs of infrastructure development and for sustaining operations in the several-year window it would take to break even. • Proposals depending on below-market value land leases from the City when in reality the City relies on revenue generated from these parcels and would be unable to donate them for the purpose of a food hub. • Concerns relating to the economic backbone of the model and overreliance on long-term commitments from funders. 	<ul style="list-style-type: none"> • Concern by the City around being fiscally liable if the operation were unable to get off the ground. • The City Real Estate Department was unwilling to offer such high-value land over to a business model that might not be sustainable. • Concerns relating to the City charter and associated limitations around supporting for profit enterprise in the City that would give one business competitive advantage over others. 	<ul style="list-style-type: none"> • The False Creek Flats require significant investment to prepare for development due to localization below future flood levels and soil contamination. • Significant land use pressures and extremely high land value making it a formidable fundraising task. • Significant delays due to slow decision making for the area and the need to establish key infrastructure - water, sewer, rerouting roads - before any development can be implemented.

2.2 Food Hub Implementation Needs

Priority Areas

Throughout the interview process, eight priority areas were identified to frame this study and proposed model:

Figure 1: Food Hub Priority Areas



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There is an apparent overlap between many of the priority areas identified below. For example, community resilience and social connectivity & equity are inextricably linked. Despite this key interconnectivity, these priority areas will be compartmentalized throughout this study for the purpose of ease of information intake and to ensure that all areas have been actively considered.

Needs that exist in the Vancouver food ecosystem, by priority area

Partners interviewed identified needs in the Vancouver food ecosystem through consideration of:

- General gaps that they witness day-to-day with regards to circular economy, food aggregation, processing and procurement, and food sovereignty and access.
- How a central hub or network of neighbourhood-level hubs could support their organizational mission today and longer-term.

A summary of the gaps identified can be found in Table 2 below.

Table 2: Existing Vancouver Food Ecosystem Needs by Priority Area

Priority Area	Identified Need
Food Aggregation & Distribution	<ul style="list-style-type: none"> • Shielded or indoor space for farmers markets. • Long-term reliable space for farmers with basic infrastructural needs (sanitation facilities, power, cover, temperature-controlled storage, etc...). • Aggregation of the supply of small farmers to fill larger institutional orders such as local school, university, and hospital systems. Note that Feed BC and the BC Food Hub Network help connect B.C. producers and processors to supply chain partners, infrastructure, training and technology to support business growth.
Food Processing & Procurement	<ul style="list-style-type: none"> • Communal space (warehouse, refrigeration, and freezer) to connect excess food with processing and procurement opportunities. • Reliable demand for local farmers. • Ability to extend local produce availability beyond the growing season and to handle fluctuations in yield, especially unexpected "bumper crops".
Indigenous Food Sovereignty & Reconciliation	<ul style="list-style-type: none"> • Culturally appropriate food & Indigenous food access. • Indigenous food access and food sovereignty. • Support of Indigenous people living away from the Nation.
Social Connectivity & Equity	<ul style="list-style-type: none"> • Communal space where people can come together around food. Illustrative components: education, community workshops, meeting or event space, meet your maker events. • Opportunity to share best practices and lower the learning curve. • Dignified, culturally appropriate access to healthy food, both in terms of affordability and physical location. • Support for adaptable structures that cater to hyper-local needs and assets. • Incorporation of public sector into Vancouver emergency food access programs at the neighbourhood for accountability and capacity support.
Community Resilience	<ul style="list-style-type: none"> • Strong leadership from trusted community partners with long-term relationships with community residents, particularly to low-to-moderate income (LMI) and Black, Indigenous, and people of color (BIPOC) communities residing in food deserts. • Key infrastructure to ensure Hub functions can withstand disruption including but not limited to solar with battery backup, and power redundancy. More ambitious components could include greywater reuse onsite, biophilic design standards, building upgrades to enable earthquake-resistant structures, net zero energy, or having community solar benefits for the surrounding community.
Circular Economy & Zero Waste	<ul style="list-style-type: none"> • Convening body or network to connect supply and demand within existing organizations' food networks and create new opportunities for end uses. • Strategy and network to link existing resources, organizations and activities together including the enabling technology or platform to streamline connectivity between supply and demand and in doing so reduce food waste. • Circular innovation: new food preservation methods and uses for edible residuals. • Collocation to foster greater collaboration and reduce waste and maximize efficiency. Exists to some extent: Produce Row & the False Creek Flats
Food Sovereignty	<ul style="list-style-type: none"> • Improved food storage, diversity of food sources, and community-supported agriculture (Vertical farms, greenhouse pace, rooftop gardens, school yard gardens, etc...) • Greater reliance of local and regional food sources that better withstand system disruption.
Economic Development	<ul style="list-style-type: none"> • Support for food innovation and circular economy startups. • Workforce development opportunities via inclusive, green jobs.

3. The Opportunity

3.1 Proposed Methodology to Address the Barriers and Needs Identified

How to use the Opportunity Breakdown: The Opportunity Breakdown spreadsheet serves as a high-level framing of the opportunities described in detail throughout the report. It can be used as a stand-alone resource to frame the needs and potential options in this space.

Food Hub Model: Opportunity Breakdown



To Download the Food Hub Model: Opportunity Brainstorm Spreadsheet, click [HERE](#).

USDN urban sustainability directors network

Vancouver Food Hub Model Opportunities by Priority Area

Connectivity Acknowledgement: There is an apparent overlap between many of the priority areas identified below. For example, community resilience and social connectivity & equity are inextricably linked. Despite this key interconnectivity, we are compartmentalizing these elements here for the purpose of ease of information intake and to ensure that all barriers have been covered. Economic development and job opportunities will be unique within each neighbourhood context and have cascading impacts. Further research will be necessary to understand and quantify the extent of these opportunities.

	Food Aggregation and Distribution	Food Processing & Procurement	Food Sovereignty	Indigenous Food Sovereignty and Reconciliation	Social Connectivity & Equity	Community Resilience	Circular Economy and Zero Waste	Economic Development
Layer 1: The Gap - Why We Need to Do This	<p>Identified Gaps in the Vancouver Food Ecosystem</p> <p>Shared or indoor space for farmers markets</p> <p>Long-term reliable space for farmers with basic infrastructural needs</p> <p>Aggregation of the supply of small farmers to fill larger orders such as local school and hospital systems</p>	<p>Communal space (warehouse, refrigeration, and freezer) to connect growers, processors and procurement</p> <p>Reliable demand for local farmers</p> <p>Improved food storage, diversity of food sources, and community-supported agriculture</p> <p>Procurement flexibility to handle the variability and unpredictability of local food deliveries</p>	<p>Ability to over time meet the demand of larger regional players (hospital, school, and university) to reduce dependence on imported food and increase supply chain resilience</p> <p>Improved food storage, diversity of food sources, and community-supported agriculture</p> <p>Greater reliance on local and regional food sources that can better withstand system disruption</p>	<p>A lack of indigenous food sovereignty and culturally appropriate food</p> <p>Intractable land practices</p> <p>Unequal community outcomes for IFPOC</p> <p>Limited access to urban lands for traditional uses</p>	<p>Communal space where people can connect and build their shared food</p> <p>Illustrative components: education, meeting or event space</p> <p>Opportunity to share best practices and lower the learning curve for food and circularity innovation</p> <p>Indigenous food access and food sovereignty. Support of indigenous people living away from the Nation</p> <p>Support for structures that do not take a prescriptive approach and rather cater to hyper-local needs and assets</p>	<p>Strong leadership from trusted community partners with long-term relationships with community residents and readily accessible, particularly in LMI and IFPOC</p> <p>Key infrastructure to ensure Hub functions are able to withstand disruption including but not limited to solar with battery backup, power redundancy, and greywater reuse onsite. More ambitious components could include biophilic design standards, net zero energy, or having community solar benefits for the surrounding community</p>	<p>Converging local network to connect supply and demand within existing organizations/ networks, and create new opportunities for end users</p> <p>Collaboration to foster greater collaborations and reduce waste and maximize efficiency. (Exists to some extent: produce rose & the false creek farm)</p> <p>Connecting farmers with surplus produce to demand (school children that currently lack meals, etc. .)</p>	<p>Support for food innovation and circular economy startups</p> <p>Workforce development opportunities via inclusive jobs</p>
Layer 2: Identified Food Hub Model Opportunities (Hub and Spoke) - The "How"	<p>Central Hub Model</p> <p>Central shared-use warehouse, freezer and refrigeration space to aggregate produce supply, and organize/distribute the distribution amongst community players via community organizations, as well as larger institutional players such as the school, hospital, and transit systems.</p> <p>Neighbourhood Hubs Model</p> <p>"Year-round indoor market space for farmers"</p> <p>Market for regional producers via neighbourhood farmers market, produce boxes, local stores, etc. "</p>	<p>24/7 access to communal aggregation space with key infrastructure (processing warehouse, refrigeration and freezer)</p> <p>Shared-use processing and procurement facilities for community organizations and businesses with technical capabilities to be self-sustaining: Shared-use technology for booking and billing usage of equipment (Commissary Connect technology) "</p> <p>Food waste reduction</p>	<p>Aggregation of regional producer supply scaled over time to meet the demand of larger regional institutions (hospital, school, and university systems) to reduce dependence on imported food and increase supply chain resilience</p> <p>Greater reliance on local and regional food sources that can better withstand system disruption. This includes the incorporation of vertical farms, greenhouse space, rooftop gardens, school yard gardens, etc. "</p> <p>Enhanced system resiliency in the face of disruption</p> <p>Cost savings</p> <p>Avoided disruption costs</p>	<p>Support for indigenous land use practices by providing a direct avenue for indigenous producers to reach Vancouver neighbourhoods with culturally appropriate food</p> <p>Provision of culturally appropriate food "</p> <p>Educational opportunities around indigenous land practices "</p> <p>Leadership by indigenous peoples in neighbourhood food Hub structure and components "</p> <p>Steps towards reconciliation</p> <p>Improved community physical and mental health outcomes</p> <p>Enhanced community adaptive capacity and economic stability</p>	<p>Network and platform to foster collaboration and connection amongst various players in the Vancouver food ecosystem</p> <p>Community space to exchange ideas, foster food-related networking and enhance social connectivity. Activities could include meeting space, educational training, community and sector events.</p> <p>Expansion of neighbourhood level-programming and service around food access to supplement food provision "</p> <p>Enhanced community adaptive capacity</p> <p>Improved community physical and mental health outcomes</p> <p>More effective resources use and avoided waste</p>	<p>Key infrastructure to ensure site resilience including solar with battery backup, power redundancy, and greywater reuse onsite.</p> <p>Strong community support and leadership, a site that is well-situated, a building or set of buildings, resilient energy systems, resident communications systems, and services that have been identified by the community. "</p>	<p>Network and framework to match supply with demand and to better connect existing players in the food system. Strategy and network to link existing resources, organizations and activities together.</p> <p>Affordable shared-use neighbourhood-scale facilities for local businesses and startups. "</p> <p>Co-working spaces for circular economy innovation "</p> <p>Workforce development and green job opportunities "</p>	<p>Co-working space for circular economy innovation</p> <p>Workforce development and green job opportunities "</p>
Layer 3: Cascading Benefits - The "What"	<p>Community Impact</p> <p>Longer-term security for producers</p> <p>Aggregation and more guaranteed demand for producers can result in more stable, affordable prices for community members</p> <p>Recovery of value of 'imperfect' or surplus food</p>	<p>Workforce development opportunities: low-barrier, or technical and professional level jobs</p> <p>Food waste reduction</p>	<p>Enhanced system resiliency in the face of disruption</p> <p>Cost savings</p> <p>Avoided disruption costs</p>	<p>Steps towards reconciliation</p> <p>Improved community physical and mental health outcomes</p> <p>Enhanced community adaptive capacity and economic stability</p>	<p>Enhanced community adaptive capacity</p> <p>Improved community physical and mental health outcomes</p> <p>More effective resources use and avoided waste</p>	<p>Enhanced adaptive capacity</p> <p>Economic stability</p> <p>Environmental sustainability</p> <p>Community cost savings</p> <p>Improved physical and mental health outcomes</p>	<p>Food waste reduction</p> <p>Increased system efficiency</p> <p>Cost savings</p> <p>Environmental Sustainability</p>	<p>Job creation</p> <p>Local business incubation</p> <p>Economic development opportunities</p>
Layer 4: Challenges - Considerations for Future Exploration	<p>Key Considerations for Implementation</p> <p>Consider location of central hub: does it need to be within central Vancouver or can it serve its purpose beyond the City's boundaries? Will the identified location have access to key transit networks?</p> <p>Need for capacity support to enable farmers to sell produce at various locations throughout the City. Consider key partnerships and operation models.</p> <p>Consider longer-term opportunity to not only distribute food but also use existing network to gather compost from disparate locations and aggregate for composting</p>	<p>Consider use of Commissary Connect's business model and shared-use technology: communal aggregation, processing, and commissary space</p> <p>Consider platforms and business model to accommodate variability and unpredictability of local food deliveries.</p>	<p>Consider opportunity to connect with and expand urban farm initiatives to supplement local produce food supply</p>	<p>As described by Kanatlo Cultural, local leader and presenter on Indigenous Food Sovereignty who conceptualized the idea of an Indigenous food Hub, the opportunity and imperative is to move from a charitable "hand it and they will come" mindset and approach to solving local challenges, described in the "Gordon Kof" in the Indigenous Food Hub model linked previously. Rather, the approach should be: "If you create space and opportunity, they will come build it with you"</p>	<p>Consider Hub location and to what extent the Hub is accessible to the surrounding community. In particular, consider: access, proximity to local transit routes, connectivity to trusted community sites and organizations, etc.</p> <p>Identify measures to ensure residents via community organizations have leadership in determining hub operations, services, and programming.</p>	<p>Bringing in Resilience Hub components into only enhances the Hub's ability to withstand natural hazards and enhance community adaptive capacity, but also can enhance the business case for food hubs and feasibility of implementation by attracting additional funding opportunities and cost savings.</p>	<p>How can existing facilities be adapted and developed in place to provide necessary spaces and amenities? Further research will be necessary to understand and quantify the extent of these opportunities.</p>	<p>Economic development and job opportunities will be unique within each neighbourhood context yet have cascading impacts. Further research will be necessary to understand and quantify the extent of these opportunities.</p>

Urban Sustainability Directors Network, Adapted to the City of Vancouver

Urban Sustainability Directors Network Food Hub Opportunity Breakdown, Adapted to City of Vancouver

For each of the eight Priority Areas identified in Figure 1 above, the Opportunity Brainstorm identifies four layers of knowledge to guide this work:

- Layer 1: The Gap: Why we need to do this**
- Layer 2: The "How": Identified Food Hub Model Opportunities**
- Layer 3: The "Why": Potential Benefits**
- Layer 4: Key Considerations for Implementation**

These opportunities will be outlined more comprehensively throughout the report below.

The Value of a Hub and Spoke Model

By nature, transforming systems requires a depth of knowledge and commitment to change across scales: systems-level thinking and granular neighbourhood level context expertise alike. Likewise, circular solutions emerge at the intersection of these two scales, where regional supply chains and production practices meet hyper-local needs and consumption patterns.

Needs identified through study interviews reflected this intersectionality: while certain opportunities to address gaps in the Vancouver food ecosystem are best addressed at the systems level - rethinking how food moves throughout the City, for instance - these solutions cannot be truly effective unless they are connected to a neighbourhood-level food assets designed by and catered to the local communities.

The potential benefits of designing systems at the neighbourhood level are multiple:

- Accountability to hyper local needs and outcomes
- Support for circular solutions that rely on residents' ability to borrow, return, reuse, recycle, and repurpose materials locally
- Flexibility and agility to accommodate changing systems, climates and community needs
- Enhanced social connectivity
- Additional services and programs to trusted local community spaces
- Avoided travel time from having to seek access to resources across the city

Yet, the opportunities for circularity and the effective and efficient transfer of materials, resources, and knowledge, can likely be greater if connected to a central hub. Accordingly, this study will outline opportunities for a 'hub and spoke' model.

The Opportunity: the "Twin Challenge"

Study conversations brought many different perspectives to the table around gaps and opportunities in the Vancouver food ecosystem. Yet there seemed to be a consensus that the two primary challenges to Vancouver's communities and regional food system are, as articulated by the Philadelphia nonprofit Common Market, ⁶ "two sides of the same coin":

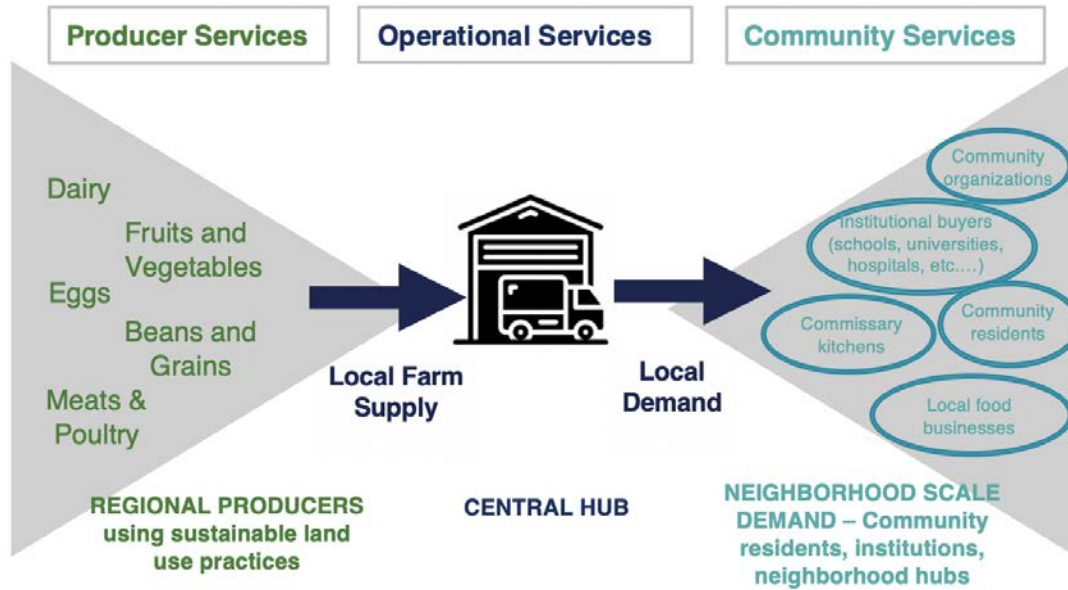
- Marginalized, low-income communities lack neighbourhood food assets and access to income to purchase these products.
- Small and mid-sized regional farms lack an ability to scale via access to local markets and institutional buyers

Thus, the fundamental question guiding the food Hub exploration and design should be this: [How do we connect the local demand for nutritional food with the local producer supply?](#) Equally as important: [How can a food aggregation and distribution model be used to support programs that address the root causes of food insecurity within Vancouver's marginalized communities?](#)

Secondary questions:

- How can we aggregate supply to reduce the costs to producers while supporting the scaling of sustainable, indigenized agricultural practices?
- How can we support anchor institutions (community organizations, schools, hospitals, etc...) in securing and offering nutritious, local food?

Figure 2: The Hub & Spoke Food Hub Opportunity



Producer Services	Operational Services	Community Services
<p style="text-align: center;">HUB COMPONENTS</p> <p>Core Elements:</p> <ul style="list-style-type: none"> Actively linking producers to markets <p>Additional long-term opportunities:</p> <ul style="list-style-type: none"> Training for producers on more sustainable, indigenized agriculture practices and adjusting to climate impacts On-farm pick up Business management services and guidance Value-added product development Food safety training 	<p style="text-align: center;">HUB COMPONENTS</p> <p>Core Elements:</p> <ul style="list-style-type: none"> Aggregation Product storage Packaging and repacking Light processing (trimming, cutting, freezing) Linking and/or distribution to market <p>Additional long-term opportunities:</p> <ul style="list-style-type: none"> Brokering Branding and market development 	<p style="text-align: center;">HUB COMPONENTS</p> <p>Core Elements:</p> <ul style="list-style-type: none"> Distributing through the city via farmers markets, CSA, neighbourhood grocery stores, community organizations or to local institutions such as schools, universities and hospitals. Affiliated services and programming to support community residents, prioritized in marginalized communities Youth and community employment opportunities Resilient building, energy and communication systems <p>Additional long-term opportunities:</p> <ul style="list-style-type: none"> Urban farming (vertical farms, green roofs, etc...)
<p style="text-align: center;">SITE REQUIREMENTS</p> <p>Core Elements: Virtual Hub/ Marketplace and enabling technology to identify producer supply and market demand, with particular attention to creating local food assets within</p>	<p style="text-align: center;">SITE REQUIREMENTS</p> <p>Core Elements: 24/7 communal aggregation space: processing warehouse, refrigeration and freezer space.</p>	<p style="text-align: center;">SITE REQUIREMENTS</p> <p>Core Elements Trusted community spaces with 1) capacity to accommodate the services, programming, and resources provided by the host everyday and in the event of</p>

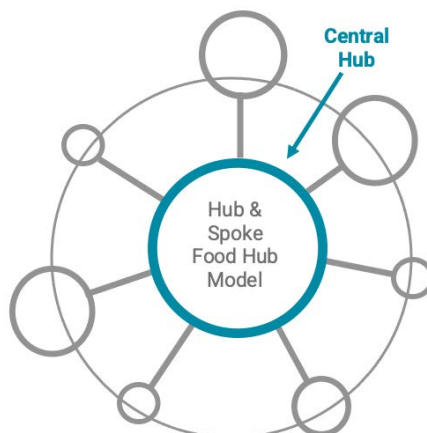
<p>marginalized communities.</p> <p>Long-term Opportunities: If a pick-up service for producers is integrated, consider aggregation spaces: refrigerated storage on select farms where nearby farms can drop off supply, enabling Hub operators to pick up from one location per several regional farmers.</p>	<p>Long-term Opportunities Space expansion to larger-scale operation. Large-scale distribution to institutional players could require a facility of up to 70,000 square feet.</p>	<p>disruption and 2) structural resiliency (weatherized, flood proof) and ability to maintain operations in the event of disruption.</p> <p>Long-term Opportunities Opportunity to integrate more 'ideal' hub components such as vertical gardens and green roofs, water recycling and reuse, etc...</p>
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Urban Sustainability Directors Network adapted to City of Vancouver, based on the [USDA Running a Food Hub](#) component structure

3.2 Central Hub Overview

If the goal is to “close the loop” around the Vancouver urban food system, thus creating a circular, sustainable and equitable food system, the different components of this greater system need to be better connected. This is where the central food hub comes in.

Figure 3: Hub and Spoke Model



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Section 3.2 contains an overview of central hub opportunities, namely:

1. Potential benefits to support the business case for hub development
2. A menu of option for potential hub components, by priority area
3. Illustrative phased approach to implementation
4. Lessons learned from a previous aggregation-distribution pilot in the City of Vancouver
5. Potential ownership models

Potential benefits from a central food hub include:

- Decreased food waste by connecting excess supply to consumer demand and other procurement opportunities
- Enhanced efficiency in connecting food supply with community demand
- Reliable demand for local producer (variable) supply, resulting in greater security for farmers with the potential to lower prices to make produce more affordable for community members

- Knowledge sharing opportunities
- Connectivity and collaboration between disparate players in the Vancouver food ecosystem via collocation.
- Opportunities to scale local food production and aggregate to meet large-scale regional demand (longer term)
- Economic development via opportunities for food distribution and procurement
- Increased food sovereignty
- Green jobs
- Low-barrier opportunities for food start-ups.

How to Use Table 3: Table 3 contains a menu of options for a central food hub within the eight Priority Areas defined above. The illustrative components can be used to inform and guide future hub design.

Table 3: Menu of Options, by Priority Area

Priority Area	Food Aggregation and Distribution	Food Processing & Procurement	Food Sovereignty	Indigenous Food Sovereignty and Reconciliation	Social Connectivity & Equity	Community Resilience	Circular Economy & Zero Waste	Economic Development
Illustrative Components	Central shared-use warehouse, freezer and refrigeration space to aggregate producer supply, and organize/coordinate the distribution amongst community players via community organizations, as well as larger institutional players such as the school, hospital, and transit systems.	24/7 access to communal aggregation space with key infrastructure (processing warehouse, refrigeration, and freezer space).	Aggregation of regional producer supply scaled over time to meet the demand of larger regional institutions (hospital, school, and university systems) to reduce dependence on imported food and increase supply chain resilience.	Support for Indigenous land use practices by providing a direct avenue for Indigenous producers to reach Vancouver neighbourhoods with culturally appropriate food.	Network and platform to foster collaboration and connection amongst various players in the Vancouver food ecosystem. Community space to exchange ideas, foster food-related networking and enhance social connectivity. Activities could include meeting space, educational training, community and sector events.	Key infrastructure to ensure site resilience including solar with battery backup, power redundancy, earthquake preparedness and structural resistance, and greywater reuse onsite.	Network and framework to match supply with demand and to better connect existing players in the food system: Strategy and network to link existing resources, organizations and activities together.	Co-working space for circular economy innovation

Urban Sustainability Directors Network Food Hub Menu of Options by Priority Area, Adapted for City of Vancouver

How to Use Table 4: Table 4 below offers three levels at which a central hub could operate, beginning with a ‘baseline’ virtual hub and expanding overtime toward a more ‘ideal’ aggregation and distribution service. This framing could be used to identify a phased approach to hub implementation and opportunities for the operation to grow and evolve over time. It is important to note that the phased opportunities below are not necessarily mutually exclusive but rather could exist simultaneously to support each other.

Table 4: Central Hub Operational Model Opportunities

Operational Model Opportunities	Details	Considerations	Vancouver Leaders to Engage Early
Phase 1: Virtual Hub (baseline)	<ul style="list-style-type: none"> • An online platform where regional players order local food from multiple area farmers • Producers set prices as they would at a farmers market • Aggregation can be operated by members (producers or consumers) or through a third-party hired enterprise 	<ul style="list-style-type: none"> • Efficient ordering and communication • Larger upfront costs to create required technology • Minimal infrastructural requirement to begin with (if any) 	Food Mesh United Way Second Harvest Vancouver Food Runners
Phase 2: Shared-Use Facility (optimal)	<ul style="list-style-type: none"> • Provides local organizations in the Vancouver food ecosystem access to shared use storage facility (shared-use warehouse containing storage, refrigeration and freezer space, potentially including value-add processing and procurement equipment) 	<ul style="list-style-type: none"> • Increasingly popular model as businesses and cities move toward more circular practices and business models 	Commissary Connect
Phase 3: Aggregation & Distribution Service (ideal)	<ul style="list-style-type: none"> • Collection of producer supply from rural aggregation points and aggregation of producer supply at centralized warehouse space. • Re-pack and organize food for connection and distribution to residents, local community organizations and other institutional players including schools, universities, and/or the hospital system, etc... 	<ul style="list-style-type: none"> • Consider logistics: e.g. a cooler storage space at a farm where nearby farmers can drop supply. This would enable hub operators to have just one pickup for several regional farmers. 	Vancouver Farmers Market

Critical Context: Vancouver Farmers Market Direct (VFM Direct)

Beginning in 2016, the Vancouver Farmers Market (VFM) alongside Farm Folk City Folk piloted a food aggregation and distribution service, known as VFM Direct. The program ran effectively for several years before it was shut down due to lack of capacity to keep the program afloat coupled with insufficient operational funding. As the program was projected to take at least five years to break even, the program was predominantly grant funded. However, by the third year, the VFM did not have enough funding to continue the service. At this point, VFM alongside farmers involved were exploring the creation of a farmers coop to take over, however this occurred during the summer when farmers did not have the capacity to do so, even though there was significant interest. In essence, neither VFM nor a farmers' coop could carry the expenses. However, the pilot proved that the demand from institutional buyers, Simon Fraser University, University of British Columbia food and residential service, and Sodexo in particular, was there, as they were facing challenges sourcing local food at scale.

VFM Direct in many ways mirrors Phase 1 of the central hub vision described above. However, several factors would need to be in place to ensure that the program would be successful long term:

- Economies of scale to enable the longer-term fiscal viability of the operation. See Recommendation 4 for additional details.
- Supplementary revenue sources to contribute to the funding of program overhead costs. See section 4.2 below on funding and finance for additional opportunities.
- Enhanced ability to illustrate the compounding community benefits that could come from the Hub and spoke model to potential investors. See section 4.1 below for insight and ideas.

Potential Ownership Models

The shared-used space could be operated by the City, a non-profit organization, or by a group of local businesses and organizations. There is also an opportunity to have a player such as Commissary Connect operate the Hub or license its business model and patented Equipment as a Service technology to the interested party, if set up as a shared-use facility.

Table 5: Potential Ownership Models

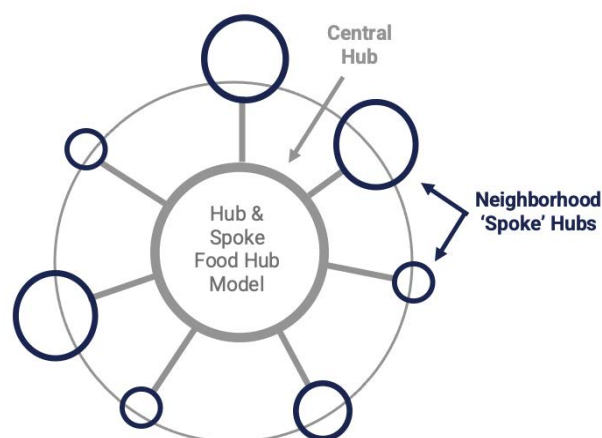
Ownership Model	Description	Considerations	Potential City Role
Organization-led Examples: Toronto - Food Share Philadelphia - Common Market	Owned and operated by a single organization.	<ul style="list-style-type: none"> • If the organizational lead is designated as a for-profit enterprise, the City could be more limited in terms of potential support it can provide due to the City charter 	<ul style="list-style-type: none"> • Advocate for longer-term grants to support operations • Zoning and policy advocate (see Recommendation 1 below for details) • Space ownership and leasing
Cooperative Examples: Idaho - Online Bounty Co-Op	"A cooperative is a business owned and democratically controlled by the people who use its services and whose	<ul style="list-style-type: none"> • Management controlled by a board of directors elected by the members. In many cases, directors must be members of the cooperative. Thus, the leaders are 	<ul style="list-style-type: none"> • Space ownership and leasing • Organizing or convening body

<p>New Mexico - La Montanita Co-op</p>	<p>benefits are derived and distributed to the users.”⁷</p>	<p>regular users of the business’ products or services.</p> <ul style="list-style-type: none"> • Allows producers to have access to additional pricing and marketing opportunities • Reduced risk. • Reduced costs. • Can be complex to organize. 	
<p>Multi-stakeholder structure</p> <p>Examples: North Carolina - Sandhills Farm to Table Wisconsin - Fifth Season Cooperative</p>	<p>“To help address the diverse concerns of members, a unique organizational format has arisen, mostly among food hubs organized as cooperatives, that includes multiple membership classes, such as producers, workers, consumers, community members, and investors, in the ownership of the business, thus addressing all classes of stakeholders involved.”⁸</p>	<ul style="list-style-type: none"> • Care must be taken to balance the needs and interests among all classes of stakeholders • Typical “one-member, one-vote” formats are often modified in some way, with some groups utilizing directors as representatives for an entire class of stakeholder in order to maintain the balance of governance. • Can create unique challenges regarding benefits and information flow 	<ul style="list-style-type: none"> • Space ownership and leasing • Convening and organizing body

3.3 Neighbourhood Hub (Spoke) Overview

Section 3.3 contains an overview of opportunities to elevate existing neighborhood spaces to serve as neighborhood food hubs, namely:

1. Embedding the Urban Sustainability Directors Network (USDN) Resilience Hub concept into existing trusted community spaces. While supporting local food assets may be a primary opportunity, aligning efforts with the Resilience Hub concept is essential to help to address some of the root causes of food insecurity, enhance community outcomes everyday, in the event of disruption, and throughout recovery, and can also open up a realm of additional funding opportunities to support this work.
2. A menu of options for potential neighbourhood hub components by Priority Area, including potential benefits
3. Integrating circular economy and zero waste activities



Elevating Existing Players

Vancouver is home to a vibrant ecosystem of organizations with deep community ties working to shift towards a more sustainable, equitable, and circular food system on the ground. These organizations already have the knowledge and vision. What is often needed is capacity support via additional, flexible multi-year operational funding and physical space. Thus, the fundamental opportunity is to support their capacity for work in this space.

Integrating USDN's Resilience Hub Concept

Neighbourhood-level food hubs by imperative must be designed and led by community members so that Hub services, programming and resources align directly with hyper-local needs and assets. This means that no two neighbourhoods will look and operate the same, nor will their components be set; rather, hub offerings will need to evolve over time to match the changing food ecosystem, climate and surrounding community needs and desires. To be fully impactful, these spaces cannot take a siloed approach to address local needs. If the COVID-19 pandemic serves as any indication, disruption can very easily become 'normal'. Systems in places to support communities cannot in this day and age be fully effective unless they are able to support community adaptive capacity and ability to thrive day-to-day as well as in the event of disruption and throughout recovery. A foundational step towards desiloing the approach to community hubs is to integrate the [Resilience Hub](#) concept, a body of work created by the Urban Sustainability Directors Network and currently being adopted by cities around the U.S. and Canada.

What is a Resilience Hub? Resilience Hubs are “community-serving facilities augmented to support residents, coordinate communication, distribute resources and increase adaptive capacity while enhancing quality of life. They provide an opportunity to effectively work at the nexus of community resilience, emergency management, climate mitigation, and social equity while also providing opportunities for communities to become more self-determining, socially connected, and successful before, during, and after disruptions.”⁹

Resilience Hub Resources

USDN has developed resources to guide Resilience Hub design and implementation. These same foundations apply to the development of neighbourhood food hubs, with the opportunity to then prioritize services, programming and hub assets relating to food and zero-waste components (such as those listed in Table 7 below). For additional insight, consult the [Resilience Hub Guidance Document](#) and Resilience Hub [White Paper: Shifting Power to Communities and Increasing Community Capacity](#).

Implications for food hub funding and finance

Not only is integration of the Resilience Hub concept key to enhancing community outcomes day to day and in the event of disruption but doing so is also fundamental to effectively secure sufficient funding and finance. When making the business case for a food hub in a city ecosystem with many competing interests and limited land, investments must address a variety of community needs within each solution. By seeking comprehensive solutions to food systems at the intersection of climate resilience, social equity, reconciliation, and circular economy, eligibility for a variety of funding opportunities will grow. For instance, consider [Appendix B](#) to consider funding eligibility criteria for key regional funders and opportunities for alignment with this revamped food hub vision.

How to Use Table 6: Table 6 offers a menu of options for neighbourhood hubs by priority area. These illustrative components can be used to 1) identify existing community spaces currently serving as neighborhood hubs in some capacity, 2) identify potential additional components to integrate into existing neighborhood spaces, and 3) inform and guide future hub design.

Table 6: Illustrative Neighbourhood Hub Components, by Priority Area

Eight Priority Areas	Food Aggregation and Distribution	Food Processing & Procurement	Food Sovereignty	Indigenous Food Sovereignty and Reconciliation	Social Connectivity & Equity	Community Resilience	Circular Economy & Zero Waste	Economic Development
Component Opportunities	<p>Year-round indoor market space for farmers</p> <p>Market for regional producers via neighbourhood farmers market, produce boxes, local stores, etc...</p>	<p>Shared-use processing and procurement facilities for community organizations and businesses with technical capabilities to be self-sustaining: Shared-use technology for booking and billing usage of equipment (Commissary Connect technology)</p>	<p>Greater reliance on local and regional food sources that can better withstand system disruption. This includes the incorporation of vertical farms, greenhouse space, rooftop gardens, school yard gardens, etc...</p>	<p>Provision of culturally appropriate food.</p> <p>Educational opportunities around Indigenous land practices</p> <p>Leadership by Indigenous peoples in neighbourhood food Hub structure and components</p>	<p>Expansion of neighbourhood level-programming and services around food access to supplement food provision.</p> <p>Programming and services to address the root causes of food insecurity are critical to supplement local food assets.</p>	<p>Strong community support and leadership, a site that is well-trusted, a building or set of buildings, resilient energy systems, resilient communications systems, and base programming and services that have been identified by the community.</p>	<p>Network and framework to match supply with demand and to better connect existing players in the food system: Strategy and network to link existing resources, organizations and activities together.</p>	<p>Affordable shared-use neighbourhood-scale facilities for local businesses and startups.</p> <p>Co-working space for circular economy innovation.</p> <p>Workforce development and green job opportunities.</p>
Potential Benefits	<p>Longer-term security for producers</p> <p>Aggregation and more guaranteed demand for producers can result in more stable, affordable prices for community members</p>	<p>Food waste reduction</p> <p>Workforce development opportunities: low-barrier, or technical and professional level jobs</p> <p>Recovery of value of 'imperfect' or surplus food</p>	<p>Enhanced system resiliency in the face of disruption</p> <p>Cost savings</p> <p>Avoided disruption costs</p>	<p>Steps towards reconciliation</p> <p>Improved community physical and mental health outcomes</p> <p>Enhanced community adaptive capacity and economic stability</p>	<p>Enhanced community adaptive capacity</p> <p>Improved community physical and mental health outcomes</p> <p>More effective resources use and avoided waste</p>	<p>Enhanced adaptive capacity</p> <p>Economic stability</p> <p>Environmental sustainability</p> <p>Community cost savings</p> <p>Improved physical and mental health outcomes</p>	<p>Food waste reduction</p> <p>Increased system efficiency</p> <p>Cost savings</p> <p>Environmental Sustainability</p>	<p>Job creation</p> <p>Local business incubation</p> <p>Economic development opportunities</p>

Urban Sustainability Directors Network Illustrative Food Hub Components by Priority Area, Adapted for City of Vancouver

Opportunities to embed a circular economy

How to Use Table 7: Table 7 provides a menu of options for integrating a circular economy into neighbourhood hub design. These opportunities are intended to supplement systems-level efforts to reduce food waste via the more effective movement of food between regional producers and community demand as well as strategies to extend the life of food through processing and procurement (see [Goodly Foods](#) as a leader in this space). [Appendix A](#) contains circular economy opportunities for other material streams beyond food.

Table 7: Circular Economy Opportunities for Food

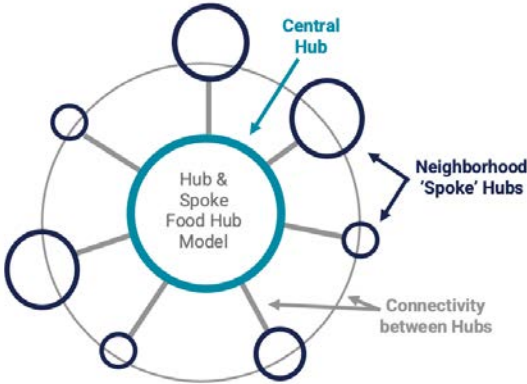
Opportunity	Description	Space & Infrastructure Requirement	Case Study
Sharing best practice	Creation of zero-waste communities and educational platforms to share lessons learned and best practice	Virtual or in person via community workshops.	Zero Waste Communities, Australia offers connectivity and knowledge sharing around waste reduction strategies, region-specific resources, local zero waste and food assets, and other ideas. Zero Waste, Zurich offers interactive workshops that show you how you can significantly reduce your household waste, improve your health and save money and opportunities to share practical tips.
Zero waste marketplace	Food and household items available in bulk that can be purchased using reusable containers.	Flexible, depending on the type of products being offered.	NU Grocery , Ottawa's first zero waste grocery store offers residents an opportunity to purchase food and household goods free of single-use packaging.
Access-over-ownership models Examples: Gear Share Equipment, Community Tool Share Program	Community share or rental programs to support community cost savings and provide another source of revenue for the community organization	Shared use trailer or truck, tow vehicle if needed. Storage space for key equipment.	Vancouver Tool Library . The Vancouver Tool Library (VTL) is a cooperative tool lending library that loans a wide variety of tools for home repair, gardening, and bicycle maintenance. The tool library also offers affordable workshops on tool related skills and projects.
Space-sharing	Opportunities to maximize the use of a space and generate additional sources of revenue to the space and infrastructure owners.	Dependent on the use of space and number of organizations. This model is accessible to any variety of spaces, and space-sharing models. For context, Commissary Connect's primary commissary kitchen, which hosts up to 30 businesses at one	Neighbourhood Food Hub, Toronto offers an innovative space-sharing model that prioritizes low-barrier access. Proceeds from space rentals additionally support NFH programs that uplift and empower local community members. With core funding support provided by the City of Toronto, the project is administered by Applegrove Community Complex, a charitable organization with a 30-year history of providing community support programs in the area, and managed by community food planning not-for-profit Greenbelt Markets. Commissary Connect, Vancouver , a network of 4 commissary kitchens in Vancouver, one of which is the first Provincial Food Hub and the Pilot and Demonstration site for the B.C. Department of Agriculture, Food and Fisheries BC Food Hub

		time, operates from a 4,000 foot facility with key kitchen equipment, prep space, and offices.	Network. Commissary Connect offers shared-use kitchen facilities and technology solutions for other commissaries and food hubs. Their patented Equipment as a Service technology supports all kitchen operations including pay-per-use appliances to reduce monthly fixed costs, automated scheduling to maximize the efficiency of kitchen space use, distribution and supply chain streamlining and support and innovative methods for traceability. In doing so, the company provides low-barrier opportunities for local businesses in the incubation spaces.
Composting Exchange	Neighbourhood-scale composting infrastructure for organics or waste stream directing neighbourhood compost to centralized industrial composting facility	Varies depending on capacity and number of residents the program is intended to serve.	<p>The Compost Exchange, Ohio offers neighbourhood Composting Hubs complete with composting equipment (5 gallon two wheeled totes that come with compostable liners and 5-gallon collection buckets) that serve 20-50 nearby neighbours. The Hub identifies a team captain to educate new members via a short training program.</p> <p>Regional Compost Hubs, Los Angeles accepts inedible food scraps from local businesses and organizations, utilizing larger green spaces across the city such as urban farms and public parks to complete compost. Hubs are powered by Compost Managers and a community of volunteers</p> <p>Local Food Hub in Charlottesville, VA, offers a composting program at its warehouse; compost is picked there and used by its producers.¹⁰</p>

Urban Sustainability Directors Network

3.4 Connectivity Between the Central Hub and ‘Spoke’ Neighbourhood Hubs

A system is needed for the effective and efficient distribution of food from the central hub to the neighbourhood hub network. This city-wide movement of resources remains a primary hurdle to systems-level circularity for food as well as other resources and material streams. Thrust, there is a need for further research on opportunities in this space. To maximize use, consider how material moves between the central hub and regional farms, and between neighbourhood ‘spoke’ hubs to the central hub to complete the loop without adding additional distribution streams that add to associated emissions.



Key Considerations:

- Opportunities for a shared use distribution method: e.g. electric truck to distribute food from central hub to spoke hubs, leveraging existing platforms such as Uber, etc....
- How to maximize use of space by leveraging the return of assets to the central hub for other materials, such as aggregating community compost to return to producers.

4. Diversified Food Hub Funding and Finance

4.1 Neighbourhood Hub Opportunities: Innovative Operational Models

An overreliance on annual grants has served as a key source of capacity limitation and fiscal insecurity for many food hub pilots as well as community organizations in general. Accordingly, paving the way for innovative multi-use, income generating spaces holds promise.

Neighbourhood hubs have the opportunity to become centers for circular innovation alongside community adaptive capacity and economic development. Coupling not-for-profit anchor organizations with peripheral businesses in the same space can create synergies that not only support these community goals but also contribute to the economic viability of the hub.

There are two primary opportunities:

1. Integrating Periphery Businesses: For-profit businesses (i.e. a market selling local food, zero-waste services, etc...) can share space in the hub with the anchor organization during normal operational hours. Rent from periphery businesses can support nonprofit operational expenses.
 - a. Example circular business models that could generate additional hub revenue include: reuse, repair, refurbishing, repurposing and remanufacturing of end-of-life or redundant products or any type of assets with product-as-a-service, and resource or equipment sharing models based on leasing, pay-per-use, subscription or deposit return schemes, that enable circular economy strategies.¹¹ See [section 3.4](#) above as well as [Appendix A](#) for additional ideas and opportunities.
2. Space-sharing Models: Offering local businesses and start-up access to communal space and equipment (often after normal operational hours) can help to maximize the use of hub space, lower costs for businesses, and provide a source of revenue for the hub operator to support overhead costs. While most commonly used for renting out commercial kitchen space after business hours, this model can apply to space and equipment beyond commercial kitchens (such as other processing and procurement infrastructure, seed cleaning equipment, etc...).
 - a. Commissary Connect has developed technology to support the implementation of space-sharing models that is active in commercial kitchens throughout Vancouver. Commissary Connect should be engaged early when discussing implementation opportunities in the context of neighbourhood food hubs.

[These shared-use opportunities can create low-barrier opportunities for local food innovation while providing an additional revenue stream for hub operators. Further, these supplementary revenue sources can serve as matching requirements for supplementary grant opportunities.](#)

However, currently, city zoning processes can inhibit multi-space and multi-use opportunities. Thus, the City of Vancouver would have to support enabling zoning policy for this work. Consider [Recommendation 1](#) below for more opportunity details.

Spotlight: Food Share, Toronto - A Diversified Approach to Food Hub Funding & Finance

Food Share based out of Toronto, Ontario, has leveraged multiple revenue channels in addition to grant funding to support ongoing operational and programmatic expenses. Supplementing grant funding with circular business models has been invaluable in serving as matching requirements for supplementary grant opportunities. Further, having a steady flow of revenue from these programs has supported the organization to weather challenges and disruptors like the COVID-19 pandemic.

Revenue Sources:

- **Good Food Box** – Food Share purchases produce in bulk from the local food terminal, supplementing local producer supply with imported produce. The food is then delivered throughout the city as well as to regional institutional buyers including the school system. Residents and institutional buyers can add items like bread and cheese to their store and deliver partner businesses.
- **Market Program** – Produce is distributed to local communities via markets run by community groups. In essence the programs team sells produce in bulk to community groups that can resell food to the local community.
- **Space rental** – When there is capacity, Food Share will rent kitchen, warehouse, and/or refrigeration space to local food production and catering initiatives to maximize the space use at all hours of the day while creating an additional source of revenue to support overhead costs.

Grant Funding

- Federal Youth Employment Grants – To cover one-off capital costs of infrastructure implementation
- Provincial Funding – Occasional Infrastructural support
- United Way – Regular core funding
- City of Toronto – Regular core funding, predominantly for staffing on the programs side, as well as one-off operational expenses.

5. Recommendations and Potential Paths Forward

Recommendation 1: Convene partners to pursue a de-siloed approach to food hub activity, design, and implementation.

A hub and spoke model is by nature complex in terms of connecting partners in the space, developing relationships, and together achieving scale. It is critical that the City of Vancouver convene and connect leaders in the space when exploring food hub opportunities. There are several potential starting points to facilitate a de-siloed approach to food hub implementation:

- 1. Resilience Hubs.** Building on the [Resilient Neighbourhoods Program](#) and Spaces to Thrive: Social Infrastructure Strategy, the Resilience Office, Vancouver Emergency Management Agency, and Social Policy are working with several neighbourhood houses and social purpose organizations to support initiatives that build resilience, equity, and address the unique needs of community members. As this work moves forward, staff will integrate USDN's Resilience Hub concept into this programming. [Integrating food assets into these Resilience Hubs that align with neighbourhood needs and nurture neighbourhood strengths offers an opportunity to collaborate on shared goals and a common vision and directly responds to learnings from COVID-19 response around inequitable access to nutritious food in the city. Scaling this opportunity requires strong, committed partnerships and working in a reciprocal and relational way with the community. Challenges must be viewed as interconnected and solutions must have co-benefits and be grounded in community needs.](#)
- 2. Technology Connectivity.** The baseline need for a central hub is a technology platform to better connect local producer supply with demand, including residents throughout the city, institutional buyers, and neighbourhood-level markets, with particular focus within areas that lack food assets. This technology exists at a smaller scale: Vancouver Food Runners, Food Mesh, and Second Harvest offer a marketplace to rescue excess food and identify community demand. United Way is developing technology to better identify community needs and demand for local food. [Understanding how these existing platforms interact in the context of the larger hub and spoke ecosystem and how they can be scaled to meet broader community needs and address gaps, namely linking local producers directly to community markets, is an important prerequisite to identifying where central hub operations would fit into this space. Further, identifying how this technology can support the departure from a charitable food model towards a more sustainable and equitable food system by better connecting supply with demand, rather than having to rely on food rescue and corporate excess, will be pivotal in the years to come.](#)
- 3. Zoning Policy.** Many existing organizations within the Vancouver Association of Neighbourhood Houses are zoned for social service use, which may prohibit for-profit businesses from coexisting in the same space. As in Section 4 identified above, integrating periphery businesses and space-sharing present a key opportunity to support neighbourhood hub operational expenses. Further, changes in site zoning requirements can trigger larger structural updates to meet code requirements which can be cost prohibitive. [There is a critical need for integrating mixed-use space zoning into neighbourhood ecosystems via City policy and programs like the Vancouver Plan to more effectively distribute food assets through the City. Consider strategies across City Departments to integrate flexibility for zoning into city plans and programs.](#)
- 4. Farmers Market Policy.** The Vancouver Farmer Market is currently exploring the development of food access markets across the City. However, existing policy at the City of Vancouver requires that 60% of farmers market food meet primary producer

standards, which currently limits what these markets could look like and the extent to which an equity-centered approach can be taken. [Thus, there is a need to reinvestigate the policy from a lens of diversity, equity and inclusion to better support work in this space.](#)

- 5. Funding and Finance.** A primary barrier to existing community organizations working to advance neighbourhood level food security is an overreliance on annual grants and the associated insecurity of that comes with the uncertainty around having sufficient operational funding moving forward. [The City can play a leadership role in advocacy for multi-year grants to better support these community organizations.](#) Further, the City can [explore innovative funding and finance mechanisms to open up additional pools of funding to support innovation in this space and key physical and social infrastructure to support this work.](#)

Recommendation 2: Establish clear communications and transparency between partners.

Many local organizations invested hundreds of thousands of dollars of time, energy, and resources towards developing the Food Hub proposals and hiring consultants for mapping, stakeholder engagement, business planning, etc. The lack of follow-through and materialization of the Hub was not only a significant economic strain for these players but also resulted in general mistrust. When proceeding with Food Hub scoping and implementation in the future, there may likely be reluctance from select community organizations to engage without clear expectations and capacity from the City and other partners, as well as a deliberate plan for and City backing to see the effort through.

Thus, a key opportunity moving forwards is to go into these next steps with transparency. This could mean:

- Establishing go-no-go criteria for each partner
- Clarifying from the beginning what each partner is and or is not capable of contributing to this vision and what they hope to achieve
- Establishing clear communication expectations and protocol with regular check-in opportunities
- Co-develop project funding model showing realistic funding and commercial/economic contributions and gaps.

Recommendation 3: Take a phased approach to mitigate risk and ensure accountability to community outcomes.

Concerns relating to risk played a primary role in discouraging buy-in around previous food hub concepts. This risk came in several forms relating to uncertainty around project outcomes to concerns around financial liability. Taking a phased approach to implementation can support incremental steps towards transformational change while mitigating risk.

A Phased Approach to a Central Hub

There are three scales at which a central hub could exist, outlined in table 8 below. It is possible to begin as a virtual platform that requires little to no infrastructure investment. From there, the infrastructure needed to grow and scale may begin as a rented shared-use warehouse facility that could over time transition to a larger scale, independent operation as capacity grows and as systems and demand align with greater scale.

However, when considering a phased approach, it is important to acknowledge the role that scale will ultimately play in long-term fiscal sustainability. See [Recommendation 4](#) below for additional details.

Table 8: Illustrative Phases of a Central Hub

Phase 1: Virtual Hub	Phase 2: Shared-Use facility	Phase 3: Aggregation & Distribution Service
<ul style="list-style-type: none"> Online platform where regional players (community organizations, for example) order food from multiple area farmers 	<ul style="list-style-type: none"> Local organizations in the Vancouver food ecosystem share access to warehouse facilities with refrigeration and freezer space. Capacity to support aggregation and distribution to community residents 	<ul style="list-style-type: none"> Aggregation of producer supply at centralized warehouse space. Re-pack and organize food for connection and distribution to local community organizations and other institutional players.

A Phased Approach to Neighbourhood Hubs

By nature, neighbourhood Hubs will shift and evolve overtime time to align with community needs. There will be foundational components for each hub: infrastructure requirements such as site weatherization, power redundancy as well as social components such as fostering a trusted, accessible space. Beginning with these core, or “baseline” components and then working over time towards ‘optimal’ and ‘ideal’ hub components and programs offers a pathway towards transformative change via actionable, incremental steps. Consider Table 9 for what a phased approach to implementation could look like at the neighbourhood, specifically in the context of USDN’s Resilience Hubs:

Table 9: A Phased Approach to Resilience Hub Development

Baseline	Optimal	Ideal
<p>These are sites that meet the minimum criteria for being a Resilience Hub including: strong community support and leadership, a site that is well-trusted, a building or set of buildings, resilient energy systems, resilient communications systems, and base programming and services that have been identified by the community. The site will provide community benefit in all three resilience modes.</p>	<p>Optimal Resilience Hubs will meet all the minimum criteria set for the Base Hub but will also incorporate a range of expanded services and resilience-enhancing retrofits. Optimal Hub criteria should be co-developed with the community and will often include items like water capture and filtration onsite, air filtration, solar with battery backup, and community gardens.</p>	<p>Ideally Resilience Hubs will have (and meet) ambitious goals that provide community benefits year-round. The criteria for ideal Hubs should be co-developed with community members and partners and can include ambitious goals such having greywater reuse onsite, biophilic design standards, net zero energy, or having community solar benefits for the surrounding community.</p>

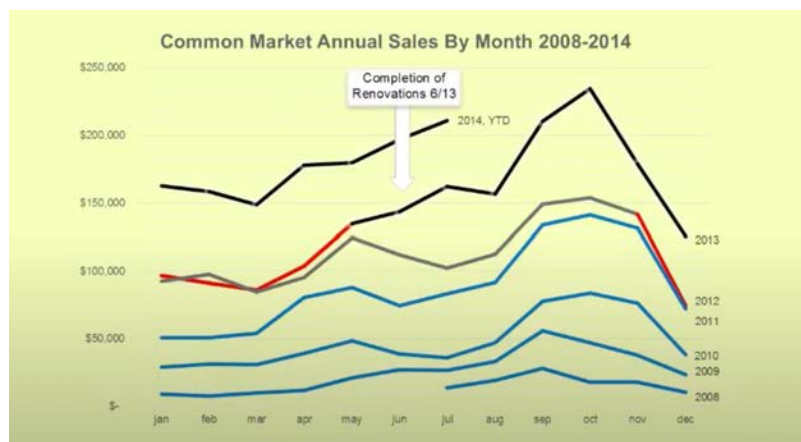
[USDN Resilience Hub Guidance Document](#)

Recommendation 4: Leverage scale to address the root cause of food insecurity.

While a phased approach to Hub implementation is opportune to mitigate risk and reinforce agility, it is important to acknowledge the role of scale in achieving fiscal viability and capacity for impact.

For many years, the Common Market, a regional food aggregator and distributor in the Philadelphia region, relied on rental warehouse infrastructure, shared with another local food organization. While doing so helped the organizations cut costs during their incubation stage, it was only when the organization secured the capital to invest in the large-scale, 70,000-square-foot warehouse facility that they were able to more effectively serve institutional buyers. It was the ability to scale that enabled the growth and subsequent impact to take place. Consider Figure 4 below, which illustrates how sales decreased dramatically following investment in the 70,000 square foot facility that enabled scale, the red line corresponding to sales directly before securing sufficient capital, the purple line showing subsequent sales:

Figure 4: Common Market Annual Sales by Month



[Policy Link - Growing and Funding Equitable Food Hubs: A strategy for Improving Access to Healthy Food](#)

Achieving scale may also be a key to center equity

A key barrier to the implementation of previous food hub proposals was uncertainty around who the model was meant to serve: concerns were expressed around having an insufficient focus on prioritizing LMI and BIPOC communities; likewise, others discussed a lack of consideration for how the model could benefit regional institutional players. The question then became: how can we reconcile these seemingly competing needs without falling into the temptation for the food hub model to be 'everything for everybody'. A key learning from analyzing successful food hub models is that these two priorities are not only complimentary, but also prioritizing both may be a key to success.

Food Share, a food hub based out of Toronto sells produce purchased in bulk either directly from local farmers or from the food terminal. This food, as well as other local goods such as eggs and bread are then distributed to community residents throughout the city through the [Good Food Box](#), as well as to larger institutions including the local school system. Revenue

from this activity is then used to support food justice activities at community organizations, prioritized within LMI and BIPOC communities.

Food access is just one element of food security and, if pursued in isolation, will offer a surface level solution to a chronic problem. To truly address the root cause of food insecurity, efforts must support community members in securing above-poverty income, power and control to run their own projects, opportunity, and economic stability to thrive day-to-day and in the event of disruption. Neighbourhood hubs offer spaces and programs for actively shifting power to community members and identifying pathways to build economic stability and adaptive capacity. However, a primary obstacle faced by organizations offering this work in communities is capacity, namely funding for on the ground staff and to cover overhead and ongoing operations costs.¹² When the central hub can scale to reach community members and institutions across the city, revenue from this operation can be put towards on-the-ground work at a neighbourhood level to address the root causes of food insecurity in marginalized communities.

Recommendation 5: Identify priority areas.

Central Hub: Location Prioritization

Several potential locations for a central hub were identified by study participants, all of which have unique pros and cons. The ideal location would likely be the False Creek Flats, however this site also requires the largest lift and potentially the greatest implementation delays. The least desirable location would likely be areas outside of the City as it would reduce the multi-benefits that come from proximity of the neighbourhood hubs to the central hub. That being said, more research would need to be done to determine the priority area and specific Hub site. It is important to note that new construction may not be necessary.

Location priorities:

- Zoning to accommodate significant warehouse space
- Proximity to other City zero waste and food assets (such as produce row)
- Loading dock infrastructure and access to trucking network (to aggregate local producer supply)

Table 10: Illustrative Locations for a Central Food Hub in the City of Vancouver

Proposed Site Location	Considerations
False Creek Flats	<ul style="list-style-type: none"> ● Proximity to Produce Row, a pre-established food district and the False Creek Flats green enterprise zone. Collocation can amplify enterprise and circular opportunities. ● Proximity to the up-and-coming hospital and associated local food purchasing opportunities ● Extreme land use pressures make it difficult to make the case and finance a hub in this vicinity. ● Centrally located with access to transit networks (train, bus, etc...), thus more opportunities to be creative around how food is moved throughout the city. ● Decisions made very slowly. ● Large delays in implementation due to significant land infrastructure prerequisite actions required.

South Vancouver	<ul style="list-style-type: none"> ● Proximity to more marginalized communities and the neighbourhood food hub network ● Proximity to trucking routes for ease of food movement
East Vancouver	<ul style="list-style-type: none"> ● Proximity to more marginalized communities and a greater number of neighbourhood Food Hub networks (spokes)
Outside of Vancouver (Surrey, Burnaby?)	<ul style="list-style-type: none"> ● Fewer land use pressures and thus better affordability ● Proximity to other City waste management infrastructure ● Farther from the neighbourhood Food Hub network, making it more difficult to facilitate the exchange of food and other resources between the central and neighbourhood hub.

Neighbourhood Hub: Location Prioritization

The City of Vancouver Report, [Spaces to Thrive Phase I: Vancouver Social Infrastructure Strategy Policy Framework](#), illuminated key challenges to the “social serving” sector, namely the neighbourhood house network, across the city. Alongside a lack of funding for administration and operations, space-related challenges are significant: 90% of organizations believe that their current space does not fully meet needs, and 57% express a top challenge being a lack of affordable space.¹³

The City of Vancouver can work with the Association of Neighbourhood Houses and other community organizations to identify opportunities to expand existing community spaces to better serve community needs or identify candidate sites to move to that would better serve the organization’s needs. While distribution from the central hub can serve communities all throughout Vancouver, neighbourhood hubs need to prioritize marginalized communities and create spaces and opportunities for residents to power and leadership in community development.

Hubs can be located in a variety of community spaces ranging from community centers to health centers, schools, libraries, recreational facilities. The [USDN Resilience Hub Guidance Document](#) offers several potential criteria for site selection including:

- **Trusted and Well-Utilized Sites** – Identify sites where community members already go and trust. For example, community centers, health centers, places of worship, or recreation facilities.
- **Existing Community Assets** – As part of selecting a service area, identify underutilized community assets including emergency shelters, food pantries, and/or soup kitchens.
- **Utility Considerations** - Have access to grid load information and feasibility for interconnection.

How to use Table 11: Table 11 provides a menu of options for physical spaces for neighbourhood hubs. The opportunity is to 1) support community organizations to grow capacity, expand scope, and increase structural resilience of existing spaces or 2), support community organizations to identify new spaces. Table 11 is intended to support this decision making by highlighting the potential city role, supportive mechanisms available, and potential barriers to consider.

Table 11: Illustrative Locations for Neighbourhood Food Hubs

Opportunity	City Role	Supportive Mechanisms
Existing Public Buildings & Community Centers	<ul style="list-style-type: none"> Landowner and leasing entity Advocate to neighbourhood community center advisory councils 	Community centers offer a clear asset that have underutilized space that could support the implementation and growth of local food assets. However, it is important to note that community centers activities are dictated by a center advisory board. Thus, buy-in from this community is essential to enable food hub implementation.
City-owned Buildings	<ul style="list-style-type: none"> Landowner and leasing entity Enabling policy and zoning 	<p><u>Property Endowment Funds</u> - Opportunity to put existing city real estate assets towards uses that achieve city objectives while charging market rates.</p> <p><u>Community Use Agreements</u> - Triggered by a rezoning to higher use, community use agreements require that developers capture value lost via development growth and return to the City through direct compensation or community amenity agreement (e.g. constructing a space within the new development and then turning ownership over to the City).</p>
Private Land	<ul style="list-style-type: none"> Policy and zoning advocate Developer accountability 	<u>Community Benefits Agreements (CBA)</u> - Policy lever that requires development to think differently about who they employ and ensure activities reach a 10% local and social procurement target.
Public Spaces	<ul style="list-style-type: none"> Provision of space (e.g. leveraging areas of the spaces opened during the COVID-19 for public dining) 	COVID-19 pandemic as a pilot for rethinking the use of outdoor public spaces.

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Unless otherwise noted, the information provided for this study has been collected from the interviews completed. For additional information, please contact Camilla Gardner at camillagardner@usdn.org.

Acknowledgements

Thank you to the following Vancouver experts that offered their time, expertise, and perspectives for this Study.

Bill Aube, Property Development Officer, City of Vancouver

Brian Beck, Senior Projects Engineer at the City of Vancouver

David Catzel, BC Seed Security Program Manager at FarmFolk City Folk

James Donaldson, CEO of BC Food and Beverage

Heather Escobar, Business Development Manager - Food Security at United Way British Columbia

Ashley Fernandes, Agri-Innovation Analyst at the BC Ministry of Agriculture, Food and Fisheries

Joey Liu, Food Security Manager at South Vancouver Neighbourhood House

Krista Loewen, Community Investment Associate at Vancity

Elizabeth Lougheed Green, CEO of the Association of Neighbourhood Houses of B.C.

Sean Martinez, Economic Development Planner at the City of Vancouver

Alisha Masongsong, Social Planner in Community Economic Development at the City of Vancouver

Wendy Mendes, Contract Lecturer, Food Security Certificate, Chang School of Continuing Education, Ryerson University, and Project Manager, Community Hubs Initiative, United Way of Calgary & Area

Stefan Misse, President of Discovery Organics

Sarb Mund, CEO of Commissary Connect Innovations Inc

James O'Neill, Social Planner at the City of Vancouver

Kate Perkins, Engagement Specialist at the Vancouver Park Board

Alexa Pitoulis, Executive Director of Fresh Roots Urban Farm Society

Siobhan Powlowski, Executive Director of Gordon Neighbourhood House

Hedy Rubin, Grants Manager at the Real Estate Foundation of BC

Janine de la Salle, Principal at Urban Food Strategies

Aart Schuurman Hess, CEO of Goodly Foods and Former CEO of the Greater Vancouver Food Bank

Brian Sears, Senior Property Development Officer at the City of Vancouver

Louise Schwarz, Co-Founder and Co-Owner of Recycling Alternative

Laura Smit, Executive Director of the Vancouver Farmers Markets

Tammara Soma, Assistant Professor (Planning) at the School of Resources and Environmental

Management at Simon Fraser University, and Research Director and Co-Founder of the Food Systems Lab

Darren Stott, Principal Consultant at Green Chain Consulting

Katia Tynan, Resilience and Disaster Risk Reduction Manager at the City of Vancouver

Jennifer Walsh, Manager of Food Innovation at the BC Ministry of Agriculture, Food and Fisheries

Rickey Yada, Dean of the Faculty of Land and Food Systems and a professor at the University of British Columbia

Davis Yung, President, CEO, and Co-Founder of Fresh Direct Produce

Mary Clare Zak, Managing Director of Social Planning & Projects at the City of Vancouver

Appendix

Appendix A: Neighbourhood Circular Economy Opportunities

While the focus of this report has been around food, many opportunities exist to embed circularity at a local level for additional material streams. Table 14 below contains a menu of opportunities in this space, including successful model case studies for reference.

Table 14: Circular Economy Opportunities at a Neighbourhood Level

Opportunity	Description	Space & Infrastructure Requirement	Case Study
Repair pop-ups	Opportunity to upcycle and repair items rather than opting directly for disposal.	Mobile truck or trailer with relevant repair resources and equipment.	<p>Community repair pop ups, otherwise known as ‘fixers collectives’ and ‘Fixit clinics’ have emerged throughout the world. Some have a fixed place for repair events, while others are mainly organized as pop-up events.</p> <p>Circuit in Antwerp, Belgium is a circular economy hub that offers a secondhand store, local and circular products, workshops on activities like making your own sustainable beauty products, and a repair shop. The site also offers sustainable land circular businesses and opportunities to have their produce and philosophy grown through the Circuit community.</p>
Sharing best practice	Creation of zero-waste communities and educational platforms to share lessons learned and best practice	Virtual or in person via community workshops.	<p>Zero Waste Communities, Australia offers connectivity and knowledge sharing around waste reduction strategies, region-specific resources, local zero waste and food assets, and other ideas.</p> <p>Zero Waste, Zurich offers interactive workshops that show you how you can significantly reduce your household waste, improve your health and save money and opportunities to share practical tips.</p>
Access-over-ownership models Examples: Gear Share Equipment, Community Tool Share Program	Community share or rental programs to support community cost savings and provide another sources of revenue for the community organization	<p>Shared use trailer or truck, tow vehicle if needed.</p> <p>Storage space for key equipment.</p>	<p>Vancouver Tool Library The Vancouver Tool Library (VTL) is a cooperative tool lending library located at 3448 Commercial Street, Vancouver BC. We loan a wide variety of tools for home repair, gardening, and bicycle maintenance. We also offer affordable workshops on tool related skills and projects.</p>

<p>Reuse Shop</p>	<p>Opportunities to facilitate the exchange of community resources such as clothes, furniture, toys, appliances, etc... to support reuse and upcycling over waste</p>	<p>Flexible depending on items and capacity.</p>	<p>The Junction Zero Waste Hub, New Zealand offers educational tours, workshops, and online resources, and the reuse shop enables donated items ranging from construction leftovers to small furniture and household items) to be repurposed and resold. The Junction also offers e-waste collection in partnership with E-Cycle</p> <p>Reuse Warehouse, Houston The Building Materials Reuse Warehouse, a component of the City of Houston Solid Waste Management Department, provides space for excess building materials that would otherwise be dumped in local landfills. They accept material from individuals, supply companies, and builders, and make it freely available for reuse by any non-profit organization. The Reuse Warehouse is funded in part by a grant from the Houston Galveston Area Council, a region-wide voluntary association of local governments in the 13-county Gulf Coast Planning region of Texas.</p> <p>Reuse Center, Capannori Italy The municipality opened its own Reuse Center in the village of Lammari in 2011, where items such as clothes, footwear, toys, electrical appliances and furniture that are no longer needed but still in good condition can be repaired where necessary and sold to those in need, thereby diverting them from landfill and serving a vital social function.</p> <p>Prague's RE-USE centers allow citizens to deposit furniture, toys, sports equipment, dishes, books, and other items which no longer serve them. Deposited items are photographed and offered to those in need. First, they are presented to non-profit and charity organizations. If they do not show interest in them, they are then made available to the public for free via the RE-USE website. ¹⁴ Consumer products the RE-USE hubs have evolved to include Construction: "construction companies can negotiate leases and support large de/construction projects, thus facilitating a transition to circular construction." During the first 8 months of operation, almost twenty tonnes of material were reused and diverted from landfills.</p>
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<p>Multiple Material Streams</p>	<p>A key component of the circular economy, enabling additional material streams at the neighbourhood level is key. For example, ultimately, as producers become accountable for the end of life of the packaging that carries their products, many companies such as Lush Cosmetics are finding it more effective to recollect their packaging from local stores and recycle onsite for conversion back to product packaging. Having the ability and infrastructure to support this is key.</p>	<p>To begin with, this could look like a pop-up e-waste collection, which would likely require a truck. However, the City should also consider the systems in place to transport food from the central hub to neighbourhood hubs and whether those same systems could simultaneously be used to collect and aggregate various material streams from neighbourhood hubs to the central hub.</p>	<p>Kamikatsu Zero Waste Campaign, Japan offers residents the opportunity to sort waste into 45 different categories, pulling apart items made from multiple materials and washing everything before sending it to a central recycling station. The community also focuses on reducing waste through initiatives like distributing cloth diapers to new parents and a “swap-shop” where residents can leave unneeded items for others to take for free.</p>
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Appendix B: Regional Funding Opportunities: Alignment with the Food Hub Vision

Many regional funders (several of whom actively supported one or both of the previous Food Hub proposals) have expressed that they are not interested in funding a food hub, as it has been historically defined. However, each has current funding priorities that intersect with elements of this updated food hub vision. Table 15 below contains an overview of each organization’s funding scope, key considerations, and potential food hub components that would align with each funder’s eligibility criteria.

Table 15: Regional funders and eligibility considerations for food hub components

Funder	Funding Scope	Considerations	Alignment with Food Hubs
The B.C. Ministry of Agriculture, Food and Fisheries’ BC Food Hub Network	The B.C. Food Hub Network will offer infrastructure and equipment, mentorship and training support, product development and testing services, and networking and information sharing to food hubs implemented in British Columbia.	Hubs must have: <ul style="list-style-type: none"> • a 5-year plan for economic self-reliance • A strong, representative advisory board • Preliminary funders committed 	See the first column. All opportunities are food-hub specific
Vancity	Provides grants and technical support for work that: <ul style="list-style-type: none"> • Help underserved communities and local businesses build financial resilience to safeguard against climate impacts, life’s emergencies, reduce the risk of financial hardship, and withstand financial shocks • Create economic activities that address the climate transition with a racial equity and justice lens • Increase access to safe and stable employment opportunities that will help underserved individuals and communities • Increase financial inclusion 	<ul style="list-style-type: none"> • Open to infrastructural as well as programmatic investment, as long as it is clear what the outcomes are: what is being measured, and who are stakeholders. • Fosters long-term relationships with funders; Pre-existing partnerships are key 	Neighbourhood hub programming around financial resilience Job trainings & educational opportunities Hub salary for ongoing positions
Real Estate Foundation of BC (REFBC)	REFBC supports work that: <ul style="list-style-type: none"> • Helps farmers and food producers access land. • Encourages collaboration between Indigenous and non-Indigenous governments and groups on land use policies, plans, and decisions. • Builds knowledge to inform planning decisions on food lands. • Builds public awareness and support • Builds understanding of Indigenous peoples’ interests. • Integrates land use and transportation planning. • Supports collaboration between nonprofits and NGOs. 	While food hubs are not a priority for the Real Estate Foundation, there may be elements that could be eligible for funding. REFBC prioritizes projects and initiatives that are Indigenous led or Indigenous directed and that advance sustainable, equitable, and	Programming related to Indigenous food access and land use practices.

	<ul style="list-style-type: none"> • Makes a clear case for government funding and other investments in sustainable development (e.g. transit and active transportation, green buildings and infrastructure, affordable housing, climate action). • Aligns financial tools (fees, prices, taxes, accounting) with sustainability objectives. • Prioritizes marginalized populations 	socially just relationships with land and real estate.
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Appendix C: Partners Across the Vancouver Food Ecosystem

Partner Mentions by Action Area

	Food Production, Aggregation and Distribution (AD)	Food Processing and Procurement (PP)	Circular Economy & Food Waste (ZW)	Food Security, Equity & Community Resilience (EQ)	Implementaion Partners (IP)
Government			Vancouver Zero Waste Department (EQ, AD, PP)	Vancouver Social Planning Department Vancouver Resilience and Disaster Risk Reduction Department Vancouver Economic Development Department	Vancouver Real Estate Department The B.C. Ministry of Agriculture, Food and Fisheries' BC Food Hub Network & Feed BC (EQ, ZW, AD, PP) Vancouver Sustainability Department (EQ, ZW) Vancouver Park Board (AD, ZW, EQ)
NGO	Vancouver Farmers Market (EQ) Farm Folk City Folk (EQ) Fresh Roots (EQ, ZW)		Quest Food Exchange ** (AD, PP, EQ) ReFeed Canada ** (AD, PP, EQ, IP) National Zero Waste Council (PP) The Thingery ** Second Harvest ** (EQ)	Greater Vancouver Food Bank (ZW, AD, PP) Vancouver Neighborhood Food Networks (AD) Association of Neighbourhood Houses (AD, ZW) Food Stash Foundation ** Sole Food Farms ** (AD) ALIVE Society ** Wild Salmon Caravan ** Food Stash ** Second Harvest ** Our Place ** Community Food Centres Canada ** Watari **	Community Food Centers Canada (EQ, ZW, AD, PP) Vancouver Food Policy Council (ZW, EQ, AD, PP) Vancouver Economic Comission (EQ, ZW, AD, PP)
University				Centre for Studies in Food Security, Ryerson University Food Systems Lab, Simon Fraser University	Faculty of Land and Food Systems, University of British Columbia
Private Sector	Discovery Organics (PP, ZW) Fresh Direct Produce Fresh Start Foods ** Vancouver Urban Farming Society **	Goodly Foods (AD) B.C. Food and Beverage (AD) Potluck Cafe (EQ) Commisary Connect (ZW, EQ, IP) Co-Ho Commisary ** (ZQ, EQ)	Recycling Alternatives Food Mesh ** (EQ, AD)	United Way British Columbia (IP, AD, PP, ZW) Food Runners ** (ZW, AD) DUDES Club (AD) **	Green Chain Consulting (AD, PP, ZW, EQ) Urban Food Strategy (AD, PP, ZW, EQ) Vancouver Real Estate Foundation (EQ) Vancity (EQ)

** Indicates that the partner did not directly participate in the study but was referenced as a key player in the Vancouver food ecosystem.