AGRICULTURE AGGREGATION, DISTRIBUTION & LOGISTICS INFRASTRUCTURE

CLIENT: COLUMBIA BASIN TRUST

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1 EXECUTIVE SUMMARY

Study Context and Objectives
In recognition of the opportunities, the Columbia Basin Management Plan Strategies Priorities 2016-2020 identifies agriculture as a strategic priority for the Trust. The Trust aims to support agricultural production in the Columbia Basin through six tactics, including:

- Advancing efforts to maintain/develop key agricultural infrastructure,
- Strengthening access to markets for Basin products.

The Columbia Basin Trust (CBT) is aware of issues related to the distribution (including aggregation) of agricultural products within the region and to markets outside the Basin. Anecdotal evidence suggests that logistics costs and reliability are among the major issues facing producers, processors and purchasers of Basin foods.

The two objectives of this project are to:
- Complete an analysis of the distribution and logistics infrastructure supporting the agricultural sector in the Columbia Basin.
- Identify what role and associated actions the Trust could undertake to mitigate barriers and enhance growth and investment in this sector.

Report Structure
The opening section of each chapter of the report contains highlights of the research findings. Readers are encouraged to review each chapter for both the highlights and detailed analysis. The study is organized in the manner described below.

The study purpose, study area and report methodology are summarized in Chapter 2.

Chapter 3 provides a highway infrastructure and traffic profile overview in the Columbia Basin.

Insights obtained from the stakeholder interviews conducted with small scale food processors association, Revelstoke food systems, Kootenay Coop Grocery Store and transportation & logistics service providers are found in Chapter 4.

Analysis of the Columbia Basin's agricultural and agri-food sectors are found in Chapter 5 agriculture business overview. Based on the responses to an on-line stakeholder questionnaire insights on business type, location within Columbia Basin, business age and growth plans and use of existing marketing channels are explored.

The shipping and logistics practices of agricultural and agri-food related enterprises are found in Chapter 6. Information regarding business size and type of logistics
infrastructure on-premises, product attributes and logistics requirements, shipping and logistics services attributes and shipping volume and seasonal demand are presented.

Chapter 7 provides the research findings from the literature review. The most applicable insights from the topics of the feasibility of small, medium farm product distribution systems, electronic logistics market, regional food hubs and strategic logistics of rural firms are summarized.

The research findings from the stakeholder interviews and on-line questionnaire were used to develop four case studies. The analysis presented in Section 8 includes a review of existing food hub operators, agricultural product marketing channel exploration within the basin, small scale transport delivery service within the CBT and temperature-controlled or refrigerated transport delivery service.

Options for the Columbia Basin Trust to incentivize opportunities in the agricultural and agri-foods related sector in the basin are presented in Chapter 9. The material discusses market development, sales aggregation & distribution, logistics and transportation aggregation & distribution and logistics infrastructure.

**Recommendations**

Our research findings reveal that the Columbia Basin has a broad spectrum of agricultural and agri-food related industries operating and looking to expand their business. Many of the enterprises are a vital part of alternative food systems that place a high emphasis on local production and consumption. A small number of agri-food sector participants have scaled their businesses are also accessing markets in other locations in British Columbia. Based on the number of enterprises, there are a few that also sell their products in different places in Canada and internationally.

The challenge when putting forward recommendations is that the scope of possibilities needs to consider conventional food and transport systems, which primarily operate on economies of scale and the emerging needs of those interested in alternative food systems. The latter category is often comprised of small producers such as those enterprises that make up a significant portion of the business within the Basin.

Traditional food supply chains have a production model that focuses on maximizing efficiency to lower consumer unit costs and increase overall production. The economic tools used to participate in conventional food supply chains includes vertical integration, economic specialization, and trade between regions.

Producers are confronted with decisions about how to leverage the opportunities associated with conventional systems (i.e. with increased market access and lower transport costs). The conventional food system is adapting to new consumer preferences. Consumer interest in alternative food systems is growing. Remaining
faithful to the original principles and passions that drive producers' motivation for being in the agricultural, food and beverage sector are essential values that stakeholders expressed.

It is the authors of this report believe that the subject of transportation and logistics is the microphone that amplifies the underlying tensions and trade-offs inherent in an evolving sector as diverse as that found in the Columbia Basin.

Promotional material for the 2019 Canadian Association for Food Law and Policy states, "From local to global, personal to societal, and artisanal to industrial, issues of jurisdictional, spatial and temporal scale dominate food systems. Scale can determine what food is produced, harvested, processed, transported, imported, exported, labelled, sold, eaten and disposed of, as well as by whom and how. The issues of scale impact not only logistics and transportation but also food insecurity, the environment and the economic viability of food enterprises. Businesses and social movement actors confront differing regulatory landscapes when deciding to scale up, scale down or otherwise adapt their activities.¹ In summary, decisions regarding the appropriate scale of a business and the markets they can effectively serve profoundly impacts the choice of logistics and transportation techniques than can be applied to help agricultural and agri-food goods reach the necessary consumers.

Addressing the transportation and logistics opportunities and challenges with agriculture and related products in the Columbia Basin necessitates the need to develop an understanding of the possibilities to align production behaviour, marketing, sales channel development with the economic characteristics of the trucking mode of transport.

It also means not only acknowledging the possible trade-off between small scale production and economies of scale but finding ways to incentivize the agricultural sector in the region.

We propose three main recommendations that need to be implemented in tandem. Each suggestion is vital because of their interdependency between them. The mutual need and reciprocal success of each component will create an economically sustainable food system, where local and regional agricultural and agri-food products can be moved to market.

A. Engage in market development activities with a focus on regional branding, business development activities associated with producer market readiness and sales aggregation efforts with stakeholders.

¹ http://foodlaw.ca/conference2019/overview
Regional branding and promotion would support each community and not undermine most local producers. The reason is that the very small scale of agriculture and agri-food output is likely to be insufficient to fill the potential market demand. Thus, there is an opportunity to possibly source products from other Basin producers. For instance, is some of the Revelstoke businesses that are concerned about losing their market share (if another product comes in from different parts of the Basin) producers could be supported by developing a "buy as local as a possible" promotional program for both buyers and consumers. The Kootenay Coop’s True Local program could be considered as a model of promoting and championing the most local products and then moving out from there to ensure that there is a broad and consistent offering providing adequate volumes to match the demand. Market development initiatives should move in tandem with any transportation specific actions.

B. **Create local food hub(s) where services such as regulatory and food safety knowledge, packaging advice and services, warehousing sales aggregation and distribution are all co-located on the same premises as a commercial kitchen etc.**

The focus of the food hub would be helping agriculture, agri-food and beverage businesses scale their operation to serve new market segments of segments. The Columbia Basin Trust could help incentivize by supporting food hub business planning, providing access to expertise, contributing capital to start-up operations and providing a financial commitment to the early stages of start-up operations.

An initial investment by the CBT may be necessary to kick start the hub/distribution concept. Still, after that, the study team asserts that with stakeholder collaboration it can work towards a viable initiative with volumes expanding year over year and making the transportation and logistics component more efficient as more product comes online. Thus, we recognize that the intent of our recommendation is to help address the early stages of start-up risk and access to capital that can hamper business expansion.

C. **Collaborate to form a transportation buying group and engage with an existing regional carrier to provide a pilot project small scale local distribution service with stakeholders**

The Columbia Basin Trust could help incentivize the service by providing a financial guarantee or backstop to the transport carrier if the demand for regional shipping service is insufficient to cover the basic cost structure of the service. The purpose of the multi-year pilot project would help determine if a business case could be made for regularly scheduled regional service, or whether improvements in new market access of increased sales created economic development benefits that exceeded the cost of providing the financial backstop.
2 INTRODUCTION

OVERVIEW
Agricultural production in the Columbia Basin is characterized by a mix of businesses including large-scale ranches and forage producers, medium-scale fruit and orchard producers, and small-scale vegetable producers. Farms in the East and Central Kootenay regions are involved in beef and dairy cattle, poultry, apiculture, greenhouses, nurseries, field crops (fruit and vegetables) and forage and hay farming according to the Statistics Canada Agricultural Census. The June 2017 report entitled Columbia Basin Trust Regional Shipping and Logistics Analysis revealed that eighty-six percent of the agriculture survey respondents have fewer than five people working at their business.

Producer sales channels include both business-to-business and business-to-consumer channels. For example, farmers and ranchers are marketing agricultural products directly to the public from the farm gate, farmers markets, and to other business. Products such as herbs, spices, fruits, vegetables, preserves, honey, eggs and meat are sold directly to the consumer. Value-added processing and manufacturing of agriculture and food products is currently a very small sector in the Basin, with a focus on bakeries and small-scale food processors (e.g., honey, fruit and vegetable products) and wineries.

In recognition of the opportunities, the Columbia Basin Management Plan Strategies Priorities 2016-2020 identifies agriculture as a strategic priority for the Trust. The Trust aims to support agricultural production in the Columbia Basin through six tactics, including:

- Advancing efforts to maintain/develop key agricultural infrastructure,
- Strengthening access to markets for Basin products.

Most recently, the Columbia Basin Agriculture Innovation Project Feasibility Study was completed in February 2019.

The Trust is aware of issues related to the distribution (including aggregation) of agricultural products within the region and to markets outside the Basin. Anecdotal evidence suggests that logistics costs and reliability are among the major issues facing producers, processors and purchasers of Basin foods.

Like many other rural areas, addressing logistics and distribution challenges is one of the prerequisites to growing the agriculture economy in the Basin.

The two objectives of this project are to:

- Complete an analysis of the distribution and logistics infrastructure supporting the agricultural sector in the Columbia Basin.
- Identify what role and associated actions the Trust could undertake to mitigate barriers and enhance growth and investment in this sector.
2.1 Study Purpose

The key study deliverables are:

1. Complete an analysis of the distribution and logistics infrastructure in the Columbia Basin, at a regional and sub-regional economic corridor level, to include:
   - An assessment of the freight and storage needs of commercial growers, producers and food processing in the Basin;
   - Summary of interviews with existing, producers, processors, distributors and aggregators;
   - An inventory of distribution, aggregation and logistics infrastructure;
   - Constraints and challenges of the current infrastructure;
   - High-level impacts of identified constraints and challenges on the agriculture and processing sectors and on regional and sub-regional economies within the Basin; and
   - An assessment of expected local impacts of new regulations on trucking hours of service as they impact current commercial growers and producers in the Basin.

2. Develop and provide recommendations to the Trust including:
   - Actions that would minimize existing challenges;
   - An assessment of how incentivized distribution models could be applied in the Basin;
   - Actions that would improve distribution, aggregation and logistics infrastructure in the region; and
   - Identification of potential roles for the Trust to mitigate barriers, enhance growth in the primary agriculture and processing sectors and encourage investment in the Basin.
2.2 Study Area

The study area is highlighted in the map below.

Figure 1 Study Area
2.3 Methodology

The approach utilizes both qualitative and quantitative research methods. Data was assembled from primary and secondary sources. Direct stakeholder consultations and an online questionnaire included insights from existing commercial growers, producers and processors, distributors and aggregators and trucking companies.

A supply chain perspective was applied to the information gathered in stakeholder consultations to identify the high-level constraints and challenges experienced by producers and their customers. Both soft and hard infrastructure investments that could improve distribution and logistics practices to expand market access and/or agricultural output were considered. Examples of soft infrastructure include measures to enhance organizational relationship building, sharing demand and supply information, fulfilling the need for product sales pipeline coordination, inventory management, identification of order requirements desired by different customer types, and the service and cost attributes that specific agricultural commodities or products will be able to afford.

Four case studies were completed to determine the possible cost and benefits of logistics and transportation approaches to product aggregation and distribution that may lead to expanded market access. Quantitative analysis was undertaken where data on current costs was available. Cross-tabulation of data from an was used to inform the case studies.

Responses to the open-ended questions included in the survey provided significant insights and ideas of the potential benefits of specific options. The survey data was supplemented by additional information gathered through other stakeholder engagement processes. The study team is grateful for the opportunity provided by the Columbia Basin Trust to participate in the 2019 Basin Food Summit, Expo + Forum. We also wish to thank the many Summit participants who shared their insights and knowledge in our group discussions, social media platforms, or during one-on-one interactions.
3 HIGHWAY INFRASTRUCTURE & TRAFFIC PROFILE

OVERVIEW
The population of the Columbia Basin totalled 155,345 in 2016 or approximately 3.3 percent of the total BC population.

The region encompasses 76,147 square km, for an estimated population density of 2.0 persons per square km in 2016, compared to 5.0 persons per square km for the entire province of British Columbia.

Highway infrastructure in the Columbia Basin consists of two high volume east-west corridors serving the larger communities – the TransCanada (Highway 1) and Highway 3 – linked by two lower volume corridors connecting them in the east and west.

Truck transportation is the primary mode of transport for agricultural and related sectors in the Columbia Basin. Based on data from a roadside survey undertaken by the City of Cranbrook in 2016, the largest share (60 percent) of trucks surveyed consisted of vehicles transiting the Columbia Basin. Trucks engaged in trips within the Columbia Basin accounted for only 10 percent.

The largest share of westbound trucks on the eastern section of the corridor (Sparwood and Cranbrook) consisted of trips bound for U.S. destinations (49 percent) followed by Cranbrook (17 percent). Fourteen percent of trucks were destined to communities west of Cranbrook. Only eight percent of trucks were destined west of the Columbia Basin (i.e. to the Okanagan or Lower Mainland). The largest share of eastbound trucks surveyed on the western section of the corridor was bound for Alberta (77 percent). An additional 9 percent was bound for destinations in the U.S.

Truckload traffic predominates, accounting for 87 percent of all trucks surveyed. In contrast, only 13 percent consisted of Less Than Truckload (LTL) traffic. This fact highlights the challenges in achieving economies of scale for smaller shipments, and in the ability of the market to support multiple competing carriers.

Opportunities for taking advantage of back-haul rates are severely limited in the southern portion of the Columbia Basin. Only five percent of trucks surveyed were travelling empty.

Based on an online survey conducted in 2017, personal or business vehicles (87 percent) were the dominant form of transportation used by businesses for transporting goods. Less than truckload (LTL) service was used by 41 percent of the agricultural respondents along with postal/courier service (33 percent). Some respondents indicated that they used the full spectrum of ground transportation services that use the road network; others may have vehicles with reefer units or used a refrigerated LTL service.
The agriculture and related sector enterprises that responded to the on-line questionnaire for the current study indicated that they predominantly rely on the road transportation sector to conduct their business. The material in the following sections briefly summarizes the major highway corridors and vehicle traffic levels that influence the type and costs of road transport services offered.

**Highway Infrastructure**

Highway infrastructure in the Columbia Basin consists of two high volume east-west corridors serving the larger communities – the TransCanada and Highway 3 – linked by two lower volume corridors connecting them in the east and west.

Major highway corridors include:

- Highway 1 (the TransCanada Highway), the most direct route between Calgary and BC’s Lower Mainland. The Columbia Basin portion is between the Alberta border and the Columbia Basin border between Revelstoke and Craigellachie. In 2015, average daily heavy truck traffic averaged approximately 1500 vehicles.

- The east-west Highway 3 Corridor through the Southern Interior. The Highway 3 Corridor includes approximately 840 km of highway between Hope and the Alberta Border plus sections of Highway 3A and 3B for a total length of approximately 1,120 km. Truck traffic levels vary significantly on different segments of the corridor, in part due to a significant volume of cross border truck traffic originating in Alberta which transits the eastern portion before crossing the Canada-US border. In 2015, heavy truck traffic in the Crowsnest Pass averaged 660 vehicles per day. At Yahk, just north of the Kingsgate border crossing, heavy truck traffic averaged 566 vehicles per day. At Salmo, west of Yahk, truck traffic averaged only 183 vehicles per day.

- The north-south Highway 95 Corridor linking Cranbrook and Golden, with an alternate route between Radium Hot Springs and an alternate junction with the TransCanada east of Golden.

- The north-south link between Castlegar and Nelson and Revelstoke via Highway 6 and Highway 23, using the Upper Arrow Lake Ferry; and an alternate north-south route to the Upper Arrow Lakes Ferry and Highway 23 via Highway 31 on the West Shore of Kootenay Lake.

- Valemount is served by Highway 16 (the Yellowhead Highway) but has no direct links to other communities in the Columbia Basin.

The primary highway corridors in the Columbia Basin are depicted below.
Traffic Levels
The numbers on the map above the Annual Average Daily Traffic recorded by the BC Ministry of Transportation and Infrastructure traffic counts.

Heavy truck traffic is the primary measure of freight transportation activity on the highway system. Truck counts are available for a limited number of locations. Estimated Annual Average Daily Traffic levels for heavy trucks in the Columbia Basin are shown on the map below.
Truck Traffic Profile Southern Columbia Basin

In October 2016 the City of Cranbrook, in partnership with College of the Rockies and the Commercial Vehicle Safety Enforcement (CVSE) branch of the Ministry of Transportation & Infrastructure (MOTI) conducted a roadside survey of long haul trucks on cordon lines for the trucks that enter into the City (i.e. traffic borne from within the City was excluded). The purpose of the survey was to understand commodity flows and the logistics/supply chain that have been established in and around the Cranbrook region for the development of growth and change strategies by the City and its regional
stakeholders. It was intended to capture where to/from goods and services move, ownership of the freight and businesses, the needs of trucking industries/operators and traffic volume. Data from the Cranbrook survey supports the following insights:

- Truckload traffic predominates, accounting for 87 percent of all trucks surveyed. In contrast, only 13 percent consisted of Less Than Truckload (LTL) traffic, which highlights the challenges in achieving economies of scale for smaller shipments, and in the ability of the market to support multiple competing carriers.

- The largest share (60 percent) of trucks surveyed consisted of trucks transiting the Columbia Basin. Trucks engaged in trips within the Columbia Basin accounted for only 10 percent.

- The largest share of westbound trucks surveyed on the eastern section of the corridor (surveyed at Sparwood and Cranbrook) consisted of trips bound for US destinations (49 percent) followed by Cranbrook (17 percent). Fourteen percent of trucks were destined to Trust communities west of Cranbrook, and only 8 percent of trucks were destined west of the Columbia Basin (i.e. to the Okanagan or Lower Mainland).

- The largest share of eastbound trucks surveyed on the western section of the corridor was bound for Alberta (77 percent). An additional 9 percent was bound for destinations in the U.S.

- Only 5 percent of trucks surveyed were travelling empty, which suggests that opportunities for taking advantage of back-haul rates are severely limited.
4 STAKEHOLDER INTERVIEWS

OVERVIEW

British Columbia has earned a reputation across Canada as a hotbed of innovation in the food sector, driven primarily by small scale producers. Regional food systems may be the wave of the future, and there seems to be more interest in an “internal food economy” – less export, feed Canadians first. Lots of people are thinking about how to feed people without harming the planet. Interest in enhancing the regional agricultural economy within the Columbia Basin is reflective of these trends.

A network capable of linking businesses through technology could potentially facilitate aggregation of shipments to increase the purchasing power of local producers. Existing hubs deliberately and through organic practice foster collaboration amongst their users in various ways. Co-operative solutions can be facilitated by providing a meeting space where people can discuss problems and potential solutions. The Kootenays are well-placed to come up with a cooperative solution, drawing on the Kootenay Coop success.

Local farmers and producers are concerned that a Columbia Basin-wide network (moving product effectively around the region) could flood Revelstoke with other products and hurt local producers, who are otherwise very collaborative.

Transportation companies and producers can disappear with no warning. Therefore, an improvement would be for a distributor with a warehouse and reefer trucks that could provide reliable delivery and can handle winter conditions. Even with this perfect scenario, they could not likely address the “loss leader” reality of perishable product loss.

It is important to note that travel distance and product value are only two of the factors that impact the logistics and transport costs. The main factors that play into trucking freight rates are:

- Volume and balance of traffic on shipping trade lane,
- Distance,
- Fuel surcharges,
- Weight, length, density, and value,
- Classification of freight,
- Accessorial charge,
- Minimums,
- Need to interline,
- Stow-ability,
- Handling,
- Liability.
In addition to the literature review and on-line questionnaire the study team held discussions with several stakeholders to gather insights on market trends and developments impacting the agricultural supply chain within the Columbia Basin. The insights from the Small Scale Food Producers Association, the Revelstoke Food System and Kootenay Coop Grocery are presented in the material below.

4.1 Small Scale Food Processors Association

Overview
Located in Nanaimo BC, the mission of the Small Scale Food Processor Association (SSFPA)\(^2\) is to be Canada’s leading support organization for small and medium enterprises in the food processing industry by providing leadership, education, marketing, networking, and advocacy to foster success in a competitive global market.

The Executive Director of the SSFPA indicated that the definition of small scale that the SSFPA uses is for enterprises of less than 20 full-time equivalent employee (FTE). Ms. Appleby note that 70 percent to 80 percent of the SSFPA’s membership has less than 4FTEs. While some SFPA’s members may move on from the Association as they grow and scale their business, some firms retain their membership and mentor others. Thus, SSFPA membership and involvement is a useful avenue for keeping apprised of industry developments.

Another practical benefit of membership in the Small Scale Food Processors Association is that it provides access to deep discounts from Canada Post that are not generally otherwise accessible to a small business: 30 percent to 48 percent discount for those with more than $2,000 shipping costs/year.

Industry Trends
British Columbia has earned a reputation across Canada as a hotbed of innovation in the food sector, driven primarily by small scale producers. Interest in enhancing the regional agricultural economy within the Columbia Basin is reflective of this trend. Ms. Appleby’s insights suggest that if enterprises (within the Columbia Basin) can scale their businesses, it may be possible to tap into the regional reputation that British Columbia enjoys. This could help to open additional sales channels in other areas of the country.

In terms of food product trends, beverages such as kombucha, tea, fermented foods, functional foods (“food that is good for you”), artisan meats and ethnic foods are driving growth in the sector. These higher-value goods may be in a stronger position to absorb the cost of transportation to reach a market. However, producers’ relative cost competitiveness will also depend on their proximity to the population centers where their products are consumed.

\(^2\) https://www.ssfpa.net/
Non-specialty products are necessarily competing with the big producers and will always lose on price. Thus, product differentiation is vital for competing in the marketplace.

**Marketing Channel Considerations**
Marketing channels of interest to smaller-scale food processors include independent health food stores. Many enterprises find they have little to no influence or leverage with the large chains in terms of product placement or pricing. Firms that have tried to pursue sales to larger chains often find that they are unable to economically produce sufficiently large quantities at a lower unit cost for each item sold.

The Executive Director of the Small Scale Food Processor Association believes that in British Columbia, there is a huge opportunity in the tourism and restaurant sector. The provincial government’s³ initiative to support 30 percent institutional procurement of local food could also represent a significant market opportunity. These types of clients could become “anchor” customers that provide a reliable revenue stream for smaller producers. Possibly even subsidizing other market channels with better profit margins. However, it will be challenging for smaller producers due to food safety/certification requirements.

**Product Packaging and Regulations**
For enterprises considering ways to expand their agricultural food processing business the importance of product packaging cannot be overlooked. Two key sources regarding packaging (knowledge and supply) are Pack Your Product and Label Pack, both of which are associate members of the Small Scale Food Processor Association.

Pack Your Product is for food and beverage companies, wine producers, craft brewers, distillers and product manufacturers who need to find packaging for their products.⁴

The SSFPA’s Executive Director indicated that recent changes in the regulations related to waste streams and single-use plastics are having a very significant impact on packaging considerations. For example, one challenge is that non-oil based plastics are not yet recyclable and are a “contaminant” in the recycling streams.

The industry may also experience changes as a result of implementation of the *Safe Food for Canadians Regulations* introduced in January 2019.⁵ Preventative control programs will be required of everyone in two years. Consideration is also being given by

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³ [https://news.gov.bc.ca/releases/2019AGRI0047-001142](https://news.gov.bc.ca/releases/2019AGRI0047-001142)
⁴ [https://packyourproduct.com/](https://packyourproduct.com/)

**Growth Challenges for Small Scale Food Producers**

For members of the SSFPA, access to capital is the number one growth challenge, followed by uncertainty in the marketplace. Many new to business are surprised at the cost of being in retail. Commitment from the big chains is very tenuous. Retailers are the biggest threat due to their house brands cannibalizing small producers’ product lines. Thus, SSFPA members tend to be reasonably cautious, grow carefully, and follow the rules. Anything new in the marketplace has to be backed by a business with deep pockets. For example, Beyond Meat’s business plan is to break even in ten years.

Three to five-year sales contract would provide revenue stability for producers and enhance the attractiveness of the producers with providers of debt financing.

**Food Hubs**

The SSFPA’s Executive Director indicated that the marketplace is in flux, so it is hard to predict what will happen. Regional food systems may be the wave of the future, and there seems to be more interest in an “internal food economy” – less export, feed Canadians first. Lots of people are thinking about how to feed people without destroying the planet.

Arlene Dickenson (from Dragon’s Den) has just set up a for-profit Calgary food incubator. Ms. Dickenson is taking over a failing food incubator in Toronto (that lost public funding). She has also set up a food impact fund to help businesses scale up. She is interested in small, innovative companies.\footnote{7 https://www.districtventurescapital.com/team} For example, a new partnership between Alberta-based grocer Sunterra Market and Arlene Dickinson will help start-up companies commercialize their new food and beverage products and raise the profile of the Canadian agri-food sector.\footnote{8 https://calgaryherald.com/business/local-business/sunterra-market-joins-forces-with-arlene-dickinson-new-store-will-showcase-start-up-entrepreneurs}

The SSFPA’s Executive Director feels that if a network was established that linked businesses through technology, it could assist producers to aggregate volumes for purchasing power. Existing hubs deliberately and through organic practice foster collaboration amongst their users in various ways. Having a space where people meet up and help each other is a good thing. The Kootenays is well-placed to come up with a cooperative solution, drawing on the Kootenay Coop success.
At the end of the day, if transportation and logistics can be affordable, the business will be successful.

4.2 Revelstoke Food Systems

Overview
The insights and perspective shared in this section of the report were provided by Ms. Melissa Hemphill Revelstoke Food Systems Coordinator.

Marketing Channel Considerations
In Revelstoke British Columbia there are several community supported agriculture initiatives and as a result there is strong local demand. In some cases, there is more demand than local farmers or processors can fill. Thus, the farmers in the Revelstoke area are not interested in exporting since they are all close to their local markets. Only one of the farms is creating a “value add” product that they ship beyond the local area using Canada Post.

Producers would like to see more of their products in local restaurants.

There is an opportunity to ship to the Bow Valley (Canmore, Banff) where the growing season is shorter. Back country lodges are also a possible market but need finely tuned and coordinated effort to serve that market.

Some local farmers and producers use a web-based service called “local line” an electronic platform to sell their products. They coordinate with other farmers on shipping and costs are shared based on invoice value (as opposed to number of boxes).

Local farmers and producers are concerned that a Columbia Basin wide network moving product effectively around the region could flood Revelstoke with other products and hurt local producers, who are otherwise very collaborative. Revelstoke is linked more to the North Okanagan in terms of geography and also culturally so not a strong link to the Kootenays and the rest of Columbia Basin.

A health food store owner observed that a challenge with carrying local product is that the supplier is required to have liability insurance in order for their store’s insurance to be valid.

Products likely to do well in Revelstoke include dips, vegetarian pate, quick lunches, energy bars, kombucha, breads, wraps, crackers, tea blends, soaps, and frozen meals.

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9 https://www.localline.ca/terra-firma-farms
Transportation and Logistics
Local entrepreneurs are often frustrated by their experience that Kamloops is the source of all mailed and couriered products coming into the community of Revelstoke.

The high costs for delivery to the community of Revelstoke are an issue. For example, chicken feed costs $700 per pallet more to deliver to Revelstoke than it costs to deliver it to Salmon Arm just over an hour away.

Examples of local transportation service arrangements and issues experienced by producers, restaurants, and retailers, are described below.

Producers
There are three local alcohol producers (two distillers and one brewery). One of the distilleries purchases triticale from Fieldstone Granary in Armstrong, sourced from a 30 acre plot and delivered by Clarke Freightways in a volume that the distillery can handle. They have private sales and sell directly to small retailers and restaurants in the area; out of area sales are done through Direct Tap and Container World. The product is warehoused in Kelowna and then shipped from there via Clark. City Transfer is used locally, then to CLI Logistics and from there to Container World.

Mount Begbie Brewing has own single axle truck that delivers to Golden, Field, Revelstoke markets and to a warehouse in Kelowna. Container World takes over at that point and the logistics processes used to support the supply chain can break down.

A local coffee roaster imports green coffee using Freight and Co, in 1,500 to 6,000 pound shipments every couple of months. A shipping requirement is no cross contamination of the cargo being moved together. For example, no odours to contaminate shipments of green beans. Shipments of roasted coffee go out in five to 150 pound amounts on a daily basis. The company uses Canada Post, Ace Courier or make their own delivery when traveling to the customer’s location. Purolator is too expensive. Greyhound was great but is no longer an option. A direct transportation service to some markets would be great. Currently shipments from Revelstoke to Nelson take three days but are only a 3.5 hour drive away.

Wildflight Farm (based in Mara near Salmon Arm) is an anchor farmer at the Revelstoke farmers market. They have a reefer truck but only use the refrigeration component when needed. They built a loading dock at their farm which has been a huge improvement and good investment.

Restaurant/Beer House
A local firm observed that it costs $40 to ship a $180 keg of beer so the owner of the restaurant picks up all his beer rather than having it delivered. The owner of the
enterprise supports local farms seasonally. The establishment feels that consume affluence is growing in the Revelstoke market.

**Retailers**
A health food store has been around 13.5 years and uses Clark and City Transport. Based on the store’s orders (which are approximately $10,000 per week) in translates into two to three shipments of about four pallets per week. Items are ordered in bulk and packaged and therefore the store has no special packaging needs. The store owner’s experience is that it is very expensive to order a small volume of goods due to high shipping costs.

It is hard to meet minimum orders (for reduced costs on shipping) and to deal with weird delivery times from shippers who are enroute to Alberta along Highway #1. Transportation firms do not see Revelstoke as a destination to be well served.

The store owner orders from Organic Matters, based in Nelson, but the shipment has to go through Kelowna to get to Revelstoke. A high profile Kootenay product, Antoinette’s Dip, used to be a high cost item to get out of Nelson but is cheaper now for her to get it now that a Vancouver-based company (Horizon) distributes it.

The health food store couldn’t get fish for the longest time but can now obtain frozen fish via Clark Freightways.

The store owner goes to Salmon Arm to pick up meat, cheese, and yogurt. Delivery would cost $100 but because the gas costs for their own vehicle is $20 the store owner pick-ups the required goods.

The health food store owner’s experience is that they lose money on perishable products which impacts the overall profitability of the business.

Transportation companies and producers disappear with no warning. Therefore, the store’s ideal arrangements would be for a distributor with a warehouse and reefer trucks that could provide reliable delivery and are able to handle winter conditions. Even with this ideal scenario, they could not likely address the “loss leader” reality of perishable product loss.

**Retailer: Café /Bakery + Le Marche Grocery Store**
Features local and gourmet food. Does not do exports except a specialty bread, for which the company uses “Dolan Home Delivery” (ten loaves, two times per week delivered to Salmon Arm), which also picks up product for her from Kelowna area farms.

Bread, gelato and bulk grocery product is sold to three local restaurants. The business makes their own deliveries using a pick-up truck. Local deliveries help the entrepreneur
make connections and gather market information. The business also has a shop at a ski hill.

Incoming products for the business arrive via Gordon Food Service, Sysco (two per week), Worldwide for product from Calgary, Emma for Italian products from Calgary; Dolan Home Delivery, and Saputo for dairy. The company has 70 different suppliers and some deliver their order directly or use Canada Post or a courier. The grocery store gets 12 – 15 pallets per week; the café gets four pallets per week, half of which are refrigerated.

The store owner cannot obtain Stoke Juice from the East Kootenay economically since the shipping costs are too high for small volume orders. The enterprise has someone that would like to move 150 to 200 of the company’s baguettes each week but so far the economics of the potential order do not work.

One way the business has found to overcome minimum order barriers is to work with a firm called Emma with minimum of $150 per pallet and deliveries via a third party.

One company gets around the high cost of getting food to Revelstoke by ordering 150kg per week of past date cheese by the pallet from a distributor in Calgary. She is able to make solid margin on the product still selling it really cheaply to the local market. The store owners also orders seconds of produce and uses it in their bakery/processing rather than fresh to the consumer.

4.3 Kootenay Coop Grocery

Overview
The insights and perspective shared in this section of the report were provided Ms. Jenn Reid, Receiving Lead, Kootenay Coop Grocery.

Marketing Channel Considerations
The Coop has moved to a live receiving procedure, which is much tighter and they catch a lot of mistakes. Every vendor must have a bar code, although a few micro producers do not and the Coop has to perform a hand count of the goods received.

Transportation and Logistics
Examples of local transportation service arrangements and issues experienced are described below.

Clark Freightways is the primary shipping company that the Coop works with for both dry goods and cold chain products. Reefer truck comes from the coast via Kelowna, Highway #3, and Castlegar. Clark Freightways has one big truck and many smaller trucks that they use to service the outlying areas. Clark will show up at the Coop with only
produce and then come back later the same day with grocery items. The Coop is talking to Clark about possibilities for greater efficiency. Clark has also recently implemented a surcharge on anything valued at more than $2 per pound, which is having a huge impact on meat, cheese delivery fees.

Many local producers in area bring their own product to the store, some multiple times per week.

Crag Holdings operates out of the old Quality Produce building at 79 Government Road, Nelson. The facility is an aggregating and holding space for various regional products, including Sunshine Eggs from Creston, and Soup Du Jar frozen soups. Crag Holdings also does all the transfers from the Coop’s off-site facility (approx. 1km away) to the main store and is charging the Coop $15 per pallet regardless of number of pallets. The Coop used to have own second-hand truck doing the runs but it was too expensive and challenging to maintain, driver etc.

Lekker Foods operator delivers dairy and grocery.

Overland West uses local drivers; the Coop uses them a lot for bulk foods such as Left Coast Foods from Vancouver etc.

Mr. Reg Merkley based in Kelowna owns some refrigerated trucks and merged in late 2018 to early 2019 with another company to become RET Logistics and is trying offer services similar to Clark Freightways.

Wellness products are delivered solely by courier (mostly Canada Post) except Vega and Flora, which uses Overland.

Housewares are delivered by Purolator, who are the most professional and reliable. Canada Post has resulted in frequent loss and damage which must be claimed from the supplier / producer, not the shipper.

Last winter was particularly bad for accidents. Clark lost one big truck in a head-on collision in February.
4.4 Transportation & Logistics Service Providers

Trucking Service Profile

Full Truckload (FTL) service is the movement of full loads (van or container) for a single customer from origin to destination.

Less-Than-Truckload (LTL) carriers provide a service where they move goods from many different customers on a single vehicle.

LTL carriers generally use van trailers that are covered or enclosed trailers. There are a few LTL carriers who use temperature-controlled equipment.

Less than Truckload (LTL) and Full Truckload (FTL) shipments will be priced differently under a carrier's tariff with the potential cost savings (per unit of good) for shippers with a higher volume of cargo.

Whenever possible, shippers are encouraged to consolidate truck shipments.

Truck Rates and the Cost of Transportation Service

It is important to note that travel distance and product value are only two of the factors that impact the logistics and transport costs. The main factors that play into trucking freight rates are:

- Volume and balance of traffic on shipping trade lane,
- Distance,
- Fuel surcharges,
- Weight, length, density, and value,
- Classification of freight,
- Accessorial charge,
- Minimums,
- Need to interline,
- Stow-ability,
- Handling,
- Liability.

Carriers will generally have a published tariff outlining specific routing, weight breakdowns, and commodities. Each commodity will be assigned a commodity number, and different regions of the country will have separate tariffs.

Rates for LTL freight are determined by class, weight, pick-up, and traffic lane, and any additional services required to meet the shipper's needs. Carriers may offer discounts for the freight they want to secure.

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10 A lane usually refers to the route a truck drives between carrier terminals and/or drop zones.
Shippers should analyze their historical shipping data and conduct a freight analysis to best approach the LTL carriers to get the best rates by specific shipper needs.

Freight density is the ratio of weight to volume expressed in per cubic foot (pcf) measurement. Shipments that take up a lot of space for their weight will be in a higher freight class and generally cost more to ship. Shipments that are heavy and compact will be in a lower freight class and generally be less expensive to ship.

**Best Practices**
- Shippers who routinely make multiple shipments to the same location.
- Less than Truckload shipments can be pooled through inbound or outbound opportunities in consolidation hubs or combined into multi-stop truckload shipments. LTL carriers may apply discounts as the freight moves up in weight, meaning there are various "weight break" discounts.
- Pooling of transportation purchasing.
- Negotiate rate tariffs with LTL carriers.

The implication of the best practices is that savings in transport costs will be achieved by shippers that focus their market development, sales aggregation and distribution efforts on trade lanes that contribute to economies of scale for transport carriers. The same annual sales volume disbursed across multiple trade lanes will likely yield higher freight transport costs unless there is the presence of backhaul opportunities to move the cargo.
5 AGRICULTURE BUSINESS OVERVIEW

OVERVIEW

The Columbia Basin has a diverse spectrum of agriculture stakeholders. Vegetable farmers, retail trade and food service greenhouse, nursery and floriculture, agri-tourism and culinary tourism are the top categories of business types that respond to an on-line questionnaire.

On-line questionnaire respondents indicated that the closest community within the Columbia Basin to their location were Revelstoke (22 percent), Nelson (20 percent) and Invermere (13 percent), Creston (7 percent), Castlegar (6 percent), Slocan (6 percent), Golden (4 percent), Salmo (4 percent), Cranbrook (3 percent), Kaslo (3 percent) and Kimberley (3 percent). Respondents from Fruitvale, New Denver and Radium Hot Spring were (1.5 percent), respectively.

Five themes emerged as a result of the analysis:
- Producer growth based on either improving or increasing land base,
- Greenhouse investments,
- Producer growth based on infrastructure, processing or manufacturing investments,
- General growth outlook or plans.
- No growth plans.

Stakeholders used a variety of business to consumer marketing channels. For example, from the farm gate or production facility, farmer’s markets, and electronic commerce were some of the most frequently cited methods. Business to business marketing channels emphasized the use of retailers, retail trade/food and beverage service, e-commerce and wholesalers were the most commonly cited methods.

Respondents provided a variety of insights regarding their expansion plans for the next three years. However, the five themes below emerged as a result of the analysis:
- Producer growth based on either improving or increasing land base,
- Greenhouse investments,
- Producer growth based on infrastructure, processing or manufacturing investments,
- General growth outlook or plans.
- No growth plans.

A limited number of producers indicated that their growth plans included expanding their livestock production.

Respondents’ growth plans were generally not based on product aggregation or new marketing channels such as distribution through wholesalers.
5.1 Business Type

To gauge the range of agricultural and agri-food sectors represented in the Columbia Basin, respondents to the on-line questionnaire conducted in 2019 were asked to indicate that segments of the market they were active. Thus, respondents were able to select more than one type of business activity.

Respondents involved in vegetable farmers, retail trade, food service greenhouse, nursery and floriculture and agri-tourism and culinary tourism were the top four categories of business type. However, respondents from a wide variety of agricultural related market segments also provided insights including food/beverage merchant wholesaler and fruit tree and tree nut farming, support activities for agriculture, beverage manufacturing, cattle ranching and farming, dairy product manufacturing, hog and pig farming and oilseed and grain farming were also included.

5.2 Location within Columbia Basin

According to 2011 Census of Agriculture data, the Regional District of East Kootenay (RDEK) accounts for approximately 58 percent of all census farmland within the Basin, but only about one-third of the total number of farms. Conversely, the Regional District of Central Kootenay (RDCK) is home to only 18 percent of the farmland, but almost half of the farm operations. Comparisons of 2011 and 2001 census data indicate a decline in both farmland area, from 161,747 ha in 2001 to 136,978 ha in 2011, and in the number of farms, from 1,296 in 2001 to 1,159 in 2011. Average farm size, which reflects the
diversity in the predominant types of agriculture enterprises across the Basin, has declined from 125 ha in 2001 to 118 ha in 2011.\textsuperscript{11}

Natural rangeland and tame pasture for livestock production is the dominant agricultural land use in the Basin, occurring on 59 percent of the census farmland in 2011. Crops, which include a broad array of grain, forage, vegetable, fruit and nursery products, account for 21 percent of farmland use. Woodlands, wetlands, Christmas tree operations, idle land and farm infrastructure account for the remainder.

The RDEK accounts for two-thirds of the natural and tame pastureland use and approximately one-third of the crop land use in the Basin. Almost 45 percent of RDCK census farmland is utilized for crop production; another 34 percent is used for pasture. Farmland uses in the Regional District of Kootenay Boundary (RDKB) and Columbia Shuswap Regional District (CSRD) electoral areas within the Trust boundary account for 6 percent of all farmland uses within the Basin.

Hay and forage crops, predominantly alfalfa and alfalfa/grass mixtures, account for the majority of cultivated crop production in the Basin based on land use. The Regional District of Central Kootenay (RDCK) accounts for more than 55 percent of the field crop (grains, oilseeds, etc.) area; 92 percent of the area planted to fruits, berries and nuts; and 85 percent of the vegetable and nursery production. Commercial-scale greenhouse operations are in both the RDCK and Regional District of East Kootenay (RDEK), with most production focused on flowers and bedding plants. Comparisons with census data from 2001 and 2006 indicates that, in general, the area sown to hay crops has remained relatively static, field and fruit crops area have declined slightly, and vegetable and greenhouse/nursery production has increased.

\textsuperscript{11} Information on the agricultural sector in the Columbia Basin is taken primarily from \textit{Agriculture in the Columbia Basin} Prepared for the Columbia Basin Trust by VAST Resource Solutions September 2015.
On-line questionnaire respondents indicated that the closest community within the Columbia Basin to their location were Revelstoke (22 percent), Nelson (20 percent) and Invermere (13 percent), Creston (7 percent), Castlegar (6 percent), Slocan (6 percent), Golden (4 percent), Salmo (4 percent), Cranbrook (3 percent), Kaslo (3 percent) and
Kimberley (3 percent). Respondents from Fruitvale, New Denver and Radium Hot Spring were (1.5 percent), respectively.

**Figure 6 Respondent Location**

What is the closest community in the Columbia Basin to where your business is located?

5.3 **Business Age and Growth Plans**

The on-line questionnaire received responses from the full spectrum of businesses operating in the Columbia Basin, including both start-ups and those who have been in operation for over twenty years. Sixty percent of the respondents have been operation for less than 10 years, and 40 percent for 10 years or more.

**Figure 7 Business Age**

How long has your business been operating?
Respondents provided a variety of insights regarding their expansion plans for the next three years. However, the five themes below emerged as a result of the analysis:

- Producer growth base on either improving or increasing land base,
- Greenhouse investments,
- Producer growth based on infrastructure, processing or manufacturing investments,
- General growth outlook or plans.
- No growth plans.

Respondents’ growth plans were generally not based on product aggregation or new marketing channels such as distribution through wholesalers.

**Producer Growth Based on Land Base**

For some stakeholders growth plans were based on adding more protected growing areas, doubling their current production to two acres, planting a ten acre area on their property to grow medicinal herbs, adding an extra three acres of vegetable or two to four acres of vegetables and fruit were some of specific examples of growth plans. In a limited number of instances respondents indicated that they would be improving or adding irrigation to their land base. In some instances, producers were hoping to buy or rent more land. A focus on increasing profitability on the same acreage through better management was an important growth driver for other stakeholders.

The results of the stakeholder engagement process indicates that using the land base to further expand the product range was an important growth strategy. For example, expanding their vegetable community supported agriculture to 30 boxes and their flower bouquets to 20 per week. Less detailed responses received included increasing vegetable and fruit/nut tree planting, bedding plant production, tree production and vegetable production. Growing more grain varieties, wholesale crops, engaging in hay, forage, and berries production or looking to expand into seed production were other examples of growth plans.

A limited number of producers indicated that their growth plans included expanding their livestock production.

**Greenhouse Investments**

Growth plans for some respondents were in part being driven by their plans to invest in either seasonal or year-around greenhouse operations. Stakeholders indicated that they would grow more vegetables in hot houses or undertake season extension with greenhouses to advance their business. Other stakeholders offered up the possibility of herb farming with greenhouses and nursery, and winter production, using a heated greenhouse for vegetable production might be a way forward for their business.
Producer Growth Based on Infrastructure, Processing or Manufacturing

Stakeholders’ producer growth plans were in part predicated by some level of either operational efficiency improvements, infrastructure improvements/access, and increasing production of existing products, or improving or expanding the retail sales areas.

Examples of the range of growth plans received by the study team included transportation efficiency and the addition of a wash-pack-storage facility and adding cooler space. Some respondents indicated a need to gain access to a commercial kitchen for small event catering and micro-bakery as requirements for business expansion.

General statements indicating that respondents were planning to gradually increase production capacity to meet demand, increase production to service a larger local market and furthering product lines were frequently mentioned.

In some instances, respondents provided insights into more specific growth plans such as building a new production facility, converting an existing facility into cold storage warehouse, and possibly build another plant for manufacturing another line of product.

Becoming a licensed manufacturer of wine and doubling their output was another example of a growth plan. Continuing to develop and support other landowners to plant vineyards and/or become licensed manufacturers also held out prospects for growth.

Another respondent indicated that moving into a bigger facility, purchasing bigger fermenters, establishing a broader refrigerated shipping and merchandising route was a possible growth path for the firm.

The importance of selling local products to local consumers was an important part of the growth plans for several respondents. Several stakeholder comments reveal that having a larger sales area, larger scale value added products for retail were important. Saving enough money to get a storefront was yet another comment received.

Growth General

The general growth plan comments received from respondents reflects a broad spectrum of outlooks and tactics that will be used to achieve them. For some stakeholders sales growth of approximately three to six percent sales was their outlook while others were looking for a 50 percent increase in production.

The geographic regions of interest to stakeholders tended to favour local or regional markets. For example, growing a garden centre with a local supplier, establishing more BC and Canadian specialty products in store, in addition to current specialty imports. Other stakeholders offered up the prospect of creating an online store for grocery
delivery as a growth strategy. Organizing a local consumer supported agriculture delivery service was also put forward.

More local shelf space for local products, refrigerated products and produce was cited by some stakeholders, opening or purchasing a second restaurant, expanding and improving production of vegetables, market and sell meat locally were just some of growth aspiration expressed by producers. Hoping to grow produce section to include more regional and small scale vendors was a perspective shared by a retailer.

Moving products into the other towns in the Columbia Basin and expanding into Alberta for distribution was one example of a respondent with an interest in a wider market reach. Expanding sales throughout Western Canada and commencing sales in Eastern Canada and the US, expand existing sales reach into the USA was a priority for a few respondents.

**No Growth Plans**
Stakeholders indicating that they had no growth plans cited reasons such as the fact that their business was in the start-up phase, the difficulty in getting employees, and the costs associated with paying the minimum wage. In some instances, respondents indicated that business success plans and the leadership focus of the next generation would establish the growth plans for their operation.

It is important to note that will transportation services and costs were frequently cited as a source of business frustration, or an area where improvements could be made, no stakeholders in the engagement process indicated that logistics and transportation issues would be solely responsible for not having any growth plans.

**5.4 Use of Existing Marketing Channels**
On-line questionnaire respondents used a variety of business to consumer marketing channels. For example, from farm gate or production facility, farmer’s markets, and electronic commerce were some of the most frequently cited methods.
On-line questionnaire respondents used a variety of business to business marketing channels. The use of retailers, retail trade/food and beverage service, e-commerce and wholesalers were the most frequently cited methods.

**Figure 8 Business to Consumer Marketing Channels**

What "business to consumer" sales and distribution channels are used to market existing products?

**Figure 9 Business to Business Marketing Channels**

What "business to business" sales and distribution channels are used to market existing products?
6 SHIPPING & LOGISTICS PRACTICES

OVERVIEW

Fifty percent of the agricultural survey respondents indicated that they operate their business from a farm, 38 percent worked from property that they rented or leased, 23 percent from a separate building on their residence or farm, and 22 percent from a home office. Other premises included property individuals owned but was not a residence or farm, and other small venues such as Farmer’s Markets.

Forty-one percent of agricultural-related respondents indicated the type of on-premise logistics infrastructure or equipment they have, including forklifts and temperate controlled warehouses. Non-temperature controlled warehouses and storage yard or outside storage were also available on-site by 30 percent of the respondents. The ability to weigh cargo and handle packaging and/or palletization was present in 27 percent of the respondents. The on-site presence of truck loading bays was available to 22 percent of the respondents. Other logistics infrastructure includes cold storage rooms, walk-in coolers/freezers, or temperature-controlled coolers that were also available on the premises of some respondents. Grain handling equipment, farm vehicles, and hay sheds were available to some respondents.

There is some small scale on-farm storage capacity for products that require buildings or temperature-controlled environments, but there may also be constrained in periods of peak season demand.

The logistics and transportation practices and services need to be aligned with both customer demand and product attributes (related to handling and storage) and their ability to absorb transportation costs to reach markets. The dominant characteristics of Basin agricultural products is that they comprise a mixture of highly perishable (72 percent), high value (42 percent) heavy (28 percent) goods. Columbia Basin respondents also had products that were low weight, non-perishable. Some respondents handled products with a variety of products with several product characteristics.

Delivery reliability (70 percent), geographic locations (64 percent), the ability to handle peak season production and shipping (51 percent), product traceability (51 percent) and the price of ground transportation (44 percent), and temperature-controlled transportation requirements were the most critical factors that influenced their current logistics practices.
6.1 Business Size and Type of Logistics Infrastructure on Premises

On-Farm or Premise Logistics Infrastructure

Fifty percent of the agricultural survey respondents indicated that they operate their business from a farm, 38 percent operated from property that they rented or leased, 23 percent from a separate building on their residence or farm, and 22 percent from a home office. Other premises included property individuals owned but was not a residence or farm, and other small venues such as Farmer’s Markets.

![Figure 10 On-Farm/Premise Overview](image)

Thirty four percent of respondents operated from a facility if between 1,000 to 2,999 square feet, 27 percent operated from a facility of less than 1,000 square feet. A smaller percentage of respondents indicated that they operated from larger size premises or from a farm or ranch.

![Figure 11 Size of Facility](image)
Forty one percent of agricultural related respondents indicated the type of on-premise logistics infrastructure or equipment they have, including forklifts and temperate controlled warehouses. Non-temperature controlled warehouses and storage yard or outside storage were also available on site by 30 percent of the respondents. The ability to weigh cargo and handle packaging and/or palletisation was present 27 percent of the respondents. The on-site presence of truck loading bays was available to 22 percent of the respondents. Other logistics infrastructure include cold storage rooms, walk-in coolers/freezers or temperature controlled coolers were also available on the premises of some respondents. Grain handling equipment, farm vehicles, and hays sheds were available to some respondents.

As such, there is some small scale on-farm storage capacity for products that require buildings or temperature controlled environments but may be constrained in periods of peak season demand.

6.2 Product Attributes and Logistics Requirements

Off-Farm Logistics and Transportation

The logistics and transportation practices and services that move products through the agricultural supply chain need to be aligned with both customer demand, and the product attributes related to handling and storage and their ability to absorb transportation costs to reach markets. The dominant attributes of Basin agricultural products included the fact that they comprise a mixture of highly perishable...
percent), high value (42 percent) heavy (28 percent). Columbia Basin respondents also had products that were low weight, non-perishable. Some respondents handled products with a variety of product with several product characteristics.

The lack of third-party temperature controlled warehouse or distribution facilities in the Columbia Basin was also identified as an issue. The 2017 report *Shipping and Logistics Analysis* noted that the lack of this type of infrastructure acts to limit the ability of some agricultural businesses or other firms to scale their business and grow.

![Figure 13 Product Attributes](image)

**Figure 13 Product Attributes**

Select the attributes that best describe your product. (Select all that apply)

6.3 **Shipping and Logistics Services Attributes**

Based on the supply chain requirements, respondents indicated that delivery reliability (70 percent), geographic locations (64 percent) and the ability to handle peak season production and shipping (51 percent), product traceability (51 percent) and the price of ground transportation and (44 percent) and temperature controlled transportation requirements were the most important factors that influenced their current logistics practices.
Personal or business vehicles 87 percent were the dominant form of transportation. Less than truckload service were used by 41 percent of the agricultural respondents along with postal/courier service (33 percent). Some respondents indicated that they used the full spectrum of ground transportation services that use the road network, other may had vehicles with reefer units, or used a refrigerated LTL service.
The logistics practices of on-line questionnaire respondents indicated that their existing packaging and palleting practices were not that important. Regarding having only one item per pallet 75 percent indicated it was not at all important. Having bar codes palletization (69 percent), uniform pallets (64 percent) or carton marking (i.e. UPC codes) (46 percent) were not at all important. However, it is important to note that packaging and palleting practices become increasingly important with product aggregation and distribution and higher throughput.

Figure 16 Packaging and Palleting Practices

6.4 Shipping Volume and Seasonal Demand

The depth of insights regarding the annual shipping volume and seasonal demand for transport is somewhat limited due to the fact that a significant portion of the participants opted to skip the questions when participating in the online questionnaire form of stakeholder engagement.

Respondents indicated that the typical annual shipping volume of “inbound goods” was relatively small with 40 percent requiring less than one tonne of freight and 13 percent required one to three tonnes with the same percentage requiring between six to nine tonnes of inbound freight. However, 27 percent required more than nine tonnes.
Respondents indicated that the typical annual shipping volume of “outbound goods” was relatively small with 39 percent requiring less than one tonne of freight and 23 percent required one to three tonnes. However, 27 percent required more than nine tonnes.

Respondents indicated that for their inbound freight transportation requirements, the second quarter of the year had slightly higher need than quarters one and three. The fourth quarter inbound freight need were a little bit less than at other times of the year.
The impact of season demand for outbound freight transportation was most pronounced in the third quarter when requirements peaked. Quarters two and four were equal in important for outbound shipping volume. The first quarter of the year was the lowest in terms of requirements.

The above analysis helps to shed light on any freight imbalances that may exist within the Columbia Basin.
## 7 LITERATURE REVIEW

### OVERVIEW

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.

The following key components were identified as being needed for a successful small/medium agricultural product distribution service:

- Willing farmers,
- Supportive customer base,
- Strong governance,
- Central branding for credibility,
- High quality central co-ordinator,
- On-line ordering and inventory management tool,
- Warehousing and processing,
- Trucking service that deliver from the farm/producer direct to the customers.

A small/medium agricultural products distribution service is not a fit for all farms. Success requires a long term commitment. In most instances, farmers need to be able to produce sufficient volume of supply that buyers such as retailers and restaurants require. The required production level is often an increase in sales volume as compared to a farmers’ market. Farmers and producers also need to be wholesale ready.

The use of a logistics customer service model helps enterprises recognize that various customer types value the importance of each service element differently. Consequently, each type of customer will tend to have specific needs, which results in varying levels of service.

The uses of product differentiation strategies to ensure that producers get a good price for their products is vital. Examples of product differentiation strategies include identity preservation (knowing who produced it and where it comes from), group branding, specialty product attributes (such as heirloom or unusual varieties), and sustainable production practices (such as certified organic, minimum pesticides, or “naturally” grown or raised).

Most small/medium farm product distribution services investment for trucks, staff, branding, storage, etc. at the start of operations. In several examples, the operations were not profitable for the initial years of operations. Securing funding before launching was an important factor to achieving ongoing sustainability.
7.1 Feasibility of Small Medium Farm Product Distribution System

Overview
In the project entitled Feasibility Study of Small/Medium Farm Product Distribution System In the Lower Mainland: Part 6 small/medium farm product distribution referred to as a systems that facilitates farmers selling directly to the buyer.

The research objective was to identify “what is required is small/medium farm product distribution systems that would facilitate an efficient ordering process for both parties, centralized and coordinated delivery system, promoted credible brand, ensure fair pricing, facilitate the amalgamation of sufficient volumes of products, ensure product quality, develop a marketing tool and a process to share supplier information. All managed by a central and credible coordinating organization.”

The following key requirements were identified for a successful small/medium farm product distribution service within the Lower Mainland of British Columbia:
- Willing farmers,
- Supportive customer base,
- Strong governance,
- Central branding for credibility,
- Highly qualified central co-ordinator
- Online ordering and inventory management tool
- Warehousing and processing
- Trucking services that deliver from the farm direct to the customers.

From a demand perspective, the FarmFolk CityFolk researchers acknowledged that as in any enterprise, before a small/medium farm product distribution service is started, the potential for sales and the needs for a small/medium farm product distribution service need to be understood. Tools like Local Food MarkSizer, help to identify potential sales of local food in an area.

Important factors for market success include having customers who were willing to deal with small farms, smaller quantities, pay a “fair price”, contract or agree on crop volumes and promote the farmers to their customers. From the research. high end restaurants, natural food retailers and public institutions e.g. schools were the most supportive potential customers.

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13 Stott, Darren, et al. p. 3.
The researchers also noted that a small/medium farm product distribution service is not a fit for all farms. Success requires a long term commitment from farmers. In most instances, farmers need to be able to produce sufficient volume to supply buyers, such as restaurants and retailers. The required production level is often an increase in sales volume as compared to a farmers’ market. Farms and farmers also need to be wholesale ready.16

**Research Details**

The research reviewed the logistics, administration and governance of small food distribution systems that can serve small numbers of farmers, particularly rural transportation systems that supply urban centres. The feasibility study researched:

- Requirements for food distribution,
- Business Models and Best Practices,
- Bylaws, Regulations, and Funding Sources,
- Farmer’s Needs for Distribution system,
- Buyer’s needs for Distribution system,
- Model Development and Comparison.

During the research farmers have identified the lack of suitable distribution venues as a barrier to growing their business. However, besides the lack of suitable distribution options, the researcher brought attention to several supply and demand challenges that are summarized in the table below.17 Since transportation is a derived demand it is important to acknowledge that solutions to address many of the demand challenges must be developed in conjunction with the provision of logistics services and infrastructure.

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Suppliers</th>
<th>Buyers</th>
<th>System Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ability to connect with end buyer at key times e.g. start of season, but not too frequent to eat in to time farming. Working with other farmers.</td>
<td>Maintaining strong relationship with suppliers.</td>
<td>Central organization that’s governance and practice facilities the relationship between farmers and also between farmers and buyers.</td>
</tr>
</tbody>
</table>

### Customer base
- Accessing enough potential restaurants and independent retailers, in particular ones in the same community as the farms and in close proximity.
- Accessing enough eligible small and medium sized farms that are able to supply wholesale products in sufficient volumes.
- An easy way to find who needs what and who has what from qualified suppliers (wholesale ready) and buyers (credit checks, volumes, commitments).

### Connecting
- Farmers either have limited time or skill to make sales calls to potential customers.
- Buyers rely mainly on referrals and cold calls to get connected to new suppliers, even though they need more.
- Qualified person or organization that actively brokers and co-ordinates, suppliers and buyers.

### Marketing
- Farmers either have limited time or skill to promote their business and product.
- A key unique selling point of local foods is the personal stories, so buyers need information on their suppliers e.g. photos, stories, latest news, to part information on to their customers.
- Qualified person or organization that co-ordinates the marketing information of suppliers on a regular basis and communicates this to the buyers in an engaging and digestible format.

### Pricing and agreements
- Not always being able to get fair prices for their products to sustain their businesses for the long term. Guaranteed agreements.
- Competitive pricing to justify the purchase of local food to maintain strong sales.
- Broker who negotiates a fair price for farmer and buyer and facilitates agreements for long term commitments.

The distribution of agricultural products are often based on demand-pull (make/produce to stock) supply chain practices; however, in some instance in there may be elements of make/produce-to-order. Consequently, a product is pulled from inventory and shipped to the customer. The supply challenges associated with demand-pull based logistics requirements for small/medium farm products are summarized in the table below.
### Figure 22 Supply Challenges for Small/Medium Farm Products Distribution

<table>
<thead>
<tr>
<th>Credibility</th>
<th>Suppliers</th>
<th>Buyers</th>
<th>System Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to reassure new buyers of the credibility of the farm, farming practices and product quality. In some cases, unable to afford 3rd party certification, such as organic certification.</td>
<td>Ability to reassure new buyers of the credibility of the farm, farming practices and product quality. In some cases, unable to afford 3rd party certification, such as organic certification.</td>
<td>Reassurance of the credibility of farms and their product on a consistent basis.</td>
<td>Recognized organization or brand e.g. Red Tomato, that vets suppliers to meet certain growing standards and being wholesale ready. In some cases, using 3rd party certifications such as organic. Local Food Plus and Canada GAP.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Latest product information</th>
<th>Suppliers</th>
<th>Buyers</th>
<th>System Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spend time calling buyers individually on product quality, availability and price changes.</td>
<td>Spend time calling buyers individually on product quality, availability and price changes.</td>
<td>Spend time receiving phone calls from numerous suppliers on changes to product quality availability and pricing.</td>
<td>Ordering website that updates available inventory, pricing and quality in real time. Also sends out alerts on major changes or updates to buyers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume</th>
<th>Suppliers</th>
<th>Buyers</th>
<th>System Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes lack of ability to supply enough volume to customers. Crop planning without knowing what customers want, leading to not enough product or too much.</td>
<td>Sometimes lack of ability to supply enough volume to customers. Crop planning without knowing what customers want, leading to not enough product or too much.</td>
<td>Finding local suppliers that meet volume needs.</td>
<td>Forward commitments between co-ordinated multiple farms to meet the volume needs of customers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality</th>
<th>Suppliers</th>
<th>Buyers</th>
<th>System Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining quality and integrity of the farmers’ products.</td>
<td>Maintaining quality and integrity of the farmers’ products.</td>
<td>Consistent quality through the season from delivery to delivery.</td>
<td>Central co-ordinator who maintains high standards of quality through the supply chain. Trains farmers on being wholesale ready. Educates buyers on product quality from local farms.</td>
</tr>
<tr>
<td><strong>Ordering</strong></td>
<td>Spend time compiling a “fresh sheet” with product availability, detail and price which is e-mailed at the beginning of the week to numerous buyers. Receive orders via e-mail or phone calls through the week.</td>
<td>Spend time receiving fresh sheets from multiple suppliers via e-mail at the beginning of the week and placing numerous orders via e-mail or phone calls.</td>
<td>One central website which can be updated easily by multiple farms and where buyers can place their orders at their convenience in one go.</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>Farmers deliver only once a week in their own trucks to numerous customers. High cost of distribution.</td>
<td>Receive deliveries from numerous suppliers at various times of the day and week. Some suppliers don’t have suitable vehicles e.g. refrigerated trucks. High number of shorts which are only identified when receiving deliveries.</td>
<td>Multiple orders on one refrigerated truck that co-ordinates with suppliers to pick up from the farms or a central location convenient for the farmers. Possibility to deliver more than once per week. Opportunity to use current distributors such as Yen Bros, Sysco and GFS to bring local food orders with other products.</td>
</tr>
<tr>
<td><strong>Invoicing</strong></td>
<td>Numerous small invoices to administer.</td>
<td>Numerous small invoices to administer.</td>
<td>Central organization to administer the individual orders so farmers get one payment and restaurants one invoice. Organizations could also make sure payments are made on time.</td>
</tr>
</tbody>
</table>

FarmFolk CityFolk researchers examined a USDA report on food distribution hubs called *Regional Food Hub Resource Guide* to gather insights related to their economic viability. The USDA report included an in-depth review of 20 food resourced hubs. Ensuring that there was sufficient demand before starting a distribution service was important. In
part, this was accomplished by making connections with local restaurants and institutions and secure business before the “doors are open” were opened.\textsuperscript{18}

Using the example food hubs contained in the USDA study, most small/medium farm product distribution services investment for trucks, staff, branding, storage, etc. at the start of operations. In several examples, the operations were not profitable for the initial years of operations. Securing funding before launching was an important factor to achieving ongoing sustainability.\textsuperscript{19}

In regard to the British Columbia context, the FarmFolk CityFolk study identified that there were two types of rural distribution systems; either a rural distribution system that delivers within the rural community and therefore has a limited customer base or a rural distribution system that is close to an urban area and has a large customer base.

**Solution**

The FarmFolk CityFolk researchers identified the most relevant needs identified by BC small and medium sized farms and local food buyers.\textsuperscript{20}

**Demand**

Some food hubs showed success by selling their product under one brand, especially if this brand had strong policies or conditions attached to it e.g. sustainable farming practices.\textsuperscript{21}

Business to business customers, in particular chefs, benefit from being able to order through one central website from multiple farms because of the time savings. An online ordering tool also help manage inventory and shorts for farmers and centralize invoicing and purchasing orders.\textsuperscript{22}

**Supply**

Farmers identified that the biggest support a small/medium farm product distribution service can give them is to co-ordinate the services on a number of levels. In most instances this coordination saves them time and fulfills the role better than what they currently can. The co-ordinator is also seen as someone who will set and maintain the product standards on behalf of the services. This could mean writing policies, training farmers on being wholesale ready and performing regular quality checks.\textsuperscript{23}

\textsuperscript{18} Stott, Darren, et al. p. 23.
\textsuperscript{20} Stott, Darren, et al. p. 11.
\textsuperscript{21} Stott, Darren, et al. p. 15.
Central storage, either in a separate warehouse or on a neighboring farm, allows orders to be aggregated together to be shipped together. A warehouse facility is also good for quality control and longer-term storage, if needed. Waste management such as composting, can also be managed better at a warehouse facility. The facility could be rented or owned.  

Either the distribution services employed a driver and owns delivery vehicles or contracts 3rd party distributors to deliver on behalf of the farmers. This practice helps save time and resources and could even improve quality by using refrigerated trucks. However, vehicle ownership can be expensive. In one example cite a company called Red Tomato started off owing their own trucks, but due to the high expense and convenience of working with 3rd party distributors switched.

**Business Case**

The FarmFolk CityFolk researchers developed a comparison of three different pro-forma models in BC reflecting the size of the revenues processed through the distribution services. The examples explored:
- Rural - distribution service with maximum of eight farms and maximum revenues of $1,200 per farm. Typically, they would be more than likely be located on a farm that is central to other farms.
- Urban – distribution service with a maximum of 16 farms and maximum weekly revenues of $2,750 per farm
- Suburban – distribution service with a maximum of 10 farms and maximum weekly revenues of $1,500 per farm.

Rural aggregation services located in or servicing wholesale customers in rural areas such as Cowichan Valley, BC. The following assumptions were made:
- 70 percent of revenues for the farmer,
- 20 percent revenues for the aggregation service,
- 10 percent revenues for 3rd party distributors,
- Maximum of six produce farms with maximum weekly orders of $1,200,
- No protein or specialty farms/producers,
- Seasonality, with higher sales between April to December,
- 15 customers ordering on average twice per week,
- 100 square foot office space at $8/sq. ft. (probable located on a farm),
- $2,000 equipment costs amortized over 10 years,
- $1/sq. ft. utility costs,
- $1/sq. ft. maintenance costs,
- $2/sq. ft. permits, licenses, taxes and insurance costs,
- No truck or driver,

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Agriculture Aggregation, Distribution and Logistics Infrastructure

Columbia Basin Trust

- $500/annum co-ordinator wages (part time),
- 2.5 percent of revenues for marketing costs,
- 2 percent of revenues for inventory management software (plus $1,000 set up fee in first year),
- Growth of 15 percent year on year.\(^{27}\)

Lower revenues distribution service will not be able to afford a truck, warehouse or staff to operate them. Consequently, storage and distribution will have to be outsourced to 3\(^{rd}\) party transportation companies and possibly distributors. This could be established distributors, transportation companies, jobbers or even the farmers themselves using their own trucks and “piggy backing” orders. Orders will also need to be cross docked at farms or central locations because of the lack of warehouse space. The operation will need to be run by a part time co-ordinator. This could be a role taken on by a farmer or shared amongst the farmers. Based on the assumptions the rural model annual revenues become profitable at around $180,000.\(^{28}\)

### 7.2 Electronic Logistics Markets

**Overview**

The research objectives in the paper entitled *Freight logistics services for rural economies: User needs and future challenges* was to identify requirements for logistics and transport services of small and micro rural businesses. The research also sought to explore the use of existing logistics solutions and their applicability in a rural business context. They researchers sought to define the features required of a software solution that helps enterprises located in rural areas overcome logistics challenges. Two case studies of small rural business were the research methodology used.

The researcher found that that businesses are confined to small-scale commercial activities due to a basic communication and information sharing problem. The solution they put forward was to operate on a larger scale with appropriate support for the logistics requirements by using intelligent software platforms. The researcher suggested the use of Electronic Logistics Markets (ELM) for choosing services and infrastructures to manage trans-shipments in an efficient manner and to allow service providers to offer certified services, via trusted third parties.\(^{29}\)

The applicability of the research findings to the Columbia Basin context suggests that the use of Electronic Logistics Market software tools could be of interest to enterprises interested in scaling the operations. Thus, it may be a tool that could apply to

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agriculture and food and beverage aggregators. However, the research was conducted in the United Kingdom (UK). In the UK, the distance to significant urban markets is not as considerable as in the Columbia Basin, and the population centers are more substantial in the UK. Thus, the transport and logistics markets are comprised of more service providers than what may be available in the Basin.

Research Details
The researchers applied the concept coined “Logistics Customer Service (LCS)” developed by La Londe and Zinszer’s work (1976) to identify the stages of customer service in terms of pre-transaction elements, transaction elements, and post-transaction elements. The chart below provides a diagram.

Figure 23 Customer Service Model

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The Logistics Customer Service model implicitly recognizes that different customer types value the importance of each service element differently and it varies from customer to customer. Consequently, different groups of customers tend to have specific needs, which result in different levels of services.\textsuperscript{31}

Based on the data collected, the United Kingdom researchers identified two different profiles for logistics customer services. The first is companies dealing with highly perishable, personalized and low weight products. The second is companies with low value/high weight products, non-perishable and standard products.

For the perishable products, companies prioritize concerns like quality and on-time delivery. For this kind of product, to be as fast as possible is crucial. Given the high value and premium characteristics of the products delivered, the cost of a courier does not affect the business margins, as the consumer is willing to pay for a next day delivery because this service is not overly expensive in this context. However, the weakness of this business model is the dependence and tight relationship between the producer and the courier service provider.

In terms products with a relatively low price compared to its weight makes the use of a courier service too costly and, therefore impractical. Also, the total sales per delivery are low, resulting in an insufficient utilization of available transport space. Enterprises are therefore in a situation where their products are too heavy to be sent by mail and too small and too few to fill up a truck at each delivery. This is a clear inhibitor for them to expand their area of distribution. “An interesting result from the analysis of the second case is the actual solution put in place by Company B: they operate with a select group of partners and co-ordinate their own deliveries with their partners’ deliveries, so they can share the transport.”\textsuperscript{32}

\textbf{Solution}

In both instances, the United Kingdom researchers found a common problem, communication and information sharing. In their logistics tasks, companies are engaging in two basic activities (1) planning (e.g. organizing the delivery of goods to be delivered before a certain deadline) and (2) executing a delivery according to plan. During execution, there is a need to monitor the progress of a transport, expecting feedback from transport service provider to the company.”\textsuperscript{33}

One proposal to tackle these problems is the utilization of Electronic Logistics Markets (ELM) and concepts of Autonomous Logistics. An ELM is a kind of electronic hub that links producers, customer, shippers and carriers together for the purpose of

\textsuperscript{31} Marqui, Angela Cristina, et al. p. 2.
\textsuperscript{32} Marqui, Angela Cristina, et al. p. 6.
\textsuperscript{33} Marqui, Angela Cristina, et al. p. 6.
collaboration or trading. Such an electronic market operates as the communication and information sharing infrastructure that allows transport providers to inform about available capacities and potential customers to describe their demands:

- A supplier of goods needs a better insight what transport services are available; on the other hand, transport providers need a better insight into the current demand for transport services.
- From the studies performed, a need for collaboration among producers to share transport resources as well as transport providers to optimize their business in collaboration with other transport providers can be detected.\(^{34}\)

“The concept of electronic logistics has the potential to fulfill the basic need of information sharing and allows the provision of means for collaboration between stakeholders. This will include real-time tracking and tracing, performance evaluation of logistics providers, and security and trust concerns. We introduce the concept of autonomous logistics and discuss two novel technologies (object memories and e-contracting) that have been used to implement autonomous logistics. In general, the paradigm of autonomous logistics decentralizes control and decision-making to some logistic entities (products, packages, truck, etc.) that participate in the transport and logistics processes. It is suggested that these logistics entities (typically implemented as intelligent software agents) are able to process information, to make and execute decisions on their own, and to cooperate with each other to achieve their optimal objectives. In line with autonomous logistics, the ideas of object memory and e-contracting have been proposed.”\(^{35}\)

“With the presence of Radio Frequency Identification technology, sensors and wireless networking, a smart object is able to communicate with other objects and to interact with the environment during its lifecycle. Those activities are conducted on the basis of exchanging and sharing information available in the object memory, as well as resulting in information being accumulated in the memory”.\(^{36}\)

\(^{34}\) Marqui, Angela Cristina, et al. p. 35.
\(^{35}\) Marqui, Angela Cristina, et al. p. 7.
\(^{36}\) Marqui, Angela Cristina, et al. p. 7.
7.3 Regional Food Hubs

Overview
The United States Department of Agriculture (USDA) developed a *Regional Food Hub Resource Guide* to strengthen the critical connection between farmers and consumers and support local and regional food systems.\(^{37}\)

Research Details
A significant challenge identified by the USDA is the fact that many farmers and ranchers are challenged by the lack of distribution and processing infrastructure of appropriate scale that would give them wider access to retail, institutional, and commercial foodservice markets, where demand for local and regional foods continues to rise.\(^{38}\)

The USDA also observed that although several smaller farmer and rancher operations have use direct-to-consumer marketing channels (such as farmers markets, farm stands, and community supported agriculture) to sell their products, they often lack the volume and consistent supply necessary to attract retail and foodservice customers. The problem is particularly acute for operators of mid-sized farms, who are too large to rely on direct marketing channels as their sole market outlet but too small to compete effectively in traditional wholesale supply chains.\(^{39}\)

Solution
The USDA describes as a regional food hub as 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.

Regional food hubs are key mechanisms for creating large, consistent, reliable supplies of mostly locally or regionally produced foods. At the core of food hubs is a business management team that actively coordinates supply chain logistics. Food hubs work on the supply side with producers in areas such as sustainable production practices, production planning, season extension, packaging, branding, certification, and food safety—all of which is done to enable these producers to access wholesale customers, such as buyers for foodservice institutions and retail stores. Simultaneously, food hubs also work on the demand side by coordinating efforts with other distributors, processors, wholesale buyers, and even consumers to ensure they can meet the growing market demand for source-identified, sustainably produced, locally or regionally grown products.\(^{40}\)

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\(^{38}\) Barham, James, et al. p. 5.

\(^{39}\) Barham, James, et al. p. 5.

\(^{40}\) Barham, James, et al. p. 4.
Regional food hubs are defined less by a particular business or legal structure, and more by how their functions and outcomes affect producers and the wider communities they serve. Defining characteristics of a regional food hub include:

- Carries out or coordinates the aggregation, distribution, and marketing of primarily locally/regionally produced foods from multiple producers to multiple markets...
  - Works closely with producers, particularly small-scale operations, to ensure they can meet buyer requirements by either providing technical assistance or findings partners that can provide this technical assistance.

Uses product differentiation strategies to ensure that producers get a good price for their products. Examples of product differentiation strategies include identity preservation (knowing who produced it and where it comes from), group branding, specialty product attributes (such as heirloom or unusual varieties), and sustainable production practices (such as certified organic, minimum pesticides, or “naturally” grown or raised).41

### 7.4 Strategic Logistics of Rural Firms

**Overview**

Enterprises seeking to sell their products into domestic and global markets from the Midwestern and Plains states need to employ efficient strategic logistics practices to compete. Previous researcher recommended that rural firms adopt a strategic logistics philosophy to position themselves as supply chain channel participants. The study examined the logistics strategies of rural firms. The analysis included logistical philosophies, trends, measurement, alliances, and technology.42

**Research Details**

The research project goals were to: 1) Analyze the supply chain management strategies of firms within North Dakota and Minnesota to determine if they employ a strategic logistics philosophy. And, 2) establish a case study(s) to determine the cost/benefits of employing the logistics strategies and determine a method of measuring the efficiency gains achieved by participating firms. Enterprises selected for the study included retailers, manufacturers, and agricultural processors.43

**Solution**

The researchers assert that to compete in domestic and international markets, a firm must have the ability to manage or participate in the entire supply chain, from the source of raw materials to the end user. The use of supply chain perspective and

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41 Barham, James, et al. p. 4.
42 Lofgren, Mark, and Berwick, Mark. Evaluation of Strategic Logistics of Rural Firms. Upper Great Plains Transportation Institute, North Dakota State U. 2005 p. i.
43 Lofgren, Mark, and Berwick, Mark p. i.
techniques is an essential for satisfying customer needs, improving competitiveness, reducing uncertainty, and generating profits.\textsuperscript{44}

According to the Council of Logistics Management (CLM), “Logistics Management is that part of Supply Chain Management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers’ requirements”\textsuperscript{45}.

Three major reasons for establishing a supply chain management (SCM) philosophy: 1) to reduce inventory investment in the chain; 2) to increase customer service; and 3) to help build a competitive advantage for the channel.\textsuperscript{46}

\textsuperscript{44} Lofgren, Mark, and Berwick, Mark p. i.
\textsuperscript{45} Lofgren, Mark, and Berwick, Mark p. 3.
\textsuperscript{46} Lofgren, Mark, and Berwick, Mark p. 3.
8 CASE STUDIES

OVERVIEW
The Ottawa Valley is home to numerous farms and large population centers. However, the Ottawa Valley Food Co-op (OVFC) serves primarily as a niche marketing and sales channel and is not suggested as a model for the Columbia Basin Trust’s consideration.

The OVFC uses an on-line store that powered and supported by an electronic platform that specifically designed with features that enhance the efficiency of both vendors and customers. The OVFC also allows the sales of non-food products.

Producers, processors and other vendors must abide by all regulatory requirements regarding the production and sale of their products (e.g. government meat inspections, labelling, inspected kitchens).

Ottawa Valley Food makes use of volunteers for marketing, sales, product aggregation and distribution. Volunteer efforts and fundraising are an essential part of the business model of the OVFC. For example, delivery volunteers drive the orders on each route to pick-up points in ten towns in the Ottawa Valley.

The research completed for this study suggests the following type of markets may be of interest:
- Food service customers,
- Independent health food stores and retailers,
- Institutional procurement (The provincial government’s initiative to support 30 percent local food),
- Tourism and restaurant sector.

Transportation aggregation options include purchasing groups and trucking load board.

Analysis of the logistics infrastructure requirements necessary to support product aggregation and distribution included a review of available tools to assist with the supply chain functions related to aligning production with sales.

Product aggregation and sales benefits when there is an integrated system that sales and distribution. Such system need to provide:
- Online storefront,
- Community Supported Agriculture (CSA) signups,
- Customer account management,
- Inventory management (harvest to order and warehouse),
- Automated harvest and pack lists,
- Invoicing and payment process.
Four case studies were completed to determine the possible cost and benefits of logistics and transportation approaches to product aggregation and distribution that may lead to expanded market access. The case studies are based on quantitative analysis of current cost information, subject to data availability.

The selection of the case studies were informed by the results of the literature review, stakeholder consultation and insights obtained by the on-line questionnaire.

The tables provide a summary of the main types of agricultural related business activity, the respondents location with the Columbia Basin, product attributes, annual shipping volume, major types of shipping and logistics services used and the importance of several factors influencing current logistics practices. The online replies suggest that within the Columbia Basin are a significant number of small scale producers with relatively low volume of outbound traffic. The producers are very dependent on reliable transport service delivery and the ability to handle peak season traffic. The case studies will explore possible opportunities to leverage these characteristics while being mindful of the current needs and practices of those involved in the regional agricultural related industries.

**Figure 24 Agricultural Business Activities**

<table>
<thead>
<tr>
<th>Major Type of Business Activity</th>
<th>Respondents Location within Columbia Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Vegetable and melon farming,</td>
<td>o Revelstoke,</td>
</tr>
<tr>
<td>o Support activities for agriculture,</td>
<td>o Nelson,</td>
</tr>
<tr>
<td>o Agri-tourism,</td>
<td>o Invermere,</td>
</tr>
<tr>
<td>o Greenhouse, nursery and floriculture,</td>
<td>o Creston.</td>
</tr>
<tr>
<td>o Fruit and tree nut farming.</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 25 Shipping and Logistics Practices and Service Attributes**

<table>
<thead>
<tr>
<th>Product Attributes</th>
<th>Typical Annual Shipping Volume of Outbound Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Highly perishable,</td>
<td>o Less than 1 tonne,</td>
</tr>
<tr>
<td>o High value,</td>
<td>o 1 to three tonnes,</td>
</tr>
<tr>
<td>o Heavy.</td>
<td>o More than 9 tonnes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Types of Shipping and Logistics Services Used</th>
<th>Importance of factors Influencing Current Logistics Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Personal or business vehicle,</td>
<td>o Delivery reliability.</td>
</tr>
<tr>
<td>o Less than Truck load.</td>
<td>o Product order being complete, on time and damage free,</td>
</tr>
<tr>
<td></td>
<td>o Ability to handle peak season production and shipping.</td>
</tr>
</tbody>
</table>
8.1 Existing Food Hub Operator Review

Case Study A1 integrate the results of the existing literature review with some supplemental analysis on existing food hub operators. The purpose of reviewing the Ottawa Valley Food Co-op and other similar food hub operators is to gather insights regarding best practices and their potential applicability to Columbia Basin Trust region.

Ottawa Valley Food Co-op
Market Location and Population
The Ottawa Valley describes region between Eastern Ontario and the Outaouais, Quebec, Canada. Near the City of Ottawa, the Ottawa Valley merges with the St. Lawrence Valley to the south to create a delta of flat agricultural area. About 1.3 million people live in the region, around 80 percent of whom reside in Ottawa, the balance on the north side of the Ottawa River, in Quebec.

Purpose of Organization
To make the most of the opportunities, the Ottawa Valley Food Co-op provides a marketing/sales channel and distribution network that caters specifically to locally grown or processed foods and other locally made products for the mutual benefit of Ottawa Valley producers and consumer. For producers OVFC orders for recurring monthly sales can help bring stability to producers. 47

The following principles help guide the efforts of the OVFC:
- All producers must live and produce their products within the OVFC catchment area.
- Allow all producers located within the designated geographic catchment areas to sell products that are grown or processed locally.
- Producers are urged to use local ingredients and supplies whenever possible. Producers are required to disclose information in their vendor profiles and product descriptions. The required consumer information is intended to help entice consumers so they can choose to support vendors with their OVFC purchases.

The OVFC also allows the sales of non-food products subject to several conditions. Non-food items that can be sold through the OVFC include useful and aesthetic items for home, garden, or business, such as clothing, health and body care items, written materials, scented products, decorations, pet and agricultural products, art, jewelry, photography, music and media. Vendors are encouraged to include information on local materials used in their goods in their product descriptions.

Aggregation, Transportation and Logistics Systems
The Ottawa Valley Food Co-operative has an on-line store that powered and supported by an electronic platform that specifically designed with features that enhance the

47 https://ovfc.ca/
efficiency of both vendors and customers. The electronic platform they appear to be using is called Local Food Marketplace.

Producers are responsible for the delivery of their products to the OVFC’s Pembroke Hub. They are also responsible for the quality of the product until they deliver the products to the hub.

In terms of market reach the Co-op has a network of independent local stores which act as pickup locations for monthly orders. There are pick-up depots in 12 communities across the Upper Ottawa Valley.

The Ottawa Valley Food Co-op is open for ordering for eight days each month. The ordering period usually begins the first full week of every month, with delivery to depots on the third or fourth Tuesday of each month.

The OVFC does not take ownership of any of the products. The products that go through the OVFC distribution system are owned either by the producer, or by the consumer who purchases the products directly from the producer.

Customers pick up and pay for their orders at a specified pick-up time and place, specified on their online invoice.

**Product Packaging Requirements**
Specific packaging requirements include:
- Packaging needs to be appropriate to protect the product as it is handled multiple times before reaching the consumer.
- Each separate package must have the proper OVFC label, and indicate when there are multiple items related to the same label (e.g. 1 of 2, 2 of 2)
- Producers need to know and adhere to legal labeling requirements for their products.

**Functions**
Volunteers are needed for marketing, sales, product aggregation and distribution as evidenced by the following roles:
- Helping out at occasional promotional and educational events.
- Doing phone reminders for your town (1/2 hour per month).
- Receiving customer payments, doing Credit Union deposit, reporting details to treasurer and coordinator.
- Becoming a Volunteer Sorter Coordinator in Pembroke.
- Sorting orders in Pembroke on Delivery Day for 2-3 hours.
- Becoming a Route Manager for a particular route, who recruits and instructs drivers, pick-up hosts, phone reminder volunteers, and payment volunteers.
Driving orders one or more times per year from the sorting location in Pembroke, to the closest customer pick-up point (two to five hours per month). Delivery mileage can be covered by the Co-op.

**Financing Operations**

The minutes of OVFC provide a number of insights that are provided in the table below. The data suggests that the Coop serves approximately 68 customers per month who can select products from an average of 28 vendors. However, the annual customer to vendor ratio of 2.46 suggests that OVFC on-line store and delivery service fulfills a niche marketing and sales channel at this stage of the organization’s development. The average value of the customer sales per month is about $106 with average vendor sales of $259, providing further insights into the depth and extent of the customer’s financial relationship with the OVFC.

<table>
<thead>
<tr>
<th>Data for 2019</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>Average Month</th>
<th>Annual Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of customers</td>
<td>64</td>
<td>69</td>
<td>71</td>
<td>68</td>
<td>816</td>
</tr>
<tr>
<td>Number of vendors</td>
<td>26</td>
<td>28</td>
<td>29</td>
<td>28</td>
<td>332</td>
</tr>
<tr>
<td>Value of order per month</td>
<td>$6,578</td>
<td>$7,524</td>
<td>$7,438</td>
<td>$7,180</td>
<td>$86,160</td>
</tr>
<tr>
<td>Average customer sales</td>
<td>$103</td>
<td>$109</td>
<td>$105</td>
<td>$106</td>
<td>$1,266</td>
</tr>
<tr>
<td>Average vendor sales</td>
<td>$253</td>
<td>$269</td>
<td>$256</td>
<td>$259</td>
<td>$3,113</td>
</tr>
<tr>
<td>Average sale per location</td>
<td>$548</td>
<td>$627</td>
<td>$620</td>
<td>$598</td>
<td>$7,180</td>
</tr>
</tbody>
</table>

The OVFC support delivery to 12 locations in the Ottawa Valley. The average sales per location per month is $598.

The OVFC charges fees to consumers and producers on each order. The OVFC commission fee of 7 percent is added to consumer invoices, and 12 percent subtracted from producer invoices. Based on this OVFC’s fee structure the organization’s estimated annual commission revenue is $15,647.

<table>
<thead>
<tr>
<th>OVFC Commission Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer invoice</td>
</tr>
<tr>
<td>Producer invoice</td>
</tr>
<tr>
<td>Estimated Annual Commission Revenue</td>
</tr>
</tbody>
</table>

48 [https://ovfc.ca/board-members/board-meeting-minutes/](https://ovfc.ca/board-members/board-meeting-minutes/)
The OVFC fees, totaling 19 percent, are used for operating and overhead expenses such as mileage for the delivery volunteers, the Coordinator’s part-time salary, liability and directors’ insurance, auditor fees, and ice to keep food cold in the coolers on Delivery Days, sorting hall rental, etc.49

*The Ottawa Valley Food Coop Business Plan* from 2015 acknowledges that the OVFC primary revenue sources were from membership fees and ‘operating fees’ on goods sold. In further suggested that “in order to gain financial stability, OVFC should diversify its funding sources and tap into at least four of the following sources on an annual basis: foundations, government, individuals, members, events, planned giving, membership fees and ‘operating fees’ charged on goods sold.

The OVFC Business Plan observed that its total revenue was $28,000 in 2014 and had been losing money of between $2,700 and $7,900 per year. The OVFC’s three main sources of revenue – membership fees, producer fees and consumer operating fees – had been insufficient to cover operating costs.

**Ottawa Valley Food Co-op Findings**

The Ottawa Valley is home to numerous farms and large population center. However, the Co-op serves primarily as a niche marketing and sales channel.

Producers, processors and other vendors must abide by any and all regulatory requirements regarding production and sale of their products (e.g. government meat inspections, labeling, inspected kitchens).

The OVFC also allows the sales of non-food products.

The OVFC uses an on-line store that powered and supported by an electronic platform that specifically designed with features that enhance the efficiency of both vendors and customers.

Volunteer efforts and fundraising are an essential part of the business-model of the OVFC. For example, delivery volunteers drive the orders on each route to pick-up points in 10 towns in the Valley.

Since the Ottawa Valley Food Coop relies heavily on volunteer labour is not a model that we see working in a rural context such as the Columbia Basin. The small fraction of a percent of the people in Ottawa who volunteer to keep the initiative afloat is in part based on drawing volunteers from a substantial population base that does not exist in the Basin. The OVFC does not appear to be a business model that should be promoted.

49 https://ovfc.ca/frequently-asked-questions/#citem_eb97-086e
Cowichan Valley Co-operative Marketplace (CVCM)

Market Location and Population
The population for the Cowichan Valley Regional District is 83,739. Just over 55 percent of the population (46,383 people) live in the municipalities of Duncan, North Cowichan, Ladysmith and Lake Cowichan. The Greater Victoria region has a combined population of 367,770, with Victoria accounting for approximately 92,000 residents.

Purpose of Organization
Cow-Op is a farmers market meets the internet for convenient year-round shopping at the Cow-op. Cow-op.ca is an initiative of the Cowichan Valley Co-operative Marketplace (CVCM). Cow-op.ca is an online ordering system designed to improve access to and distribution of Cowichan-Region grown and processed foods. Service is provided to both Cowichan and Victoria customers.

The organization is where farmers and food processors can co-operate with an online marketplace of locally grown and harvested food, featuring a variety of produce, meats, eggs, fruit, baking and more all grown or produced throughout the Cowichan Region. The on-line platform sells itself on providing a convenient system for food producers and customers alike, as the farmers save time and buyers are able to shop from their computer year-round while directly supporting local family farms and businesses.

The following principles regarding product categories help guide the efforts of the CVCM:
- Locally grown produce and agricultural products (vegetables, grains, meats, eggs, flowers, etc.).
- Locally processed products made primarily from locally grown ingredients (jams, pickles, baked goods).
- Locally processed products made primarily from non-locally grown ingredients.
- Other products.

Products that fall into the first two categories are given priority, and vendor applications that are in the latter two groups are determined on a case-by-case basis, giving consideration to whether the product category and/or specific items for sales will materially enhance the product mix. For processed foods, consideration is given to the percentage of ingredients grown locally.

For the purposes of the organization’s guidelines, “local” means the Cowichan Valley region and adjacent regions.

Aggregation, Transportation and Logistics Systems
The Cowichan Valley Co-operative Marketplace has an on-line store that powered and supported by an electronic platform that specifically designed with features that
enhance the efficiency of both vendors and customers. The CVMC’s website states that their electronic platform is powered by Local Food Marketplace (LFM).

CVMC’s service is open to families, individuals, restaurants, retailers and wholesalers. Potential customers can register on the online system with no purchase commitment. Customers can order one week and skip the next.\(^{50}\)

Sellers are responsible to upload products for sale each week and set the price they wish to receive. The marketplace website program automatically adds the applicable markup to the listed price to arrive at the displayed price.

Sellers are required to unload their orders into marked customer bins and check off items from the buyer packaging slip. Market Manager, staff or volunteers provide assistance. All frozen items are stored in freezer overnight, and all orders stored in walk-in coolers overnight.

Following packing of orders, Duncan orders are delivered from Hope Farm to Cowichan Green Community and Victoria orders are delivered into Lockwood Farms in Cobble Hill and stored overnight in coolers/freezer. Orders are then loaded into Lockwood Farm’s refrigerated truck.

Orders are available for pickup once a week, now at two locations: downtown Victoria at Zero Waste Emporium and downtown Duncan at Cowichan Green Community.

**Product Packaging Requirements**

- Food products must meet standards for Food Products Sold through a Food Facility. Non-food items must meet standards for Sale of Non-food Items.
- Products must be delivered market-ready: clean, packed in the correct quantity for each order, and labeled with product name that matches the website product name, farm name, weight/quantity and reference id (buyer name). Standardized labels are available for printing through the website and it is mandatory that sellers use these labels. Unlabeled items will not be accepted.
- All fresh produce must be bagged in food safe packaging consistent with Island Health Guidelines. Items normally sold in pints or other open containers (strawberries, cherries, tomatoes, etc.) must be placed in a contained package to avoid spillage during the transport of the orders.
- Fragile items must be packed in a manner that appropriately protects against breakage or loss during transit.

\(^{50}\) http://cow-op.ca/about-us
Functions
The functions provided by the organization includes receiving orders, notifying the appropriate sellers, distribute the food, and process payments from buyer and seller. The organization is also exploring other ideas including a delivery truck and cold storage warehouse.

Financing Operations
In 2013, the BC Co-operative Society funded the development of a Food Hub pilot in the Cowichan Valley. The Food Hub Feasibility Study was also funded in part by Agriculture and Agri-Food Canada and the B.C. Ministry of Agriculture through programs delivered by the Investment Agriculture Foundation of B.C. A steering committee decided that an online marketplace would be the best first step for the group. In August of 2015 the Cow-op.ca was created.51

Sellers can become members of the CVCM for a one-time membership fee of $50. The share is redeemable any time they leave the co-operative. All sellers pay an annual $25 web listing fee, which may be subject to future increases.

A review of the Cowichan Valley Co-operative Market financial statements from their City of Duncan Grant in Aid application provided insights into the financial performance of the organization. The organization experienced a period of substantial financial growth starting in 2015. In that year annual program income was $5,679, or $473 per month. During the period January through August 2016 program income had reached $11,938, or $1,492 per month. Thus, generating an estimated $17,908 in annual program income from membership sales, websites ads and sales. Sales accounted for 92 percent of the program income.

As of February 2019, commission rate on sales for members of the CVCM was set at 25 percent of the final buyer price for non-bulk product and 15 percent of the final buyer price for bulk product. This rate is reviewed periodically by the CVCM membership and may be adjusted as required. For the purposes of this section, “bulk product” is defined as a large-format product that is ≥10x the typical retail size for that product (e.g. 5 lbs of salad mix; 10 lbs of carrots). Product must be designated as bulk upon listing and any such designation is subject to review and approval by the Market Manager.

Cowichan Valley Co-operative Marketplace Findings
The Cowichan Valley is home to numerous farms and ready access to moderately size population centers. However, the Co-op serves primarily as a niche marketing and sales channel.

51 http://cow-op.ca/about-us
Producers, processors and other vendors must abide by any and all regulatory requirements. The CVMC's uses an on-line store that powered and supported by an electronic platform that specifically designed with features that enhance the efficiency of both vendors and customers.

8.2 Agricultural Product Marketing Channel Exploration within the Basin

Insights from the Engagement Process
Based on stakeholders’ comments, improving market access is a priority for some respondents. Respondents acknowledged that the Columbia Basin is a considerable distance from major consumer markets. In addition, the distance to supplies and suppliers made the possibility of being easily cut off a concern for some respondents. Thus, a connection with bigger wholesale markets was deemed desirable by some stakeholders. The lack of an existing network, and the price and time required to move goods to larger markets were cited as some of the current challenges. Other respondents asserted that improve market access within the Columbia Basin was their overarching need and thus should be a priority.

Case Study Summary
Case Study A2 identifies the location of geographic markets, types of customers that would benefit from product aggregation, and small scale delivery. Consistent with the sentiment of one respondent to the on-line questionnaire, emphasis would be given to product displacement for goods imported into the Columbia Basin, especially processed industrial agricultural products, rather than exporting outside of the region. The analysis focuses on complementing existing marketing channels and geographic markets within the Basin.

It includes consideration of logistics infrastructure requirements necessary to support product aggregation and sales requirements from a transportation perspective.

Analysis of Geographic Markets
The Columbia Basin encompasses 76,147 square km, for an estimated population density of 2.0 persons per square km in 2016, compared to 5.0 persons per square km for the entire province of British Columbia.

Based on the most recent census data, the population of the Columbia Basin totalled 155,345 in 2016, or approximately 3.3 percent of the total BC population. This represents an average annual growth rate for the region of 0.7 percent from the 2011 population of 149,826. In aggregate, population growth in these communities has been slow and stable, with an annual average growth rate of 0.8 percent in the Kootenays, the challenges around restructuring of traditional natural resource industries that put
downward pressure on population and development change have been accompanied by an upswing in amenity migration and retirement migration.\textsuperscript{52}

\textbf{Figure 28 Community Population Map}

The fastest growing communities over the last five years include Fernie, Invermere, Kimberley, Rossland and Revelstoke. Population figures for larger communities in the Columbia Basin, which account for 65 percent of the total regional population, are shown below.

\textsuperscript{52} http://sorc.crrf.ca/bc/
Research indicates that the top five Canadian food retailers accounted for about 79 percent of food sales in Canada. Approximately 82.2% of the Canadian population lives within 5-km (urban areas) or 20-min drive (rural areas) of a retail outlet of the top five Canadian food retailers.53 While there is no specific data for the Columbia Basin, it seems probable that the region varies somewhat from the national pattern. However, the data does suggest that if enterprises wish to scale and grow their operations then accessing markets and integration into the supply chains that extend beyond the basin are vital.

Cranbrook is potentially the largest regional market for locally produced food and beverages. We had limited response to our outreach efforts from either suppliers or customers in the Cranbrook area. We are not sure whether that is because the residents are not interested (not inconsistent with previous transport and logistics research completed for the CBT), were not aware of the research initiative, or were too busy to

respond. However, Cranbrook is not the geographic location of the emerging “foodies culture” that is driving the growth in other Basin communities.

Revelstoke is not well connected to the southern communities with the Columbia Basin. A stakeholder interview raised possible concerns about products from other parts of the Basin being able to gain better local market access in Revelstoke.

The implications of the market observations will be addressed in Section 9 of this report.

**Customer Type Market Analysis**

The research completed for this study suggests the following type of markets may be of interest:

- Foodservice customers,
- Independent health food stores and retailers,
- Institutional procurement (The provincial government’s initiative to support 30 percent local food), and
- Tourism and restaurant sectors.

**Product Aggregation Analysis**

Analysis of the logistics infrastructure requirements necessary to support product aggregation and distribution included a review of available tools to assist with the supply chain functions related to aligning production with sales.

One example is a software product developed to support local food hubs by Local Food Marketplace. The company was launched in Eugene Oregon in 2009 by local food advocates and technology entrepreneurs, Doug Frazier and Amy McCann. The technology was originally written by Doug for Eugene Local Foods, a food hub that Amy and Doug ran for 5 years before transitioning ownership to Willamette Farm and Food Coalition in 2013. Eight years after launching, Local Food Marketplace now supports 120+ food hubs, online markets, co-ops, and buying clubs across more than thirty-five states.54

Discussion with Ms. Amy McCann, CEO of Local Food Marketplace indicated that Local Food Marketplace software is the result of ten years of product development specifically intended to support the unique needs of food hubs and farmers. As a result, their product is a scalable system. The integrated system provides:

- Online storefront,
- CSA signups,
- Customer account management,
- Inventory management (harvest to order and warehouse),
- Automated harvest and pack lists,

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54 [https://home.localfoodmarketplace.com/meet-the-team-2/](https://home.localfoodmarketplace.com/meet-the-team-2/)
Invoicing and payment process.

The customer order and account management tools include online order, unlimited price lists, recurring orders and subscriptions, customer type customization, harvest lists, pack lists and labels, invoices and payment processing.

**Transportation Aggregation Options**

**Purchasing Groups**

A purchasing group consists of two or more independent organizations that join together, either formally and informally, or through an independent third party for the purpose of combining their individual requirements.  

Group purchasing organizations or transportation buying groups aim to leverage the collective purchasing power of small- and medium-sized producers of manufacturers. The objective is to strengthen the buying muscle when negotiating with carriers to optimize costs reductions and value added contractual terms and conditions from suppliers.

In some buying groups the members pay the rates negotiated by the Group and then book the cargo and pay for the transportation directly with the carrier. Shippers manage their cargo through a group portal, and the contracts and cargo tracking may be done by a third party vendor who provides the back office support.

In some instances, carriers may be willing to pay the buying group a fee to participate. Carriers may be willing to pay and accept lower rates because it is simpler to negotiate with a single entity, and they do not have to deal with multiple smaller shippers because it is easier to manage buying group than it is to manage several small shippers.

Producers and manufacturers join and avoid group purchasing organizations for several reasons. Issues such as trust, cooperation, and a limited supply base create reluctance form some potential participants. Often one of the largest challenge, besides getting them off the ground, is intelligently leveraging the collective buying power of the group while tailoring contracts to fit individual member’s needs. Suppliers fear loss of margin percentages. A good practice of a buying group is to provide suppliers with committed volumes and long-term contracts; thus, reducing the suppliers selling costs and allowing the reductions to offset the margin percent loss.

**Trucking Load Board**

55 [https://farmtario.com/daily/independent-ag-retailers-team-up-for-group-buying/](https://farmtario.com/daily/independent-ag-retailers-team-up-for-group-buying/)


57 [https://derwentbuyersgroup.com/what-we-do/membership/](https://derwentbuyersgroup.com/what-we-do/membership/)
Load boards (also known as freight boards) are online matching systems that allow shippers and freight brokers to post loads. They also allow carriers to post their free equipment. These systems allow shippers and carriers to find each other and enter into agreements to move freight. 58

Most trucking load boards are sophisticated and allow you to post and search for loads using a number of criteria. Additionally, they provide various services for both freight brokers and carriers. Depending on the board, you can find services such as:

- Load matching,
- Credit information/days to pay,
- Message boards,
- Ability to make notes on shippers/carriers,
- FMCSA verification,
- Finance of pre-approved loads using factoring,
- Mobile access.

The freight board market is extremely competitive and there are a number of providers: both free and paid.

8.3 Small Scale Transport Delivery Service within the Columbia Basin

Insights from the Engagement Process

Two dominant themes emerged from the stakeholder engagement process: service availability/reliability and the cost of transportation.

The comments received related to service availability and reliability included very brief remarks such as availability, consistency, delivery reliability, delivery in a timely manner, and the time required to deliver to bigger wholesale markets. In other instances, respondents provided deeper insights into the challenges they currently face. For example, the timing of truck transport because they only leave on certain days requires two to three days' timeline to reach destination. As a result, the lead time allowing for ordering on time, receiving on time, follow up (vendors processing orders), and road closures is significant.

Comments related to trucking service availability related to rural locations included the ability to obtain farm pickup, getting trucks when required, shipper option, route option, lack of availability of timely delivery to our community. Essentially, some respondents indicated that transport service for farm products doesn't exist and existing vehicles cannot accommodate all produce.

58 https://www.comcapfactoring.com/blog/what-is-a-trucking-loadboard/
The comments received related to the price of transportation services was most frequently punctuated by short answers related to the costs, affordability of Less Than Truckload Service and the costs of maintaining private vehicles.

In addition, several comments related to the costs associated with small volume shipments were received. For example, the cost of shipping did not make it an option for some producers due to the small volume of goods being shipped. Others expressed a similar sentiment indicating that it was cost prohibitive to deliver small amounts. The cost of shipping and shipping minimums volumes was frequently cited as an issue.

The proportionally high cost of shipping at low volume orders required producers to spend considerable time and effort to organize individual orders and the use of company or personal vehicles for arranging the delivery of small lot deliveries. However, with the use of their own vehicles producers were impacted by fuel costs. For example, the cost of gas driving to farmers markets in neighbouring towns was the biggest issue some producers faced with marketing their product.

Stakeholders also commented on the costs associated with the inbound movement of goods in the Columbia Basin.

The concept of a logistics cooperative to run a regional delivery service and depots (part time) for local business pick up and drop off in Nelson and other communities was an example of the type of suggestion we received during the stakeholder engagement process. The physical ability to load and unload goods was considered as important while others offered the suggestion that sustainable practices such as reusable packaging be considered.

Finally, it is important to note that several respondents indicated that due to the small volume of product they currently produce their shipping needs were very limited.

**Case Study Summary**

**Case Study B1:**

It is vital for shippers to understand that the cost of transportation is not directly related to product value. Rather, the cost of transportation is a function of the economic structure of the industry and type of service and supply and demand conditions.

The analysis and discussion of a small scale transport delivery service within the Columbia Basin will be first presented in terms of the general economic context that influences the types of trucking service that will be offered in the marketplace. It will then be followed by a discussion of local/regional delivery service.

Truckload (TL) carriers specialize in hauling large shipments for long distances. TL shipments are usually defined as those weighing 10,000 pounds or more. In this
segment, a driver employed by a TL firm, or a truck owner-operator, will pick up a load from a shipper and carry the load directly to the consignee, without transferring the freight from one trailer to another. Thus, TL carriers do not need a network of terminals.\textsuperscript{59} The cost of freight for truck load service is most often related to the cargo volume (including opportunities for back-haul between clearly defined trade lanes, travel time and distance. TL carriers operate primarily in point-to-point service, filling the truck up at a shipper’s location, going wherever required for the load to be delivered to empty out, and then running empty to pick up a (preferably nearby) new load.

For smaller shipments which do not require the entire capacity of a truck, shippers can use Less Than Truckload (LTL) service:

\textit{Less than truckload (LTL) carriers consolidate, in one truck, several shipments that are going to the same general geographic area. LTL shipments are usually defined as those shipped in amounts that weigh less than 10,000 pounds. The consolidation of freight requires a network of freight terminals. Consequently, LTL carriers are characterized by networks of consolidation centers and satellite terminals. In this framework, a pickup-and-delivery truck typically transports an LTL shipment from the shippers dock to the trucking firms local terminal. There, dock workers unload and recombine the shipments with other shipments that are going to similar destinations, typically a destination terminal in another city. When the shipment arrives at its destination terminal, the load is processed, moved to a pickup-and-delivery truck, and then transported to the consignee. There are national LTL firms and regional LTL firms.}\textsuperscript{60}

Costs for LTL and parcel service are significantly higher due to terminal and local pickup and delivery costs, and since LTL and courier services typically serve a network on a regular schedule, costs are primarily fixed costs.

For purposes of illustration, a comparison of the linehaul costs for truckload and LTL service for a regional shipment can be derived based on typical trucking costs. The example below is based on typical costs from the 2013 edition of Transport Canada’s \textit{Operating Costs of Trucks in Canada}.\textsuperscript{61}

The model used in the Transport Canada report estimates total costs per kilometre based on typical unit costs including fuel, wages, insurance, licensing, depreciation, etc. and an allowance for operator profit. Costs for a number of different truck

\textsuperscript{59} “Section 2: Trucking Industry Background and Structure” \textit{Estimating Multifactor Productivity in Truck Transportation} US Bureau of Transportation Statistics

\textsuperscript{60} Ibid.

\textsuperscript{61} \textit{Operating Costs of Trucks in Canada 2013} Prepared for Transport Canada Economic Analysis Directorate by Logistics Solutions Builders Inc. March 2014.
configurations are analysed; for purposes of this comparison, the appropriate configurations are a suitable tractor and five axle semi configuration dry van trailer, and a two axle straight truck.

The Transport Canada model estimates that costs per kilometre for the two axle straight truck are significantly higher than for the five axle semi, primarily due to differences regarding trip distances and terminal productivity (i.e. the time it takes the driver to load or unload the truck). The assumptions on trip lengths are summarized below:

*Intra-Regional Base Case Trip Distances:* The combination units are assigned a round trip distance of 320 kilometres since they are assumed to be involved in predominantly "terminal-to-terminal" highway service. Urban two axle units are assigned a trip distance of 100 kms. These common trip distances tend to reflect average common operational factors within the industry - recognizing there are shorter and longer distance market segments, for specific operations.62

The relevant assumptions on terminal productivity are summarized below:

*Dry Freight in Combination Units:* One origin-destination per trip is assumed, which reduces the time required to handle one payload. Realistically, the rate of loading-unloading varies with consignment type; however, observation indicates that 4,500 kg per man-hour is representative of dry freight loading/unloading performance. Assuming an adequate availability of manpower, a handling time criteria of three hours for 27,270 kg has been applied to all applicable cases. That is, the driver will be on the job, but not driving, three hours for a 27,270 kg dry freight payload.

*Dry Freight in Van Straight Trucks:* The time spent loading and unloading freight was assumed to be one person hour per 1600 kg of consignment.63

Due to the differences in trip lengths and terminal productivity, costs per km for the straight truck were estimated to be significantly higher than for the five axle semi: $3.23 per km for the straight truck compared to $1.897 for the five axle semi.64 These estimates were based on an average 2013 fuel price of $1.33 per litre; current fuel prices are lower ($1.20 per litre) and other unit costs are also likely to have changed somewhat since 2013.

The example shows the estimated cost per kg of a shipment from Burnaby to Nakusp by a truckload and an LTL carrier. The five axle semi is used for the complete trip from origin to destination for the truckload option; for the LTL option, the shipment is

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62 Ibid., p. 11.
63 Ibid., p. 10.
64 Ibid., p. 62. Estimated costs quoted are for medium annual utilization for each unit and a 5% operator margin for BC operations.
delivered by the five axle semi to a terminal in Castlegar and then transferred to the two axle straight truck for delivery to Nakusp.

<table>
<thead>
<tr>
<th>Origin</th>
<th>Destination</th>
<th>Two-way km</th>
<th>Total Cost per km</th>
<th>Total Cost per Trip</th>
<th>Payload (kgs)</th>
<th>Total cost per kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surrey</td>
<td>Nakusp</td>
<td>1,426</td>
<td>$1.897</td>
<td>$2,705.12</td>
<td>27,270</td>
<td>$0.10</td>
</tr>
<tr>
<td><strong>LTL Option</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Line Haul</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surrey</td>
<td>Castlegar</td>
<td>1,136</td>
<td>$1.897</td>
<td>$2,154.99</td>
<td>27,270</td>
<td>$0.08</td>
</tr>
<tr>
<td><strong>Local Delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castlegar</td>
<td>Nakusp</td>
<td>290</td>
<td>$3.230</td>
<td>$936.70</td>
<td>2,000</td>
<td>$0.47</td>
</tr>
</tbody>
</table>

LTL Total Costs per kg \( \$0.55 \)

% Line Haul \( 14\% \)

% Local Delivery \( 86\% \)

Based on this example, the local delivery share of the transportation costs accounts for 86% of total costs. In addition, the LTL carrier must bear the cost of terminal operations across its network, and pricing must account for the risk that shipment volumes will fall based on cyclical economic factors and competition.

The findings from the literature review, stakeholder interview, and surreys interviews indicate that there are three different levels of transport networks to consider:

- Local shipments to a regional hub,
- Intraregional deliveries between regional hubs - Nelson/Castlegar, Cranbrook, and Revelstoke,
- Exports to larger centres outside of the region.

The results of the on-line questionnaire suggest that presently, not many firms have a scale of operations or have a near-term interest in markets outside the region. Previous research from the Cranbrook roadside survey in 2016 revealed that trucks engaged in trips within the Columbia Basin accounted for only 10 percent of the traffic volume. Therefore, this case study considers the potential opportunities and financial costs associated with the coordination and operation of a delivery service within the Columbia Basin that was either local or intraregional in scope. Potential partnership opportunities or required a level of subsidy are also considered.
The information in the table below provides an analysis of a small scale delivery service. Data for the model is based on the Statistics Canada Specialized Freight (Except Used Goods) Trucking Local database and then adapted based on the research findings contained in this report. It is important to note that Statistics Canada available information for local trucking for the smallest operators in some instances more closely resembles truck load service because the operators have very few fixed assets such as terminals. Thus, their cost structure would not be identical to a regional LTL carrier, either dry or refrigerated. Nevertheless, the information is useful for helping to understand the economic associated with a basic trucking service.

The results of the financial model indicate that a small scale delivery service in the Columbia Basin would incur more costs for wages and benefits and marketing budget compared to the average of those firms providing just a transportation service in the local area. The reason is that the model results assume that the operator of the delivery service would be engaged in both the business development aspects of the operation as well as provide the actual delivery service.
The results of the model indicate that approximately $70,000 in annual revenue for the delivery service would be required to reach the break-even level. Based on a commission structure similar to the Ottawa Valley Food Co-op, it would require annual sales of $368,500, or $269 per day in customer orders to generate the revenue for the delivery service. For comparison purposes the Ottawa Valley Food Co-op generates approximately $86,000 in annual revenue.

The cost of sales would account for approximately 61 percent of the annual budget and operating expenses about 39 percent. However, it is important to note that should the
delivery service provide Basin wide delivery operating expenses would be expected to rise compared to the local trucking industry average because the number of intra-regional trips required to serve farmers and producers across the Columbia Basin and the location of the population centers. Thus, the analysis is presented for discussion purposes and any actual service would need to reflect the routes and business functions required.

8.4 Temperature Controlled or Refrigerated Transport Delivery Service

Insights from the Engagement Process

In regard to the level of trucking service associated with chilled or frozen products, several stakeholders expressed the sentiment that the Kootenays only have one real refrigerated trucking company. They are expensive unreliable and difficult to deal with. In other instances where some form of cold transportation service is provided, it only occurs when vehicle is running. Thus, acquiring refrigerated shipping from where we produce at a reasonable rate was important to stakeholders.

Respondents indicated that they desired a solution that would address both temperature controlled and refrigerated transport needs. The availability of a transport company to deliver frozen foods was an issue that was identified. Other issues with the present logistics system included the fact that some of the products are frozen and transport temperature needs to be maintained and monitored during shipment. Other are required to be able to deliver frozen product on a specific schedule and load into store. Some producers had to fulfill orders (very sensitive to heat) from international locations. Product must be stored and transported in a temperature controlled environment. Products are frozen and need to arrive that way. Uniform pack with regards to size, quality, and colour, temperature maintained at 32 - 34 degrees Fahrenheit. Unfortunately, producers were having a hard time finding a shipping company who is willing to offer this type of service in the Columbia Basin.

Stakeholders also expressed other needs related to temperate controlled or refrigerated trucking service. The ability to easily unload time refrigerable products in an efficient manner was identified as being important. Some stakeholders indicated that it was very difficult to ship beverages that need to be constantly refrigerated. Others noted that there are issues related to freezer space. The need to keep products cool after harvest and before going to market was also raised by respondents.

Due to the geographic locations of the Columbia Basin and highway network the issue of the outside ambient air temperature on the mountain passes can potentially impact perishable products unless the right transport equipment is provided. Conversely, the need for temperature controlled transport during summer was an issues for some respondents.
Outbound cold-chain logistics for small orders to small stores and the refrigerated shipping needed for many products leaving the west Kootenay were also issues raised during the study.

**Case Study Summary**

Case Study B2’s analysis represents an extension of case study B1. The purpose of the case study is to address the range of stakeholder feedback received in the engagement process regarding the need for refrigerated or temperature controlled transport on a local/regional basis.

There are several main distributors that supply the food service industries as well as small to mid-size grocers in British Columbia. These distributors include, but are not limited to, Sysco, Gordon Food Service, Centennial Meats, Intercity Packers and Maple Leaf Foods. Distributors are an important part of the value chain. Most of the distributors are large national or multinational companies and they will not carry beef for example from provincially licensed plants.\(^{65}\) Thus, the root cause of what appears to be a transportation gap in the Columbia Basin marketplace does not necessarily stem from the transport sector in some instances. Rather, the larger industry value chain may be moving in an opposite direction of the local food system movement that services as the raison d'être and passion that fuels many of the existing and emerging agricultural enterprises in the region.

A 2013 study found that the main distributor for British Columbia processed beef is Clarke’s Freightways. Clarke’s operates refrigerated trucks and will deliver meat to most areas of the province. There are also a number of small independent companies in specific regions. Small operators may be looking to build their business through strategic partnerships with local meat producers and processors.\(^ {66}\)

Data collected for the study showed that the local delivery share of the transportation costs accounted for the largest percentage of the total cost of transport. In addition, it was mentioned that the less than truck-load carrier (LTL) carrier must bear the cost of terminal operations across its network, and pricing must account for the risk that shipment volumes will fall based on cyclical economic factors and competition. The analysis was performed on the basis of a dry cargo movement.

While the study team did not have access to any confidential data on shipper costs, there is ample reason to believe that the cost of providing a regional shipping service for refrigerated or temperature controlled cargo would be higher than for operations that do not require specialised equipment.

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As enterprises begin to grow and scale their businesses, a need for specialised equipment may arise as a result of the regulatory requirements. The critical role of the cold chain in the preservation of food safety and quality is recognized by Canadian regulatory authorities. The Canadian Food Safety and Quality Program encourages cold chain stakeholders, including those involved in food transportation and storage, to adopt a hazard analysis critical control point (HACCP) based approach to food safety. Canadian legislation and regulations do not specify a temperature requirement that is enforced across a large range of perishable products or stages of the cold chain. Canadian food safety and quality assurance is largely based on a flexible framework of shared responsibility to producers, processors, transporters, distributors, retailers and consumers. However, some perishable products such as meat do have explicit temperature requirements.  

The need to maintain a service that requires the use of more capital intensive assets such as reefer units than for a dry cargo trucking service, the supply chain regulatory requirements and expectations, the need to avoid the cross contamination of cargo and the relatively low cargo volume within the Columbia Basin has contributed to perceived gaps in transport service from the perspective of shippers. However, from a carrier’s perspective the regional market is too small to support specialized services under current conditions.

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9 INCENTIVIZING OPPORTUNITIES – OPTIONS FOR THE CBT

OVERVIEW
Based on the analysis contained in this report, possible options for the Columbia Basin Trust to consider are discussed below. The options (in whole or in part) consist of measures that would:
- Minimize existing challenges;
- Improve distribution, aggregation and logistics infrastructure in the region; and
- Provide examples of incentivized distribution models could be applied in the Basin;
- Identify potential roles for the Trust to mitigate barriers, enhance growth in the primary agriculture and processing sectors and encourage investment in the Basin.

The measures include market development, sales aggregation and distribution, logistics and transportation aggregation and logistics and transportation infrastructure. The material is generally presented in the order of increasing levels of funding commitment. In each of the options presented the root cause of the problem is presented and hence the possible benefits from implementing a specific option stems from the ability of the solution to either address the root cause in whole or in part.

The need for a distribution hub and transport system for food products out of the area and a vision for interconnected food hubs in "remote BC cities also arose in the stakeholder consultations.

Establishing three food hubs located in separate communities in the Basin to serve the region's growing food economy would help address the logistics and transportation issues raised in the course of our research. However, without growth in cargo volume, it is difficult to implement many of the standard tools used to address transportation challenges.

The possibility of having food hubs (with distribution facility, cold/refrigerated storage and value-added services related to packaging and sales) could serve as incubators to help farmers and agri-food producers scale their business by collaboration and reducing risk.

The communities of Nelson, Creston, and Invermere seem to be well placed geographically to align efforts with the market trends and population growth in the amenity communities with the Columbia Basin. If food aggregators/hubs were established there, they could be the depots from which the products are sourced for distribution to markets within the Basin and perhaps beyond in due course.
9.1 Market Development

The premise inherent in a market development strategy is that farmers and agri-food producers are generally content with their current product offering and wish to expand into new markets. The results of our research resulted in little response from stakeholders indicating that new forms of product development would be an essential part of their growth strategies.

The demand for logistics and transport services is called “derived demand. It is an economic term, that refers to demand for one good or service in one sector occurring as a result of demand from another. Thus, identifying avenues for market development was not an explicit research objective, nevertheless, stakeholders stressed the importance of building the market, since growth results in more cargo opportunities. An expanded customer base is especially important for small markets because growth in freight volumes helps lower the costs for all involved.

While individual producers would continue to focus on increasing their present customers’ rate of use, the tactics discussed below would be geared towards attracting competitors’ customers by offering an alternative to goods imported into the Columbia Basin, attracting nonusers and some geographical expansion of existing markets and customer types.

Avenues that the Columbia Basin Trust could consider for incentivizing growth in the farm and agri-food sectors includes the types of market development initiatives summarized in the table below. The possible initiatives are organized by both ease of implementation and costs.

<table>
<thead>
<tr>
<th>Description</th>
<th>Root Cause</th>
<th>Ease of Implementation</th>
<th>Resources Required</th>
<th>Cost to Maintain(^{68})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Awareness and Education Campaigns</td>
<td>Time and money for producers to market their business and sector is limited therefore difficult to scale operations with a small customer base.</td>
<td>Easy</td>
<td>People Money</td>
<td>Low</td>
</tr>
</tbody>
</table>

\(^{68}\) Note: the “Cost to Maintain” criterion uses a relative rating meaning that it is being compared to the other possible tactics in the table.
<table>
<thead>
<tr>
<th>Create a Kootenay Grown Brand/Label</th>
<th>Undifferentiated products results in goods being sold and purchased on a commodity basis with relatively low prices unable to sustain producer transport costs.</th>
<th>Easy</th>
<th>Money</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Develop a Reward Program for Restaurants, Business, and other Sectors for Supporting Local Farms and Food</strong></td>
<td>Time and effort required by business-to-business customers to seek out new sources of supply creates a reluctance in the market to adopt new producers or sources of supply.</td>
<td>Easy</td>
<td>Money</td>
<td>Low/Moderate</td>
</tr>
<tr>
<td><strong>Develop and Train Market Development Network Coordinators</strong></td>
<td>Time and money for producers to market their business and sector is limited therefore difficult to scale operations with a small customer base. May require commodity-specific efforts or expertise.</td>
<td>Moderate</td>
<td>Time</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

A successful example of a regional market development initiative is the development of the Island Good brand initiative on Vancouver Island. It was started to create awareness, demand and sales for Island products with the added benefit of leading to increased production, employment and investment. Building on the success of the pilot project, the Vancouver Island Economic Alliance has licensed Island Good with an increasing number of producers and retailer. There is also a website islandgood.ca to serve licensees and assist consumers. A Partnership with Tourism Vancouver Island to bring Island Good to tourists. Future initiatives could see a digital marketing campaign and more partnerships with producers and retailers.

### 9.2 Sales Aggregation & Distribution

Stakeholders in this study suggested that it was very important to engage in activities that promote the growth of existing products in sales channels to attract both
consumers and businesses. Several stakeholders asserted that product aggregation and distribution would be important for achieving growth of the agriculture and related industries in the Columbia Basin. The stakeholders’ preferences for market expansion often was expressed in terms of selling to customers located within the Basin rather than exporting products beyond the Basin’s boundaries. For example, stakeholders indicated that there was an inability to access local foods throughout the year.

Aggregation (or the consolidation of products sourced from multiple growers to generate volumes compatible with the wholesale market) is a key ingredient for scaling up local and regional food systems. Aggregated product is typically marketed, branded and distributed under a single or generic brand name; in some cases, individual farms are also identified. Product aggregation may occur through producer- and consumer-led cooperatives, buying clubs, produce auctions, private and non-profit wholesale packers and distributors, and retailers. An aggregator is an entrepreneur or business that amasses product for distribution and marketing.\(^{69}\) For enterprises with a focus on local food systems and desire to reinvest some of the money from operations in likeminded enterprises, the example of Carrot Cache Community Resources Inc. in Ontario was provided as a source of inspiration for a funding model. The organization is funded from the profits of an employee-owned natural food store. Over the last 18 years Carrot Cache granted over $2.1 million to organizations and individuals. It invested $65,000 in non-voting shares in other co-operatives and loaned and received back over $243,000. These monies are given to people who are working on organic agriculture initiatives and developing regional food economies.\(^{70}\)

Sales aggregation and distribution is an essential value-added activity in a market economy. For example, a recent news article stated that in the Okanagan, the average annual harvest of about 80,000 tonnes of apples equates to about $51 million in revenue for orchardists, and $116 million in wholesale value after being packed for shipment to stores.\(^{71}\) The apple crop on average had a value of $637.50 per tonne for the producer. In this example, both the volume of the crop and the value of the crop on a per tonne basis is sufficient to pay for the cost of transportation. The wholesale aggregation and distribution functions in the Okanagan apple sector accounted for $65 million in value-added activity. The value-added activity is directly attributable to the creation and maintenance of sales channels and distribution of the product.

The challenge for many of the participants in the agricultural sector in the Columbia Basin is that they are small scale producers with a relatively low volume of output. Thus, it can be a challenge to attract customers in other market segments that may need a


\(^{70}\) https://www.carrotcache.com/

\(^{71}\) https://vancouversun.com/business/local-business/apple-harvest-winds-up-in-the-okanagan-80000-tonnes-have-been-picked
quantity and continuity of supply to be interested in purchasing the products on an ongoing sustainable basis. Therefore, to create value for the potential customer is often necessary to work either on a contract or collaborative basis with others to develop and maintain sales channels.

An aggregator is a business or organization that actively manages the aggregation, distribution, and marketing of source-identified locally or regionally grown food from primarily small to mid-sized producers. A food hub may provide the core services of a packing house and/or aggregate and distribute farm-packed produce.

Examples of initiatives that the Columbia Basin Trust could consider for incentivizing growth that involves sales aggregation, and product distribution are summarized in the table below.

The premise inherent in these tactics is that there is some existing customer base to work from, and potential sales growth would be driven in part by the market development efforts outlined earlier.

### Figure 33 Sales Aggregation & Distribution Options Assessment Criteria

<table>
<thead>
<tr>
<th>Description</th>
<th>Root Cause</th>
<th>Ease of Implementation</th>
<th>Resources Required</th>
<th>Cost to Maintain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Promotion Programs and Sales Campaigns</strong></td>
<td>Time and money for producers to create awareness and then sell their products is limited. In addition, some sales channels require a stable and consistent volumes of supply that is difficult for a small producer to provide.</td>
<td>Easy</td>
<td>Money People</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Vendor Awareness Sessions</strong></td>
<td>Time and cost associated with small farmers and producers expanding their sales pipeline opportunities.</td>
<td>Easy</td>
<td>People Money</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Foster Links Between Local Producers and Distributors</strong></td>
<td>Not cost effective for producers and distributors to meet with numerous small farmers and producers to access suppliers.</td>
<td>Easy</td>
<td>People</td>
<td>Low</td>
</tr>
</tbody>
</table>
### Institutional Purchasing Programs
Create access to alternative sales channels for small producers.

| Help small scale farmers and producers achieve economies of scale and efficiency. | Moderate | Money People Time | Moderate |

### Financing for Local Food Hub
Create awareness and access to alternative sales channels for small producers.

| Inadequate capital base from small producers and farmers to finance growth. | Moderate | Money People Time | Moderate |

The putting forward the options in the table above, we intend to demonstrate the alignment of research findings with the recommendations to those in the food hub report completed earlier this year. Establishing three food hubs located in separate communities in the Basin to serve best the region's growing food economy would help address the logistics and transportation issues raised in the course of our research. However, without growth in cargo volume, it is difficult to implement many of the standard tools used to address transportation challenges.

The possibility of having food hubs (with distribution facility, cold/refrigerated storage and value-added services related to packaging and sales) could serve as incubators to help farmers and agri-food producers scale their business by collaboration and reducing risk.

The communities of Nelson, Creston, and Invermere seem to be well placed geographically to align efforts with the market trends and population growth in the amenity communities within the Columbia Basin. If food aggregators/hubs were established there, they could be the depots from which the products are sourced for distribution to markets within the Basin and perhaps beyond in due course.

### 9.3 Logistics and Transportation Aggregation & Distribution
The existing research identified the fact that agricultural and stakeholders in related industries experience several issues with logistics and transportation service levels in the Columbia Basin that resulted in challenges in conducting their businesses.

Examples of initiatives that the Columbia Basin Trust could consider for incentivizing growth that involve logistics and transportation aggregation and distribution are summarized in the table below. The premise inherent in these tactics is that transportation and logistics issue arise for both inbound and outbound freight needs and various forms of regional collaboration may provide an avenue for addressing the needs and opportunities of those in the region.
Since logistics and transportation issues are the primary research focus of the current study, commentary on each of the options is provided in the paragraphs below.

**Cargo Matching Load Board**
One respondent to the on-line questionnaire noted that that their milk delivery service brings milk to them and goes back with some of their bread for customers in his city. He also brings local veggies from some farms on his way to our business.
Sharing Economy Logistics
The development of a load and equipment board for existing vehicle and equipment to facilitate transportation collaboration using existing resources and assets in the Columbia Basin could be considered to be part of the emerging sharing economy.

For example, one respondent to the on-line questionnaire noted that there was definitely potential because they have trucks that sit during the week that could potentially be used to move other shippers’ cargo. Other respondents indicated that sharing trucks for supplies or sending finished product was a possibility. Still others expressed the sentiment that coordinating delivery routes with trucks already going to areas might be a possibility. Finally, some respondents noted the possible importance of this type of opportunity might increase in importance for shipping out product together when their farm gets to this stage.

To illustrate, the type of challenge this option would help address it useful to review an example provided by a stakeholder response. One enterprise has a need to have grapes transferred from the tiny area of Needles (Edgewood) in the autumn to Nakusp, and possibly other areas in the Basin or Okanagan. The enterprise will likely order bottles and other supplies from the Okanagan. Shipping costs are high to Nakusp. The individuals have used personal vehicles and friend's vehicles to pick up other business and farm supplies, but it's also costly and takes time away from core business operations.

Some respondents indicated that they would be open to the possibility on the condition that there would be no risk of cross contamination. Finding businesses open to this and then that company needing product taken to locations at a similar time would be another challenge for enterprises that do not ship product on a set schedule but when they receive a customer’s order.

However, making used of shared space on farm or other transport vehicle in return for payment could result in the service being considered a commercial carrier. A commercial carrier means any owner of a motor vehicle, truck, laden or unladen truck tractor, trailer, or semitrailer used in the business of transporting persons or property over the public highways for profit, hire, or otherwise in any business or commercial enterprise. Commercial carriers are required to meet provincial licensing requirements. In addition, commercial carriers have specific legal responsibilities for the carriage of goods and therefore commercial carriers carry specific types of insurance coverage to address the risks.72

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72 https://purewalcpa.ca/requirements-for-starting-a-trucking-company-in-bc/
Transportation Purchasing Group For Inbound and Outbound Freight
Without expressly using the terminology “purchasing group” several respondents mentioned the possibilities related to aggregate shipping and creating a group rate for business going to the same locations for shipping. Group ordering of supplies, seed potatoes etc. in spring to reduce high shipping costs or creating a port hole for ordering supplies- labels, boxes, office supplies etc. to save on shipping cost. Organizing group orders at beginning of the season to import supplies was also mentioned. Others commented on the possibilities associated with cross dock shipping, combining existing orders with the same transport companies, sharing the cost of shipping with other businesses. Other respondents noted that local transport companies exist and sharing in the costs helps reduce costs on freight. A lot of companies are shipping out of the Kootenays. but it is hard to partner with them to reduce costs without a centralized place/entity to deal with it.

Creation of a Delivery Service for the Columbia Basin
Several stakeholders indicated that what they needed was a transportation company that serves the Kootenays to help small business getting their product to market and to encourage small local business. Stakeholders expressed frustration with the fact that there were very few trucking services right now that allow for small orders without a substantial surcharge. As a result, it makes bulk vendors more attractive than small scale vendors because it’s easier to meet minimum quantities to avoid the high shipping costs. Stakeholders indicated that there are some workarounds for their enterprises because they know people, but businesses still have to do a lot of legwork to find solutions. If there were more options for small scale suppliers to ship, that would make their products more worth purchasing. Stakeholders commented that it would be cool to source a shipping service for small scale, especially farmers and artisan producers, to share costs for shipping, coordinate shared cargo space, etc. like a carpool for goods. The importance of enhancing a north-south shipping route to access clients on TransCanada Highway #1 was also noted.

The need for a distribution hub and transport system for food products out of the area and a vision for interconnected food hubs in “remote BC cities also arose in the stakeholder consultations.

One respondent suggested the purchase of temperature controlled large sprinter vans for key centers in the Basin, ideally with delivery driver, for subsidized rental or group rental for cross region and major urban center (Lower Mainland, Calgary etc.) deliveries. Set up an online booking system for its use/ Alternatively set up a predefined route schedule (based on the local businesses surveyed needs) and businesses book space in the vans according to that schedule. Have a refrigerated truck that could do on farm pickups and deliver around the basin and major cities such as Kelowna Calgary Vancouver. Have trucks make stops at small meat processing facilities.
Encouraging transport companies to work with the needs of the local food system and developing a regional delivery system could be incentivized. For example, within the Columbia Basin, there have been at least two efforts to improve air carrier services through the use of financial incentives. For example, Delta Airlines at Cranbrook Canadian Rockies International Airport and a charter air carrier were engaged in providing service at Revelstoke.

The April 4, 2008 minutes of the board of directors of the Regional District of East Kootenay indicate that with a commitment and guaranteed contributions from the private sector in the region, Delta Airlines would begin operating out of the Cranbrook Rockies International Airport on December 17, 2008.

The Columbia Shuswap Regional District board minutes of January 11, 2016 indicate that the City of Revelstoke and Electoral Area B approved funding of up to $25,000 to contribute to funding charter air service. The period was for March and April 2016 to promote tourism and determine if a business case could be made for regularly scheduled flight service to and from Revelstoke Airport. In February 2016, a similar request was approved for $37,500 in funding.

### 9.4 Logistics and Transportation Infrastructure

A research objective of the current study was to identify current logistics challenges associated with the existing infrastructure in the Columbia Basin. Based on the stakeholder feedback, the present state of three types of logistics infrastructure presented a challenge for growing the agricultural and related industries sectors in the region.

Examples of initiatives that the Columbia Basin Trust could consider for incentivizing growth that involve logistics and transportation infrastructure are summarized in the table on the following page.
## Figure 35 Logistics & Transportation Infrastructure Options Assessment Criteria

<table>
<thead>
<tr>
<th>Description</th>
<th>Root Cause</th>
<th>Ease of Implementation</th>
<th>Resources Required</th>
<th>Cost to Maintain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution Centers (DCs)</td>
<td>Scarcity of regional facilities for consolidating agricultural and agri-food commodities.</td>
<td>Moderate</td>
<td>People Money Time</td>
<td>High</td>
</tr>
<tr>
<td>DCs are necessary for product aggregation to support growth through accessing new sales channels that require consistency in sales volume.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway Improvements</td>
<td>Poor road access and conditions makes it more difficult and expensive to get products and supplies to and from market in a timely manner and without damage.</td>
<td>Moderate to Hard</td>
<td>Time People Money</td>
<td>High</td>
</tr>
<tr>
<td>Maintenance and capital improvements.</td>
<td></td>
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### Distribution Centers

The concept of having a shipping and delivery hub resonated with several stakeholders who participated in the engagement process. Several producers wanted to see a local depot(s) where their products could be stored, then picked according to the orders and put on delivery trucks that circle the Kootenays delivering either to other depots or businesses. In some instances, stakeholders expressed the desire to co-locating a distribution center with a food hub having a commercial kitchen and access to shared packaging and other equipment. The potential demand for temperature controlled spaces/storage warehouse is difficult to quantify. However, some stakeholders have suggested that access a distribution center and temperature controlled facilities would act as an encouragement for them to continue to invest and improve their production facility.

### Highway Improvements

While stakeholder recognized the fact that the Columbia Basin Trust has no formal role in the provision of highway or road infrastructure, respondents to the survey expressed several strong sentiments regarding the importance of the topic. Weather and road conditions have an impact on produce quality. For example, bumpy roads contribute to bruised produce. The conditions of the roads impacts travel time. In some instances, producers are easily cut off from supplies in the late fall to late spring due to road conditions in the mountain passes. Spring load restrictions on West side road suggest that upgrades may be required.
Sharing information with policy decision makers about how the need for transportation service and the needs of the highway network to evolve the Columbia Basin is vital. Highway transportation planners often focus on traffic volume or growth statistics to form their initial opinions of where infrastructure improvements or maintenance is required. Sharing local knowledge and insight will help inform those tasked with making what are usually relatively expensive investment decisions with long planning cycles.

The findings from the present study and the June 2017 report entitled *Columbia Basin Trust Regional Shipping and Logistics Analysis* indicate that the CBT could continue to play an important role in information gathering that helps inform regional stakeholder engagement and advocacy efforts with the British Columbia government.
10 RECOMMENDATIONS

OVERVIEW

The options discussed in Section 9 were put forward with an attempt to provide a menu of possibilities that could be implemented both now and over the longer-term. The focus of the recommendations centers primarily on the needs of small producers, mainly participating in alternative food systems but looking to grow and scale their enterprise over the next few years.

The assignment specially asked our team for advice on what the Columbia Basin Trust could do to incentive agriculture and agri-food with the region.

We propose three main recommendations that need to be implemented in tandem. Each suggestion is vital because of their interdependency between them. The mutual need and reciprocal success of each component will create an economically sustainable food system, where local and regional agricultural and agri-food products can be a move to market.

- Engage in market development activities with a focus on regional branding, business development activities associated with producer market readiness and sales aggregation efforts with stakeholders.

- Create local food hub(s) where services such as regulatory and food safety knowledge, packaging advice and services, warehousing sales aggregation and distribution are all co-located on the same premises as a commercial kitchen etc.

- Collaborate to form a transportation buying group and engage with an existing regional carrier to provide a pilot project small scale local distribution service with stakeholders.

The ability to scale a business is critical to both growth and addressing transportation and logistics challenges.

The recommendations put forward in this report are aimed at market expansion and sharing the financial risks between small scale producers and carriers. Small businesses often do not certainty to commit a specific quantity of goods on a specific trade lane because their sales forecasts and production volume are somewhat uncertain. In turn, transport carriers will not commit to providing service in the face of low potential demand, or uncertain traffic volume. The ability to scale a business is critical to both growth and addressing transportation and logistics challenges. The options identified in this report also recognize that marketing, sales development and business readiness are key to growing the agriculture-related sectors with the region. Addressing a set of interrelated issues is key to unlocking the agriculture and agri-foods sectors full potential.
A. Engage in market development activities with a focus on regional branding, business development activities associated with producer market readiness and sales aggregation efforts with stakeholders.

Regional branding and promotion would support each community and not undermine most local producers. The reason is that the very small scale of agriculture and agri-food output is likely to be insufficient to fill the potential market demand. Thus, there is an opportunity to possibly source products from other Basin producers. For instance, is some of the Revelstoke businesses that are concerned about losing their market share (if another product comes in from different parts of the Basin) producers could be supported by developing a "buy as local as a possible" promotional program for both buyers and consumers. The Kootenay Coop's True Local program could be considered as a model of promoting and championing the most local products and then moving out from there to ensure that there is a broad and consistent offering providing adequate volumes to match the demand. Market development initiatives should move in tandem with any transportation specific actions.

B. Create local food hub(s) where services such as regulatory and food safety knowledge, packaging advice and services, warehousing sales aggregation and distribution are all co-located on the same premises as a commercial kitchen etc.

The focus of the food hub would be helping agriculture, agri-food and beverage businesses scale their operation to serve new market segments of segments. The Columbia Basin Trust could help incentivize by supporting food hub business planning, providing access to expertise, contributing capital to start-up operations and providing a financial commitment to the early stages of start-up operations.

An initial investment by the CBT may be necessary to kick start the hub/distribution concept. Still, after that, the study team asserts that with stakeholder collaboration it can work towards a viable initiative with volumes expanding year over year and making the transportation and logistics component more efficient as more product comes online. Thus, we recognize that the intent of our recommendation is to help address the early stages of start-up risk and access to capital that can hamper business expansion.

C. Collaborate to form a transportation buying group and engage with an existing regional carrier to provide a pilot project small scale local distribution service with stakeholders.

The Columbia Basin Trust could help incentivize the service by providing a financial guarantee or backstop to the transport carrier if the demand for regional shipping service is insufficient to cover the basic cost structure of the service. The purpose of the multi-year pilot project would help determine if a business case could be made for regularly scheduled regional service, or whether improvements in new market access of increased sales created economic development benefits that exceeded the cost of providing the financial backstop.
There is some potential to enhance the food economies of the Basin by addressing the need to move agricultural products/food more effectively on the two main north-south corridors. Large trucks and the traffic volumes tend to pass through the Basin on Highway #1 to the north or Highway #3 to the south. The economies of scale have not yet been realized to serve the communities on the north/south corridors effectively.

There is potential and currently some unmet demand that could be further enhanced if a Basin circuit could be created. On the western side of the Basin, Highway #6 and then #23 connect communities that are local-food-conscious, and that already have a collection of entrepreneurs seeking to capitalize on local food opportunities.

On the eastern side of the Columbia Basin, along Highways #93 and #95, there are multiple resort municipalities and recreation centres that draw significant tourists and visitors who come not only for the activities but also look for a "Kootenay food experience" (this includes Revelstoke to the West). These represent potential demand opportunities to capitalize on for local food, even if the local food culture that is emerging is not as developed as in the more westerly sections of the Basin.

Linking up these two north-south corridors are Highways #1 and #3 to create a distribution circuit that could enable the efficient movement of intra-Basin food. This circuit approach will also allow the communities to along Highways #1 and #3 to be able to access food since most of the trucks are passing through and not stopping to pick up nor drop products at local markets.

Since stakeholder collaboration is required to form a transportation buying group and that new sales channels are likely required to help small agricultural producers and agri-food enterprises, the Columbia Basin Trust could also offer to provide support equivalent to an agriculture extension officer. An individual, regional trucking company or business such as the Kootenay Co-op with in-depth local knowledge of the markets would be the type of stakeholder than could help foster the necessary collaboration. Given the costs associated with the time and effort to develop the initiative and maintain momentum to guide the effort, financial assistance to help offset some of the expenses might help to incentivize a buying group.

We do not suggest that the CBT commences operating a trucking delivery service. Working in collaboration with local/regional based trucking enterprises that already have some capacity to move product (or may be willing to expand their capacity) would likely be the most productive way forward. A pilot initiative that would help demonstrate and refine the market potential and the fair allocation of business risks between shippers and a carrier are vital elements to consider.

Finally, it is essential to note that the study team does not recommend that the Columbia Basin Trust offer freight transportation subsidies directly to producers or agri-
food enterprises. The payment of subsidies has the potential to undermine existing commercial conditions and service in the market with no guarantee that either new customers or markets will be served. Freight subsidies have the potential to undermine the financial health of some operations because subsidies can lead to inequities or the favoritism to the detriment of other industries. Subsidies also encourage the inefficient use of transportation services. Whether any redistribution that occurs as a result of a subsidy is fair or unfair is a matter of political judgement.\textsuperscript{73}

The recommendations put forward in this report are aimed at market expansion and sharing the financial risks between small scale producers and carriers. Small businesses often do not certainty to commit a specific quantity of goods on a specific trade lane because their sales forecasts and production volume are somewhat uncertain. In turn, transport carriers will not commit to providing service in the face low potential demand, or uncertain traffic volume. The ability to scale a business is critical to both growth and addressing transportation and logistics challenges. The options identified in this report also recognize that market and sales development and business readiness are key to growing the agriculture-related sectors with the region. Addressing a set of interrelated issues is key to unlocking the agriculture and agri-foods sectors full potential.

\textsuperscript{73} Morris, Joseph (1995), “Subsidies and External Costs in the U.S. Surface Freight Transportation”, Road Transport Technology, University of Michigan Transportation Research Institute.
11 APPENDIX A: SAFE FOOD FOR CANADIANS REGULATIONS

The safe transportation of agricultural, agri-food and beverage products takes place within the context of an evolving regulatory environment, both internationally and within Canada.

While the purpose and scope of this report is not to provide a detailed regulatory analysis, it is essential to note that many of the concepts and ideas discussed in this document have a direct relationship with food safety regulations. The Safe Food for Canadians Act (SFCA) and the Safe Food for Canadians Regulations (SFCR) came into force in Canada on January 15, 2019. The material is presented to make readers aware of some of the issues that could impact the topics discussed in this report. Advance knowledge of the supply chain requirements becomes increasingly important as enterprises in the Columbia Basin look to scale their businesses and perhaps seek more distant markets. For producers looking to sell their products into more local or regional markets, knowledge of the supply chain requirements helps determine in part how local product substitution can perhaps compete based on a distinct value proposition while still meeting the supply chain partners and consumer expectations embedded in Canada’s national legislation.

Unless otherwise noted, the summary material below draws on the content provided in the blog of the law firm Bennet Jones⁷⁴ and the publication Understanding the Safe Food for Canadian Regulations: A Handbook for Food Business published by the government of Canada.

Canada’s new laws modernize and streamline the food safety regime administered by the Canadian Food Inspection Agency (CFIA). The legislation create new compliance requirements for businesses that import, export or trade food products interprovincially. Some conditions relating to traceability, packaging, labelling and grades also apply to certain types of foods traded within a province.

Based on the internationally recognized Hazard Analysis Critical Control Point (HACCP) principles of food safety, the SFCR consolidate 14 sets of previous food regulations to create one set of consistent regulations that apply to all categories of "food" (i.e., any article manufactured, sold or represented for use as food or drink for human beings, chewing gum, and any ingredient that may be mixed with food for any purpose whatever) and any animal or plant, or any of its parts, from which food may be derived.

While previous food safety regulations only covered specific categories of food products, the SFCA and SFCR apply to food or drink for human consumption (including ingredients) that are imported, exported or interprovincially traded, and to food animals.

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⁷⁴ https://www.bennettjones.com/Blogs-Section/The-Safe-Food-for-Canadians-Act-What-AgriFood-and-Beverage-Businesses-Need-to-Know
from which the derived meat products will be exported or interprovincially traded. Animal feed and pet food are not covered.

Whether a food business requires a SFCA operating licence depends on its activities. A licence is required for food businesses that:

- Import food;
- Export certain types of food;
- Manufacture, process, treat, preserve, grade, package or label food to be exported or sent across provincial or territorial borders;
- Store food to be exported or sent or conveyed from one province or territory to another;
- Slaughter food animals from which meat products are derived for export or to be sent across provincial or territorial borders; and
- Store and handle food in its imported condition for inspection by the CFIA.

The preventive control requirements in the SFCR are designed to prevent food safety hazards and reduce the likelihood of contaminated food entering the Canadian marketplace. Operators and licence holders who import food must adhere to the preventive control requirements. Businesses that engage in certain specific activities are required to prepare, keep, maintain and implement a written "Preventive Control Plan," namely those that:

- Grow or harvest fresh fruits or vegetables for interprovincial trade;
- Hold a licence to slaughter food animals;
- Hold a licence to manufacture, process, treat, preserve, grade, package or label food for interprovincial trade;
- Hold a licence to store and handle an imported edible meat product for inspection by the CFIA;
- Hold a licence to manufacture, process, treat, preserve, grade, package or label meat products or fish for export;
- Hold a licence to import food; or
- Export food for which they would like to obtain an export certificate or other export permission from the CFIA, such as being on an export eligibility list.

Preventive Control must be proportional to the level of risk, and their effectiveness must be evidenced by a validation study. The "validation" concept comes from the HACCP definition, which is the process of obtaining evidence that a control measure or combination of control measures, if properly implemented, is capable of controlling the hazard to a specified outcome. Control measures that were previously validated before the SFCA came into force do not need to be re-validated, but re-validation is required if the control measures change or there are repeated failures or deviations.

Traceability is the ability to track the movement of a food or food ingredient one step backward and one step forward in the supply chain. The SFCR's traceability
requirements ensure that food businesses keep and can access timely and precise information if unsafe food needs to be removed from the market. Traceability records must enable the CFIA as part of its enforcement activities to correctly identify the food (using a unique lot number or other identifiers), identify the supplier it came from and the date, and identify the customer it was sold to and the date.

Records may be physical or electronic, but in all cases must be easily and quickly accessible from within Canada. Electronic records must be in a format that can be read by or imported into standard commercial office software to ensure the CFIA can view and work with the data if needed, in keeping with the CFIA's food safety investigation and recall mandates under the Canadian Food Inspection Agency Act.

Traceability also requires that the label attached to the food when it is provided to another person include (1) the common name of the product, (2) the name and place of business by or for whom the food was manufactured, prepared, produced, stored, packaged or labelled, and (3) the lot code or unique identifier (note that a UPC or price look-up code is not sufficient as an identifier because it is not unique to a particular production lot).

Whether a food business needs to maintain traceability records depends not on the food but on the business' activities. Traceability records must be kept going back two years by businesses that:
- Import or export food;
- Distribute or send food products across provincial or territorial borders;
- Manufacture, process, treat, preserve, grade, store, package or label food, grow and harvest fresh fruits or vegetables or slaughter food animals from which meat products are derived, where the product is exported or sent across provincial or territorial borders;
- Store and handle edible meat products in their imported condition for inspection by the CFIA; and
- Sell food to consumers at retail, which needs to trace one step back but not forward to the consumer.

The "retail" category does not include restaurants, cafeterias or other similar food service businesses, which are not required to keep traceability records unless they trade food across provincial or territorial borders. But companies such as grocery stores or bakeries that might also serve prepared meals in addition to selling food at retail are still subject to traceability requirements because their principal business is retail operations.

All food importers will now require SFCA licences, Preventive Control Plans and Traceability records. Non-resident importers can, in some cases, qualify for a licence, but only if they are located in a country that the CFIA recognizes as having equivalent food safety standards, and the food to be imported comes from the same country.
Otherwise, the Canadian customer or consignee may need to act as the importer of record for Canadian customs purposes.

Key components of preventive control plans includes consideration of the effect of factors such as: 75
- Transportation and maintenance practices,
- Telematics,
- Modified atmosphere packaging/low oxygen,
- Sanitation on safety and wholesomeness,
- Acceptable temperature ranges,
- Ambient and pulp temperatures.

A business that exports food from Canada but does not otherwise process or handle it may not need a licence depending on the type of food (for example, fish and meat still require licences). But in all cases, all applicable Canadian and country of destination food safety standards must be met for the production and handling of the food.

The SFCA and SFCR also contain rules regarding the labelling, packaging, identification and grades of specific categories of products, including meat and food animals, dairy, eggs, processed egg products, fish, honey, maple syrup and fresh fruits and vegetables, combining and updating those previously found in product-specific regulations. Other packaging and labelling rules, such as those found in the Food and Drugs Act, Food and Drugs Regulations and the Consumer Packaging and Labelling Act, also continue to apply. The SFCA generally applies to import, export, and interprovincial trade activities; many of the SFCA's requirements, including licensing (for most categories of food), do not apply for businesses that only distribute food within a single province. However, there may be provincial regulations that apply, and some provinces may require food businesses to obtain a federal licence in any event.

The Safe Food for Canadians Act (SFCA) does not apply to carriers is the sole purpose is transporting the goods. However, the following carrier records can be important: 76
- Written procedures, agreement and training,
- 2 tears of record retention,
- Maintenance and calibration records,
- Wash records,
- List of prior commodities,
- Pre-cool evidence,
- Temperature monitoring records.

75 CITT Webinar October 30, 2019, “The Technological Aspects of Food Safety and Temperature Controlled Shipments”.
76 CITT Webinar October 30, 2019, “The Technological Aspects of Food Safety and Temperature Controlled Shipments”.
12 APPENDIX B: ABATTOIRS

In terms of logistics of distribution infrastructure challenges, as of 2017 there were no local or regional stockyards or auction markets to facilitate local sales of livestock. In 2016 the Windermere District Farmers’ Institute (WDFI) started construction on a provincially licenced abattoir. This project was needed because of the new meat inspection regulations which were enacted in 2004 requiring that meat for sale for human consumption must be slaughtered in a licensed abattoir. Nevertheless, most livestock is shipped to Alberta for finishing and slaughter. Similarly, there is no commercial-scale infrastructure associated with grains (i.e., elevators, producer carload-out facilities), fruits, vegetables or forage production or processing. Consequently, most agricultural products produced in the Columbia Basin are processed and marketed outside the region.

The availability of processing facilities and access to an abattoir were cited as examples of areas of uncertainty related to longer term growth plans. However, due to the complexity and commercial and regulatory nuisances associated with logistics infrastructure associated with abattoirs the topic requires specific considerations that were deemed beyond the scope of the present study.

Figure 36 Abattoir Locations

![Abattoir Locations Map](image)