

**Access to Transportation and Food for Users of
Non-Profit Food Hubs in the City of Vancouver
Before and During the COVID-19 Crisis**

by

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Abstract

Food that is available yet inaccessible cannot ensure urban food security. This study involved an online survey (n=84) and semi-structured follow-up key informant interviews (n=10) with individuals at least 19 years old who accessed food at a non-profit food hub located in the City of Vancouver more than once before and during the COVID-19 crisis. Data from the survey and interviews highlight which individuals and families access non-profit food hubs in the City of Vancouver, how they access them, and what barriers they face to access them. Drawing from the findings, a few recommendations are provided in terms of potential ways to increase the accessibility of food at non-profit food hubs in the City of Vancouver. This study emphasizes how the current two-tier food system perpetuates stigma and harms the well-being of marginalized populations in the City of Vancouver in their journey to obtain food.

Keywords: food security; food access; mobility; non-profit food hubs; COVID-19

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Chapter 1.

Introduction

As Mintz and Du Bois (2002) note, “Next to breathing, eating is perhaps the most essential of all human activities, and one with which much of social life is entwined” (p. 102). Since food enables us to both survive and thrive, achieving food security is an important goal. Food security has been defined as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for an active and healthy life” (The Food and Agriculture Organization of the United Nations [FAO], 2001, p. 49). For its part, the United Nations (2020) has been advocating for the end of hunger and the achievement of food security as one of the Sustainable Development Goals. Despite attempts to end hunger and achieve food security, there is a growing number of people affected by food insecurity. Globally, 2 billion people were affected by moderate or severe food insecurity in 2019, up from 1.9 billion in 2014 (United Nations, 2020). Although some may be tempted to think that food insecurity is only prevalent in developing countries, it is also prevalent in developed countries such as Canada. In Canada, 4.4 million people were living in a household affected by marginal, moderate, or severe food insecurity in 2017-2018, up from 3.9 million in 2011-2012 (PROOF, 2021; Tarasuk & Mitchell, 2020). The COVID-19 crisis has only exacerbated the issue of food insecurity globally and in Canada (United Nations, 2020; Statistics Canada, 2020). During the COVID-19 crisis, 14.6% of Canadians were living in a household where there was moderate or severe food insecurity during April-May 2020, up from 10.5% during 2017-2018 (Statistics Canada, 2020).

The International Covenant on Economic, Social, and Cultural Rights asserts the right to adequate food and the fundamental right to be free from hunger (United Nations, 1966). As a state party to the covenant, which has been in effect since 1976, the Government of Canada has “the obligation to respect, promote, and protect and to take appropriate steps to achieve progressively the full realization of the right to adequate food” (FAO, 2005, p. 6). Although the Government of Canada attempts to secure the right to adequate food through social assistance and unemployment insurance

programs, these programs have been inadequate. For example, 60.5% of households in Canada where the main source of income is social assistance programs face marginal, moderate, or severe food insecurity (Tarasuk & Mitchell, 2020). Meanwhile, 32% of households in Canada where the main source of income is employment insurance or workers' compensation face marginal, moderate, or severe food insecurity (Tarasuk & Mitchell, 2020).

The inadequacy of these programs has made it necessary for food banks and other non-profit organizations to fill the gap (Tarasuk et al., 2014). Food banks began to proliferate in Canada in the early 1980s as what was meant to be a temporary response to needs rising from the economic recession of that period (Tarasuk et al., 2014). Yet, demand for food banks did not abate as the economy improved because there were social policy reforms at the federal and provincial/territorial levels that resulted in reduced benefit levels, more restrictive eligibility criteria for social assistance and unemployment insurance programs, as well as retractions in investments in social housing (Tarasuk et al., 2014). The trend that has persisted since then is that the bulk of food bank clientele have been reliant on welfare and other social assistance programs (Tarasuk et al., 2014). The important role that food banks and non-profit organizations in Canada play in terms of attempting to secure the right to adequate food has been evident through the COVID-19 crisis and has been recognized by the Government of Canada. When many vulnerable Canadians were facing the impacts of the COVID-19 crisis in April 2020, the Prime Minister of Canada (2020a) announced \$100 million in funding for food banks and other non-profit organizations so that they could make sure people could get the food they need. In October 2020, the Prime Minister of Canada (2020b) announced an additional \$100 million in funding.

While food banks and other non-profit organizations are certainly beneficial, they are not the best solution in terms of securing the right to adequate food. As Riches and Silvasti (2014) note, although clients of food banks and other non-profit organizations may be treated well, the food they are offered may not always be sufficient, nutritionally balanced, or otherwise adequate. For example, food banks and other non-profit organizations tend to have a selection of food that does not satisfy nutrition standards and tend to run out of food (Riches & Silvasti, 2014). Furthermore, food banks and other non-profit organizations typically do not cater to special diets, whether due to a medical condition, an ethical or religious belief, or a preference (Riches & Silvasti, 2014).

Currently, solutions to address urban food insecurity in Canada are focused on improving existing food assets and/or growing the number of food assets in cities. Baker (2018) notes the central role of food assets in promoting food security. The definition of food assets is:

the local food infrastructure that maintains food-secure communities and regions – farms, processing and distribution capacity, food enterprises, markets, retailers, . . . urban farms, community gardens, community kitchens, student nutrition programmes, emergency food distribution and community food organizations and centres” (Baker, 2008, p. 266).

For many low-income individuals and families, daily access to food involves a combination of food obtained from a charitable meal program as well as purchased food, food prepared in community kitchens, or food traded from friends or family (Miewald & McCann, 2014).

This study focuses on the subset of food assets that come under the umbrella term of *non-profit food hubs*. Examples of non-profit food hubs include food banks, neighbourhood houses, community centres, and soup kitchens. This study took place in the City of Vancouver, Canada where it has been anecdotally noted that low-income individuals and families find it challenging to get to non-profit food hubs. The *Poverty Reduction Plan, What We Heard: Phase 1* report published by the City of Vancouver (2019) highlights significant food access challenges for low-income individuals and families, especially in terms of transportation accessibility, transportation costs, transportation distance, transportation inconveniences, transportation reliability, transportation time, line-ups at non-profit food hubs, and schedules of non-profit food hubs. The report highlights that difficulty in accessing food can lead to further physical and psychological harm which in turn sustains oppressive systems of poverty (City of Vancouver, 2019). Since the report by the City of Vancouver (2019) was published prior to the COVID-19 crisis, this study provides valuable insight into how food access challenges have played out during the COVID-19 crisis.

Drawing from an online survey (n=84) and semi-structured follow-up key informant interviews (n=10), this study evaluates access to food at non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis, especially as it relates to mobility and access to transportation. Based on this, a few recommendations are provided in terms of potential ways to increase the accessibility of food at non-profit food

hubs in the City of Vancouver, especially in terms of increasing mobility and access to transportation. The study addresses the following research questions:

1. Which individuals and families access non-profit food hubs in the City of Vancouver?
2. How do individuals and families access non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis?
3. What are the barriers to accessing food at non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis?

This study will contribute to a better understanding of the demographics of those who access non-profit food hubs in the City of Vancouver. Furthermore, this study will contribute to a better understanding of how people access non-profit food hubs in the City of Vancouver in terms of their modes of transportation, travel times, line-up times at non-profit hubs, reliance on food obtained from non-profit food hubs, etc., and how some of these things have changed during the COVID-19 crisis. Finally, this study will contribute to a better understanding of which barriers to accessing food are most frequently encountered by those who access non-profit food hubs in the City of Vancouver and how this has changed during the COVID-19 crisis.

The following chapter (Chapter 2) is a literature review that covers key themes that are relevant to the study, namely food system planning, urban food security, and access to food and mobility. Chapter 3 focuses on methods and frames the study in terms of its spatial, temporal, and food policy contexts, its methodology, and its limitations. Chapter 4 contains the findings of the study and some discussion around the findings. Chapter 5 closes off the paper with recommendations based on the findings and a conclusion.

Chapter 2.

Literature Review

2.1. Food Systems Planning

The food we eat relates to the food system, which refers to “a chain of activities connecting food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory institutions and activities” (Pothukuchi & Kaufman, 2000, p. 113). The food system ought to be significant to planners because it impacts the social, economic, and environmental sustainability as well as the health of communities (American Planning Association [APA], 2021). According to the profession’s traditional and technical definition, planning involves “the scientific, aesthetic and orderly disposition of land, resources, facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of urban and rural communities” (Planning Institute of British Columbia, 2021, para. 2).

At the turn of the millennium, although planners focused on a wide range of functional systems that support communities, a focus on the food system was absent from most planning practice, research, and education (Pothukuchi & Kaufman, 2000). Although there are several reasons why planners did not focus on the food system, the American Planning Association outlines three key reasons (APA, 2007). First, planners thought of the food system as something that was only indirectly related to their principal focus, namely the built environment (APA, 2007). Second, planners thought of the food system as something that did not require fixing (APA, 2007). Third, planners thought of the food system as something that did not meet any one of the two important conditions under which planners act, namely dealing with public goods or dealing with services and facilities in which the private sector is unwilling to invest in (APA, 2007).

Since the turn of the millennium, planners have demonstrated increased interest in the food system in recognition of how the food system plays into the sustainability and health of communities (Hodgson, 2009; Kaufman, 2009; Soma & Wakefield, 2011). While the field of food systems planning is still in its infancy from one perspective, it has a long and multi-faceted history from another perspective (Soma & Wakefield, 2011; Vitiello & Brinkley, 2014).

Sharing their vision for the field of food system planning, Pothukuchi and Kaufman (2000) note that planners should strengthen the food system by compiling data on the community food system, analyzing connections between food and other planning concerns, assessing the impact of current planning on the local food system, integrating food security into community goals, and educating future planners about food system issues. Their vision has been adopted by planners. For example, the seminal *APA Policy Guide on Community and Regional Food Planning*, which seeks to strengthen connections between traditional planning and food system planning, encourages planners to pursue two overarching goals (APA, 2007). The first goal is to “help build stronger, sustainable, and more self-reliant community and regional food systems” (APA, 2007, para. 5). The second goal is to “suggest ways the industrial food system may interact with communities and regions to enhance benefits such as economic vitality, public health, ecological sustainability, social equity, and cultural diversity” (APA, 2007, para. 5). Research in the field of food systems planning covers a diverse array of topics including urban and rural agriculture, sustainable agriculture and food production practices, local and regional food value chains, community food security, nutrition and health, and the reduction of solid food-related waste (APA, 2021).

This paper addresses the food systems planning topic of urban food security. Urban food security is an increasingly important topic given the trend of urbanization (Ruel et al., 2017; Seto & Ramankutty, 2016). Furthermore, urban food security is also a topic of interest since the COVID-19 crisis has highlighted the importance of physical and economic access to food (Béné, 2020). The following section of this chapter provides an overview of the concept of food security and expands on why planners should address urban food security.

2.2. Urban Food Security

Food security is defined as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for an active and healthy life” (FAO, 2001, p. 49). An earlier version of this definition, lacking an emphasis on social access to food, was famously agreed upon at the 1996 World Food Summit (FAO, 1996, para. 2). As Barrett (2010) notes, “Food security is commonly conceptualized as resting on three pillars: availability, access, and utilization” (p. 825). The dimension of availability addresses the physical availability of food, the dimension of access addresses physical and economic access to food, and the dimension of utilization addresses the nutritional adequacy of food intake (FAO, 2008). These three dimensions are inherently hierarchical since availability is necessary but not sufficient to ensure access and since access is necessary but not sufficient for effective utilization (Barrett, 2010).

Although many conceptualize food security as resting on three pillars, the FAO (2009), at the 2009 World Summit on Food Security, conceptualized food security as resting on four pillars, with stability being the additional pillar. The dimension of stability addresses whether the dimensions of availability, access, and utilization are stable over time (FAO, 2008). For example, adverse weather conditions, economic factors, and/or political instability may cause fluctuation in terms of the dimensions of availability, access, and utilization (FAO, 2008).

Whether food security is conceptualized as resting on three pillars or four pillars, as Berry et al. (2015) argue, “the visualization of pillars gives a rather misleading representation of the concept since the four dimensions are surely interrelated and interdependent, rather than static and separate” (p. 2296). In recognition of such criticisms, the FAO (2013) no longer considers availability, access, utilization, and stability to be pillars of food security and instead considers them to be dimensions of food security. This paper adopts the four-dimensional conception of food security, the hierarchy of which is illustrated in Figure 1.

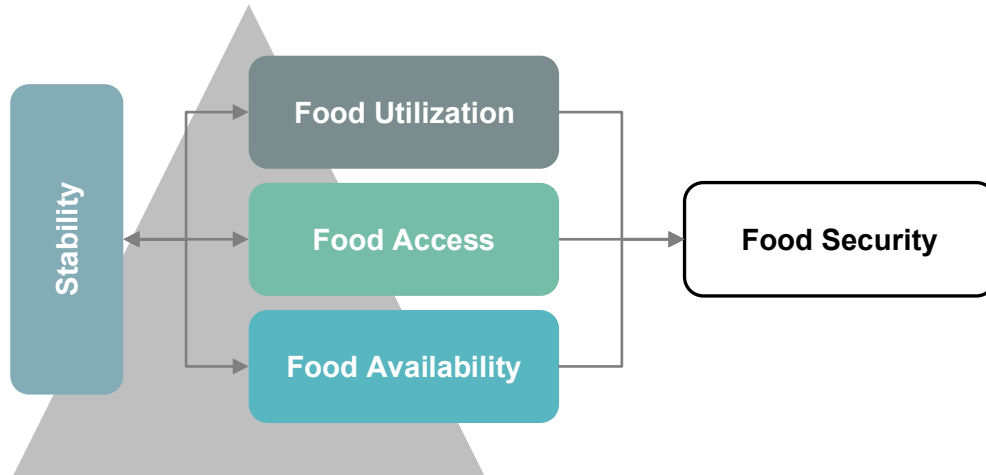


Figure 1. Hierarchy of the four-dimensional conception of food security.

It is important to note that many scholars have been critical of the concept of food security and have argued that we should move toward the concept of food sovereignty (Desmarais & Wittman, 2014; Wald & Hill, 2016, Wittman, 2011). Food sovereignty has been defined as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems” (Nyéléni Steering Committee, 2007). Some scholars note that the juxtaposition of food security and food sovereignty may be more confusing than helpful when it comes to policy dialogue on the food system because it suggests a false dichotomy (Clapp, 2014; Wald & Hill, 2016). However, where food sovereignty differs is the focus on people being able to define their own food and agricultural systems. As such, food sovereignty does more to challenge a top-down approach to tackling food insecurity, where community members are not provided with extensive freedom of choice (e.g. food banking).

Although various spectrums have been used to delineate levels of household food security and insecurity, Health Canada (2020) has adopted a four-point spectrum, as illustrated in Figure 2 (para. 4). First, a household is food secure if there is “access . . . to enough food for an active, healthy life for all household members” (Health Canada, 2020, para. 6). Second, a household is facing marginal food insecurity if there are “indications of worry about running out of food and/or limited food selection due to a lack of money for food” (Health Canada, 2020, para. 7). Third, a household is facing moderate food insecurity if there are “indications of compromise in quality and/or

quantity of food consumed” (Health Canada, 2020, para. 8). Fourth, a household is facing severe food insecurity if there are “indications of reduced food intake or disrupted eating patterns” (Health Canada, 2020, para. 9).

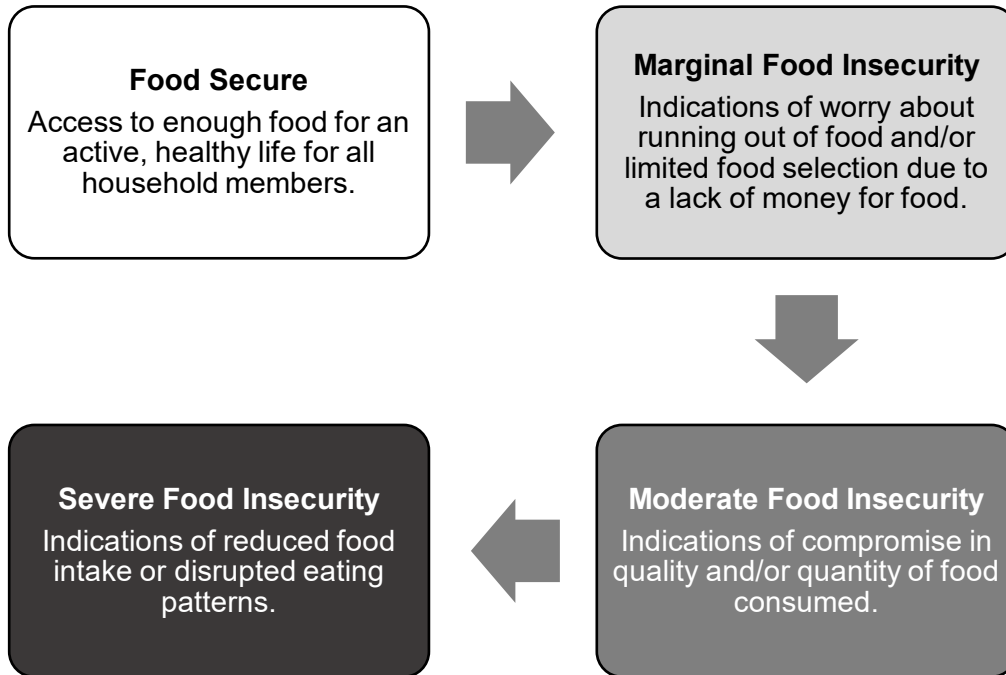


Figure 2. Spectrum of household food security and insecurity.

Adapted from Health Canada (2020).

Although the nomenclature of marginal food insecurity indicates otherwise, Health Canada (2020) only includes households facing moderate or severe food insecurity when estimating the prevalence of household food insecurity in Canada. The reasoning behind this is that only moderate or severe food insecurity reflect disruptions in the food consumed (Health Canada, 2020). However, PROOF, a leading food insecurity policy research group in Canada, includes households facing marginal food security when estimating the prevalence of household food insecurity in Canada (Tarasuk & Mitchell, 2020). The reasoning behind this is that excluding households facing marginal food insecurity fails to provide a comprehensive account of the problem of household food insecurity in Canada (Tarasuk & Mitchell, 2020). To understand whether Health Canada’s framework or PROOF’s framework is better, it helps to understand how household food security is monitored in Canada.

Since 2005, household food security has been monitored in Canada using the Household Food Security Survey Module (HFSSM) which was initially developed in the United States (Health Canada, 2012). The HFSSM contains 18 questions, with 10 of them concerning adults and 8 of them concerning children, about the food security situation in the household over the previous 12 months (Health Canada, 2012). It is important to note that the questions range in severity. For example, questions can range from whether there is worry about running out of food to whether children are not eating for a whole day (Health Canada, 2012).

As outlined in Table 1, Health Canada's framework for the determination of household food insecurity based on the Household Food Security Survey Module (HFSSM) boils down to having no more than one affirmative response to the HFSSM (PROOF, 2018). However, PROOF's (2018) framework for the determination of household food insecurity based on the HFSSM boils down to having at least one affirmative response to the HFSSM. Since the questions range in severity, any framework that distinguishes between marginal, moderate, or severe food insecurity based on the number of affirmative responses is methodologically flawed. For example, in 2017-2018, 41.6% of households with one affirmative response indicated that they could not afford to eat balanced meals (Tarasuk & Mitchell, 2020). Furthermore, in 2017-2018, 14.6% of households with one affirmative response indicated that the food they bought for the household did not last and that there was no money to buy more (Tarasuk & Mitchell, 2020). Although these households would be considered food secure by Health Canada, and marginally food insecure by PROOF, according to the determination of household food insecurity based on the HFSSM, they are moderately or severely food insecure according to the definitions associated with the four-point spectrum. Therefore, Health Canada's reasoning for the exclusion of households facing marginal food security when estimating the prevalence of household food insecurity in Canada is suspect. On PROOF's framework, even though distinguishing between marginal, moderate, or severe food insecurity based on the number of affirmative responses is methodologically flawed, it is possible to obtain an accurate statistic on the total number of households facing food insecurity. It is evident that PROOF's framework for the determination of household food insecurity based on the HFSSM, unlike Health Canada's framework, provides a more comprehensive account of the problem of household food insecurity in Canada.

Table 1. Determination of household food security status based on the Household Food Security Survey Module in Canada.

Household Status	18-Item Household Food Security Survey Module	
	10-Item Adult Food Security Scale	8-Item Child Food Security Scale
Health Canada		
Food Secure	No more than 1 affirmative response	No more than 1 affirmative response
Moderate Food Security	2 to 5 affirmative responses	2 to 4 affirmative responses
Severe Food Insecurity	6 or more affirmative responses	5 or more affirmative responses
PROOF		
Food Secure	No affirmative responses	No affirmative responses
Marginal Food Insecurity	No more than 1 affirmative response	No more than 1 affirmative response
Moderate Food Security	2 to 5 affirmative responses	2 to 4 affirmative responses
Severe Food Insecurity	6 or more affirmative responses	5 or more affirmative responses

Note: With discordant household food statuses, the more severe status prevails.

Adapted from PROOF (2018).

Household food security in Canada is a growing problem. Based on the HFSSM, 4.4 million people were living in a household affected by marginal, moderate, or severe food insecurity in 2017-2018, up from 3.9 million in 2011-2012 (PROOF, 2021; Tarasuk & Mitchell, 2020). Of these 4.4 million people, 1.2 million were children under the age of 18 (Tarasuk & Mitchell, 2020). There is a significant level of variability by province and territory in terms of the percentage of households facing marginal, moderate, or severe food insecurity. For example, while 57% of households in Nunavut were facing marginal, moderate, or severe food insecurity in 2017-2018, 11% of households in Quebec were facing the same (Tarasuk & Mitchell, 2020). In British Columbia, 12.4% of households were facing marginal, moderate, or severe food insecurity in 2017-2018 (Tarasuk & Mitchell, 2020). In terms of the Vancouver census metropolitan area, 11.5% of households were facing marginal, moderate, or severe food insecurity in 2017-2018 (Tarasuk & Mitchell, 2020). This last statistic highlights the problem of urban food insecurity.

Urban food security is an increasingly important topic given the trend of urbanization (Ruel et al., 2017; Seto & Ramankutty, 2016). Urbanization is a complex socio-economic process that transforms the built environment, converting formerly rural settlements into urban settlements, while also shifting the spatial distribution of a

population from rural to urban areas (United Nations, 2019). Between 1950 and 2018, the global rate of urbanization, defined as the average annual rate of change of the percentage of the global population living in an urban area, was 0.92% per year on average (United Nations, 2019). As a result of this rapid rate, in 2017 more people lived in urban areas than rural areas for the first time (United Nations, 2019). The process of urbanization is expected to continue for decades and a greater majority of people will likely be living in urban areas (United Nations, 2019). In terms of urbanization in Canada, 71.8% of the population lived in a large urban region in 2020 (Statistics Canada, 2021). The population growth rate in large urban regions was 1.3% for 2019-2020, as opposed to 0.6% in other regions, indicating a continuation of the long-term trend of urbanization (Statistics Canada, 2021). In terms of the Vancouver census metropolitan area, the population growth rate was 1.1% for 2019-2020 (Statistics Canada, 2021).

There are well-established links between urbanization and food systems. For example, the expansion of urban areas is linked to the loss of agricultural land (Seto & Ramankutty, 2016). Furthermore, higher incomes in urban areas are linked to diets that require costly expenditures of land, water, and energy (Seto & Ramankutty, 2016). However, there are also relatively unexplored links between urbanization and food systems. For example, the increasing opportunity cost of time in urban areas may be linked to a demand for prepackaged food and an increase in packaging waste (Seto & Ramankutty, 2016). Furthermore, the increasing innovation in urban areas may be linked to new technologies and ideas about food systems such as vertical farming (Seto & Ramankutty, 2016). Although the links between urbanization and food systems may be positive or negative, the links certainly impact urban food security. Given the trend of urbanization, planners need to analyze these links and take actions that promote urban food security.

Urban food security is also a topic of interest since the COVID-19 crisis has highlighted the importance of physical and economic access to food (Béné, 2020). As Béné (2020) notes, the food security dimension of food access has been affected by the virus in a widespread way. For example, many people had less physical access to food because of the mobility restrictions and lockdowns (Béné, 2020). Furthermore, many people have had less economic access to food because mobility restrictions and lockdowns due to the virus have impacted their income and associated purchasing power (Béné, 2020). Béné (2020) notes that most cases of food insecurity that have

been reported are related to a decrease in purchasing power. Although an increase in the price of food items has contributed to a decrease in purchasing power in certain cases, decreases in purchasing power have mostly been due to decreased income and/or decreased ability to access cheap food (Béné, 2020; The World Bank, 2021). The food security dimensions of food availability, food utilization, and stability have also been affected by the COVID-19 crisis in certain cases (Béné, 2020). In terms of food availability, in certain cases the closure of open-air or wet informal markets due to local restrictions has forced people to depend on food that is more distant and perhaps more expensive (Béné, 2020). In terms of food utilization, in certain cases a decrease in purchasing power has made it so that people do not have economic access to adequate food in terms of quantity and/or quality (Béné, 2020; The World Bank, 2021). In terms of stability, in certain cases food supply chains for specific items have been disrupted (Béné, 2020).

The COVID-19 crisis has brought attention to how the effects of actors in the food supply chain spill over to actors downstream or upstream the food supply chain (Béné, 2020). Such ripple effects demonstrate the fragility of the food system and the need to develop food system resilience (Béné, 2020). Food system resilience has been defined as the “capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances” (Tendall et al., 2015). Essentially, food system resilience is the capacity to ensure the food security dimension of stability. Although the COVID-19 crisis has brought attention to the need to develop food system resilience, especially for urban food systems, this need has long been recognized due to the threat that various natural and non-natural risks pose (Biehl et al., 2018). There are global risks, related to projected or potential changes in the economy, the environment, geopolitics, society, and technology, that can impact several countries and their food systems within the next ten years (Knorr et al., 2018; World Economic Forum, 2021). For example, in 2021, the top global risks by impact have been identified as infectious diseases, climate action failure, weapons of mass destruction, natural resource crises, human environmental damage, and livelihood crises (World Economic Forum, 2021). There are also locality or region-specific risks that can impact their food systems. For example, vulnerability to earthquakes is a locality or region-specific risk that is relevant to the City of Vancouver’s local food system (City of Vancouver, 2021a).

As Riches and Silvasti (2014) note, food policy is important because it takes the complex relations between food, health, the environment, and society and makes those relations democratically accountable. In recognition of the importance of local food policy, there has been a rise of food policy councils, which are creatures of local governments and their public health or social planning departments, to promote food security (Riches & Silvasti, 2014). These food policy councils initiate public debate about the need for economically viable, ecologically sustainable, and socially just food systems (Riches & Silvasti, 2014). Furthermore, in recognition of the importance of local food policy, in 2014, the Mayor of Milan launched an international protocol aimed at tackling food-related issues at the urban level with the hope that it would be adopted by as many world cities as possible (Milan Urban Food Policy Pact [MUFPP], 2020). In 2015, more than 100 cities signed the MUFPP (2020). The pact has 37 recommended actions organized into six categories, namely governance, sustainable diets and nutrition, social and economic equity, food production, food supply and distribution, and food waste (MUFPP, 2015).

Local and regional strategies have embraced the whole context from farm to table and provide integrated policy frameworks to achieve food security (Olsson, 2018). Most local and regional strategies focus on five areas (Olsson, 2018). First, they focus on promoting health and wellbeing by increasing access to healthy food products (Olsson, 2018). Second, they focus on promoting environmentally friendly production methods and increased urban gardening (Olsson, 2018). Third, they focus on promoting economic and community development by supporting a vibrant local and green economy (Olsson, 2018). Fourth, they focus on the prevention of food waste. Fifth, they focus on social and cultural aspects (Olsson, 2018). Some local and regional strategies additionally focus on food security related to social justice/food justice, learning/empowerment, and urban-rural linkages (Olsson, 2018).

In crafting a local or regional food policy, it is easy to focus on the food security dimension of food availability without carefully factoring in the food security dimension of food access. Food that is available yet inaccessible will not ensure urban food security. Food access involves both physical and economic access to food. The following section of this chapter provides an overview of the intersection of access to food and mobility and expands on why planners should address access to transportation.

2.3. Access to Food and Mobility

The food security dimensions of food availability, food access, and food utilization are inherently hierarchical since availability is necessary but not sufficient to ensure access and since access is necessary but not sufficient for effective utilization (Barrett, 2010). This subsection focuses on the food security dimension of food access, which involves both physical and economic access to food. Many factors contribute to physical and economic access to food.

One factor that contributes to physical access to food is the spatial proximity of food assets. The importance of this factor has given rise to the concept of food deserts. Food deserts have been defined as “regions lacking (spatial) access to healthy foods, like fruits and vegetables, as well as a range of other nutritious options” (Widener & Shannon, 2014). While the spatial element of access to food is important, there is also a need to incorporate the temporal element of access to food because people are often mobile and in different locations over the course of a given day (Farber et al., 2014; Widener & Shannon, 2014; Widener et al., 2017). While there may be food assets with affordable and adequate food near an individual’s or family’s place of residence, they might not be able to access these food assets during the food asset’s hours of operation due to the need to travel for work and/or complete other daily tasks (Farber et al., 2014; Widener & Shannon, 2014; Widener et al., 2017). For example, there is a case in Philadelphia, USA where a supermarket was constructed to increase physical access to food (Cummins et al., 2014). Yet, a follow-up survey conducted six months after the supermarket’s opening indicates that there was no significant impact on food shopping behaviour with only a few residents adopting the new supermarket as their main food store (Cummins et al., 2014). Research suggests that low-income individuals and families often access food assets far from their place of residence (Shannon, 2014). There are various factors that could be at play including time poverty (Farber et al., 2014; Harvey & Mukhopadhyay, 2007; Widener & Shannon, 2014; Widener et al., 2017). Limited physical access to food due to time poverty could lead to limited economic access to food. For example, if individuals and/or families are forced to purchase food at food assets that have adequate but not affordable food, they may not be able to purchase the same quantity of food to meet their dietary needs and preferences.

Another factor that contributes to physical access to food is mobility and access to transportation. If individuals or families have mobility issues and/or a lack of access to transportation, they may not be able to access food assets, even if they are spatially proximate. In terms of mobility, research indicates that having a disability, including those that do not relate to mobility, often results in decreased access to food and an increased chance of food insecurity (Schwartz et al., 2019). Older adults and adults with a disability may find it difficult to access food due to physical limitations, an inability to drive, financial limitations, and environmental limitations, among other factors (Huang et al., 2012). In terms of access to transportation, many cities around the world, and especially those in the North American context, have a built environment that is centred around the use of automobiles (Kenworthy, 2017; Kramer, 2018). While individuals and families who have access to an automobile can easily travel long distances to have physical access to food, the situation is more complicated for those who do not have access to an automobile.

It has been found that the degree to which households without automobiles are able to make alternative travel arrangements to go shopping for food is far more influential in terms of physical access to food than the factor of spatial proximity of food assets (Coveney & O'Dwyer, 2009). Households without automobiles often use public transportation to access food assets that are not located within walking distance (Baek, 2016). If public transportation is not available or readily accessible, then households without automobiles may go grocery shopping less frequently and may access food assets such as nearby convenience stores where there are limited options in terms of quality food that meets dietary needs and preferences (Baek, 2016; Xin et al., 2021). Given that convenience stores are known to have higher food prices, households may cut down on the quantity of food they obtain and thereby not meet their dietary needs and preferences (Xin et al., 2021). Furthermore, since these households typically spend more time and money to travel to grocery stores, either using public transportation or a vehicle borrowed from family or a friend, they may cut down on the quantity of food they obtain (Baek, 2016; Shannon, 2014). Even if public transportation is available and readily accessible, households without an automobile may find it difficult to transport their groceries using public transportation and may cut down on the quantity of food they obtain (Grengs, 2001; Lachapelle et al., 2011). Nevertheless, an increase in access to public transportation decreases the risk of exposure to food insecurity, especially for

households without automobiles (Baek, 2016). Therefore, it is important to promote access to public transportation.

Income is the driving factor that contributes to economic access to food. Low-income individuals and families, especially children, are more likely to face food insecurity (Wight et al., 2014; Tarasuk & Mitchell, 2020). Low-income individuals or families may have to cut down on the quantity and/or quality of food they obtain to save money and thereby not meet their dietary needs and preferences (Baek, 2016). As alluded to in the preceding paragraphs, the cost of food and/or the cost of transportation can impact a low-income individual's or family's economic access to food. When the cost of food rises, either due to sustained market changes or temporary market fluctuations, low-income individuals and families are vulnerable because they spend such a large share of their incomes on food (Martin, 2010).

Recognizing the importance of the food security dimension of food access, this study evaluates access to food at non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis, especially as it relates to mobility and access to transportation. The following chapter (Chapter 3) focuses on methods and frames the study in terms of its spatial, temporal, and food policy contexts, its methodology, and its limitations.

Chapter 3.

Methods

3.1. Spatial, Temporal, and Food Policy Contexts

This study is based in the City of Vancouver, British Columbia, Canada. The City of Vancouver (2020b) is situated on the unceded homelands of the $x^w m \theta k^w \acute{y}$ $\acute{a}m$ (Musqueam), Skwxwú7mesh (Squamish), and $s \acute{e}lilw \acute{e}t \acute{a} \acute{t}$ (Tseil-Waututh) nations. It is home to a culturally diverse population, which was numbered at 631,486 people when the 2016 census was taken (City of Vancouver, 2020b; Statistics Canada, 2017).

In terms of the temporal context, this study occurred during the COVID-19 crisis. In March 2020, health officials in British Columbia put in place many restrictions to curb the spread of COVID-19 (Kotyky, 2021). For example, a ban on all events with more than 50 people was ordered and the closure of all bars and nightclubs, all public schools, all dine-in establishments, all playgrounds, and all personal service establishments was ordered (Kotyky, 2021). However, in May and June 2020, the Province of British Columbia reversed course on many of the restrictions to restart various activities in the province (Kotyky, 2021). This truncated timeline of the Province of British Columbia's response to the COVID-19 crisis is helpful to highlight what was going on in the City of Vancouver during the COVID-19 crisis. During the COVID-19 crisis, many British Columbians have had concerns around food security, especially low-income individuals and families (Polasub et al., 2020). Since this study relates to mobility and access to transportation, it is worthwhile noting that during the COVID-19 crisis, especially around March 2020, there has been a drop in demand for public transportation (CBC News, 2020). Furthermore, it is important to note that TransLink, the regional transportation authority in charge of public transportation in the City of Vancouver, moved to rear-door boarding of buses for more than six weeks to promote the safety of bus drivers (Holliday, 2020; Kotyky, 2020). Since the configuration of buses did not allow cash fares to be collected at the rear doors of buses and since some buses did not have electronic fare readers at the rear doors either, the regional transportation authority suspended all bus fares during that period (Holliday, 2020; Kotyky, 2020). After the six-week period, with the installation of protective barriers for bus drivers, front-door boarding of buses and bus

fares were reinstated (Holliday, 2020; Kotyk, 2020). This changing context in terms of public transportation during the COVID-19 crisis may have impacted the responses of study participants.

In terms of the food policy context, it is important to note the integral role of the City of Vancouver's Food Policy Council, which has existed since 2004 (City of Vancouver, 2007b). The primary goal of the Vancouver Food Policy Council (VFPC) is to examine the operation of the local food system, stimulate and lead a dialogue on food, promote projects in the community, and provide policy ideas and recommendations that enhance a sustainable food system (City of Vancouver, 2007b). The VFPC is composed of 21 members of the public who have relevant expertise, two non-voting Vancouver City Council liaisons, one non-voting Vancouver Park Board liaison, and two non-voting City of Vancouver staff liaisons (City of Vancouver, 2021b). The *Vancouver Food Charter*, an initiative of the VFPC, was a major policy step toward a just and sustainable food system (City of Vancouver, 2007b). The *Vancouver Food Charter* identifies five guiding principles for a just and sustainable food system including community economic development, ecological health, social justice, collaboration and participation, and celebration (City of Vancouver, 2007a). Sustained work between the City of Vancouver (2013) and the VFPC resulted in the *Vancouver Food Strategy* in 2013. The *Vancouver Food Strategy* identifies five goals including supporting food-friendly neighbourhoods, empowering residents, improving food access, promoting a green economy, and advocating for a just and sustainable food system (City of Vancouver, 2013). It also identifies various courses of actions in terms of food production, food processing and distribution, food access, and food waste management (City of Vancouver, 2013). In 2017, the *Vancouver Food Strategy* was updated for 2017-2020 with new focus areas, namely diversity of voices and inclusion, food access, and food system resilience (City of Vancouver, 2017). The evaluation and monitoring of progress related to the *Vancouver Food Strategy* was tied to existing targets in the *Greenest City Action Plan*, especially the over-arching target of goal seven of the *Greenest City Action Plan* (City of Vancouver, 2013). Goal seven of the *Greenest City Action Plan*, dealing with local food, is that the City of Vancouver (2012, 2015b) will become a global leader in urban food systems. The over-arching target for 2020 was to increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels and this target was met with a 51% increase (City of Vancouver, 2012, 2015b, 2020a). The overarching target of goal seven

of the *Greenest City Action Plan* is the same overarching target of goal three of the City of Vancouver's (2014, 2015a) *Healthy City Strategy*. Goal three of the *Healthy City Strategy* is that the City of Vancouver (2014, 2015a) will have a healthy, just and sustainable food system. The overarching target of goal seven of the *Greenest City Action Plan* is also the same as the overarching target in the Vancouver Park Board's (2013) *Local Food Action Plan*. The *Local Food Action Plan* adopts the *Vancouver Food Charter's* five guiding principles for a just and sustainable food system, adopts the *Vancouver Food Charter's* five goals, and identifies various courses of actions for the Vancouver Park Board (2013) related to each of the five goals. From all these food policies, it is evident that solutions to address urban food insecurity in the City of Vancouver are simplistically focused on growing the number of food assets.

3.2. Methodology

This study has secured research ethics approval from the Simon Fraser University Research Ethics Board. It utilizes quantitative and qualitative methods of data collection to build a better understanding of the intersection of access to transportation and access to food for users of non-profit food hubs in the City of Vancouver. There are two components to this study, namely, an online survey and key informant interviews. Interview participants were only recruited from among the survey respondents. The purpose of the key informant interviews was to provide opportunities for survey respondents to speak freely about their experiences. In terms of inclusion/exclusion criteria, this study elicited responses from individuals at least 19 years old who accessed food at a non-profit food hub located in the City of Vancouver more than once before and during the COVID-19 crisis.

The online survey opened on the 22nd of June 2020 and closed on the 31st of August 2020. Survey respondents were recruited by disseminating a link to the online survey. A link to the online survey was disseminated to those who access food at a non-profit food hub in the City of Vancouver with the help of some non-profit food hubs in the City of Vancouver and the BC Poverty Reduction Coalition. The link was disseminated via email, social media, and the BC Poverty Reduction Coalition's website. 84 completed survey responses were received. On average, survey respondents took approximately

12 minutes to complete the online survey. Survey respondents were offered a \$10 gift card in exchange for their involvement.

The key informant interviews were conducted between July 22nd, 2020 and October 31st, 2020. Interview participants were recruited from among survey respondents by having a question in the online survey asking survey respondents if they were willing to be contacted for a key informant interview. Survey respondents who indicated a willingness to be contacted for a key informant interview were contacted via email and/or phone to set up an interview. They were given a choice of having the interview done over the phone or a Zoom meeting. However, all 10 interview participants completed phone interviews. On average, interview participants took approximately 30-60 minutes to complete the key informant interview. Interview participants were offered a \$20 gift card in exchange for their involvement. Quotes from the interview participants have been anonymized with the use of pseudonyms.

3.3. Limitations

The limitations of this study include, but are not limited to, the small sample size, uncertain data reliability, and survey and interview inaccessibility.

One limitation of the study is the small sample size. Only 84 completed survey responses were received. Given the small sample size, the findings from the online survey may not be representative of the population that fits the inclusion/exclusion criteria. Unfortunately, due to the difficulty of estimating the size of the population that fits the inclusion/exclusion criteria, margins of error for the findings from the online survey were not calculated. The difficulty of estimating the size of the population that fits the inclusion/exclusion criteria is the result of the broad range of food assets that come under the umbrella of non-profit food hubs and a lack of data on these food assets.

Another limitation of the study is uncertain data reliability. Although this study was initially going to proceed with the use of in-person surveys at non-profit food hubs in the City of Vancouver, which would have provided a greater level of certainty in terms of data reliability, ethical concerns around conducting in-person surveys during the COVID-19 crisis meant the study had to proceed with the use of an online survey. As with many

online surveys, especially ones where survey respondents are offered a monetary reward in exchange for their involvement, it is possible that certain survey respondents claimed to fit the inclusion/exclusion criteria even though they did not. Furthermore, it is also possible that certain survey respondents made multiple completed survey responses. As with many surveys, whether in-person or online, it is possible that certain survey respondents provided inaccurate information.

An additional limitation of the study is survey and interview inaccessibility. Since the study utilized an online survey that was only available in English, certain populations groups may not have been able to participate in the survey, such as those who did not have access to a suitable device with an internet connection, those who were unable to read English well, and those with certain physical disabilities. Furthermore, if an individual did not have an email on file with the BC Poverty Reduction Coalition or one of the non-profit food hubs in the City of Vancouver which helped disseminate the link to the online survey, if they did not come across the link via social media or the BC Poverty Reduction Coalition's website, and if they did not otherwise come across the link via an individual or organization, the online survey would have been inaccessible. In addition to the accessibility limitations of the online survey, since the online survey requested survey respondents interested in participating in a key informant interview to leave their email address or phone number, certain populations groups may not have been able to participate in the interviews, such as those who did not have an email address or a phone with service. Furthermore, since potential interview participants were given the choice of having the interview done over the phone or a Zoom meeting, certain populations groups may not have been able to participate in the interviews, such as those who did not have access to a phone with service or a suitable device with an internet connection.

Having framed the study in terms of its spatial, temporal, and food policy contexts, its methodology, and its limitations, the following chapter (Chapter 4) contains the findings of the study and some discussion around the findings.

Chapter 4.

Findings and Discussion

4.1. Demographics

In this subsection, findings from the survey that pertain to demographics are highlighted. The findings highlighted in this subsection help answer the first research question, namely, “Which individuals and families access non-profit food hubs located in the City of Vancouver?” The demographics based on this study should be taken with caution considering the limitations of the small sample size, uncertain data reliability, and survey and interview inaccessibility.

4.1.1. Basic Profile

A basic profile of survey respondents is found in Table 2. In terms of age, 45.2% of survey respondents (n=84) were 25 to 34 years old. Furthermore, 19% of survey respondents (n=84) were 19 to 24 years old. This may indicate that the majority of people who access food from non-profit food hubs in the City of Vancouver for their households are young adults. However, the data may be influenced by how an online survey may be more accessible to young adults. In terms of gender identity, whereas 58.8% of survey respondents (n=80) were female, 40% were male. This may indicate that those who access food from non-profit food hubs in the City of Vancouver for their households are more likely female than male. In terms of ethnic background, 74.4% of survey respondents (n=82) identified as White, and 12.2% identified as Indigenous, as demonstrated in Figure 3. This may indicate that those who access food from non-profit food hubs in the City of Vancouver for their households are more likely to be White or Indigenous than not. In terms of formal education, 26.5% of survey respondents (n=83) had some post-secondary education and another 26.5% had a post-secondary certificate/diploma. Furthermore, 22.9% of survey respondents (n=83) had a degree at the bachelor’s level. This may indicate that the majority of people who access food from non-profit food hubs in the City of Vancouver for their households are more likely to be quite educated than not. The preceding demographics are not demographics on everyone in households that access non-profit food hubs in the City of Vancouver.

Whereas 11% of survey respondents (n=82) were the sole individual in their household, 89% were from multi-person households. This may indicate that the majority of people who access food from non-profit food hubs in the City of Vancouver are doing so on behalf of multi-person households.

In terms of the family structures of the survey respondents' households, 43.8% of survey respondents (n=80) were from two-parent families with at least one dependent child and 15% were from single-parent families with at least one dependent child. All of the survey respondents from single-parent families were female. This may indicate that the majority of people who utilize food from non-profit food hubs in the City of Vancouver are families with dependent children, with many of them being two-parent families with at least one dependent child, and with many of the single-parent families being led by single-mothers. Based on reporting from 92 food banks in British Columbia in 2019, 15.4% of food bank clientele in British Columbia were from two-parent families with at least one dependent child and 15.7% were from single-parent families with at least one dependent child (Food Banks Canada, 2019). There is a large discrepancy between this study's percentage of survey respondents from two-parent families (43.8%) and their study's percentage of food bank clientele from two-parent families (15.4%). This discrepancy may be attributed to this study's limitations. However, this discrepancy may be impacted by how the category of non-profit food hubs is much broader than the category of food banks and how the City of Vancouver is a much narrower study area than British Columbia. Whereas 58.8% of this study's survey respondents (n=80) were from households with at least one dependent child, 51.5% of food bank clientele in British Columbia in 2019 were from single-person households (Food Banks Canada, 2019). It may simultaneously be the case that whereas the majority of people who utilize food from non-profit food hubs in the City of Vancouver are from households with dependent children, the majority of people who utilize food from food banks in British Columbia are from single-person households. Despite this discrepancy, the relevant finding from this study is consistent with how households in Canada with one or more dependent children are more likely to face household food insecurity than households in Canada without any dependent children (Tarasuk & Mitchell, 2020; Tarasuk et al., 2019).

Table 2. Basic profile of survey respondents.

Item	Category	Percentage (%)
Age (n=84)	19-24	19.0
	25-34	45.2
	35-44	11.9
	45-54	13.1
	55-64	6.0
	65-74	1.2
	75 and over	3.6
Gender Identity (n=80)	Female	58.8
	Male	40.0
	Other	1.3
Formal Education (n=83)	Less than high school diploma	9.6
	High school diploma or equivalent	8.4
	Some post-secondary education	26.5
	Post-secondary certificate/diploma	26.5
	Degree at the bachelor's level	22.9
	Degree above the bachelor's level	6.0
Household Structure (n=80)	Two parents	43.8
	Single parent	15.0
	Couple with no dependent children	18.8
	Single person	11.3
	Other	11.3
Number of Households Members* (n=82)	1	11.0
	2	18.3
	3	8.5
	4	13.4
	5 or more	48.8

*Including Survey Respondent

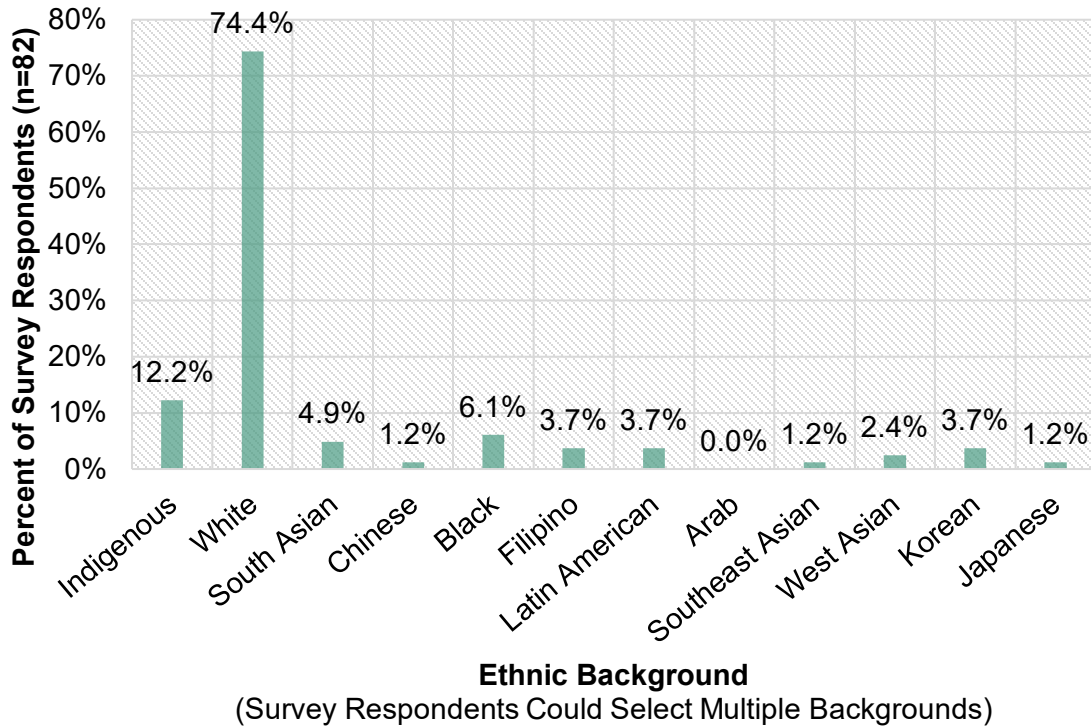


Figure 3. Ethnic backgrounds of survey respondents.

4.1.2. Income-Related Profile

An income-related profile of survey respondents is found in Table 3. While the employment of respondents and the employment of respondents' spouses or partners are listed separately in Table 3, it is more beneficial to look at the employment of respondents as well as their spouse or partner together, as in Table 4, since this may represent household employment.

Households where the survey respondent and/or their spouse or partner, if applicable, had part-time or full-time employment are represented in the boxes shaded with green in Table 4 and account for 65.9% of the survey respondents' (n=82) households. This may indicate that the majority of households that access non-profit food hubs in the City of Vancouver have employment income. Yet, having employment income does not translate to economic access to food because of the prevalence of low-wage jobs and precarious work (McIntyre et al., 2014). In 2017-2018, based on the HFSSM, although the prevalence of food insecurity among households in Canada that

were reliant on employment income was relatively low, the majority (65%) of food insecure households in Canada had employment income as their main source of income (Tarasuk & Mitchell, 2020). In British Columbia, 67.9% of food insecure households had employment income as their main source of income in 2017-2018 (Tarasuk & Mitchell, 2020). However, according to data from Food Banks Canada (2019), only 12.1% of food bank clientele in Canada had employment income as their main source of income in 2019. In British Columbia, only 14% of food bank clientele had employment income as their main source of income in 2019 (Food Banks Canada, 2019). This is indicative of a unique demographic of food-insecure households being served by food banks.

Households where the survey respondent or their spouse or partner, if applicable, were looking for work whilst they and their spouse or partner, if applicable, were out of work are represented in the boxes shaded with gold in Table 4 and account for 12.2% of the survey respondents' (n=82) households. This may indicate that a minority of households that access non-profit food hubs in the City of Vancouver have a temporary or persistent inability to secure employment opportunities.

Households where the survey respondent or their spouse or partner, if applicable, were not able to work are represented in the boxes shaded with blue in Table 4 and account for 14.6% of the survey respondents' (n=82) households. This may indicate that a minority of households that access non-profit food hubs in the City of Vancouver have an individual who is unable to work, and if this individual has a spouse or partner, they are also unable to work or they are not looking for work – the latter perhaps out of a need to take care of the individual who is unable to work.

Households where the survey respondent and their spouse or partner, if applicable, were not looking for work whilst being able to work are represented in the boxes shaded with orange in Table 4 and account for 6.1% of the survey respondents' (n=82) households. This may indicate that a minority of households that access non-profit food hubs in the City of Vancouver are composed of an individual or individuals who is/are not looking for work even though they are able to work.

In terms of the total household incomes of survey respondents (n=81) in the past 12 months, 29.6% were less than \$30k, 35.8% were between \$30k and less than \$60k, 27.2% were between \$60k to less than \$90k, and 7.4% were \$90k or more. When

reporting their total household income over the past 12 months, survey respondents were prompted to include any income from government assistance programs when answering the relevant question. As such, it is concerning that over 29.6% of survey respondents were making less than \$30k including any income from government assistance programs. Having a low income and/or high cost of living can cause immense financial stress for individuals and families. Although it may be surprising to note that 7.4% of survey respondents had a total household income of \$90k or more, those who indicated this total household income were from multi-person households. It is possible that they do not have access to household income. Furthermore, the category of non-profit food hubs does not cater exclusively to low-income individuals and families.

Figure 4 highlights the difficulty or ease for survey respondents' households to make ends meet, including any government assistance programs, before and during the COVID-19 crisis. Whereas 43.9% of survey respondents' households found it very difficult or difficult to make ends meet including any government assistance programs before the COVID-19 crisis, 67.5% did during the COVID-19 crisis. This underscores how the COVID-19 crisis has exacerbated financial stress for low-income individuals and families.

Table 3. Income-related profile of survey respondents.

Item	Category	Percentage (%)
Employment of Respondent (n=82)	Full-time (30 or more hours/week)	36.6
	Part-time (Less than 30 hours/week)	25.6
	No – looking for work	14.6
	No – not looking for work	7.3
	No – not able to work	15.9
Employment of Respondent's Spouse or Partner* (n=50) *39% of survey respondents (n=82) indicated the relevant question was not applicable.	Full-time (30 or more hours/week)	34.0
	Part-time (Less than 30 hours/week)	38.0
	No – looking for work	14.0
	No – not looking for work	10.0
	No – not able to work	4.0
Total Household Income* (n=81) *Before taxes in the past 12 months, including any government assistance programs.	Less than \$30k	29.6
	\$30k to less than \$60k	35.8
	\$60k to less than \$90k	27.2
	\$90k or more	7.4

Table 4. Employment matrix of survey respondents and their spouse or partner (n=82).

		Employment of Survey Respondent				
		Full-time	Part-time	Looking for work	Not looking for work	Not able to work
Employment of Spouse or Partner of Survey Respondent	Full-time	14.6%	2.4%	2.4%	1.2%	0.0%
	Part-time	12.2%	9.8%	0.0%	0.0%	0.0%
	Looking for work	2.4%	1.2%	3.7%	0.0%	1.2%
	Not looking for work	2.4%	2.4%	0.0%	1.2%	0.0%
	Not able to work	0.0%	0.0%	1.2%	0.0%	1.2%
	Not applicable	4.9%	9.8%	6.1%	4.9%	13.4%

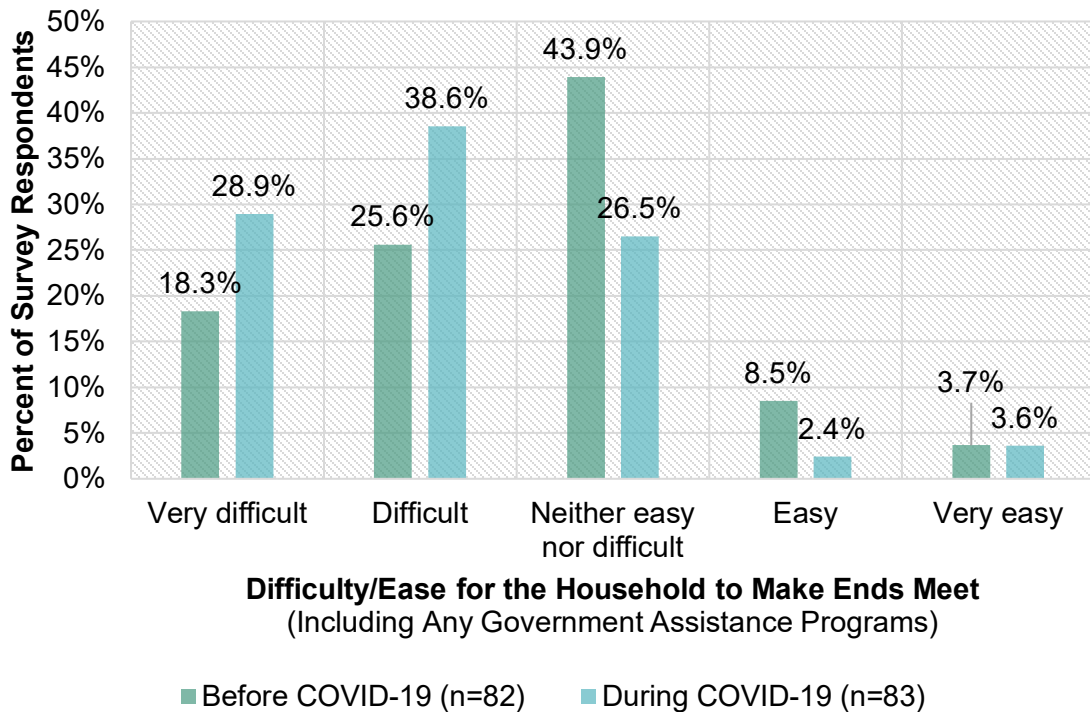


Figure 4. Difficulty/ease for survey respondents’ households to make ends meet.

4.2. How Non-Profit Food Hubs Are Accessed

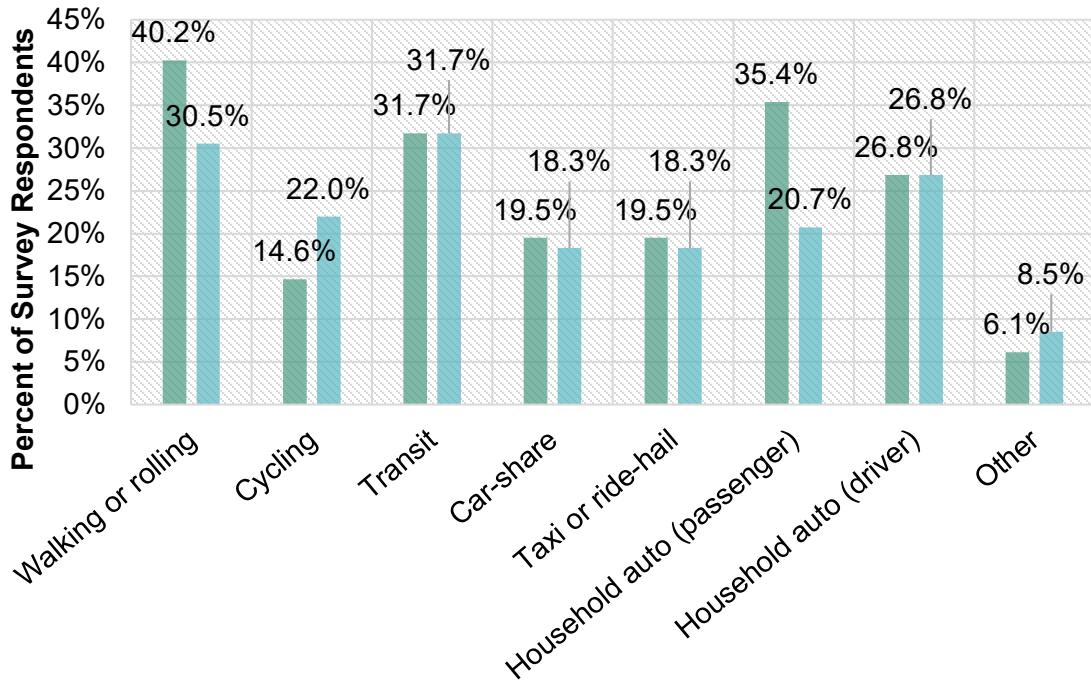
In this subsection, findings from the survey that pertain to the way individuals and families access non-profit food hubs are highlighted. The findings highlighted in this subsection help answer the second research question: “How do individuals and families access non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis?” Although the findings regarding travel times to non-profit food hubs in the City of Vancouver and line-up times at non-profit hubs in the City of Vancouver help answer this question, they will be addressed in the next subsection (Chapter 4.3).

4.2.1. Modes of Transportation

Figure 5 highlights the diverse modes of transportation used by survey respondents (n=82) to access a non-profit food hub in the City of Vancouver before and during the COVID-19 crisis. Since survey respondents were given the opportunity to

select multiple modes of transportation, it is not clear which mode of transportation has been the dominant mode of transportation used by survey respondents to access a non-profit food hub in the City of Vancouver. However, it is clear that a household automobile, walking or rolling, and transit were preferred modes of transportation to access a non-profit food hub in the City of Vancouver before and during the COVID-19 crisis. Since the COVID-19 crisis, fewer survey respondents have accessed a non-profit food hub in the City of Vancouver by walking or rolling and by a household automobile as a passenger, and more survey respondents have done so by cycling. Some survey respondents wrote-in additional modes of transportation such as HandyDART (the local paratransit system for those with disabilities) and the automobile of a friend. Based on the written-in modes of transportation for during the COVID-19 crisis, many survey respondents noted that the non-profit food hub in the City of Vancouver that they access had been delivering food to them. One survey respondent noted that they sold their household automobile during the COVID-19 crisis and now rely on transit and walking.

A transportation-related profile of survey respondents is found in Table 5. Although 65.1% of survey respondents' (n=83) households had one or more automobiles, 34.9% of them did not have an automobile. With 45.8% of survey respondents having one household automobile, a natural question is how often survey respondents could access a household automobile. 15.9% of survey respondents (n=82) always had access to a household automobile, 26.8% usually did, and 19.5% sometimes did. When it comes to the number of monthly transit passes in a household, 31% of survey respondents (n=84) had one and 23.8% had two. However, 13.1% of survey respondents did not have any monthly transit passes in their household. Only 22% of survey respondents (n=82) always had access to a monthly transit pass while another 24.4% usually did and another 26.8% sometimes did. This is concerning because a substantial amount of people who access food from a non-profit food hub in the City of Vancouver on behalf of their household may be self-limiting when they access food to when they have access to a household automobile or a monthly transit pass. While 30% of survey respondents (n=84) noted that one individual from the household would travel to access a non-profit food hub in the City of Vancouver, 63.2% of survey respondents noted that more than one individual would.



**Mode of Transportation to Access
a Non-Profit Food Hub in the City of Vancouver**
(Survey Respondents Could Select Multiple Modes)

■ Before COVID-19 (n=82) ■ During COVID-19 (n=82)

Figure 5. Modes of transportation used by survey respondents to access a non-profit food hub in the City of Vancouver.

Table 5. Transportation-related profile of survey respondents.

Item	Category	Percentage (%)
Number of Household Automobiles (n=83)	0	34.9
	1	45.8
	2	16.9
	3	1.2
	4	0.0
	5 or more	1.2
Frequency of Ability to Access a Household Automobile (n=82)	Always	15.9
	Usually	26.8
	Sometimes	19.5
	Rarely	8.5
	Never	29.3
Number of Monthly Transit Passes in Household (n=84)	0	13.1
	1	31.0
	2	23.8
	3	10.7
	4	7.1
	5 or more	14.3
Frequency of Access to a Monthly Transit Pass (n=82)	Always	22.0
	Usually	24.4
	Sometimes	26.8
	Rarely	20.7
	Never	6.1
Number of Household Members Who Travel Together to Access a Non-Profit Food Hub in the City of Vancouver (n=84)	0	7.1
	1	30.0
	2	26.2
	3	11.9
	4	6.0
	5 or more	19.1

4.2.2. Experience of Transportation

Figure 6 highlights the difficulty or ease for survey respondents' households to access a non-profit food hub in the City of Vancouver in terms of transportation before (n=81) and during (n=80) the COVID-19 crisis. Whereas 29.6% of survey respondents' households found it very difficult or difficult to access a non-profit food hub in the City of Vancouver in terms of transportation before the COVID-19 crisis, 43.8% did during the COVID-19 crisis. Negative experiences in terms of transportation may be due to a host of factors including barriers such as including transportation accessibility, transportation costs, transportation distance, transportation inconveniences, transportation reliability, and transportation time (City of Vancouver, 2019). As discussed in the literature review subsection on mobility and access to food, having a very difficult or difficult experience in terms of transportation can deter an individual or family from accessing food (Baek, 2016). Individuals and families may end up making less frequent trips to access food, thereby reducing the freshness and/or quality of the food they obtain (Baek, 2016).

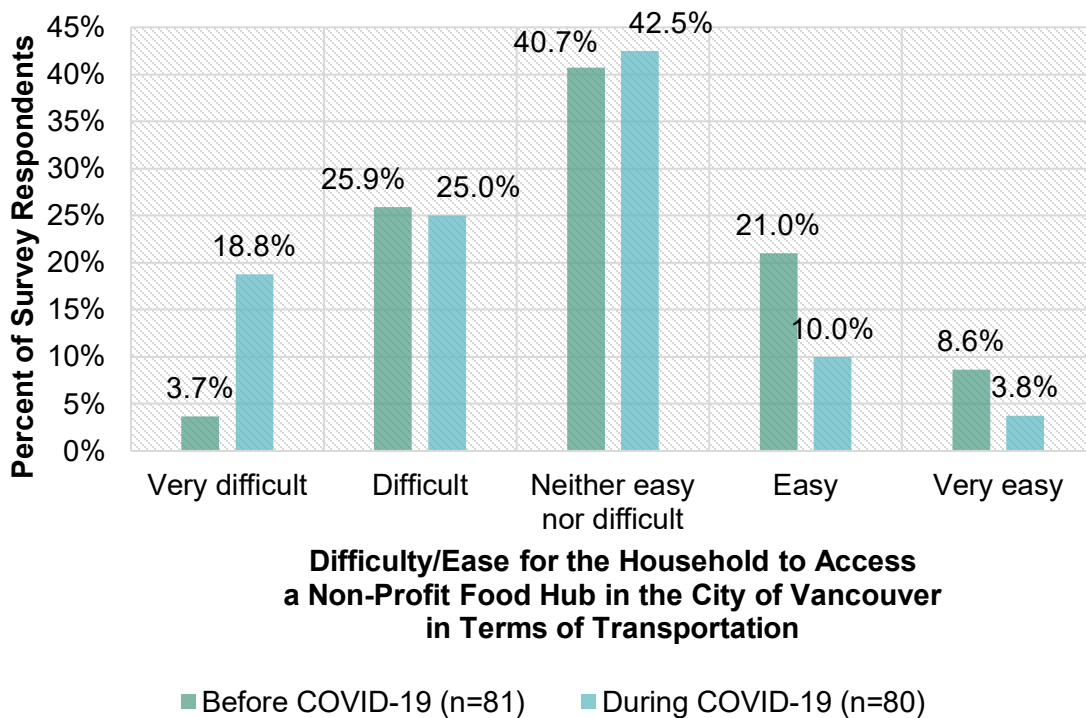


Figure 6. Difficulty/ease for survey respondents' households to access a non-profit food hub in the City of Vancouver in terms of transportation.

4.2.3. Importance of Non-Profit Food Hubs

Figure 7 highlights the importance of foods obtained from non-profit food hubs for survey respondents' households' overall diets. 42.3% of survey respondents (n=78) said that food obtained from non-profit food hubs is a very important part of their household's overall diet, and 46.2% said it was a somewhat important part. Only 11.5% of survey respondents said that food obtained from non-profit food hubs is not an important part of their household's overall diet. While the category of non-profit food hubs is broad and non-profit food hubs are not exclusive to low-income individuals and families, it is likely that only low-income individuals and families would consider food obtained from non-profit food hubs to be very important or somewhat important to their household's overall diet. Therefore, the findings in Figure 7 may underscore the important role that non-profit food hubs play in promoting economic access to food for low-income individuals and families (Tarasuk et al., 2014).

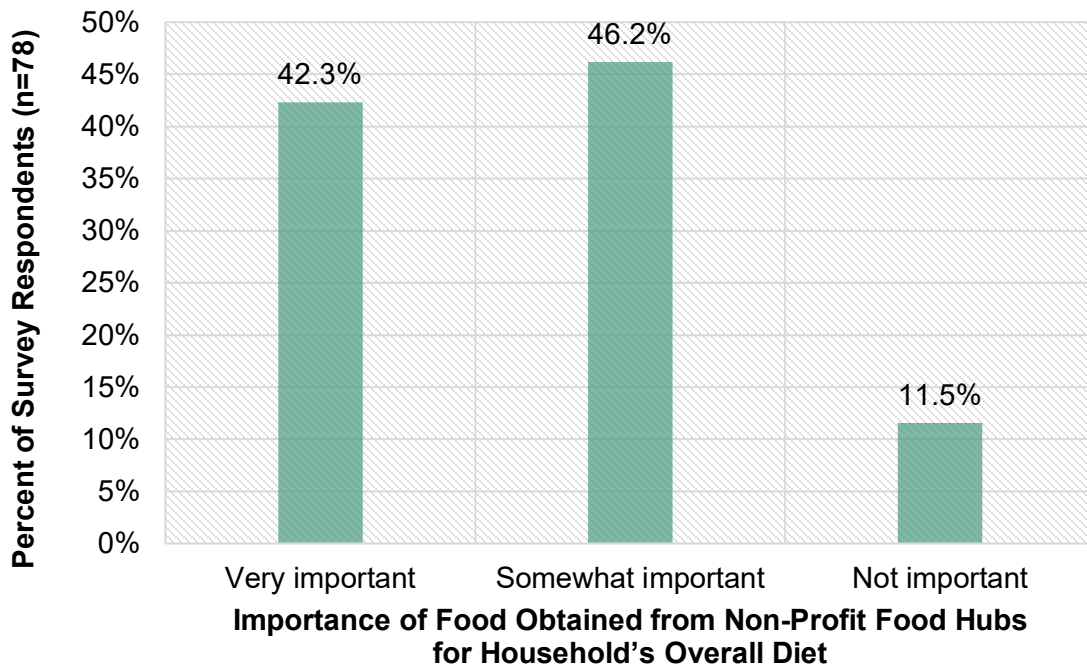


Figure 7. Importance of food obtained from non-profit food hubs for the survey respondents' households' overall diets.

4.2.4. Experience of Non-Profit Food Hubs

Figure 14 highlights the overall quality of the experience survey respondents had when accessing non-profit food hubs in the City of Vancouver before (n=79) and during (n=82) the COVID-19 crisis. Whereas 26.9% of survey respondents had a mediocre or poor experience when accessing a non-profit food hub in the City of Vancouver before the COVID-19 crisis, 41.5% did during the COVID-19 crisis. This indicates that there are negative experiences when accessing non-profit food hubs in the City of Vancouver and may indicate that negative experiences have increased during the COVID-19 crisis. Negative experiences at non-profit food hubs may be due to a host of factors including barriers such as line-up times at non-profit food hubs and schedules of non-profit food hubs (City of Vancouver, 2019). As discussed in the introduction, another factor may be how the food at non-profit food hubs is not always sufficient, nutritionally balanced, or otherwise adequate (Riches & Silvasti, 2014).



Figure 8. Overall level of experience survey respondents have when accessing non-profit food hubs in the City of Vancouver.

4.3. Barriers to Accessing Non-Profit Food Hubs

In this subsection, findings from the survey and interviews that pertain to the barriers that deter or prevent individuals and families from accessing non-profit food hubs are highlighted. The findings highlighted in this subsection help answer the third research question: “What are the barriers to accessing food at non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis?”

Figure 9 highlights the frequency of pre-identified barriers to accessing food at non-profit food hubs in the City of Vancouver that were felt by survey respondents (n=79). The barriers were pre-identified by scanning through the *Poverty Reduction Plan, What We Heard: Phase 1* report published by the City of Vancouver (2019) which highlights significant food access challenges for low-income individuals and families. Survey respondents were given the opportunity to select multiple barriers. Given connections between several of the barriers, some of them have subsequently been grouped. Transportation distance has been grouped with transportation time, and transportation inconveniences has been grouped with transportation reliability and transportation accessibility. When considering grouped barriers, the barrier of transportation distance/time was the biggest barrier that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Furthermore, when considering grouped barriers, the barrier of transportation inconveniences/reliability/accessibility was the second biggest barrier, the barrier of transportation costs was the third biggest barrier, the barrier of line-up times at non-profit food hubs was the fourth biggest barrier, and the barrier of schedules at non-profit food hubs was the fifth biggest barrier. Comments from survey respondents and interview participants corroborate the importance of addressing the preidentified barriers. In the following subsections, corroborating comments from interview participants are highlighted.

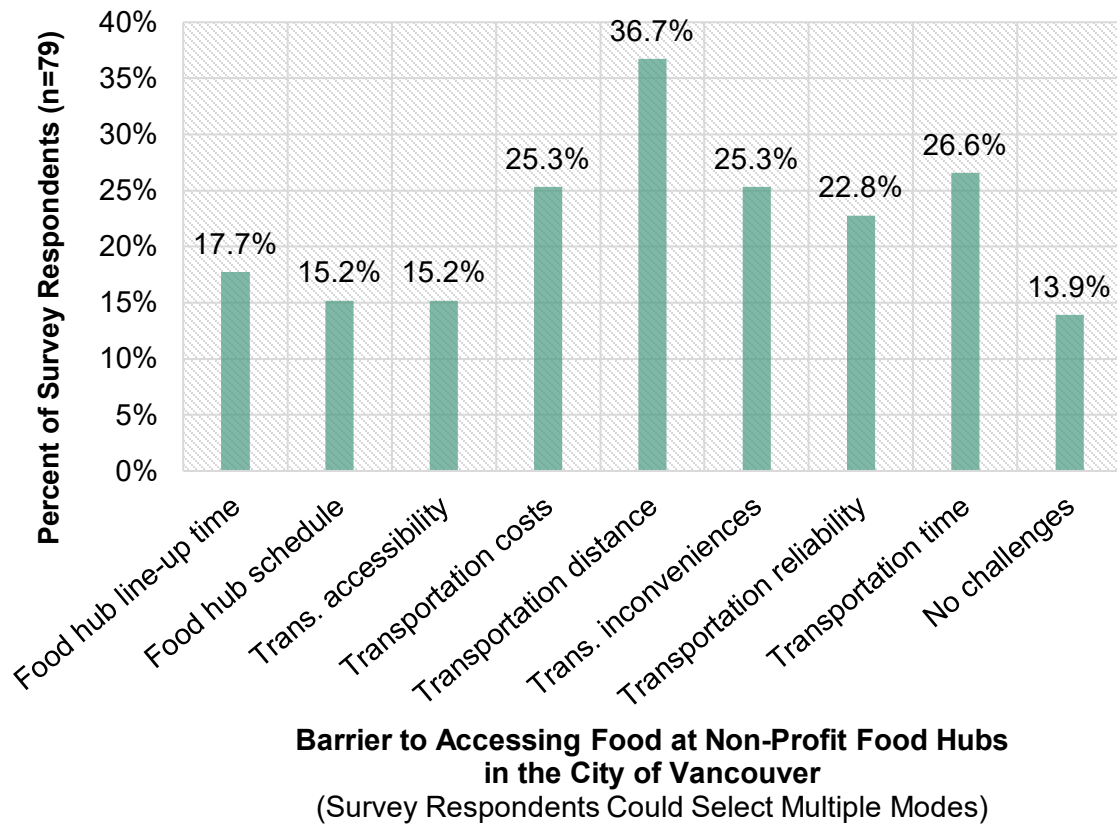


Figure 9. Barriers survey respondents face to access food at non-profit food hubs in the City of Vancouver.

4.3.1. Transportation Distance and Time

36.7% of survey respondents (n=79) identified with the barrier of transportation distance and 26.6% identified with the barrier of transportation time. Transportation distance and transportation time were the barriers that were most identified with, first and second, respectively. The two barriers have been grouped because they are connected. When considering grouped barriers, the barrier of transportation distance and time is the biggest barrier to accessing food from a non-profit food hub in the City of Vancouver that survey respondents identified with.

In terms of corroborating comments from interview participants, one interview participant, Carmen, stressed how non-profit food hubs felt distant and how it took a substantial amount of time to travel to them.

I think everything was like a bit of ways. . . . Mount Pleasant was like a half an hour transportation ride and Ray-Cam is like maybe forty-five minutes from where we live. The food bank . . . takes a bit longer too. I think half an hour – forty-five minutes – to get to. (Carmen)

Carmen is not the only interview participant who had to travel for a substantial amount of time to access a non-profit food hub in the City of Vancouver. For example, here is what another two interview participants, Sonia and Eddie, had to say:

It takes me, between the waiting for the bus and the walking, I would say forty minutes to get there. (Sonia)

[It takes me] . . . approximately an hour by transit to get there and then an hour back. By car, fifteen minutes or ten minutes. The other way, I take two buses and a Skytrain. I have to take a bus by my place to the Skytrain and then the Skytrain and then the bus to the place. So, it's depending on how the connections are. (Eddie)

It is important to point out that the amount of time it takes to travel to a non-profit food hub in the City of Vancouver is significant because there are fewer non-profit food hubs in the City of Vancouver than there are other food assets like supermarkets. Unlike middle- and high-income households, low-income households are often not able to afford shopping at other food assets like supermarkets. Although the number of non-profit food hubs in the City of Vancouver is growing, there have been setbacks. For example, near the beginning of the COVID-19 crisis, the Greater Vancouver Food Bank shut down neighbourhood distribution sites that were accessed by hundreds of people on a weekly basis (Uguen-Csenge, 2020). Although increasing the number of non-profit food hubs in the City of Vancouver would provide relief, the deeper issue is the two-tier food system in the City of Vancouver where the economic well-being of a household determines which food assets they can access.

The mode of transportation that interview participants utilized to access a non-profit food hub in the City of Vancouver had a substantial impact on their transportation time. As demonstrated in the above quote from Eddie, whereas travelling by automobile meant reaching the non-profit food hub in 10 to 15 minutes, travelling by transit meant

reaching the non-profit food in 60 minutes. Another interview participant, Paula, echoed a similar situation.

I have a car so it would only take me ten minutes, but if I didn't have a car, it would take me about half an hour to get to that location. (Paula)

One interview participant with a disability, Kristina, noted how utilizing HandyDART, the local paratransit system for people with disabilities, as their mode of transportation substantially increased the amount of time to access a non-profit food hub in the City of Vancouver, especially because the local paratransit system requires people to be ready for pick-up anytime within a half an hour window.

Transportation is a big deal. . . . When you travel with HandyDART, it's a day event. For example, . . . your appointment let's say is 10 o'clock. . . . You have to be ready at 9 o'clock and . . . they've got half an hour to pick you up. So, they pick you up at the end of your window – 9:30 whatever – and you get to your appointment at 10 o'clock. You stay for an hour for your appointment. At 11 o'clock, from 11 to 11:30 is another window. So, it's kind of a guessing game. (Kristina)

As highlighted in Figure 10, the average one-way travel time to access a non-profit food hub in the City of Vancouver varies for survey respondents (n=81). The majority (50.7%) of survey respondents had an average one-way travel time between 10 to 30 mins. However, 44.4% of survey respondents had an average one-way travel time of 35 minutes or more. Only a minority (8.5%) of survey respondents had an average one-way travel time of 5 to 10 minutes.

In addition to the grouped barrier of transportation distance and time, there is also the grouped barrier of transportation inconveniences, reliability, and accessibility.

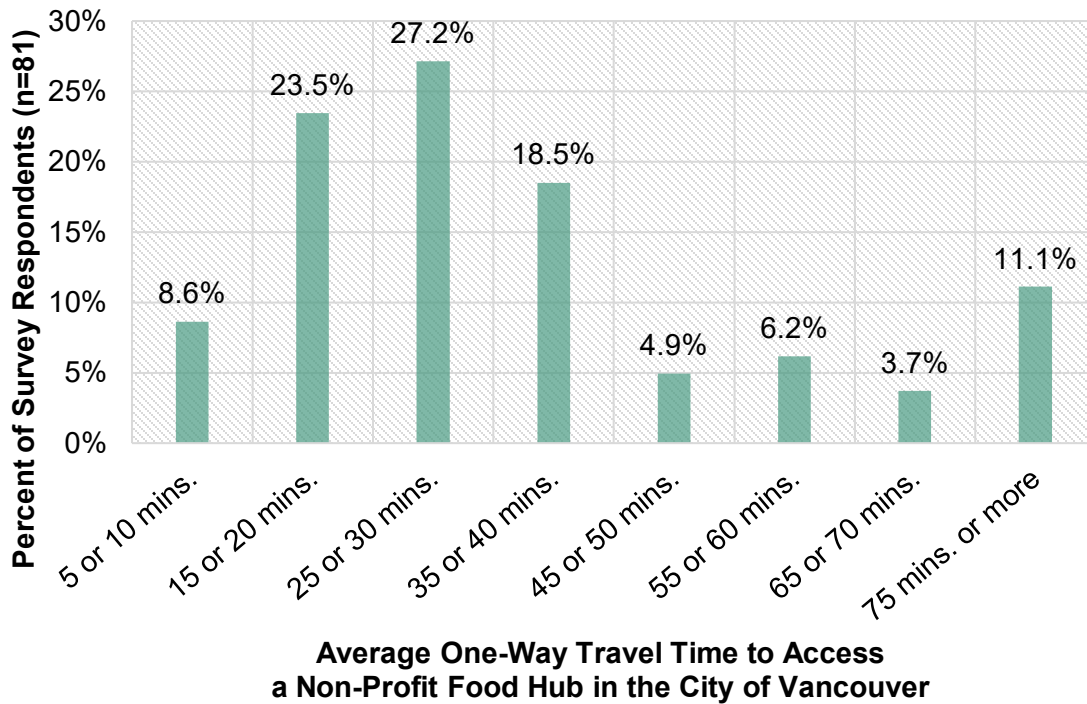


Figure 10. Average one-way travel time for survey respondents to access a non-profit food hub in the City of Vancouver.

4.3.2. Transportation Inconveniences, Reliability, and Accessibility

25.3% of survey respondents (n=79) identified with the barrier of transportation inconveniences, 22.8% identified with the barrier of transportation reliability, and 15.2% identified with the barrier of transportation accessibility. Survey respondents were prompted to identify with the barrier of transportation accessibility if they were having issues such as those related to a disability or having to take a stroller for a child. Furthermore, survey respondents were prompted to identify with the barrier of transportation inconveniences if they were having issues such as those related to taking groceries back. The three barriers have been grouped because they are connected. When considering grouped barriers, the barrier of transportation inconveniences, reliability, and accessibility is the second biggest barrier to accessing food from a non-profit food hub in the City of Vancouver that survey respondents identified with.

In terms of corroborating comments from interview participants, two interview participants, Paula and Sonia, stressed how taking groceries back from non-profit hubs is difficult, especially on transit, because the bags are heavy.

The food bags are pretty heavy. I mean there's only two but they're heavy with whatever vegetables or whatever they're offering that time. And so that's kind of hard sometimes to transport, even into a car. But for the most part, I think it's a challenge to carry those bags onto the bus or onto the Skytrain. (Paula)

It is an inconvenience to bring the bulk groceries back that I get once a month. It's just as cumbersome as having a stroller to have to carry two heavy bags of groceries on the bus. (Sonia)

Another transportation inconvenience brought up in the interviews was particularly relevant to the COVID-19 crisis. An interview participant, Carmen, who has three children, noted how certain fellow transit users would get angry at them for sitting together. It is unclear why certain fellow transit users felt this way, especially since members of the same household have not been required to distance themselves from each other at any point during the COVID-19 crisis. Carmen also noted how certain fellow transit users took issue with her bringing a food cart to help take groceries back. It is disheartening that people like Carmen have to deal with comments regarding a food cart. Furthermore, Carmen noted that the temporary move to rear-door boarding on buses made it difficult to access food from non-profit food hubs because she had to lift her food cart onto the bus since buses could not lower the rear door. Ultimately, transportation inconveniences and accessibility issues have forced Carmen to rely on non-profit food hubs that deliver food.

We use a food cart so that takes up space with me and my kids. Like pre-COVID it wasn't too bad but COVID brought along a lot of barriers. . . . When we were getting onto transit, people would get mad at us for sitting together and then having that cart. When we first started going on transit when COVID hit, it would only be getting on the back, which made it a little difficult pulling the cart on because they can't lower it. COVID really, really put up a lot of barriers everywhere and we just ended up trying to resource organizations that could deliver food to us. (Carmen)

Another interview participant, Eddie, also brought up how he struggled to lift his food cart onto the bus. Since Eddie had replacement surgeries on both of his hips, he is not supposed to lift heavy things. Therefore, lifting his food cart onto buses was a risk

that he had to take in order to access food from non-profit food hubs in the City of Vancouver.

I use a cart to carry a lot of things. If I'm going to get a fair amount of things or even more than say a large milk and a few things, . . . I'll bring a cart usually. And I have to be a little bit careful with lifting it onto the bus because I'm not supposed to lift heavy things. Luckily, it's just a one-off thing. (Eddie)

Furthermore, another interview participant, Kristina, stressed how the local paratransit system, HandyDART, can be unreliable and cause extremely long waits.

HandyDART is kind of a nightmare. They could be running late. With buses, if you miss one bus, you know that there's another bus coming. There's more flexibility. With HandyDART, you can phone them up and say, "Look my bus hasn't come, I'm going to skip it and take a bus." And I've done that. I've thrown in the towel. I spent three hours once outside of work . . . saying, "Look, I just gotta go, it's freezing rain and I can't get back into the office." And I was on my walker and I couldn't get back into the building. And they forgot me. And so I had to take a bus and it was a nightmare. I got home around 8 o'clock and I finished at 4:30. (Kristina)

In addition to the grouped barrier of transportation inconveniences, reliability, and accessibility, there is also the barrier of transportation costs.

4.3.3. Transportation Costs

25.3% of survey respondents (n=79) identified with the barrier of transportation costs. When considering grouped barriers, the barrier of transportation costs is the third biggest barrier to accessing food from a non-profit food hub in the City of Vancouver that survey respondents identified with.

In terms of corroborating comments from interview participants, one interview participant, Carmen, stressed how transportation costs for herself and three children are high and that it has not made sense for her to pay for monthly transit passes during the COVID-19 crisis because she and her family do not go out often. Yet, Carmen noted that if restrictions related to the COVID-19 crisis were lifted, her family would pay for monthly transit passes and regain the ability to access non-profit food hubs in the City of Vancouver. It is unfortunate how transportation costs can be the determining factor behind someone's inability to access food from a non-profit food hub.

Transit for me and three kids is over \$200 a month. . . . Right now, we're kind of saving on transit because we're not going out as much. But if the restrictions were lifted, we would go back to monthly and we'd be able to go out and pick up food. (Carmen)

Another interview participant, Eddie, highlighted how although he is eligible for a free monthly transit pass due to provincial program for people with disabilities, there was a time where he lost access to a free monthly transit pass, which he says is valued at \$150, simply because he made \$10 more a month as a result of a cost-of-living increase in a federal program. When Eddie lost access to his monthly transit pass, Eddie was not sure about how he would get around and had to rely on a kind couple to help him obtain a monthly transit pass. For those who are not eligible for a free monthly transit pass, especially those who do not have anyone to help them financially, the lack of a monthly transit can be the determining factor behind someone's inability to access food from a non-profit food hub.

I'm on the disability so I get a free transit pass so it's actually very good. There was a time when I got on an increase. I was on CPP disability federal and I would get a top-up from the provincial government but at one time there back in 2011 or 2012, I got a cost-of-living increase that put me 10 dollars over the provincial maximum. I knew I wouldn't get a top-up but they took my transit pass away, which was really frustrating because how do I get around? Just because I've gotten 10 dollars more a month, they've taken away my transit pass – which is a 150 dollar a month benefit. So that was tough but I was able to get some help from a really nice couple actually that helped me until such time as the [provincial] NDP gave an increase to people with disabilities. (Eddie)

In addition to the barrier of transportation costs, there is also the barrier of line-up times at non-profit food hubs.

4.3.4. Line-Ups at Non-Profit Food Hubs

17.7% of survey respondents (n=79) identified with the barrier of line-up times at non-profit food hubs. When considering grouped barriers, the barrier of line-ups at non-profit food hubs is the fourth biggest barrier to accessing food from a non-profit food hub in the City of Vancouver that survey respondents identified with.

In terms of corroborating comments from interview participants, one interview participant, Kristina, stressed how the line-ups at non-profit food hubs in the City of

Vancouver are a barrier to accessing food from them since it is difficult for her to stand for long periods and uncomfortable for her to sit on her walker. Furthermore, the long line-ups sometimes force her to remain outside in the elements.

I haven't gone to the food banks in a year or two because there's usually a long waiting line-up . . . and you're usually outside and you're out in the elements. And if it's pouring rain, you're out in the rain. The area I go to is Mount Pleasant and I can't stand for long periods and I would be sitting on my walker – it's not comfortable. (Kristina)

Kristina is not the only interview participant who finds long line-up times at non-profit hubs in the City of Vancouver to be a barrier. For example, another interview participant, Lindsey, mentioned that the long line-ups induced her anxiety. Another interview participant, Belen, noted that as a result of long line-up times at non-profit food hubs, especially during the COVID-19 crisis, she had to ensure that she got there early to avoid having to wait in line.

The line-ups are not easy for me because I get really impatient. I have a little bit of anxiety so I don't like to wait in line for too long. (Lindsey)

Especially during COVID, it's the line-ups. Which is why I try to get there by 9 o'clock, which is as soon as they open. . . . I have no choice but to go because nobody wants to run out of groceries and that's the only place where we can get affordable [food] on our low-income. (Belen)

As highlighted in Figure 11, the typical line-up time to access a non-profit food hub in the City of Vancouver varies for survey respondents both before (n= 77) and during (n=74) the COVID-19 crisis. The percent of survey respondents who had a typical line-up time that was less than 15 minutes dropped from 36.4% before the COVID-19 crisis to 18.9% during the COVID-19 crisis. Furthermore, the percent of survey respondents who had a typical line-up time that was greater than an hour rose from 10.4% before the COVID-19 crisis to 23% during the COVID-19 crisis. This may indicate that the typical line-up time to access a non-profit food hub in the City of Vancouver was long prior to COVID-19 and has gotten longer during the COVID-19 crisis.

In addition to the barrier of line-up times at non-profit food hubs, there is also the barrier of schedules of non-profit food hubs.

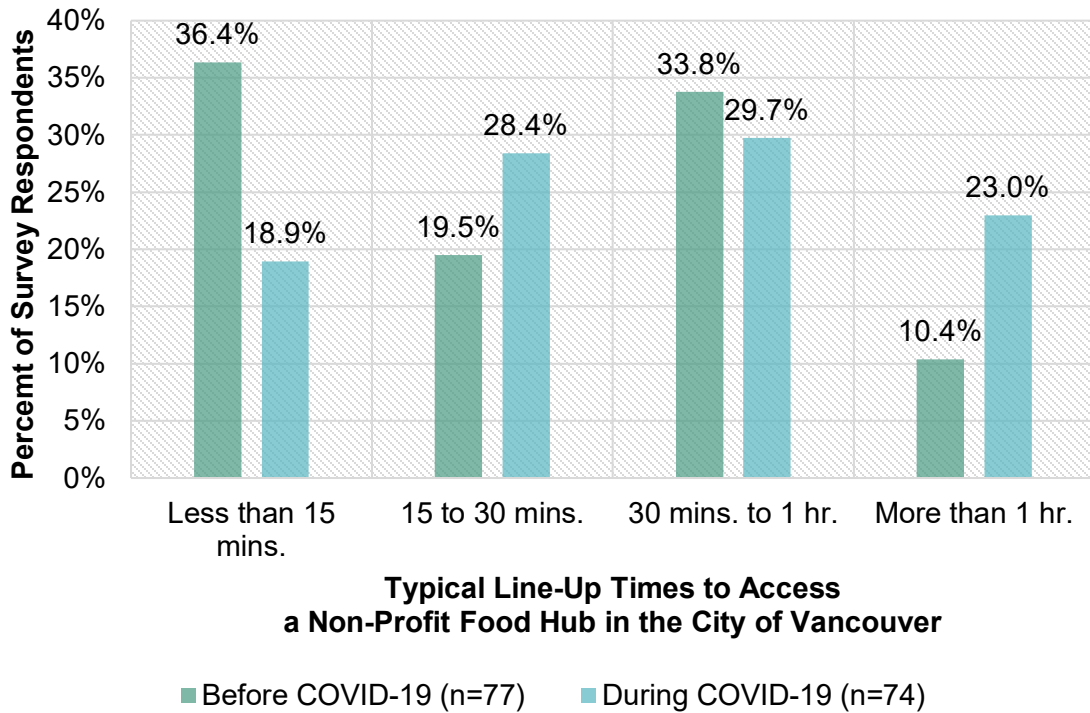


Figure 11. Typical line-up times survey respondents face to access a non-profit food hub in the City of Vancouver.

4.3.5. Schedules of Non-Profit Food Hubs

15.2% of survey respondents (n=79) identified with the barrier of line-up times at non-profit food hubs. When considering grouped barriers, the barrier of schedules at non-profit food hubs is the fifth biggest barrier to accessing food from a non-profit food hub in the City of Vancouver that survey respondents identified with.

In terms of corroborating comments from interview participants, one interview participant, Irene, stressed how the schedules of non-profit food hubs in the City of Vancouver are a barrier to accessing food from them since she has to work and is only able to access them after work. Irene recounted times where she was coming home from work and was stressed out because she was not sure if she would make it to the non-profit food hub in time.

I have to make sure that I get there. I typically go sort of later in the day. Usually, it would be after my work time. So there have been times where when I am coming home from work, I am stuck on the bus and there is some stress involved – whether I am going to be back in time to pick up my food that day. (Irene)

Irene's comments align with how some non-profit food hubs in the City of Vancouver are scheduled. For example, the Greater Vancouver Food Bank's (2021) branch in the City of Vancouver is only open from 10 AM to 4 PM on Tuesdays, Thursdays, and Fridays. Those who work typical office hours may only be able to access food from the Greater Vancouver Food Bank (2021) when they are open from 1 PM to 7 PM on Wednesdays and/or from 10 AM to 2 PM on Saturdays. Furthermore, some non-profit food hubs like the Grandview Woodland Food Connection (2021) only have food available for pickup once a month on a particular day. This is quite different from your average supermarket which is typically open everyday from 8 AM to 9 PM.

Irene is not the only interview participant who finds the schedules of non-profit hubs in the City of Vancouver to be a barrier. For example, Paula mentioned that there are months where her work schedule conflicts with the day and time that the non-profit food hub she accesses has food available for pickup that month. On those months, she cannot access food from the non-profit food hub.

There's an occasional time where if the time conflicts with my work schedule . . . then I can't attend that month. But then if I'm able to, I will take the food. (Paula)

Chapter 5.

Recommendations and Conclusion

5.1. Recommendations

The survey respondents in this study identified with several barriers to physical and economic access to food when attempting to access food from non-profit food hubs in the City of Vancouver. Furthermore, comments from survey respondents and interview participants corroborate the various barriers. In this subsection, recommendations are provided regarding what can be done to promote better and dignified access to food.

5.1.1. Non-Profit Food Hubs Should Maintain a Food Delivery Option

The first recommendation is that non-profit food hubs should maintain a food delivery option. When considering grouped barriers, the barrier of transportation distance/time and the barrier of transportation inconveniences/reliability/accessibility were the two biggest barriers that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Maintaining a food delivery option would mean that users of non-profit food hubs in the City of Vancouver, especially vulnerable populations, will not have to physically go to a non-profit food hub to access food. When individuals and families have to physically go to a non-profit food hub in the City of Vancouver, the one-way travel time can sometimes be 35 minutes or more. Furthermore, many individuals and families struggle to physically get there because it is difficult to carry groceries and/or to work around accessibility issues. Although the COVID-19 crisis has been a troubling time for many of those who access food from non-profit food hubs in the City of Vancouver, many appreciate those non-profit food hubs which have implemented a food delivery option. Maintaining a food delivery option would also address other barriers to accessing food from a non-profit food hub in the City of Vancouver such as transportation costs, line-up times at non-profit food hubs, and schedules of non-profit food hubs. With fewer physical and economic barriers, low-income individual individuals and families would enjoy greater food access and food security.

5.1.2. TransLink Should Provide Convenient and Reliable HandyDART Service

The second recommendation is that TransLink should provide convenient and reliable HandyDART service. HandyDART is the local paratransit system for those with disabilities. The door-to-door service provided by HandyDART is extremely valuable for those who find it difficult to navigate conventional public transit. When considering grouped barriers, the barrier of transportation inconveniences/reliability/accessibility was the second biggest barrier that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Some survey respondents indicated that they use HandyDART to access food from non-profit food hubs in the City of Vancouver and some interview participants noted how HandyDART was cumbersome and/or unreliable. Those who struggle to carry groceries and/or work around accessibility issues would benefit from convenient and reliable access to HandyDART service. TransLink can make HandyDART more convenient and reliable by shortening pick-up time windows and by having more buses and drivers such that the service is fast and such that there is no need for drivers to drive away prematurely. The HandyDART Modernization Program has been seeking to improve the customer experience from start to finish, including how people register, how they book their trips, and how they pay for the service (TransLink, 2021a). TransLink (2021a) mentions that the slated improvements will allow for increased flexibility and the ability to make more spontaneous trips. However, the new registration process may be an effort to deny service to certain people and thereby reduce TransLink's costs (Doherty, 2021). Translink needs to ensure that they are making it easier, and not more difficult, to register for HandyDART service (Doherty, 2021).

5.1.3. The Provincial Government Could Subsidize Transit Passes for Low-Income Households

The third recommendation is that the provincial government could subsidize transit passes for low-income households. When considering grouped barriers, the barrier of transportation costs was the third biggest barrier that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Subsidizing transit passes would help promote the financial security of low-income households. At present, TransLink (2021b) allows a maximum of four children

under the age of five to accompany a paying guardian on transit for free and no one else can use transit for free. However, the provincial government recently allocated funding to public transit authorities to ensure that all children under the age of twelve can use transit for free starting in September 2021 (Daily Hive, 2021). This welcome change will allow families with youth to save up to \$672 per child annually (TransLink, 2021b). In addition, through the BC Bus Pass Program, the provincial government provides a completely subsidized transit pass to people with disabilities and gives access to a discounted transit pass to low-income seniors and other eligible people (Ministry of Social Development and Poverty [MSDP], 2021b). The completely subsidized transit pass for people with disabilities is an annual pass that can be denied in favour of receiving \$52 each month as a transportation supplement (MSDP, 2021c). The discounted transit pass for low-income seniors and other eligible people is an annual pass that costs \$45 (MSDP, 2021a). In the absence of any transit pass program, a monthly adult transit pass would cost between \$98 and \$177 a month, or \$1176 and \$2121 a year, depending on the number of transit zones it is for (TransLink, 2021b). Meanwhile, a monthly concession transit pass, available to HandyCard holders, seniors 65 years old and older, and children 5 to 18 years old would cost \$56 a month, or \$672 a year, regardless of the number of transit zones (TransLink, 2021b). Considering how much TransLink charges, ineligibility for the BC Bus Pass Program can significantly impact the financial security of low-income households, especially for those with multiple household members. Therefore, the BC Bus Pass Program could be expanded to cover low-income households. It is worth noting that the BC Bus Pass Program does not include access to HandyDART and including access to HandyDART would help address the barrier of transportation inconveniences/reliability/accessibility (MSDP, 2021b). It is important to note that simply providing access to transit is not enough because the barriers associated with food access go beyond the cost of transit.

5.1.4. The Provincial and/or Federal Governments Could Bolster Existing Government Assistance Programs

The fourth recommendation is that the provincial and/or federal governments could bolster existing government assistance programs. When considering grouped barriers, the barrier of transportation costs was the third biggest barrier that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Bolstering existing government assistance programs would help

promote the financial security of low-income households. In this study, 29.6% of survey respondents (n=81) had a total household income of less than \$30k in the past 12 months including any income from government assistance programs. Having a low income and a high cost of living can create immense financial stress for individuals and families. The Canadian Rental Housing Index (CRHI, 2021) notes that renters in the lowest income group in the City of Vancouver, those who make between \$0 and \$23,605 a year with an average of \$12,939 a year, typically spend 91% of their household income on rent and utilities. Furthermore, the CRHI (2021) notes renters in the second-lowest income group in Vancouver, those who make \$23,605 to \$50,389 with an average of \$36,782 a year, typically spend 38% of their household income on rent and utilities. When a household spends 30-49% of their income on rent and utilities, housing is considered unaffordable, and this is the case with those in the second-lowest income group in the City of Vancouver (CRHI, 2021). However, when a household spends 50% or more of their household income on rent and utilities, housing is considered severely unaffordable, and this is the case with those in the lowest income group in the City of Vancouver (CRHI, 2021). Food banks across the country, year over year, note that many come to food banks because they would not otherwise have economic access to food due to the high cost of housing (Food Banks Canada, 2019). The COVID-19 crisis has exacerbated the financial stress of low-income households in the City of Vancouver. Whereas 43.9% of survey respondents' households found it very difficult or difficult to make ends meet including any government assistance programs before the COVID-19 crisis, 67.5% did during the COVID-19 crisis. Promoting the financial security of low-income individuals and families will address the root issue of poverty and will not be a stop-gap solution. At present, there is essentially a two-tier food system in the City of Vancouver where middle- and high-income households have access to much more food than low-income households. If the amount of money that low-income individuals and families receive through welfare and other social assistance programs is increased, they will have the ability to spend that money on what is truly adequate food for them since they will be able to afford shopping at the same food assets that middle- and high-income households access. Such an approach is related to food sovereignty and does more to challenge a top-down approach to tackling food insecurity, where community members are not provided with extensive freedom of choice (e.g. food banking). It would also help prevent people from having to face the stigma associated with food banking.

5.1.5. The Federal Government Could Implement a Universal Basic Income

The fifth recommendation is that the federal government could implement a universal basic income. A universal basic income is “an income paid by a political community to all its members on an individual basis, without means test or work requirement” (Van Parijs, 2004, p. 8). When considering grouped barriers, the barrier of transportation costs was the third biggest barrier that survey respondents identified with in terms of accessing food from a non-profit food hub in the City of Vancouver. Implementing a universal basic income would help promote the financial security of low-income households. However, it is important to note that a universal basic income that is large enough to live on and that does not have phaseout or other eligibility restrictions has never been implemented in a rich country on a large scale or even in a pilot experiment (Hoynes & Rothstein, 2019). Furthermore, it is important to be sensitive to concerns that implementing a universal basic income would lead to unsustainable debt and/or inflation. Nevertheless, some have argued that it is possible to implement a universal basic income without incurring unsustainable debt and inflation (Matthews, 2017; Santens, 2019). Direct payments by governments during the COVID-19 crisis have raised renewed interest in a universal basic income (Ståhl & MacEachen, 2020). A universal basic income is a unique policy solution in that both conservatives and liberals have supported and been critical of it (Ito, 2018). The implementation of a universal basic income could allow individuals and families to decide what to spend money on, rather than having the government provide a wide array of social assistance programs (Ito, 2018). As with the recommendation of bolstering existing government assistance programs, this approach is related to food sovereignty and challenges a top-down approach to tackling food insecurity, where community members are not provided with extensive freedom of choice (e.g. food banking). It would also help prevent people from having to face the stigma associated with food banking. A universal basic income may be better than government assistance programs in that it removes disincentives to unlimited economic participation that are created through eligibility criteria. Furthermore, a universal basic income may be better than government assistant programs in that it empowers low-income individuals and families to save and invest capital in order to rise above the poverty level (Santens, 2019).

5.2. Conclusion

Despite attempts to end hunger and achieve food security, there is a growing number of people affected by food insecurity (PROOF, 2021; Tarasuk & Mitchell, 2020; United Nations, 2020). The COVID-19 crisis has only exacerbated the issue of food insecurity globally and in Canada (Statistics Canada, 2020; United Nations, 2020). Although the Government of Canada attempts to secure the right to adequate food through social assistance and unemployment insurance programs, these programs have been inadequate. The inadequacy of these programs has made it necessary for food banks and other non-profit organizations to fill the gap (Tarasuk et al., 2014). While food banks and other non-profit organizations are certainly beneficial, they are not the best solution in terms of securing the right to adequate food. Although clients of food banks and other non-profit organizations may be treated well, they are forced to accept food that is not always sufficient, nutritionally balanced, or otherwise adequate (Riches & Silvasti, 2014). Currently, solutions to address urban food insecurity in Canada are focused on improving existing food assets in cities and/or growing the number of food assets in cities. While this addresses the food security dimension of food availability, it does not address the food security dimension of food access. This study evaluated access to food at non-profit food hubs in the City of Vancouver before and during the COVID-19 crisis, especially as it relates to mobility and access to transportation. The findings from this study include identification of which individuals and families access non-profit food hubs in the City of Vancouver, how they access the non-profit food hubs, and what barriers they face to access the non-profit food hubs. To address the prevalent barriers that users of non-profit food hubs in the City of Vancouver face, this study recommends that non-profit food hubs maintain a food delivery option and that TransLink provides convenient and reliable HandyDART service. Furthermore, this study recommends that the provincial government considers subsidizing transit passes for low-income households, that the provincial and/or federal governments consider bolstering existing government assistance programs, and that the federal government considers implementing a universal basic income. It is time to deconstruct the two-tier food system.

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