

**RESIDENTS' ACCESS TO HEALTHY FOODS  
IN A LOWER INCOME REGION OF VANCOUVER, BC**

by

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## **Abstract**

With settlement patterns in many large North American cities changing, policy makers have begun to analyze the extent to which residents have access to the services necessary for a healthy life. This study assesses the barriers to food access in the North East Health District of Vancouver, British Columbia. With only three large grocery stores serving close to 100,000 people, residents must either find different sources for food purchasing or devise methods to access large grocery stores in order to achieve a healthy and nutritious lifestyle. Several barriers reduce residents' ability to find appropriate food choices, the most significant barriers being distance, availability, and affordability. This study develops and evaluates policy options to overcome these barriers. It concludes that easing zoning and permitting restrictions could create more small business opportunities and increase availability for underserved residents of the community.

**Keywords:** food security; accessibility; grocery stores; dietary decision making; low-income health

## **Executive Summary**

This study identifies the supports and barriers to residents' access to grocery stores in a low-income health district of Vancouver, British Columbia. The study then assesses policy remedies by examining grocery store access in other low-income neighbourhoods of North American cities and comparing the results with those obtained from the North East Local Health Area (LHA) of Vancouver. Providing healthy foods to those lacking access is not simple. Barriers such as availability, cost, and knowledge prevent some of the most vulnerable from obtaining the foods they require to lead healthy and prosperous lives.

My research employs both quantitative and qualitative methods. I conducted a survey of grocery stores in the area to determine accessibility. Statistical data obtained from BC Stats by LHA provided key demographic information that, along with a literature review, identified the groups most at risk. My findings were reinforced by conducting key informant interviews with city staff, small business owners, NGOs and members of the Vancouver Food Policy Council. These findings assisted in my development of several policy options that could improve access to fresh and healthy foods. These alternatives were then evaluated according to criteria of cost, effectiveness, feasibility, and equity.

Using the findings from relevant literature and interviews, I found the following policies rated most highly for the North Eastern LHA:

1. *Abating current zoning and permitting restrictions:* Amendments in city zoning schedules allow for small stores to operate within residential areas. However, no new stores or markets have been introduced since their inclusion.

2. *Strengthening partnerships between governments, community groups and NGO's:*

Both the federal and provincial governments have pledged to improve food networks for all citizens. Current partnerships exist between the city and community groups, but do not yet include other governments and larger organizations. A detailed strategic plan with all stakeholders would provide a more comprehensive approach to addressing food security.

3. *Expanding the city's current food cart system:* Introduced in the late summer of 2010, the food cart program has offered a variety of food options while increasing accessibility for the residents of Vancouver. Allowing food carts that cater healthy food to areas of the city that struggle with accessibility could help to address health concerns related to poor diet.

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## **1: Introduction**

With Canadian cities continuing to grow, demand for the basic services individuals need to live healthy, prosperous lives have increased. One issue gaining recognition in policy circles over the past several years is accessibility to healthy, nutritious foods. The phenomenon of “food deserts” – areas lacking stores that offer nutritious food – is well documented in larger cities across the United States and the United Kingdom. However, comparable research has only recently been undertaken for Canadian cities.

The federal government of Canada endorsed the *Rome Declaration on Food Security (1998)* under the premise that it is the “right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger.” By stating that “Individuals and households must have access to sufficient, safe, and nutritious food both in quantity and quality to meet their daily dietary requirements for a healthy and productive life,” the Government of Canada expressed its commitment to ensuring its citizens have access to healthy foods (Canada’s Action Plan for Food Security, 1998, p. 9).

Metro Vancouver’s population continues to increase, with over 2 million people calling the area home (Province of British Columbia Statistics, 2007). While this increase has occurred primarily on the periphery of the City of Vancouver, the result has been an increased demand for food and resources that increase availability, such as stores, markets, community gardens and kitchens, and urban farming within Metro Vancouver. This pressure on the food system to adequately produce and distribute food for the region’s residents can marginalize groups that are not included in community planning initiatives – particularly recent immigrants, low-income individuals, seniors and disabled community members (Howarth, 2004).

Research on grocery store access in the United States and Europe suggests that as cities have expanded, grocery stores have met demand by moving to suburban locations (Powell et al., 2007; Wrigley, 2004). The Government of Canada has identified certain groups to be more at risk than others with severity varying along age, gender, income, geographic location, ethnic or national affiliation and a host of other factors (Canada's Action Plan for Food Security, 1998). With limited access to healthy foods, residents of these neighbourhoods are at an increased risk for health-related concerns due to poor nutrition, such as heart disease, diabetes, and obesity (James et al. 1997). In essence, food access is complex in the economic, environmental, and social conditions that affect a community's ability to purchase healthy and nutritious foods.

This paper will analyze Health District 163 (Vancouver North East), which contains the neighbourhoods Hastings-Sunrise, Renfrew-Collingwood, and a portion of Kensington-Cedar Cottage. The LHA reports a high proportion of residents paying more than 30 per cent of their income on housing costs, and it sits below the provincial average for many key indicators, including education and health. With a small proportion of traditional grocery stores, i.e., large chain supermarkets that offer more than basic food items, too many residents of the district have poor accessibility to healthy food. As a result, residents are reliant on smaller stores that offer less variety and varying levels of quality. Of the large grocery stores in the LHA, two are in Renfrew-Collingwood, while one is in Hastings-Sunrise. The small area of Kensington-Cedar Cottage that is included in the LHA has no large grocery store within its boundaries. Transportation barriers further complicate the issue of large grocery store access in the area; low-income residents are less likely to own a car and are therefore more reliant on public transportation to access their food options. Those with little time, due to work or familial commitments, are dependent on a fast and efficient public transportation system.

This paper finds that too many individuals in Local Health Area 163 do not have adequate access to grocery stores that offer them nutritious foods as prescribed by the Canada

Food Guide. Without access to healthy foods, these individuals are high risk for various dietary concerns. A lack of access to nutritious foods can lead to dietary health complications such as obesity, heart disease and cancer. With the majority of Canadian public health expenditures focused on diet related diseases (Canadian Institute for Health Information, 2004), there is a need to improve the nutrition habits of individuals, especially those with barriers to access.

This study investigates policy alternatives that would improve the availability of nutritious foods to residents of this district. By focusing on barriers that are specific to the neighbourhood in question, namely, the lack of physical access, knowledge and supports, and their impact on vulnerable groups, such as seniors and various ethnic groups, this study provides a set of recommendations that could improve the dietary health for residents of the LHA.

The study begins by analyzing pertinent research on this topic that examines the impact of grocery stores on neighbourhoods. I then employ two research methods to determine the extent to which Health District 163 is affected and the best policies to address inadequate food accessibility. Data from BC Stats provides statistical information for the region that, when associated with the literature, yields insights about the extent of vulnerability in the North East District. Further statistical information on the incidence of health-related diseases, provided by the Local Health Area (LHA), helps to assess whether this district is adversely affected by access impediments. The secondary data source is key informant interviews with stakeholders, including Vancouver Coastal Health, the City of Vancouver, Food Networks, the Vancouver Food Policy Council (VFPC), and business owners. These materials provide the basis for developing a range of policy options to address the problem. I then evaluate the options to find the best way for the city to ensure accessible, healthy food for residents of Health District 163.

The study contains nine sections. The second section provides background information and emerging trends on food accessibility in North America. Section three examines the determinants of food security and the Food System Landscape as defined by the City of

Vancouver. The fourth and fifth sections provide the methodology and results of the research. Section six develops a policy framework to increase grocery store accessibility, with the succeeding section presenting analysis. Section eight provides recommendations for future policy steps. Section nine offers a brief conclusion and suggestions for additional research.

## **2: Food Accessibility in North America**

This section examines the issue of grocery store accessibility. While the majority of Canadians have access to healthy foods, some groups are more at risk (Canada's Action Plan for Food Security, 1998). These include primarily the working poor, the elderly and recent immigrants. While the problem is not strictly North American in scope, identifying how cities in Canada and the United States recognize and address poor grocery store access will provide a context for what may be occurring in the North East Health District.

### **2.1 Changes in Urban Settlement Patterns**

As urban centres prospered at the beginning of the twentieth century and technological innovations improved travel methods, cities began to expand beyond their boundaries and absorb neighbouring land and communities. As a result, people began to migrate outside of urban centres to suburban communities that offered them the luxuries of space and affordability. The advent of the motor vehicle and highway systems further developed the demand for suburban living, with a significant corresponding shift in population densities (Arnold, 1971; Eisenhower, 2001). Land that was once valued for its productive agricultural capacity now had greater value under commercial or residential use. Areas that were once arable farmland for large cities or had existed as distinct communities transformed into small commuter communities dependent on larger metropolitan cities for jobs and resources. The issue of land use continues to be contentious in British Columbia, with municipalities and developers working to change land designations as set out by the province's Agricultural Land Reserve (ALR) (Garrish, 2002). Changes in suburban land use caused a decrease in urban property values and increased vacancy rates. As a result, supermarket chains migrated, while restricting access by competing chains to their old territory.

Practices in a number of North American cities allowed the use of the restrictive covenant: an agreement between two landowners that limits the future use of a property and continues when the land is sold (Haynes, 2005).

With an emerging suburban middle class and having more space for construction, businesses saw a potential to profit by catering to these new residents (Chung and Meyers, 1999). Building larger stores with greater inventory and parking ensured a more desirable consumer group with a larger disposable income would access their businesses. Grocery stores that relocated became more profitable than if they had stayed in urban communities due to offering more goods and services in larger stores. In addition to creating larger stores with parking, supermarket developments on large land parcels also allowed for the development of new centres that offered services such as banks, pharmacies, and bakeries; doing so attracted more customers, which led to increased purchases (Bolen and Hecht, 2003).

This trend was particularly evident in large American cities, where an exodus of people from central urban areas led to a change in urban density. With the success of suburban grocery chains, urban stores became associated with higher operating costs, complicated city permitting, higher taxes, and staffing concerns centred on reliability and theft (Gottlieb et al., 1996). With low-income adults making urban centres their home, many of the issues associated with low-income communities extend to neighbourhood businesses. The U.S. House of Representatives Select Committee on Hunger in 1990 concluded that low-income consumers' food purchasing power was affected by supermarket migration in addition to a lack of transportation options and a lack of competitively priced food stores (Chung and Myers, 2005). With limited space, urban stores could not offer as much variety in food and services. Catering to a different clientele, urban markets also reduced the proportion of higher margin items that were now common in suburban shopping districts (Chung and Myers, 2005). With fewer middle and higher income shoppers, urban stores became exclusively low-income in the goods they carried and the customers they



served. Some small markets became specialty stores to attract more shoppers and were successful at drawing individuals from farther away.

With quality of life generally in decline, shrinking urban communities began to see an increase in crime, drug abuse, and poor health. This was particularly evident in New York City during the 1970s, where urban ghettos emerged due to disinvestment in the city's manufacturing industry, leading to increased unemployment in related sectors. The shift in corporate employment opportunities created changes in the city's labour markets at a time when immigration and declining incomes were producing new demographics in communities (Mollenkopf, 1991). These developments led to an overall city disinvestment with many neighbourhoods experiencing urban decay. While many citizens who were on the social periphery continued to live in these areas, public services such as emergency and social providers began to migrate to newer communities (Wallace and Wallace, 1990). With both economic and social investment leaving these communities, food providers and other businesses either moved or discontinued their operations. Communities that have access to healthy nutritious foods are more likely to have access to social programs and resources that improve their overall quality of life. (Taylor and Harrell, 1996).

Grocery stores are hubs for local economic activity, acting as anchors for other nearby businesses. A local neighbourhood grocery complex can also further social interactions within the community and become a destination to which people can walk (Moudon, 2006). There remains the challenge of having all residents, especially those closest to stores, agreeing to large-scale changes. An increase in shopping destinations can lead to intensified traffic, noise, and crime. With fewer grocery stores available in urban communities, residents are faced with issues of accessibility in addition to paying a higher price for nutritious foods when they are available.

In some Canadian cities, the trend of suburban migration is occurring alongside a new trend of urban revival. Known in many regions as gentrification, urban communities are seeing an

increase in medium- to high-income housing. Found primarily in large urban cities such as New York (Meltzer and Schuetz, 2010), an increase in more high-end retail resources has had an impact on community demographics. With an influx of better-off residents, speciality retailers and high-end grocers have moved in, resulting in improved access for those who can afford food that costs more than it would in the average supermarket. An example of this occurring in Vancouver can be found in the recent renovation of the Woodward's building in the Downtown Eastside. With expensive condominiums created in the building, a high-end grocer was introduced to the building.

## **2.2 Food Purchasing Power and Options**

Low-income neighbourhoods are more likely to have poor exposure to grocery stores. While smaller independent grocers may exist, they do not offer the same variety as larger grocers. Independent grocers that focus on providing produce often supply a variety of fruits and vegetables, but these items often vary in quality. Variety is significant in that it is more likely to promote continued access and, in the case of fruits and vegetables, can result in providing more easy to use or easy to eat options (Glanz and Yaroch, 2004). While large grocery chains are more likely to offer a variety of goods, the prices can often vary, with independent markets more likely to offer cheaper prices for produce. Grocery chains are more likely to offer shoppers the ability to shop for healthy foods at a single location. In addition to independent markets, many residents of low-income neighbourhoods shop at corner stores that charge higher prices, offer less choice, and offer the only redeeming quality of easy access.

When accessibility to any size of store is difficult or the overall income of the area is low, an increase in charitable food resources such as food banks, community kitchens, and soup kitchens is seen. These resources are not sustainable as they do not try to solve the issue of food accessibility but merely assist people with coping on a day-to-day basis. In this context, individuals and families that are suffering from accessibility concerns but are able to purchase

healthy food should not rely on charitable food options as they drain resources from those who are truly needy. While the majority of Canadians who access food banks are on income assistance, 12 per cent of individuals and families are employed and members of the working poor (Riches, 2002). The Community Nutritionist Council of BC, in their report on food security and public health, state: “Food banks essentially privatize dietary support – a medically necessary service – for those in need” (Community Nutritionist Council of BC, 2004). Additionally, food banks offer food that is nutritionally poor to those who access it. This aspect is further explored in section 2.3, which analyzes the nutritional value of food choice in urban neighbourhoods.

Research focusing on accessibility in the United States has found that a lack of large stores and limited transportation options lead to residents shopping at small stores located closer to their homes (Cotterill, 1995; Morris, 1990). These small stores, despite being more accessible, generally offer fewer healthy foods, are poorly maintained, and charge higher prices. Differences in price, quality, and selection are varied but are rooted in small stores’ inability to buy large quantities, access large-scale wholesale produce, or have the equipment necessary to offer fresh produce on a daily basis (Prevention Institute for the Center for Health Improvement, 2002). In many communities across the United States and Canada, residents are now paying more for lower quality food than they have in the past (Drewnowski and Darmon, 2005). With a lack of access, higher costs for healthy foods, and fewer charitable options, the working poor may often suffer from worse access to food than the very poor.

The situation in British Columbia is further complicated by one of the highest proportions of economically challenged individuals and families in the nation, especially in Vancouver. Human Resources and Social Development Canada estimate that 9.6 per cent of all workers in Metro Vancouver have a family income below the poverty line. Workers that earn below the poverty line are also more likely to work more hours than the average worker earning income above poverty (Human Resources and Social Development Canada, 2006). As of 2009, work in

temporary employment increased in BC more than the rest of Canada, and a survey with casual workers in Vancouver and Prince George found that 80 per cent of respondents are seeking permanent work (Canadian Centre for Policy Alternatives, 2009). While demographic information on the North East LHA will be explored further in section 5, evidence from family incomes in 2005 demonstrates that a gap exists between the LHA and provincial averages. The district reported an average economic family income of \$67,271, well below the BC average of \$80,511 (BC Stats, 2010).

The purchasing habits among low to moderate income earners vary. Those not receiving income assistance are often working longer hours and may lack the time and resources to purchase healthy foods. Researchers have found that food purchasing is dependent on when income assistance is obtained for households reliant on it. If assistance is not received in a timely manner to cover monthly expenditures such as rent, food-purchasing habits are likely to become less routine or of inferior quality (Forum of Research Connections, 2005). Individuals are more likely to budget their money for essential items that accumulate interest or penalty without payment. The options surrounding food consumption are buying less or purchasing poorer quality food; both of which are increasingly likely in low-income neighbourhoods that have accessibility concerns. In a report focusing on low-income food purchasing in BC, the Dieticians of Canada (2009) found that a family of four on income assistance would need more than their basic income for shelter and food alone. Research in the United States has found that assistance at the beginning of a month can result in increased food consumption among the most constrained; further highlighting the significance of timing in income assistance programs (Souleles, 1999). For municipalities with a high proportion of residents on assistance who also have accessibility concerns, improving access is an additional concern to ensuring healthy supports in other areas related to income assistance and program supports.

## 2.3 Low-income Food Choices

While many low-income neighbourhoods have difficulty accessing healthy foods through grocery stores, other food options exist. In 1981 Canadian charities began setting up food banks as a temporary measure to assist those in emergencies. From 1989 to 1997, the use of food banks in Canada doubled (Canada's Action Plan for Food Security, 1998). Charitable food represents a failure in food security. It is accessed by the most vulnerable, who must prioritize their food purchasing habits and other costly needs such as shelter, utilities, and in some cases addiction. Charitable food relies heavily on the contributions and financial assistance of community groups and government, while providing a service that in many regards is of lesser quality than what individuals with adequate income can purchase. Financial independence allows for choice, with healthy options being more available. Studies have shown the nutritional value of the food offered by food banks to be lower than food options elsewhere (Forum of Research Connections, 2005). In addition to food banks, options for the lowest income earners include soup kitchens, which offer a similarly inferior product.

Delivery of charitable food can be provided effectively only in high-density areas, as many dependants lack transportation. Charitable food resources are not likely to be found in neighbourhoods less dense with the low-to-moderate-income earners that this study has identified to be at risk. With many charitable food locations, such as soup kitchens and food banks, found in very low-income neighbourhoods, they become inaccessible to those who live too far away or who may feel uncomfortable around others who rely on these services. Additionally, the administration of charitable food can require lining up for extended periods during adverse weather and a short window of hours that could serve as barriers.

Food of poor nutritional value is also available in low-income communities in the form of fast-food restaurants. This is a concern, as food prices, restaurant availability, and food store availability have an effect on fast-food consumption. Fast food affects individuals' weight

outcomes; low-cost, convenient, fatty-sodium rich foods are contributors to obesity (Drewnowski and Darmon, 2005). Fast food is often chosen by low-income people because it is more accessible than nutritious food, requires little preparation, and it can often be more filling than healthier options costing the same. While the health risks associated with fast food may not be fully recognized by these individuals, fast food has increasingly become a major dietary choice.

Decisions made by the most vulnerable and low-income residents centre on the resources available to them. Transportation affects healthy food choices in a few ways. With the migration of stores from urban centres to suburban communities, development patterns are increasingly oriented around automobile travel (Eisenhauer, 2001). Large grocery stores have moved to areas where they could build large parking lots to serve customers with a higher disposable income. These locations, with much greater inventory, are situated close to major suburban roads and highways to better serve their customers. With larger supermarkets existing on the perimeter of urban centres, one-stop shopping access has become more difficult for urban residents. Stores have dropped in number and become further geographically separated, while the number of urban-centre neighbourhood grocery stores has continued to decline (City of Vancouver, 1998).

People without access to a car must walk or use public transportation or make occasional use of taxis. These travel methods limit shoppers by restricting how much can be purchased at once, since they are limited by how much they can carry. Further complicating this scenario are commuter patterns, as most transit routes do not necessarily serve shopping destinations. For public transport users this can result in extended waiting times, transfers, and long distance walks to and from bus stops (Gottlieb et al., 1996). Low-income residents are faced with multiple trips a week to provide home-cooked meals. When distance, carrying capacity, and trips per week are considered, it is easy to see why residents seek other food options that avoid these barriers – options such as fast food. These challenges have led cities to explore different methods of

increasing access to healthy food. This paper later explores options to address these barriers including strengthening corner stores and incentivizing small businesses such as food carts.

## **2.4 Health in Low-Income Neighbourhoods**

The North American literature on food access has found that a greater availability of supermarkets is associated with higher fruit and vegetable intake and a healthier lifestyle among adults; even when controlling for variables such as income and education. (Morland et al., 2002, p. 1765). Low-income residents who lived in communities where food was more accessible, or full service restaurants existed, were more likely to exhibit healthy eating practices and fewer dietary related illnesses (Morland et al., 2002). In addition to poor physiological health results, a bad diet can also lead to poor psychological health (Mustillo et al., 2003) and can adversely affect one's ability to work and learn, which, in turn, can result in reduced productivity and increased underemployment (Cook, 2002). This finding has caused many researchers to believe that the link between diet and wealth has not received enough attention (Zagorsky, 2005). The importance of having access to healthy foods is evident when analyzing the self-reported health of food-insufficient households in Western Canada. In their report focusing on food insecurity within Canadian households, Che and Chen (2001) used cross-sectional data from Statistics Canada's National Population Health Survey (NPHS) and additional survey data to determine the extent to which both quality of food accessed, or price, served as a barrier to purchasers more likely to report having poor functional health, restricted activity, and multiple chronic conditions. In addition to physical health concerns, high incidence of depression and distress were reported. Supports for many of the social concerns linked to individuals having poor access to healthy foods were also found to be lacking (Che and Chen, 2001). While self-reported health is not always indicative of actual health, the psychological effects should not be underestimated.

Poor nutritional habits are linked to a variety of health concerns, such as obesity, diabetes, cardiovascular disease, and dietary deficiencies. Obesity has become one of the most

rapidly growing health concerns in North America, more than doubling in Canada over the past 20 years (Canadian Institute for Health Information, 2004). Obesity is a contributing factor to diabetes, hyperlipidaemia, some cancers, breathlessness, menstrual disturbances, pregnancy complications, back pain and arthritis, skin disorders, and varicose veins (James et al., 1997). Obesity-related health diseases in 1997 were estimated to impose costs of over \$1.8 billion to the country's health care system (Forum of Research Connections, 2005). While a number of factors relate to an increase in obesity, research has demonstrated that sedentary lifestyles and a greater availability of fatty, sodium-rich foods are of particular concern (Adams et al., 2003). All of these are common in low-income neighbourhoods where residents have less time and poorer food choices. The link between obesity and low-income populations points to the importance of having a variety of healthy foods easily available.

Cardiovascular disease, the leading contributor to mortality in Canada as well as one of the most costly to the health care system, is one threat associated with poor food access (Forum of Research Connections, 2005). The Heart and Stroke Foundation of Canada urges that adherence to the guidelines in Canada's Food Guide, with its emphasis on vegetables and fruits, grain products, dairy, and protein, are essential to the prevention of heart disease (Heart and Stroke Foundation of Canada, 2007). Acknowledging that income plays a significant role in citizens being able to purchase a healthy diet, the Heart and Stroke Foundation of BC and the Yukon, in agreement with the Health Officers Council of BC and the BC Healthy Living Alliance, have recommended the provincial government take action on income and food security issues. The methods proposed include adopting a poverty reduction plan for the province that increases income assistance and the minimum wage, in addition to developing and implementing a food security strategy that addresses food affordability, availability, and accessibility (Heart and Stroke Foundation, 2009).



## 2.5 Vulnerable Groups

While accessibility can affect a community's access to healthy and nutritious foods as a whole, some groups may have difficulties that require more than improved access. Groups with mobility issues, such as seniors and residents with disabilities, may still require assistance in accessing grocers. Additionally, many of today's large urban cities have neighbourhoods comprised of different ethnicities. Newer residents to Canada may have difficulties in accessing their traditional foods and lack the knowledge necessary to find or prepare newer healthy foods.

Seniors have various barriers that may influence their dietary habits. Factors associated with the dietary outcomes of seniors, in addition to those that affect low-income communities, include perceived health status, belief in proper nutritional eating habits, fixed incomes, and mobility and vision abilities (Keller et al., 1997). Seniors are more likely to shop at large grocers as they offer them room to navigate and effectively find products that are laid out and easier to find. Both perceived health and nutritional knowledge demonstrate that seniors require nutritional assistance in making informed decisions. While some knowledge programs have focused exclusively on seniors, few have demonstrated success in changing behaviour and decision-making. The 'Seniors Farmers' Market Nutrition Program' in South Carolina provided 15,000 participants with information and vouchers for healthy foods in area markets. In a follow-up survey, 83 per cent of respondents reported that they did not purchase new foods (Kunkel, 2003). Despite an inability to introduce new healthy eating habits, the majority of participants did believe the program was effective and 89 per cent of respondents reported they would try to eat more fruits and vegetables year round, especially if the voucher program continued.

In addition to seniors, new residents of Canada are at a high risk to exhibit diet related illnesses. While some of the barriers seniors face, in particular being on a fixed income, affect new immigrants, environmental and knowledge based issues are of significant concern. Studies focusing on diet related diseases of new immigrants to the UK found that the prevalence of

diabetes and obesity was particularly high in Caribbean and South Asian ethnic groups (Landman and Cruickshank, 2001). While certain groups may have a predisposition to degenerative diseases, these appear to be aggravated by environmental issues such as diet, physical inactivity, stress, and poorer use of and quality of care. Knowledge also plays an important role for ethnic minorities, with a lack of familiarity to new foods playing a large role in American communities (Pirouznia, 2000). Information and interviews provided by both health and food security managers suggested that a similar pattern existed in Vancouver. Section 5.2 of this report finds that the high proportion of ethnic Chinese in the community are particularly vulnerable to lacking the knowledge required in making informed decision on local foods to which they may have had minimal exposure.

This knowledge may or may not have a significant impact on Chinese residents. While the area does lack access to larger grocery stores that cater more to the needs of individuals, there are a large proportion of Chinese grocers who carry Asian goods. These findings could result in a vulnerable group as identified through the literature having access to the foods they require in living a healthy lifestyle.

### **3: Vancouver's Food System**

The City of Vancouver's food system is comprised of food production, processing, distribution, consumption, and waste management activities. The Vancouver Food Policy Council (VFPC) represents all the major sectors associated with the food system. Created as an advisory committee in 2004 to work with councillors and staff in promoting a strong and sustainable food system, the VFPC sets a biannual strategic direction while setting an annual work plan that provides decision makers with advice about the food system. Due to consumer demand, geographic and climate-based limitations, and the costs associated with growing and transporting food in the Lower Mainland, the City of Vancouver is reliant on the production and supply of food from sources outside of the Lower Mainland (Vancouver Food Policy Council, 2009).

A wide range of forces influences food security status in communities. The City of Vancouver, through the *Food Secure Vancouver Baseline Report* of 2009, has identified three key determinants of food security: affordability, knowledge, and the food system. The strength of these three determinants contributes to the City's four sustainable dimensions of human, environmental, social, and economic health. Gauging the strength of these determinants assists policy makers in defining the scope of accessibility, and in facilitating actions to serve the community and meet the four sustainable dimensions of health. The following subsections will analyze the strength of these determinants in relation to the North East Health District.

### 3.1 Affordability

“Affordability” is a combination of food prices in Vancouver and residents’ incomes. Affordability is a key determinant of health, in that food may be accessible and nutritious but residents may not have the financial means to purchase it. Poverty and inadequate income have been identified as one of several major factors that impede access to nutritious foods (Canada’s Action Plan for Food Security, 1998). Individuals with low incomes are less likely than those with higher incomes to get proper nutrients for healthy living and are less likely to practice diets that are consistent with healthy eating. This has resulted in a higher proportion of diet related illnesses and earlier than expected deaths (Public Agency of Canada, 2003). With the highest proportion of families below LICO among Canadian cities (Low Income Cut Off) at 20.9 per cent (Federation of Canadian Municipalities, 2010 p. 12), it is important that policy makers address preventative health related actions. Governments on the municipal, provincial and federal levels are major stakeholders in ensuring that people have access to healthy foods.

The high cost of food is also attributable to the cost borne by local producers. With industrial conglomerates from California and Mexico enjoying significant cost advantages in efficiency over local producers (Lang, 2003); larger retailers are able to import cheaper foods. Through economies of scale, retailers can lower their prices relative to smaller neighbourhood grocery stores (Eisenhauer, 2001). The introduction of Universal Product Codes (UPCs) and scanners allowed for retailers to process information quickly and in detail, helping them target groups effectively and eliminate the need for warehousing goods (PG, 1987). By reducing costs, chain supermarkets grew in size. The increase in demand allowed chain markets to create strong relationships with wholesale suppliers that allowed them greater control over prices. Predatory pricing habits eliminated competition in many communities and displaced independent grocers who were unable to sell their goods at lower prices (Eisenhauer, 2001). This trend was found to affect urban neighbourhoods in particular and was coined “supermarket redlining” (Turque,

1992). The effects were dramatic, with the poorest 20 per cent of neighbourhoods having 44 per cent less retail supermarket space than the richest 20 per cent (Emert, 1995).

Given British Columbia's rugged terrain, farmland is in short supply. The auditor general of the Agricultural Land Commission noted in a 2010 report that one per cent of BC's land is prime farmland, with a significant proportion of this land in the Fraser Valley and surrounding Vancouver area. With 80 per cent of the province's population residing within this area, development poses a particular challenge to farming in the region (Office of the Auditor General of British Columbia, 2010). The financial pressures on farmers and increased costs of farming have resulted in expensive local products (Barbolet, et al. 2002). As the cost of farming rises, producers invest in high-value crops that will make more money. This has resulted in certain crops, often staples, becoming too unprofitable to cultivate (ISIS, 2009).

With the local food economy becoming specialized in higher-end goods, consumers who are reliant on smaller grocers pay more than if they shopped at a larger store stocked with cheaper, foreign sourced foods. The literature points to a reduction in fruit and vegetable consumption when food prices are higher than average (Powell et al., 2008). In addition to smaller stores selling their goods at higher prices, many urban communities have seen an increase in housing development, which has resulted in wealthier individuals moving into the new homes. While cities such as Vancouver temper gentrification by increasing social housing and community programs to counteract large-scale projects that may have an adverse effect on the community, the businesses arriving in the area cater primarily to new residents. This is evident in the rise of specialized grocers such as Capers, Whole Foods, and Nester's that increase food accessibility to underserved areas but are not affordable to low-income residents.

## 3.2 Knowledge

The City has identified knowledge as a key contributor to food security. Poor food choices are associated with negative nutritional outcomes and health, making it important to ensure that knowledge does not act as an additional barrier to healthy consumption. Knowledge operates independent of affordability in that citizens may have the means with which to purchase nutritious foods but lack an understanding of which foods are healthy or the extent to which the foods they consume affect their health.

Current literature examining the extent to which knowledge plays a role in healthy eating habits is inconclusive. The first problem is found in the criteria used to gauge knowledge. While some researchers have focused on educational attainment (Turrell and Kavanagh, 2005), others have been quick to demonstrate that food purchasing behaviour is often related to upbringing and that some groups, while not as highly educated as others, do demonstrate healthy food purchasing practices (De Bourdeaudhuij, 1997). Studies (Morland, 2002; Robinson, 2004) find that people whose education has not gone beyond high school are most at risk of making unhealthy food choices; any campaign to change the dietary habits of the most vulnerable would thus have to target those without post-secondary education. Another group of researchers (e.g. Kirkpatrick, 2003) believes knowledge should not be used as an indicator, since a poor educational background is simply proof of a lower standing of living, and the real problem is income. Additionally, research that has focused on groups that lack educational attainment and manage to eat healthy foods points to the significance of ritual and educational attainment obtained from the family. These findings suggest that family and community play an important role in providing the knowledge of food purchasing and preparation to create a culture of healthy eating habits from an early age. For a majority of low-income families, whose time together is restricted by employment, travel to and from stores, and food preparation, these results suggest that accessible food options could improve knowledge.

Programs that have tried to improve accessibility without factoring in knowledge have experienced implementation problems. A pilot project in California that retrofitted seven grocery stores in low-income neighbourhoods with poor access reported mixed results. The studies were initiated between 2000 and 2005 with two implemented by public health departments, four by local non-profit organizations, and one by a university school of public health. Only three of the initial stores were still receiving funding as of 2009 with the majority of financing going towards refrigerators and display cases. Interviews with storeowners suggested that a lack of consumer demand was responsible for failure of the program (Public Health Law and Policy, 2009). Of the four projects that were no longer receiving financial assistance, only one was still providing residents with healthy alternatives. The results from these interviews suggest that more needs to be considered than simply providing access to healthy food.

### **3.3 Food Systems**

The City of Vancouver has identified the strength of the food system and its ability to feed citizens with local products as a major component of ensuring that Vancouver is food-secure. The food system includes food producers, manufacturers, distributors, and retail markets. Food security is compromised when the food system is unable to make food available, accessible, and acceptable to the population it serves.

This paper focuses primarily on the distribution of food. A survey of LHA 163 finds only 3 large grocery stores in the area (Appendix A). While this LHA contains a variety of smaller stores, many are concentrated in specific areas which leave parts of the LHA devoid of any fresh food source within walking distance, one goal under the current Vancouver EcoDensity program. In analyzing the distribution of food resources in Vancouver, it is important to understand how the retail structure meets consumer demand. Approximately 20 per cent of consumed vegetables come from local sources (Food Secure Vancouver Baseline Report, 2009). As explained in section 3.1, smaller markets are dependent on local sources for the majority of their healthy

products. A stronger local food system would ensure that markets could purchase local produce at lower cost and pass the savings to the consumer. Most of the Lower Mainland's production moves through wholesalers, where food is graded and packaged. Many wholesale centres are owned and operated by large retail chains (e.g., Safeway, IGA) or by large private companies that do not own retail locations. An estimated 65 per cent of large retail chains control the supply of wholesalers (ISIS, 2009). This further demonstrates the reliance of Vancouver's food system on foreign food that can be bought and distributed at lower prices.

While larger grocery stores are accessible on a daily basis and offer an array of products, including non-food items, they carry only a limited selection of local products. For residents wishing to purchase local food, which supports the local economy and has a higher nutritional value than imported food (Adams and Erdman, 1988), farmers' markets are a possible option. However, due to lack of scale economies, local foods at farmers markets tend on average to cost more. Additionally, while the number of farmers' markets in Vancouver has more than doubled in the past five years (ISIS, 2009), they are open only once a week during the growing season, and then for only a few hours. These limitations on affordability and access make them difficult for low-income residents to use.

With the price of goods found at farmers' markets being a barrier to low-income residents, grassroots organizations in the community have explored offering pocket markets. Pocket markets operate much like farmers markets but do not require that food sold be local. Many wholesalers will make agreements with organizers to sell surplus goods at a cheaper rate, which allows organizers to make more money (ISIS, 2009). Some pocket markets in Vancouver cater to low-income groups by offering coupon programs that pool resources and allow members to purchase more fruits and vegetables than would normally be possible. The pooling of money at the beginning of the month, allows organizers to find the produce they can purchase the most of through wholesalers. By increasing the amount of produce purchased, groups are effectively



providing low-income residents with a higher quantity of healthy food. Little information is available as to the quality of the food provided through this arrangement. Acceptance into the coupon program is dependent on income; however, some programs also stipulate that members must attend courses or community kitchens that share cooking and nutritional tips.

Both farmers' and pocket markets have trouble finding locations in which to operate. With both held in public spaces and lease applications requiring renewal on a yearly basis in Vancouver, relocation is an ongoing challenge. No other municipality in BC requires markets to comply with year-to-year leases. The possibility of relocation affects future planning of vendor numbers and marketing campaigns, in addition to consuming staff resources. Relocation of farmers' markets is estimated to increase operating costs by \$25,000 to \$35,000 per year in increased advertising, labour, and administrative expenses (ISIS, 2009).

For many low-income residents, eating habits are supplemented with food items from charitable food sources such as food banks, food pantries,<sup>1</sup> and soup kitchens. Charitable food sources, which are often the only other choice for low-income residents who do not have access to affordable food options, are not found in LHA 163. In the Vancouver charitable food landscape, such resources are concentrated in the Downtown East Side (DTES). In 2005, the DTES reported 35 charitable food resources while the communities of Kensington-Cedar Cottage, Renfrew-Collingwood, and Hastings-Sunrise reported 7, 4, and 3 resources, respectively (Forum of Research Connections, 2005).

### **3.4 Actions**

In June of 2008, the City adopted the "Vancouver EcoDensity Charter," which centres on methods for Vancouver to design a sustainable and liveable city. The charter focuses on a variety

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<sup>1</sup> Food pantries are direct distribution agencies that are targeted to a specific group, smaller in size, and more often sponsored and staffed by volunteers and NGOs (Forum of Research Connections, 2005).

of ideas that promote affordable housing and greener systems to improve the liveability of residents while increasing sustainability. The charter makes mention of food security issues and the need to increase local food access.

The EcoDensity charter puts forward two methods for improving food access. The first revolves around applying “best practices” for infrastructure that would achieve sustainable, accessible, and adaptable streets and public places. This would include creating better strategies for transportation and parking, which would result in environmental gains while also improving accessibility to services. Currently, a majority of residents in the LHA rely on public transportation. As Appendix B shows, busses serve many of the major corridors within the area, but, with only three large grocers in the region, and two located on the same street, even an effective public transportation system cannot increase access for all residents of the LHA. Increasing building density, especially through allowing more mixed-use development, would also ensure more points of access for social services at more convenient locations. This strategy would allow for a greater number of food sources in high-density areas and ensure that transportation for accessing food sources is available and adequate.

This concept investigates methods of improving city design that include urban food production, access to local food, and recycling. The charter does not state specific methods for increasing physical access to food stores but acknowledges this is a concern. From identifying the determinants of food security, the City has established a set of actions that seek to guarantee a secure food network for the people of Vancouver (Vancouver 2020, 2010):

- Improving the accessibility/affordability of food
- Providing better knowledge about food nutrition
- Modifying the food distribution system to provide greater access
- Preserving the local agricultural land base

- Maintaining and enhancing agricultural resources productivity
- Beneficially managing food waste
- Supporting the economic viability of the food system

While all these actions will improve the strength of the regional food system, they will also have a positive impact on food access. The methods by which the City hopes to carry out these intentions need to be explored; this is presently occurring outside the municipality, with Metro Vancouver drafting a Regional Food System Strategy.

## **4: Primary Research**

Residents in the North Eastern Health District of Vancouver do not have access to enough grocery stores that offer nutritious foods (Appendix A provides a map of the area, showing the locations of commercial grocery stores). As the literature makes clear, communities can face a variety of access barriers for many different reasons. To determine the policy options best suited to Health District 163, it is necessary to identify present conditions and barriers faced by Vancouver residents. While a geographic survey of healthy food sources in the area captures the total number of stores, data for indicators such as income, family structure, and ethnicity help to identify the most vulnerable populations. With a dearth of supermarkets, District 163 has limited resources for affordable, nutritious foods. However, grocery store locations are not the only factors determining whether accessibility is an issue in this region. The literature suggests that this district faces challenges in the preconditions for a secure food network: nutritious food is expensive there, knowledge of healthy eating habits could be strengthened, and the present food system cannot provide for all the area's residents.

### **4.1 Methodology**

Studies of grocery store access have been conducted in a multitude of ways. Researchers have focused on the impact of access on fruit and vegetable consumption (Rose et al., 2004) or how access is related to spending (National Food Stamp Program Survey, 2009). The present study acknowledges a shortage of stores carrying healthy foods in District 163 and examines the best methods to increase access to such foods. Information sources for this study include a literature review, statistical data provided by BC Stats, and key informant interviews. I conducted a literature review that provided information on how food deserts form and which groups are

most vulnerable to accessibility concerns. Demographic data by LHA from BC Stats was important for determining the incidence of vulnerable populations within the district. The findings from this data analysis led to questions for various stakeholders wishing to strengthen food security within Vancouver. In addition to questions about their role in strengthening accessibility, interviewees were presented with and asked for their views on a range of policy options obtained from the literature review.

## **4.2 Local Health Area Data**

Vancouver Coastal Health and the Province of BC have analyzed every LHA using a variety of measures. The first is demographic information such as age, family structure, ethnicity, income, and other variables that could influence an individual's health. The results along with insights drawn from the literature review can provide information on whether certain residents may be at an increased risk. By comparing demographic data from the North East to the other five LHAs of Vancouver – City Centre, DTES, Midtown, Westside, and South – I was able to identify any differences or similarities across the health districts. The literature has found that three main factors – family structure, ethnicity, and income – are the basis for predicting food insecurity. In addition to demographic information provided by Vancouver Coastal Health, the Province of BC has provided public data that examines mortality rates in BC by LHA. This information allowed me to compare the six LHAs of Vancouver to determine which areas of the city were experiencing an increased rate of mortality due to heart disease, diabetes, and other health-related diseases that are impacted by poor diet.

Results from the LHA data were used to formulate questions for key informant interviews and to research appropriate policy options.

### 4.3 Key Informant Interviews

I conducted interviews with representatives of Vancouver Coastal Health, the City of Vancouver's Sustainability Department, the Renfrew-Collingwood Food Security Institute Coordinator, small community grocers, and members of the Vancouver Food Policy Council. By interviewing various stakeholders in both private and public food realms, I was able to focus on the problems each faces, where overlap exists, and what is required to strengthen accessibility. A complete list of interviewees and their affiliations is found in the appendices of this report.

Interviews were conducted in the first week of November 2010 except for those conducted with business owners, which occurred in January of 2011. When scheduling permitted, interviews were done in person, but the majority were held over the phone. Findings from the data analysis were subsequently used in the key informant interviews.

Interviews with City officials and the VFPC focused on methods that improve access to healthy foods currently existing within the food distribution cycle. Interviews were conducted with members of groups that work on supporting food access to community members. In attending VFPC meetings, I was able to talk to members with knowledge of food security in Vancouver in addition to acquiring the names of contacts that could assist in my research. Co-chair Brent Mansfield of the VFPC agreed to discuss the VFPC's role in ensuring community access to food while also providing further insight on methods that increase community access to social services, including food, through schools. The VFPC also has representation from within Vancouver City departments. Mary Clare Zac, Director of Social Policy, provided information on how the municipality works to address social concerns such as food access. With zoning a central tenet to any policy change looking at increasing the supply of nutritious foods, an interview with Rick Michaels, Assistant Director of Development Services with the city was conducted.

The city works closely with community groups that provide assistance and programs to support vulnerable populations within the LHA. The Renfrew Collingwood Food Security Institute operating out of Collingwood House works to increase capacity to attain food security. Initiatives focus on growing, nutrition, cooking, harvesting, sharing and knowledge of resources. Stephanie Lim is a food security coordinator who works closely with vulnerable groups such as seniors and could provide insight into the running of pocket markets, a method introduced in cities that wish to provide cheaper food than farmers markets in areas lacking access to fresh fruits and vegetables. I wanted to determine what programs are available to residents in the area, the steps to membership, prohibitive costs to the programs and what demand focused initiatives had demonstrated some success. I also solicited thoughts and contributions to a list of policy options I had developed from a literature review and consultation with City officials.

Finally, with accessibility linked primarily to physical access, interviews were conducted with small grocery store owners to gauge issues that prevented stores from reaching community members without access. There was particular difficulty in accessing interviews with small grocers in the LHA. Many of the area stores were operated by individuals that were either unable to participate in an interview due to language barriers or unwilling to. I conducted an interview with Ken of the Chung Lee grocery store to better inform my findings of independent grocers in the area and with Zach of the San Juan Produce Wagon in Coal Harbour, a neighbourhood well above the city's median income level, to determine the potential of a grocery wagon to the area.

## **5: Findings**

Initial findings about accessibility centred on the number of grocery stores in the LHA. As presented in Appendix A, the area has three traditional full-size grocery stores. Smaller markets offering healthy foods exist throughout the neighbourhood (see Appendix B); however, the quality of the foods varies, there is less variety among goods, and zoning restricts these stores to the major traffic arteries, which run through limited parts of the area and are distant from large portions (see Appendixes C and D). Further analysis was required to determine the extent to which accessibility is affecting residents.

### **5.1 BC Stats Data Analysis**

Key demographic information for LHA 163 indicates that the age of residents is an issue. The literature demonstrates that seniors are at high risk of having limited or no access to grocery stores; 13.7 per cent of the district's population is comprised of seniors. As shown in Table 1, this is the second highest proportion of seniors in the city, after Vancouver South. BC Stats estimates that the senior population in the North East will continue to rise, predicting an increase in seniors' share of the population by 3 percentage points over the next eight years. With a significant proportion of seniors living within the LHA, policy makers must consider the price of food for those on fixed incomes and the physical layout of grocery stores. Seniors often prefer larger stores that enable them to comfortably navigate aisles and offer others room to manoeuvre around them if need be. The needs of seniors are investigated in interviews conducted with both the city and NGOs.



Table 1: Proportion of Seniors in Vancouver LHAs

Local Health Area	% of Seniors (2009)	Expected % (2019)
Vancouver City Centre	10.0	10.3
Vancouver DTES	11.3	15.8
Vancouver North East	13.7	16.7
Vancouver West Side	12.6	15.5
Vancouver Midtown	11.2	12.9
Vancouver South	14.5	18.4

BC Stats, 2009.

Findings from the literature also point to people of various ethnicities having difficulties in accessing grocery stores. Table 2 shows 70 per cent of residents identifying their ethnicity as not white. LHA 163 has the second highest proportion of visible minorities after Vancouver South. Such individuals are more likely to experience language and cultural food barriers that can ultimately lead to eating more out of the home. In many North American urban centres, new residents from other countries are low to moderate-income earners and can afford to live only in low-income neighbourhoods. As previously noted, these neighbourhoods are most likely to suffer in the quality of healthy food offered. Additionally, new Canadians' food knowledge can be low, as they may be unaware of how to prepare some of the more common but unfamiliar foods they encounter.

Table 2: Proportion of Vancouver Residents Identifying as a Visible Minority

Local Health Area	% Visible Minority
Vancouver City Centre	30.6
Vancouver DTES	38.2
Vancouver North East	70.8
Vancouver West Side	32.4
Vancouver Midtown	53.5
Vancouver South	74.3

BC Stats, 2009.

The distribution of income earners between \$20,000 and \$79,000 is too broad to determine the impact of income in this LHA. Demographic information on income provided by Vancouver Coastal Health identifies the lowest of income earners. Results show that the LHA has

a small proportion of lowest income earners, with 9.4 per cent reporting an income of less than \$20,000. This could explain the area's lack of charitable food resources, as these tend to be concentrated in areas where people are well below the poverty line. The available data do not provide us with information on who are the lowest income earners above the poverty line. Information from the Canadian Council on Social Development report the poverty line in BC for a single employable individual or an individual with a disability is \$18,849 while a single parent with one child, or a couple with 2 children, are beneath the poverty line at incomes below \$23,561 and \$35,471, respectively (Canadian Council on Social Development, 2002.)

While the DTES is considered to be Vancouver's poorest neighbourhood, employment income is lower in the North-eastern LHA (BC Stats, 2009). With a higher rate of financial supports than distressed communities, the North East LHA has fewer charitable food options and food purchasing programs. LHA 163 has difficulties with systemic issues linked to poor diet. As the literature demonstrates, communities that experience high housing expenditures and rely on government assistance are more likely also to rely on charitable food. The BC statistical information by LHA shows that the proportion of individuals in the North East LHA that are paying 30 per cent or more of their income on housing costs stands at 34.6 per cent, well above the BC average of 29 per cent. Among the LHAs of Vancouver, the North East reports the highest proportion of individuals claiming income assistance at 4.1 per cent (BC Stats, 2009). This highlights that residents in this particular LHA, while more employable than those in the DTES, are nonetheless more likely to have difficulties maintaining full-time employment. While 3 per cent of the LHA's population requiring EI beneficiaries matches the provincial average, individuals reliant on EI payments in an expensive city such as Vancouver must make difficult budgeting decisions that can affect their day-to-day food intake as well as the nutritional quality of the food they purchase. Residents of the North East LHA report the lowest average

employment income among residents of Vancouver (BC Stats, 2009), as shown in Table 3, which further strains their food spending and choices.

These findings suggest that the North East LHA is struggling with the issue of affordability. With an average low income and a high reliance on public assistance, many residents of the region need affordable food options that are more likely to be found in charitable food options such as food banks and food pantries. As findings in section 3.3 indicate, the food system in North East Vancouver has far fewer charitable food options, despite low employment income and a high need of government assistance.

*Table 3: Average Income and proportion of residents requiring benefits*

<b>Local Health Area</b>	<b>Average Employment Income (\$ in 2005)</b>	<b>% of pop receiving IA</b>
Vancouver City Centre	44,385	3.7
Vancouver DTES	29,723	2.3
Vancouver North East	28,233	4.1
Vancouver West Side	54,514	1.1
Vancouver Midtown	32,695	2.6
Vancouver South	29,844	2.3

*BC Stats, 2009.*

Finally, a review of the literature found that knowledge is a key component in ensuring that people choose and prepare healthy foods. While the literature included a variety of methods for gauging overall knowledge of proper eating habits, the most common – education attainment – is available in the present data set. Among the six LHAs of Vancouver, the North East reports the highest proportion of residents without post-secondary credentials, at 40.5 per cent. This is above the provincial average of 37.2 per cent. While I am using post-secondary education to highlight possible deficits in knowledge of proper eating habits, this lack of education also points to some of the difficulties residents in the neighbourhood may have in obtaining employment above the minimum wage and why they may be reliant on economic assistance.

LHA 163 meets many of the literature’s requirements for neighbourhoods that are lacking in grocery stores and are at risk for health concerns related to poor diet. With a large proportion of residents reporting the lowest income on average, little post-secondary education, ethnic diversity that may have an effect on knowledge, and a high proportion of seniors, many groups are at risk of exercising poor dietary practices.

*Table 4: Proportion of residents without post-secondary education*

<b>Local Health Area</b>	<b>Without post secondary education (25-54)</b>
Vancouver City Centre	19.7
Vancouver DTES	37.9
Vancouver North East	40.5
Vancouver West Side	15.1
Vancouver Midtown	30.1
Vancouver South	34.6

*BC Stats, 2009.*

### **5.1.1 Health Results**

While LHA demographics are valuable in determining the parts of the city most at risk of being food insecure- analyzing incidents of heart disease, obesity, and diabetes can also provide concrete information about the impact that limited food access may be having on health. In my analysis of the data from BC Stats for Vancouver Coastal Health, I expected the incidents of diet-related disease to be highest in the North East, in addition to the DTES and South LHAs. These areas reported the highest proportion of low-income, vulnerable groups who are reliant on social assistance and charitable programs.

The 2008 “Selected Vital Statistics and Health Status Indicators” from BC’s Vital Statistics Agency give an indication of how many deaths associated with diet-related disease occur in each of the LHAs (Appendix 3, Table B). The province’s report provides the Standardized Mortality Ratio (SMR), total number of deaths, and the Potential Years of Life Lost Index (PYLLI). SMR records the ratio of observed deaths to expected deaths, where expected deaths are constructed from the death rates for a typical area with the same basic demographic

information within a larger population. A ratio of 1.0 indicates the number of deaths observed is equal to the number expected; a ratio lower than 1.0 would indicate fewer deaths than expected, while a ratio over 1.0 would indicate a higher than expected number.

While the province analyzes all major health-related indicators, I analyzed cases of mortality arising from diabetes and ischaemic heart disease, two diet-related diseases, and in the case of heart disease, one of the largest health risks in Canada. Table 5 shows that Vancouver's North East LHA reports the second highest total number of diabetes-related deaths, behind Vancouver South; however, with 30,000 more people in Vancouver South, the ratios are the same. Vancouver North East also reports the highest SMR ratio for diabetes; however, reporting below 1 means there were fewer deaths attributed to diabetes than expected. This suggests that while the North East LHA reports the highest rate of deaths attributed to diabetes, they still fall below the expected rate for LHA's in BC. With the lowest PYLLI in the city, it would also seem that the majority of mortalities associated with diabetes in District 163 affect the elderly. While the DTES reports the highest proportion of PYLLI due to diabetes, we must assume that other circumstances may have had an effect on these numbers. Studies have shown that inner-city residents who consume alcohol and illicit drugs might be associated with an earlier onset of type 2 diabetes (Johnson et al., 2001)

Although the incidence of diabetes-related mortalities is somewhat higher in North East Vancouver than in the other five LHAs, cases of heart disease are not significantly higher than elsewhere. With a reported 0.73 SMR ratio, more deaths due to heart disease were expected. Cases of heart disease in all six of Vancouver LHAs have trended downward, and with the exception of the DTES, all report a PYLLI of less than 1. Ethnicity may be a contributing factor to the lack of deaths associated to heart disease. With a significant Chinese population in the LHA, in addition to several Chinese grocers who improve the access to traditional Chinese foods,

this vulnerable group may be receiving enough support to overcome barriers traditionally associated with poor health outcomes.

While the reported number of fatalities associated with diabetes and heart disease are both lower than what the literature led me to believe, some questions remain. Urban residents are more likely to receive health supports than other communities within the province, making the proportion of fatalities attributed to diabetes and heart disease lower. Information regarding the proportion of individuals diagnosed with diabetes or a heart condition related to diet is unavailable. Supports for these individuals may vary by LHA.

Table 5: Fatalities related to diabetes and heart disease

Local Health Area	05 Diabetes					07 Ischaemic Heart Disease				
	SMR	(p )	Death	PYLL I	D<75	SMR	(p )	Death	PYLL I	D<75
Vancouver City Centre	0.83		81	1.14	35	0.91		392	0.94	133
Vancouver DTES	0.85		58	1.38	36	0.98		303	1.90	140
Vancouver North East (163)	0.93		103	0.41	30	0.73	*	348	0.65	86
Vancouver West Side	0.57	*	85	0.46	17	0.70	*	480	0.43	67
Vancouver Midtown	0.81		66	1.16	33	0.88	*	314	0.92	88
Vancouver South	0.83	*	134	0.79	39	0.80	*	584	0.60	112
<b>PROVINCIAL TOTAL</b>	<b>1.00</b>		<b>5,054</b>	<b>1.00</b>	<b>1,825</b>	<b>1.00</b>		<b>22,409</b>	<b>1.00</b>	<b>6,036</b>

BC Stats, 2009.

## 5.2 Key Informant Interview Analysis

With only statistical information on mortality rates available and very little on diagnosis and recovery, key informant interviews with both frontline workers and City officials offer the possibility of gauging the extent to which poor diet is affecting individuals in this LHA. By interviewing public and private stakeholders in food procurement and health, I was able to gauge

the extent to which food access poses a problem for the LHA and the best method by which to address accessibility concerns.

Findings that focused on the extent to which access affects individuals in the community were inconclusive. While the city and coordinators acknowledged a shortage of locations that individuals could easily access by either walking or a short bus ride, the extent is difficult to gauge. Very little is known about the international markets; many of the small Asian grocers on main thoroughways, operate within the community. An interview with Ken of the Cheung Lee market demonstrated that a combination of prices and goods that were difficult to attain elsewhere led to a consistent clientele. While the majority of shoppers were of Asian descent, others in the community would regularly make use of the grocery store as it was the closest location available to them. While their purchasing habits did not range into some of the more exotic items in the store, they always had access to a consistent and fresh source of food primarily supplied from the region. The food offered to shoppers in the winter months has less variety, can be of poorer quality and can be more expensive. While it seemed that smaller markets were providing enough support to the LHA, I needed to determine if the access barriers – knowledge, age, and income – were as pronounced as in the literature.

Food Security Coordinator Stephanie Lim from the Renfrew Collingwood Food Security Institute (RCFSI) notes that seniors are of concern because their access to larger grocery stores is restricted by their limited transportation options. Seniors with physical limitations and psychological concerns often prefer larger supermarkets that offer greater space and mobility. Many of the smaller grocers in the area are cramped and busy, which discourages use by seniors. As a result, the Centre offers seniors a weekly shuttle bus ride that allows them to shop at large chain grocers. While larger stores offer convenience to many seniors, the prices for fresh produce are often higher than at a smaller grocer. This can cause strain for those on a fixed income. The primary demographic data determined that LHA 163 has the second highest senior population in

Vancouver, one that is increasing. Any changes to improve the food system in the LHA will have to take into account the vulnerability of the area's seniors.

In addition to seniors, the RCFSI focuses on food knowledge as being a major barrier to informed nutritional decisions. Ms Lim recounted incidents at the First Lutheran Church's Food Bank where items such as kale, relatively unknown to recent immigrants, went untouched due to lack of preparation knowledge. As a result, the Institute offers community kitchen events and Food Skills for Families workshops to promote networking, teach healthy eating, and impart valuable cooking skills. Participants in this program also obtain coupons for use in the local area pocket market. These coupons can be taken to the pocket market before public hours and used toward the purchase of fresh fruits and vegetables. While the RCFSI is working with limited resources to improve the health results of the community, some of these programs may not be the most effective method of assisting those suffering access barriers. I earlier identified lack of time as a barrier in accessing healthy foods, so that making coupons dependent on workshop participation may be assisting only a small proportion of residents.

The RCFSI's largest financial contributor is the City of Vancouver. As one of the seven Neighbourhood Food Network hubs, the Institute also receives assistance from organizations such as the United Way, Vancouver Coastal Health, and the Vancouver Foundation. Interviews with City officials working in the Community Services department indicated that the City's relationship with the Food Network hubs ensures that the most vulnerable groups within a community receive assistance. Mary Clare Zac, the Social Planning Director for the Community Services department, stated that the City's most effective method for addressing accessibility issues is through land use and rezoning. When the City receives a petition to change the current use of an area, Community Services can examine the area's needs and work with developers to ensure those needs are met. This was most recently exemplified by the community planning process in Mount Pleasant, where Community Services worked with NGOs, businesses in the



community, and residents to formulate a development plan for the area's future. While food was not an issue for this particular area, other social concerns were brought to the attention of the City and addressed in a manner that met all stakeholders' concerns. Any future petitions for rezoning in LHA 163 should follow a similar model.

With the City focused on meeting the social goals outlined in "Vancouver 2020: A Bright Green Future," coordinating strong partnerships with NGOs would assist in identifying community projects that are increasing food accessibility and improving the health of low-income residents. The City believes that without ground-level support, it is difficult to affect any change on many of the social issues related to food accessibility. One of the goals for 2020 is ensuring food options are no more than a 5–10 minute walk away. Ms. Zac acknowledged that while many of the other goals look at strengthening the local food system, it is a challenge to balance local food and affordability. The City will have to think of methods to reduce prices for the most vulnerable. Strategies being explored include working with BC Housing on a variety of low-income ideas related to shelter and food amenities, and examining how Vancouver and its suppliers procure food.

As zoning is a major tool for the City to provide assistance, an interview was conducted with the City's Assistant Director of Development Services, Rick Michaels. With much of Health District 163 designated as RS-1<sup>2</sup>, a provision exists for smaller corner markets to set up shop if they meet size requirements and have the support of neighbours. Introduced in the 1980s, this amendment was primarily a grandfather clause for existing stores in the area. No new corner grocers have been opened up since this modification of the RS-1 schedule. While some local groups believe the introduction of pocket markets to certain neighbourhoods could increase accessibility, Development Services has some concerns about effective implementation. Pocket

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<sup>2</sup> The City of Vancouver labels schedule RS-1 as a residential zoning designation that generally must maintain the single-family residential character associated with the schedule. The schedule emphasizes RS-1 zones to encourage neighbourly development by preserving outdoor space and views.

markets tend to gross more money than farmers' markets, as they deal primarily with suppliers and can establish themselves in private areas more effectively than farmers' markets. One example provided by Mr. Michaels was that if a business with a parking lot wished to rent out the lot on weekends to a local market, they would most likely choose a tenant that was smaller and willing to pay more – in this case, the pocket market.

Interviews with both Development Services and Community Services revealed that one of the ideas being explored in the city is strengthening the current food cart system. With legislation already in place for food carts to park in designated areas throughout downtown, minor changes would be needed to place food carts that offered healthy foods in areas deemed food-inaccessible. As these vendors would not be offering cooked foods, they would also require fewer permits associated with food storage and temperature. While the majority of food carts in the city offer cooked fast-food options, currently one food cart offers local organic fruits and vegetables. The San Juan produce wagon, located in the parking lot of the Coal Harbour Community Centre in the West End of Vancouver, offers residents of the area the opportunity to purchase fresh fruits and vegetables at lower prices than those at stores in the immediate vicinity. The San Juan produce cart has found its current location difficult to operate. Not visible from the Coal Harbour seawall, only residents of the area would know of the food cart. With many of the residents being the most affluent in Vancouver, the price of produce is not as important as the convenience of purchasing all their groceries in one location such as the upscale supermarkets in the neighbourhood. The owner believes his cart is receiving fewer patrons than it would if it were located in a higher foot-traffic part of the city. He also believes that many of the food carts in Vancouver are not providing a healthy option for residents: "This city doesn't need another place to get pizza or a burger; it needs local, healthy foods." The literature determined that the price of healthy foods, in particular fruits and vegetables, are more expensive when offering local

alternatives. The owner of the food cart believed that he could provide healthy foods at prices that rivalled those of grocery stores.

While private investors expressed concerns that the city was not transparent in how it issued the limited spots for food carts, the city and the VFPC are coordinating methods in which future permits and locations will be provided to food carts. VFPC meetings in the fall of 2010 discussed a possible nutritional standard for all food carts in Vancouver. VFPC co-chair, Mr. Mansfield, provided information on the decision making process of the VFPC. The VFPC is an advisory committee to the city, with significant work being done between monthly meetings among current committee members and partners throughout the food system. Monthly meetings, which are open to the public, are used to confer on much of the work that is being done behind the scenes. While a more comprehensive food cart strategy will be discussed, it is difficult to tell when implementation would occur.

Mr. Mansfield acknowledged that accessibility is a major concern for the VFPC, and a major report highlighting accessibility concerns within Vancouver is due in early 2011. While the report is primarily focused on identifying the factors that make accessibility difficult, the policy options available to the city have been informally discussed. With the city budget strained, Brent stated that any policy option aiming to improve accessibility for certain communities would need to be easy to implement and require little cost to start up. Any method that required large amounts of capital would need to incorporate partnerships. While the VFPC has strong partnerships with various stakeholders within the food system, they would most likely be unable to assist with financing any new project. The VFPC would seek a provincial partnership, which has yet to be established since the VFPC's inception.

## **6: Policy Options**

This section will formulate several policy options available to the North East Health District of Vancouver. As the literature review indicated, policy options must reflect the realities of housing, income, distribution networks, and the ability to improve health situations in the district. While the following options are not the only ones that can be considered, they are the most feasible. The introduction of a large new grocery store to the district could be considered an option, but a variety of concerns that this paper has identified through the literature review and interviews demonstrate this to be an inferior option. First, it would serve only a small segment of a population that has been recognized as having transportation barriers. This strategy would also require working with City officials to change zoning regulations if the store were to be placed in an area of need, and the plan would be dependent on a large grocery store being interested in moving to the area. While we begin with exploring the viability of the status quo, the other options have been implemented in other jurisdictions and require thorough analysis.

### **6.1 Keeping the Status Quo**

As my findings indicate, difficulties arise in determining the health impacts attributable specifically to grocery store access. While I have analyzed which segments of the population are vulnerable to limited grocery store access, no direct statistical information has found the North East Health District of Vancouver to be suffering from the health diseases associated with poor diet that can result from a lack of access. It could be argued that until concrete statistical evidence can be provided to link health concerns to grocery store access, no significant, and potentially costly, actions should be considered.

## **6.2 Licensing New Smaller Grocers**

While the introduction of a large grocery store is complicated, smaller markets may be more feasible. This strategy relies on local government to provide a method of allowing smaller grocers to enter the area. Municipal governments in the United States have provided incentives such as grants and tax breaks to encourage small business owners to enter the market place with improved possibility of success. While surrounding property owners could try to prevent corner stores from entering LHA 163, the final decision rests with the Director of Planning, who can approve a store even if it does not meet all the requirements of the schedule. Another method that has seen increased usage is mixed-use retail, a tool Vancouver has used to promote high-density growth in the downtown core. Mixed-use development can create a hub of both food options and other essential services in close proximity to transit and housing. The approach to increase corner market numbers may also be as simple as streamlining the license and permitting requirements. Through the establishment of grocers dispersed within the area by one or more of these means, the issue of accessibility would be addressed.

## **6.3 Creating New Pocket Markets**

The creation of area pocket markets in Vancouver has strengthened the food system by allowing both local producers and international distributors the opportunity to sell their goods at various locations without having to be present. Established in areas that lack accessible food options, pocket markets are open once a week, often from Spring to Fall, and operate in a manner similar to farmers' markets. Pocket markets differ in that they can offer significantly cheaper food options, as the goods they distribute can come from anywhere, including larger factory farms in the South-western United States. Current pocket markets in Vancouver frequently sell a combination of local and imported fruits and vegetables, and they often are able to sell produce at lower prices than farmers' markets.

To make pocket market food available to low-income residents, NGOs have introduced coupon programs in which the profits from cash sales directly support the coupon program. Pocket markets such as the one operating in the Trout Lake-Cedar Cottage neighbourhood within District 163 offer coupon shopping before general public shopping to ensure low-income, vulnerable residents have first access to and choice of healthy local foods. Inclusion in the coupon program requires bi-monthly attendance at a community kitchen, where cooking and nutritional knowledge is shared. While this program assists low-income residents in purchasing produce, it requires that participants pool money and spend time at classes – two components that low-income individuals and families have difficulty in meeting. The coupon program will not be considered in the policy analysis stage of this paper.

## **6.4 Point of Sale Knowledge Intervention**

As discussed in section 2.2, cities in the US have addressed the issue of improving access to healthy foods by increasing the quality of stores in an affected area. By offering existing stores in neighbourhoods suffering from access to healthy food the equipment necessary to showcase, store and sell nutritious foods, decision makers believed healthy choices would be made. A review of a pilot program in California that assisted 6 smaller stores in improving their infrastructure found that the stores had discontinued the use of the equipment due to a lack of community demand for the goods offered. This case highlights the role education plays in people making informed decisions on healthy and nutritious foods. Any policy option that looks at increasing the supply of healthy foods to an area deemed lacking nutritious options should also focus on improving the knowledge of shoppers.

As interviews with the Renfrew-Collingwood Food Security Institute demonstrated, many community groups have methods in which they educate vulnerable groups. The use of community kitchens is an effective method in which to educate people wishing to learn healthier cooking methods but requires that individuals take a pro-active step in attending a workshop.

Additionally, in offering the community kitchens on certain days at certain times at a central location, certain individuals may not be able to attend.

One method that proved to be effective in Surry County, North Carolina, had the district work with the major grocery chain of the area in providing a pilot program to provide information on healthy choices in area stores. By providing a point-of-sale (P.O.S.) knowledge intervention, municipalities may be able to impact the purchasing decisions of consumers in the neighbourhood. In the North Carolina pilot program, healthy foods were labelled with displays that highlighted their nutritional value and their effect on promoting a healthy lifestyle. By marketing goods with banners, shopping guides in easy to understand language, free samples, and nutritional experts on site, the district was able to work closely with individuals to highlight the benefits of making informed healthy decisions. In the weeks following the 24 week intervention, the grocery chain found an increase in individuals purchasing fruits, vegetables, cereals and other healthy food options. Findings from the program also revealed effective methods in which to communicate information regarding healthy food choices. Written information that focused on presenting facts on vitamin and mineral consumption were far more ineffective than literature that focused on fat and sodium or compared common food choices to healthier food choices (Prevention Institute for the Center for Health Improvement, 2007). Additionally, information that was also presented in Spanish proved to be effective to a large Hispanic community in the area (Lang, 2000).

## **6.5 Introducing Healthy Food Carts**

The City of Vancouver introduced food carts to the food distribution system in the late summer of 2010. While the focus of the carts was to introduce different fast-food options to high foot-traffic areas, amendments could introduce more nutritional food options and thereby introduce some carts specializing in selling produce or basic healthy foods as outlined by the Canada Food Guide. As the City would need to make only minimal changes to the current food

cart legislation, this option allows small businesses to enter the marketplace and requires only oversight from the City. Small businesses would work with food distributors to purchase healthy foods. The City is currently reviewing its food vendor policy and is looking at methods by which businesses comply with a minimum standard of healthy food.

Larger American cities, such as New York, have explored using food and produce carts to increase accessibility in neighbourhoods that lack healthy food options (Council City of New York, 2008). In 2008, the city of New York created 1,000 permits exclusively for areas of the city that were underserved by fruit and vegetable vendors. With an estimated 750,000 residents living in high-density “food deserts,” New York’s new permitting system has allowed many small health-food businesses to thrive. Findings after one year of operation concluded that produce carts located by community based organization or major transit routes enjoyed the heaviest usage. The success of this project in New York has seen other high-density cities, such Chicago and Portland, discuss increasing vendor permits to food-insecure neighbourhoods (Kyles, 2010).



## 7: Analysis of Policy Options

The criteria for evaluating my policy options are four-fold. The first is cost: any change to improve grocery store access in the area will most likely hinge on the cost of implementation. With stakeholders from a variety of different areas, an effective cost-sharing strategy would ease budgetary restrictions. The second criterion is effectiveness: whether the policy meets the tenets of grocery store access – affordability, consumer knowledge, and a strengthened food system. Feasibility assessment should be used to gauge the strength of these policy options; by ascertaining whether the option will be embraced or opposed by City officials, NGOs, businesses, and residents, we can determine the ease of planning, implementation, and administration. Finally, any policy option will have to factor in whether all residents of the district will have access that takes into consideration their needs, especially those that this paper identified to be the most at risk.

The four criteria – cost, effectiveness, feasibility, and equity – are all scored out of three; an option that has the most desired impact scores three, those having an intermediate impact score two, and those with minimal impact score one.

### 7.1 Cost

High: will incur minimal cost	3
Medium: will incur moderate cost	2
Low: will incur high cost	1

The total cost of a policy option is in many regards the most essential criterion to my evaluation. In this context, costs are borne by the City and its residents. While small businesses will incur start-up costs, they will most likely have conducted a break-even analysis and have the

potential to recoup their loss. With financing for any food security related project difficult to obtain, options that require little financing or few fixed costs will be more palatable, and as a result, feasible, to policy makers within the city.

Status Quo: The status quo creates barriers to the access of healthy and nutritious foods. However, the findings from this study cannot conclusively determine that poor accessibility has resulted in negative health impacts. While a change to the food system is needed, it is difficult to know which change would be best. A policy retaining the status quo would prevent any large-scale changes from happening until definitive proof could determine the degree to which accessibility affects this LHA. The costs associated with the status quo are negligible, as no action from stakeholders would take place. Funding for non-profit groups focusing on improving nutrition and access and for residents will remain at its current level. Services, such as pocket markets and buses for seniors will continue to operate within limited budget constraints. With no incremental costs borne on the city or groups, the score attributed to maintaining the status quo is high. Score: 3.

Licensing New Smaller Grocers: The costs associated with licensing new smaller grocers are low at the outset but have the potential to increase. The necessary changes relate to land use zoning. While the City does allow small grocers in RS-1 zones (the predominant zoning classification for LHA 163), none have been introduced to the neighbourhood since the 1980s. The zoning regulations were put in place to protect current grocers in the area instead of allowing for future stores. By permitting small businesses to enter the marketplace, assuming the preconditions established in the schedule for small grocers in RS-1 are met, the City could find a cost-effective alternative to ensuring that all residents have access to healthy, nutritious foods. In allowing some markets to enter residential neighbourhoods, some costs related to traffic congestion and community infrastructure may be borne by the city. To the business community, costs are dependent on the structure of the building and requisite renovations. Additional costs

related to permitting and operation may prove to be too difficult to overcome. A business plan for small grocers operating in Illinois estimated an initial investment ranging from \$68,000 to \$147,000 in starting up a store with projected annual gross sales of \$300,000 to \$450,000 (Henning, 1998). If the city were to promote the concepts of introducing more smaller stores to the area, incentives would need to be provided to small business owners and individuals directly affected by any building or traffic increases may have to be compensated. Score: 2.

Creating New Pocket Markets: The costs associated with pocket markets are less than farmers' markets due to the formers' ability to financially support itself. Initial start up costs include staffing and supplies which has made this policy option particularly popular among grass roots organizations that have a limited budget. The Food Roots Pocket Market group on Vancouver Island estimate that start up costs can be covered after operating for six weeks (Pocket Market Tool Kit, 2010). The selling and reselling of goods that are not necessarily local means that pocket markets can operate much like a store and sell goods that are cheaper than those offered at farmers' markets. With the majority of pocket markets in Vancouver operated by grass root organizations, the initial start up costs could serve as a barrier to implementation. With associated costs a potential barrier, I have assigned a score of 2.

P.O.S. Knowledge Intervention: With knowledge playing a significant role in poor dietary habits, information campaigns are a less costly method to improve dietary decision making. Knowledge campaigns have been used in areas where residents exhibit some of the common demographics attributed to poor dietary practices. In the Surry County case, residents of the area required a vehicle to access their grocery stores and a significant proportion self-identified as minorities. The population of the area in general exhibited below average placing on key indicators such as income and education (Prevention Institute, 2007).

The cost of an education campaign is relative to the methods adopted. While providing printed material is cheaper than ensuring professionals are available to provide support to

residents, it is also not as effective. With the LHA lacking large chain grocers to work with stakeholders would have to look at working independently with various small grocers. With less foot traffic in these locations, costs are further increased by providing more resources to more locations. With a significant Chinese population based in the area, information would have to be provided to residents in both English and Cantonese or Mandarin, thus further increasing costs.

Score: 2

Food Carts: With a food cart system already in place, albeit for cooked food, the City has seen how private enterprise can effectively provide a variety of food options to areas with heavy foot traffic. This concept could be further expanded upon to allow farmers and wholesalers the opportunity to sell fresh fruit and vegetables from food carts. Businesses would incur the cost of obtaining grocery carts and have networks in place to obtain produce. The cost to create a food cart is far less than the costs of creating a small store. Fewer equipment costs would reduce operating costs and profit would be realized sooner. No cost would be borne by the city, grassroots organizations or local area residents. Cost: 3.

## 7.2 Effectiveness

High: will eliminate the barrier	3
Medium: will reduce the barrier	2
Low: will not reduce the barrier	1

Effectiveness is assessed based on the extent to which an option reduces the barriers to accessibility. As explored in the literature, some municipalities have attempted to improve accessibility but have not taken into account other related issues such as knowledge, affordability, or the strength of the food system. An effective policy option will address all the issues related to accessibility.

Status Quo: The status quo creates barriers to accessing healthy, nutritious foods. As a result, if no changes were made to the current system, residents would still have difficulties accessing healthy foods. Score: 1.

Licensing New Smaller Grocers: By allowing smaller grocers into the area, the City would effectively be increasing the number of stores that could cater to underserved areas. With much of the area zoned as residential, smaller stores would need to meet the provisions under current zoning legislation and would most likely be situated on busier corridors. This would not necessarily increase accessibility, as transportation could still be a major problem. Currently, major arteries in the LHA, such as Nanaimo and Boundary roads, do not have many corner markets that offer healthy food choices. The city would have to be selective in where they would allow markets and how many markets would be allowed to enter the area. This policy option would likely require the City offer an incentive, such as a reduction in property taxes, to ease the costs associated with purchasing property and construction in Vancouver. Licensing smaller grocers in this area could improve food options for people in the immediate area but might not be sufficient to serve all locations. Score: 2.

Creating New Pocket Markets: Pocket markets effectively price food lower than chain supermarkets in the area. These prices are still higher than those at independent markets, which is why coupon programs have been introduced to reduce the burden on low-income individuals and families. Some community pocket markets also establish special hours for low-income residents to purchase goods before the public can have access. While pocket markets address the issues of accessibility and price, operating just once a week, at certain hours, and during the warmer months, makes them inaccessible to those who are not available at these times. Additionally, pocket markets cannot establish themselves throughout a neighbourhood and behave as a farmers' market or grocery store, as they are purposely restricted and limited by City bylaws and regulations. Score: 2.

*P.O.S. Knowledge Intervention:* The effectiveness of knowledge campaigns in increasing nutritional knowledge is well documented. Pilot programs seeking to increase access that did not provide proper information regarding dietary practice were not as effective. Programs that focused on simply changing behaviour have succeeded in changing behaviour. The use of literature, professionals, and food samples are effective methods in which to introduce new concepts to individuals who lack the knowledge necessary to make informed decisions. Further, tailored information campaigns, which take into account many of the key barriers affecting a community, have been shown to effectively change practices among their target audience. Overall, the use of an education campaign is an effective way to combat poor healthy eating habits. Score: 3.

*Food Carts:* Food carts offer many of the benefits associated with grocery stores while minimizing neighbourhood concerns about increased traffic and crime. Food carts are easy to regulate and can be placed on major arteries of underserved parts of a community. Locations would need to be fully researched to ensure that businesses are profitable and can operate during normal food vending hours. Because they operate within the space of a parking spot and sidewalk, they can be made accessible to vulnerable populations such as seniors. As an interview with the only produce food cart in the city determined, healthy local food can be sold at competitive, reasonable prices that even low-income residents can afford. Despite these benefits, nutritious food, as set out by the Canada food guide, includes more than fruits and vegetables. The food cart strategy analyzed in this report looked at models that exist in large American cities that sell solely fruits and vegetables. In this regard, food carts do not entirely address the issue of accessibility to healthy foods due to a lack of quantity and variety that are also impacted by the seasonality of locally produced foods. Score: 2.

### 7.3 Feasibility

High: support from all stakeholders	3
Medium: support from some stakeholders	2
Low: support from few stakeholders	1

With stakeholders representing the city, community groups, local residents, and other organizations that aim to improve the health and welfare of the residents in LHA 163, policy options that receive the most support will be higher valued than those that do not.

Status Quo: While the status quo would require little change from all current stakeholders, some groups are spending more than others to provide services to vulnerable populations. Food Hubs, such as the Renfrew Collingwood Food Security Institute, are already working with limited resources, while the City is providing services through a non-sustainable charitable food system. Findings from key informant interviews suggest that all major stakeholders would support a change from the status quo, including local area residents. Score: 2.

Licensing New Smaller Grocers: Although the RS-1 schedule makes it difficult for new small grocers to enter residential neighbourhoods, the final decision falls upon the Director of Planning. With many of the immediate neighbours to a store affected by increased vehicle and foot traffic, not all community members would support these stores. Without full community support, the City would be in a difficult situation in choosing where to allow stores to set up in affected areas. A majority of stakeholders, from grass roots organizations to many of the area's residents, would be in favour of increasing the number of markets in the area. Score: 2.

Creating New Pocket Markets: Stakeholders are divided in their views about the introduction of more pocket markets to the city of Vancouver. First, City officials see them as a threat to the success of farmers' markets. With little oversight of where food sold at pocket markets come from, and profits that increase the operating capacity of pocket markets so that they can compete more effectively than farmers markets, the City is somewhat apprehensive about

changing current permitting practices and allowing pocket markets the opportunity to purchase or lease private vending locations such as parking lots. Existing store owners would most likely see reduced sales; however, this report has demonstrated that the majority of small grocers in the area are specialized and catering to ethnic populations within the LHA. The biggest proponents of pocket markets are the grassroots organizations that believe these markets are the most effective way to distribute affordable, healthy food to low-income residents. By coupling these markets with social assistance programs, such as the current coupon program, low-income residents can purchase a greater amount of healthy food with their limited means. Score: 2.

*P.O.S. Knowledge Intervention:* In creating an option that looks to educate shoppers, a knowledge intervention does not infringe on groups as much as a supply-side policy would. Shoppers would have the choice of accepting any information provided to them, while groups that already work to promote healthy eating habits would be able to focus their resources on groups that are not being reached by a large scale public knowledge campaign. In regard to feasibility, this option would have no opposition in implementation. Score: 3\_

*Food Carts:* With a food cart system already in place, the City is familiar with the various challenges of implementation and administration. After identifying an area where accessibility is a concern, the City would only have to change parking regulations for registered food carts to operate in these areas. With Vancouver Coast Health already assisting on implementation for healthier food carts, albeit cooked food, synergies regarding healthy food choices have already been implemented. No stakeholders would oppose the creation of a food cart that focused on improving access to healthy foods. Score: 3.



## 7.4 Equity

High: accessibility for all residents	3
Medium: accessibility for some residents	2
Low: accessibility for few residents	1

Equity determines whether all residents, especially those identified as being vulnerable, are able to access healthy foods. While some policy options may improve food accessibility for some residents of the LHA, the policy options that address minorities and the elderly, two groups that require special assistance in purchasing food, will receive consideration.

Status quo: The status quo has been insufficient in ensuring that residents of the LHA have access to healthy and nutritious foods as outlined by both federal and municipal work on improving accessibility and health for all citizens. The status quo has also made it difficult for some residents, in particular seniors and those of different ethnicities, to access healthy foods. Score: 1.

Licensing Smaller Grocers: While increasing the number of markets in the area will allow residents to access healthy foods; smaller grocers can be barriers to some residents. Smaller markets can restrict those who need space or have physical limitations from accessing them. With a high proportion of residents being from different national origins, smaller stores could supply culturally sensitive foods. The resulting stores could be hard for seniors with physical concerns to access. Conversely, ethnic groups would benefit as the literature review determined smaller markets are more likely to offer culturally appropriate foods. Score: 2.

Pocket Markets: Pocket markets offer very little equity in that they run once a week for a few hours. While they provide healthy foods at a lower price than many larger grocers, they do not target any vulnerable group unless created in tandem with an NGO. In the case of Grandview

Woodlands, the Neighbourhood Food Network hubs have created programs that look to increase purchasing ability for low-income residents who participate in food knowledge programs.

Programs that look at increasing the availability of food to vulnerable populations through nutritional campaigns that are only available at one specific location and at certain hours can result in some targeted individuals unable to attend. These pocket markets have not considered increasing accessibility for seniors or ethnic minorities, though their greater dispersion could be helpful for some vulnerable groups. Score: 2.

*P.O.S Knowledge Intervention:* Research on the extent to which knowledge interventions have assisted vulnerable groups in making informed decisions on healthy foods is mixed. While programs seek to inform the general population, there may be some residents that will not be reached. Knowledge interventions would be difficult to coordinate with smaller independent markets, of which there are many in the LHA. Moreover, any knowledge campaign in LHA 163 would most likely require a product translated in both Cantonese and Mandarin. This study has found that vulnerable groups face different barriers to which a knowledge intervention may not necessarily improve access or healthy eating habits. In the case of seniors, it may be physical access or finding healthy foods that are affordable on a fixed income. Score: 2.

*Food Carts:* Food carts offer the city the ability to target areas with poor accessibility. While many of the other policy options face zoning and permitting restrictions, the food cart system requires little change to current scheduling and can provide at-risk groups a convenient place to purchase healthy foods. For example, carts that are situated on major public transportation arteries would allow residents the opportunity to purchase healthy foods on their way to or from work. Their simple layout would be accessible for seniors or others with mobility concerns. While the introduction of food carts may provide benefits to some of the city's most vulnerable, they do not offer a gamut of healthy foods and, while improving availability for fruits and vegetables, will not provide all foods as identified by the Canada Food Guide. Score: 2.

## 8: Recommendations

*Table 7: Analysis of Policy Options*

<b>Criterion</b>	<b>Status Quo</b>	<b>More Markets</b>	<b>Pocket Markets</b>	<b>Knowledge Intervention</b>	<b>Food Carts</b>
Cost	3	2	2	2	3
Effectiveness	1	2	2	3	2
Feasibility	2	2	2	3	3
Equity	1	2	1	2	2
<b>Total</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>10</b>	<b>10</b>

When examining the total scores of the policy options presented in Table 7, the food cart option and knowledge intervention ranked highest with ten points each. The introduction of more markets ranked second with all other options coming in third place. Food carts are a less intrusive way to offer fruits and vegetables to areas that are underserved, would not require zoning changes for markets, and require the least amount of funding. Knowledge interventions are also less intrusive as individuals can choose to solicit their information, are less costly than other systems of intervention and do not require large-scale community change. The largest flaw associated with food carts is their lack of variety and their ability to offer residents only fruits and vegetables; conversely, knowledge interventions do not physically improve access to nutritious foods. Additionally, while it is difficult to determine if any diet-related illnesses are due to poor nutritional options, ensuring access to healthy foods will address diet complications and may provide other benefits that have been associated with healthy foods.

While food carts and knowledge interventions are the best recommendations outlined in this report, the City of Vancouver can take other steps to address the issue of food accessibility

under the four sustainable dimensions of improving human, environmental, social and economic health. First, the city zoning and permitting system, despite including clauses that state otherwise, could resolve to be more lenient to small grocers wishing to enter residential zones. With the city developing at a rapid pace, many of the zoning designations that were created in the early 1980's require review. While amendments were created to protect the stores that existed in residential neighbourhoods prior to their rezoning, no new stores have entered while others have relocated or vanished.

With the City financially obligated to continue its support of other social concerns, many of which are more pressing than improving the nutritional diet of certain residents, there is increased room for partnerships. While this study found the partnerships between the city and the community food organizations to be strong, especially through partnership with the VFPC, a significant gap exists between the city and other levels of government and larger organizations. Both BC and Canada are committed to improving the food options of Canadians, but little has been done to establish a more comprehensive and strategic plan between various levels of government. Partnerships that look to improve preventative health diseases related to diet would be of particular interest to the province with the majority of health expenditures focused on heart disease and diet-related illnesses. These stakeholders, with their various resources and combined capital, could contribute effectively to knowledge interventions that better inform individuals on healthy eating practices.

Finally, the city could do more within its own jurisdiction to expand the current food cart system. While the initial promotion of food carts has been a success to small business and a benefit to consumers, as of yet, nothing has been done to establish a nutritional standard for operators. Discussions are currently occurring within the VFPC, but it is unclear when changes to the food cart system will occur. Acknowledgement that healthy food options are lacking in certain areas of the city and that food carts focusing on nutritious foods could benefit these areas

would improve residents' overall health and meet standards as outlined by the Vancouver Greenest City report.

## 9: Conclusion

Accessibility to grocery stores has recently been explored in American cities that are experiencing difficulties associated with urban decay or lapses in social planning. While the City of Vancouver continues to experience population growth and many areas of the city are undergoing densification, some communities are finding it increasingly difficult to access many of the services required for living a healthy and prosperous lifestyle.

I have assessed policies that aim to improve access to healthy nutritious foods in an area underserved by traditional supermarkets. Demographic information illustrates that the North Eastern LHA has characteristics found within the research literature to indicate high risk. In identifying many of the precursors for poor health related to diet and comparing them to statistical information provided by the province, I was able to determine the extent to which this LHA met the literature's definition of accessibility risk. Based on this information and the lack of grocery stores in the area, I analyzed several policy options that look at increasing the access to healthy and nutritious foods. In identifying many of the barriers associated with the North Eastern LHA, the policy options that ranked highest were the introduction of food carts and knowledge intervention programs. Food carts would successfully increase access to some of the healthy foods associated with a proper diet as outlined by the Canada Food Guide. Additionally, by reinforcing the importance of practicing healthy eating habits, knowledge campaigns could improve attitudes towards healthy eating and could improve access to existing infrastructure.

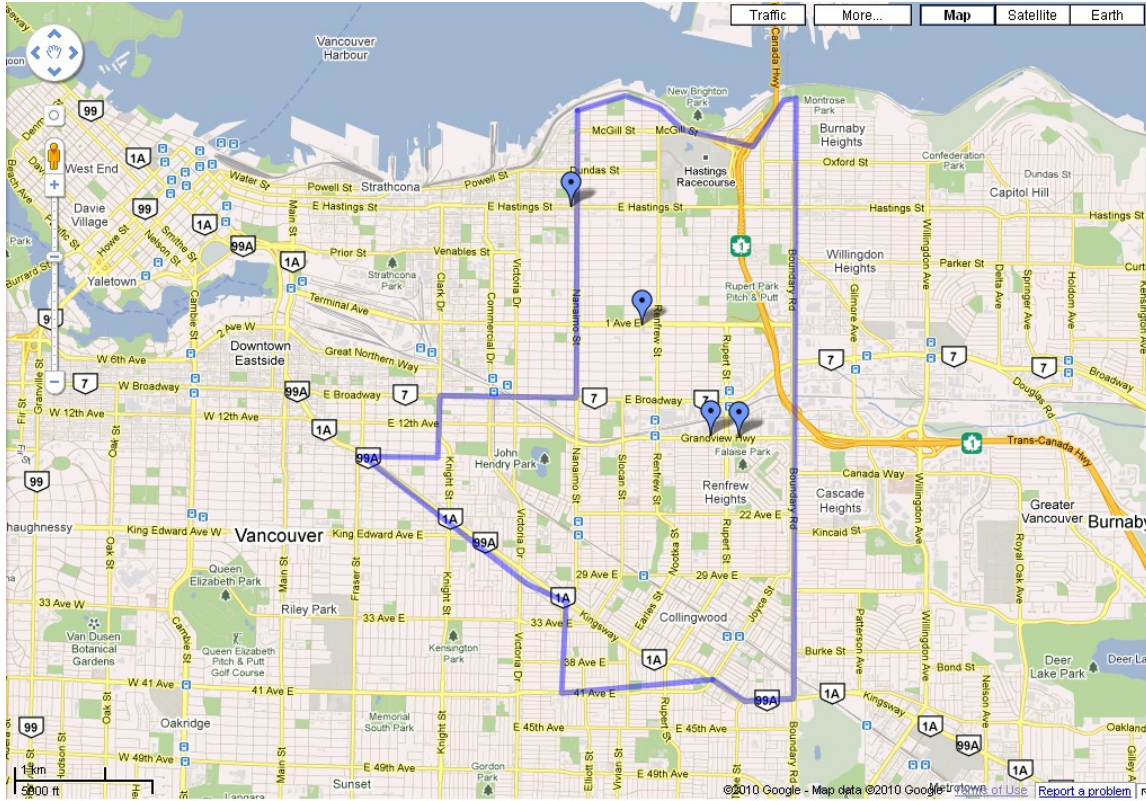
This study faced a number of limitations. Health data on diet-related illnesses show that neighbourhoods within Vancouver do not have an increased rate of diabetes, obesity and heart disease that could be attributed to poor access. While LHA 163 did have the highest total of

diabetic deaths within Vancouver, there is no accurate way to link these deaths to diet.

Additionally, a better understanding of the existing Chinese markets that exist in the LHA could better serve understanding of the barriers affecting ethnicities.

Easing zoning regulations to allow some additional small markets on major arteries in residentially zoned parts of the North East LHA would increase accessibility for residents who are unable to access chain grocers that offer a variety of healthy foods. This study found that this option faces a variety of obstacles, most significantly, neighbourhood acceptance from those living next to prospective stores. One of the best ways in which to increase availability to healthy foods, and minimize the impact on the community, is by introducing food carts. While food carts may not offer all the dietary necessities as prescribed by the Canada Food Guide, they do increase availability of fruits and vegetables, some of the most essential foods for a healthy lifestyle. While more research is needed to assess the extent to which accessibility has influenced dietary health complications, this study has shown that many residents of the North East Health District do not have ready access to healthy foods. Relatively simple policy initiatives identified here could help to remediate this deficiency.

# Appendix A – Grocers in the North East LHA

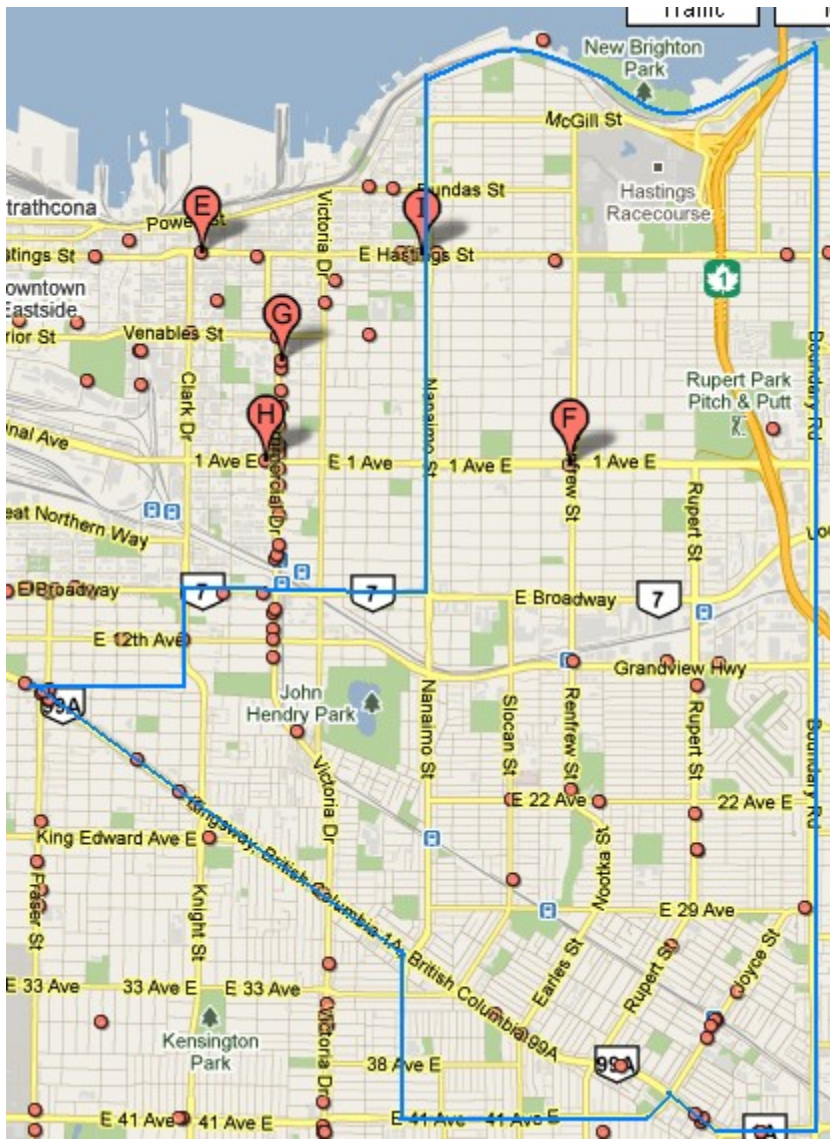


Source: Google Maps, 2010.



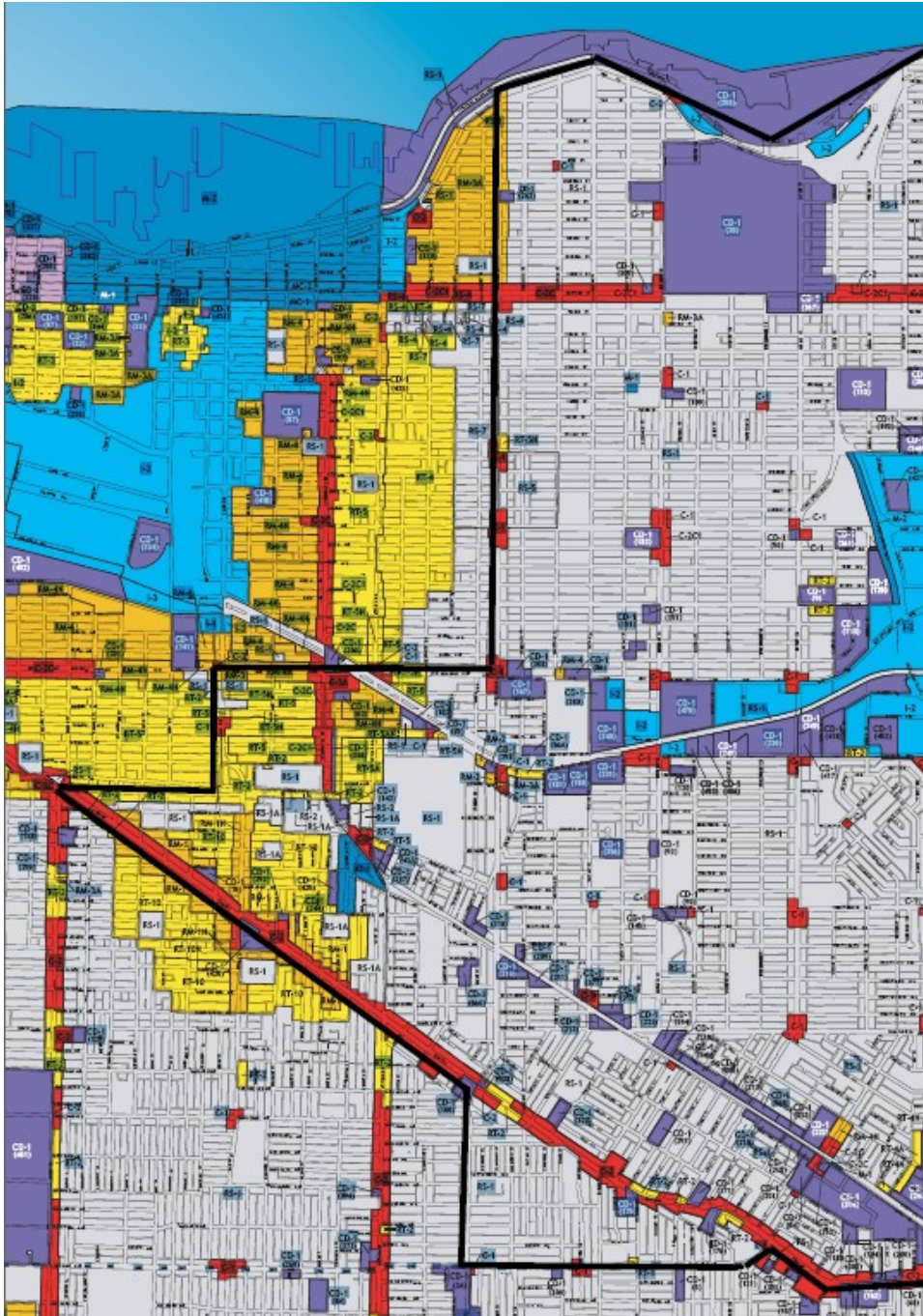


## Appendix C – Small Grocers in the North East LHA



*Google Maps search for grocery store yields the above results. Not all locations are grocery stores with a few being take-out restaurants (Google maps, 2010).*

## Appendix D – Zoning in the North East LHA



Source: City of Vancouver, 2009

## Appendix E – List of Key Informant Interviews

Brent Mansfield	Co-Chair, Vancouver Food Policy Council Think and Eat Green@School Project UBC Faculty of Land and Food Systems
Mary Clare Zak	Director, Social Policy – City of Vancouver Vancouver Food Policy Council
Rick Michaels	Assistant Director of Development Services – City of Vancouver
Stephanie Lim	Food Security Coordinator – Renfrew- Collingwood Food Security Institute
Zach	San Juan Produce Wagon
Ken	Chung Lee Market

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