The Urban Foodie: A food-sharing network platform for a sustainable and healthy community in Kansas City, Missouri

by

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A REPORT

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ABSTRACT

Global climatic change due to human activity continues to disrupt future agricultural production and food security in the United States (Wheeler & Braun 2013). The pressures on the global food system and extreme climatic events are challenging communities in the U.S.'s most densely populated places: its cities. With over 80% of the population living in cities and metropolitan areas, these populations have become early responders to climate change, placing them in the path of vulnerability (FAO 2020). This anthropogenic relationship between current food systems will intensify within the next few decades as populations continue to increase, creating a need for integrative food-sharing programs in urban cities (Kortetmäk 2019). This study examines food-sharing programs, including community gardening and shareholder health markets, as a potential approach to address urban food insecurity. Providing land ownership allows local communities to repurpose vacant lands and sustain economic food endeavors through urban farming. A site study was conducted in nine neighborhoods that touch the Brush Creek corridor in Kansas City, Missouri. This community is a desirable study site because it consists of middle to low-income residents in a historically redlined area with racial segregation and high vacancy levels. Methods of analysis included spatial analysis using GIS to identify areas of opportunity for potential design intervention a survey distributed in two vulnerable neighborhoods. Documentation of residents' concerns about food security, food access, and involvement enabled residents to illustrate the expected outcomes they wish to seek in their community concerning food-sharing programs. The resulting information was used to develop an integrative food-sharing program model that is shifted toward sustainable food production and decreased health implications associated with global climate change and food insecurity.

THE URBAN FOODIE

A food-sharing network platform for a sustainable and healthy community in Kansas City, Missouri

PADEN CHESNEY
2021

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The Urban Foodie
A food-sharing network platform for a healthy and sustainable community in Kansas City, MO

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ABSTRACT

Global climatic change due to human activity continues to disrupt future agricultural production and food security in the United States (Wheeler & Braun 2013). The pressures on the global food system and extreme climatic events are challenging communities in the U.S.'s most densely populated places: its cities. With over 80% of the population living in cities and metropolitan areas, these populations have become early responders to climate change, placing them in the path of vulnerability (FAO 2020). This anthropogenic relationship between current food systems will intensify within the next few decades as populations continue to increase, creating a need for integrative food-sharing programs in urban cities (Kortetmäk 2019). This study examines food-sharing programs, including community gardening and shareholder health markets, as a potential approach to address urban food insecurity. Providing land ownership allows local communities to repurpose vacant lands and sustain economic food endeavors through urban farming. A site study was conducted in nine neighborhoods that touch the Brush Creek corridor in Kansas City, Missouri. This community is a desirable study site because it consists of middle to low-income residents in a historically redlined area with racial segregation and high vacancy levels. Methods of analysis included spatial analysis using GIS to identify areas of opportunity for potential design intervention a survey distributed in two vulnerable neighborhoods. Documentation of residents' concerns about food security, food access, and involvement enabled residents to illustrate the expected outcomes they wish to seek in their community concerning food-sharing programs. The resulting information was used to develop an integrative food-sharing program model that is shifted toward sustainable food production and decreased health implications associated with global climate change and food insecurity.

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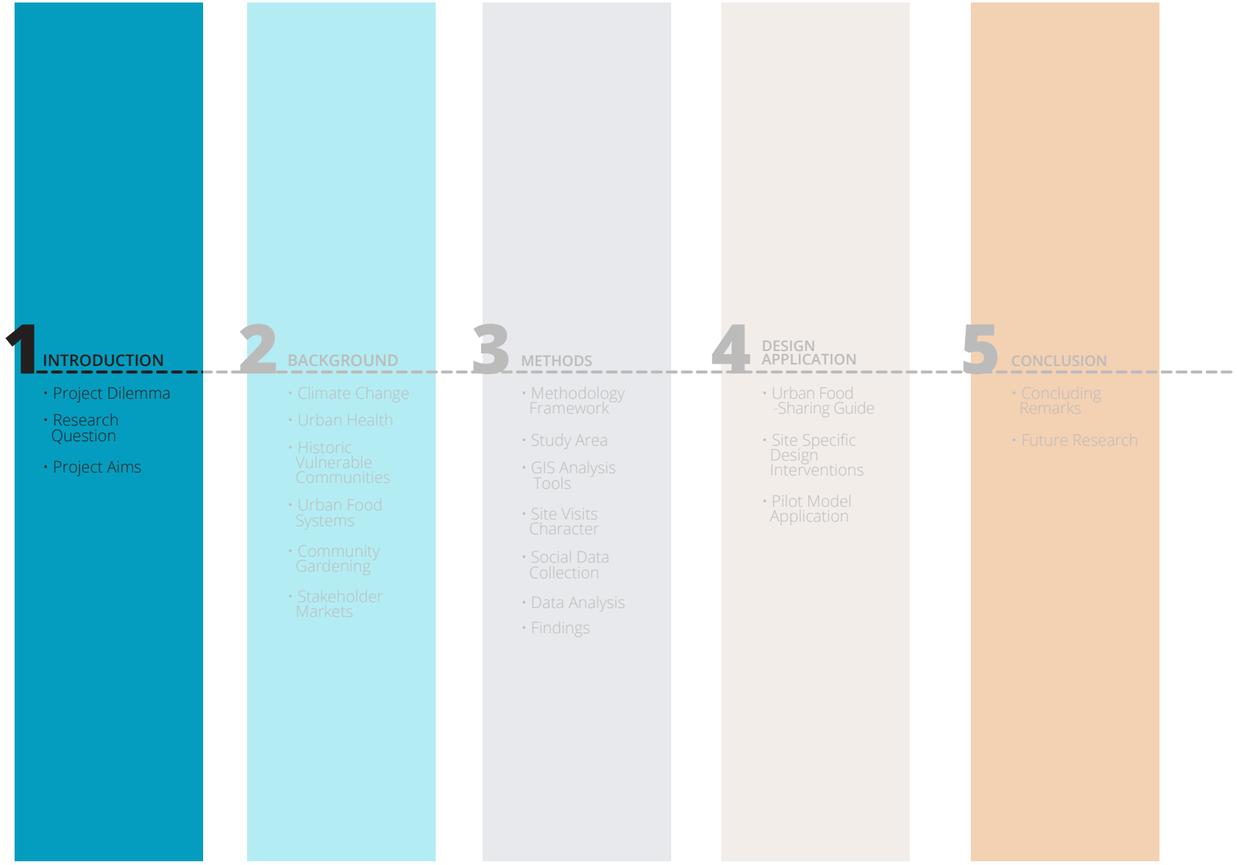


INTRODUCTION

PROJECT DILEMMA

Global climatic change due to human activity continues to disrupt future agricultural production and food security in the United States (U.S.) (Wheeler & Braun 2013). As we reach to the farthest depths of the planet, global food systems continue to cause detrimental environmental impacts. U.S. metropolitan areas and cities rely heavily on fossil fuels to feed themselves within the current global food system to transport goods from industrialized farming areas into the city (Barthel et al. 2013). With over 80% of the population living in cities and metropolitan areas, these populations have become early responders to climate change, placing them in the path of vulnerability (FAO 2020). Concerns for human activity associated with fossil fuel emission and large crop production bring up environmental sustainability questions: (1) can current food systems retain their viability? (2) What economic changes need to be made to this anthropogenic relationship to decrease the risk of crop failure? (3) Is large-scale food production worth risking urban populations' health and safety in the name of convenience and price? Exploring these questions will help landscape architects, planners, and city officials understand the relationship between food justice and climate change mitigation in urban areas.

Food justice in the U.S. is influenced by many economic and political factors in cities. Energy, water systems, transportation, and food systems makeup infrastructure that either improves or decreases the quality of life in vulnerable communities. These vulnerable communities can be defined as urban areas with low visibility, less likely to be pursued by developers, and often impoverished (Dunn 2010). Vulnerability is also affected by American historical aspects of systemic racism such as slavery, and

redlining, which primarily segregates peoples of color (POC) from other racial populations in urban areas. These communities have disproportionate access to grocery stores and healthy food access within proximity to transportation systems. Relying on car transportation allows developers to connect convenience in a central location or a hub. Shopping districts, and sit-down and fast-food restaurants then tend to be near each other for convenience. Out of 156 U.S. Census tracts, 155 fast-food restaurants were identified as less than 0.5 miles away from shopping districts. Fast-food densities were independently correlated with low household income and peoples of color. These vulnerable communities and low-income neighborhoods have 2.4 more fast-food restaurants in their neighborhood boundary than the 1.5 fast-food restaurants predominantly white areas contain. (Block et al. 2004). Fast-food chain clusters, known as food swamps, gorge community food systems, and prevent youth and adults from learning about healthy food options, causing increased health-related problems and social interaction (Kumanyika et al. 2008). More than 17% of children and 33% of adults are obese in the United States. Increased food consumption and rapid fast-food expansion, seen since the 1990s, cause the obesity epidemic besides poor diet (An et al. 2017).

Despite all these multifaceted problems there are possible ways to alleviate the intensity of the issues and have more sustainable systems of food production and distribution to reduce the risk of food insecurity in the upcoming decades. Food-sharing seems to be a way to increase community involvement in public policy and mitigate climate change (Brown & Brush 2018). By maximizing public lands zoned for urban farming and community gardening, individuals can feel connected to the land and empowered by public ownership (Garba 1997). Future planning and policy can use cultivated landscapes to increase food supplies for poor, unemployed, and vulnerable people (Tscharntke et al. 2012). Psychological health is also greatly affected by the characteristics of physical environments such as parks, tree diversity, and vegetable gardens (Okvat & Zautra 2011). Physical and social features of neighborhoods are key elements which affect the mental health and well-being in urban areas (Okvat & Zautra 2011). Lastly, when people have access to safe, ample, nutritious food to maintain a health active lifestyle they have assurance to food security (Gottlieb & Joshi 2019).

RESEARCH QUESTION

How can an integrative food sharing network including community gardens and stakeholder health markets be used as a tool to fight food insecurity and social injustice while constructing a more healthy community?

To address this research question, the following objectives will be explored through an evidence based design proposal:

OBJECTIVE ONE:

Assess levels of nutritious foods at existing food provider locations (grocery stores, food pantries, community gardens) to determine what community assets are being provided (See Figure 1.2).

OBJECTIVE TWO:

Analyze spatial data layers including GIS mapping interventions to identify critical design spaces where food-sharing would have the most beneficial impact on the community (See Figure 1.3)

OBJECTIVE THREE:

Develop an evidence-based design proposal that integrates the literature research, social data, and spatial analysis to develop an urban food-sharing network strategy to enhance economic endeavors and community health (See Figure 1.4).

Figure 1.2

Existing conditions on vacant lot (Jackson 2020)

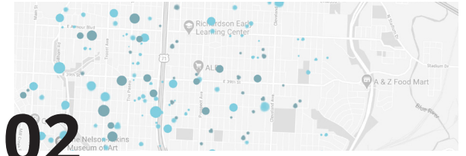


Figure 1.3

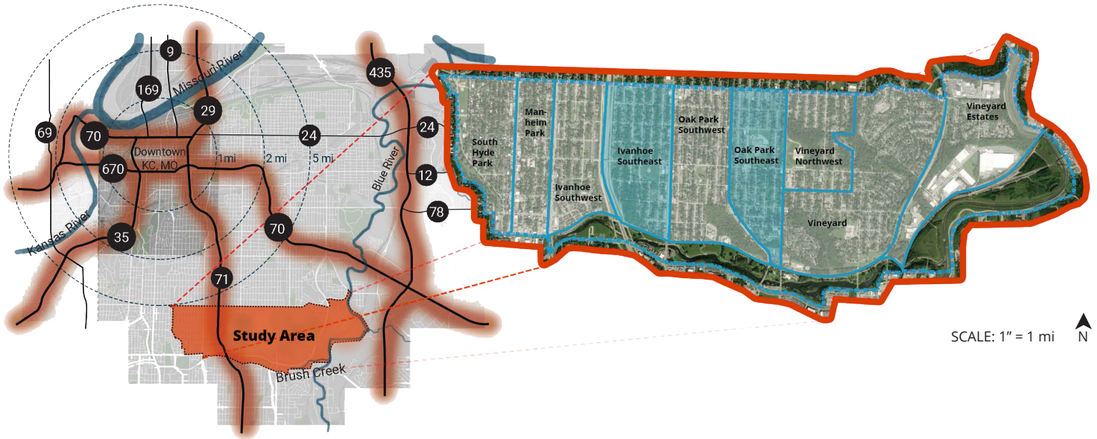
GIS mapping example

Figure 1.4

Outdoor food integration inspiration (Balan 2021)

Figure 1.5

Kansas City, Missouri context and zoomed in neighborhood site boundary selection (Diagram Adapted from Google Earth 2020)



PROJECT GOALS

This study aims to examine the possibility of developing a food system that decreases average poverty levels in urban settings to provide a local source of income, increases physical and social health, and establish a neighborhood group identity. This study was conducted in nine neighborhoods that touch the Brush Creek corridor in Kansas City, Missouri (See Figure 1.5). This community is a desirable testing group because it consists of middle to low-income residents in a historically redlined area with racial segregation and high vacancy levels. Data was collected through a distributed survey in two vulnerable neighborhoods, and spatial data using GIS to identify areas of opportunity for potential design interventions. Documentation of residents' concerns about food security, food access, and vacant lands will allow residents to illustrate the expected outcome they wish to seek in their community concerning food-sharing programs. The resulting information supported the development an integrative food-sharing program model that proposes a shift towards sustainable food production and decreased health implications associated with global climate change and food insecurity.

CHAPTER TWO

BACKGROUND

BACKGROUND

CLIMATE CHANGE AND POPULATION AFFECTS

Climate-friendly food systems are often constrained by current agricultural practices that have adverse effects on humans' quality of life. It is the stipulation for food-systems to retain their viability, but how do these systems function in the local economy's greater framework? Most growth in the world's population occurs in urban areas in low to middle-income nations placing concern for how population growth will influence greenhouse gas emissions (GHG). We can argue that population growth does not directly contribute to climate change, but rather, the increase in the economic consumer market and their consumption levels do (Kortetmäki 2019). This consumer market relies on extensive production agriculture, coastal resources, energy, transportation, and water to keep a city up and running (Mendelsohn et al. 2004). A survey conducted by Stanford Social Innovation showed that only 33% of consumers were ready to invest in green products and services to decrease climate change. The United States and other developed countries have done little to reduce the effects of their carbon footprints (Bonini & Oppenheim 2008).

The relationship between climate change and the carbon footprint could be directly affected by consumers' laziness and insincerity but is directed more towards a lack of education. Businesses and government bodies have not adequately educated consumers of the physical health benefits that green products provide (Bonini & Oppenheim 2008). By choosing to reduce carbon footprint, consumers are reversing the effects of transportation services, water, and energy that products require for manufacturing and transportation to a municipal area (Kortetmäki 2019). In return, greenhouse gas emissions tied to atmospheric concentration are decreased, mitigating climate change health implications (Mendelsohn et al. 2004).

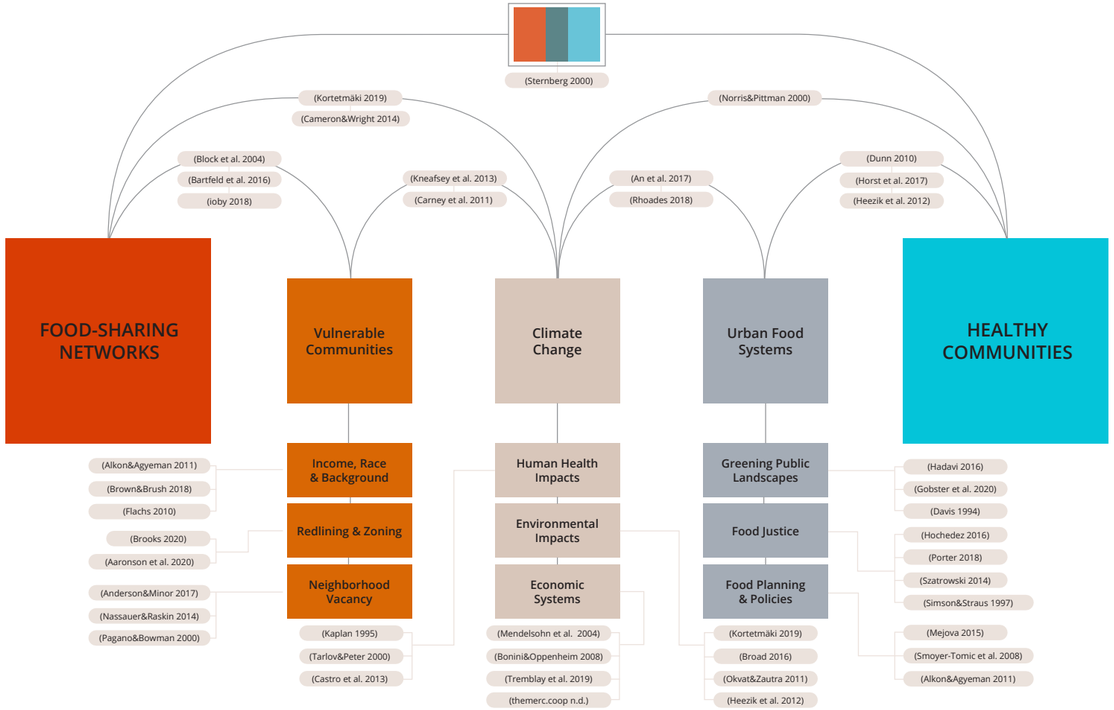
URBAN HEALTH IMPLICATIONS

A healthy community is defined as an environment that supports healthy choices, shared trust, and equal responsibility (Norris & Pittman 2000). Growing a healthy community is a long-lasting process that requires all members to play a part in this process (See Figure 2.2). People tend to come together around issues that disrupt the environment of a local block or neighborhood (Tarlov & Peter 2000). These communities will work towards a shared vision that solves these issues and activates creativity and resources. Lastly, disruption to imperative resources can significantly impact a community's health (Norris & Pittman 2000).

Climate change directly influences public health implications, such as obesity, through food system supply/price shock (Kneafsey et al. 2013). Foods that are cheaper in price tend to be high in caloric value and saturated fats, whereas healthier fresh produce becomes more expensive. In return, the obesity epidemic influences climate change by elevated energy consumption. This bidirectional relationship is hinged on consumer demand and the fossil fuel economy we have seen up until 2019 (Kortetmäki 2019). Studies suggest that using current food system production is unsustainable and will continue to induce climate change in the foreseeable future until these systems are changed (An et al. 2017).

Figure 2.2

Literature Review Framework: research concept connections



It is estimated that over 40% of the world's population is overweight or obese. From 1976 to 1980, obesity rates more than doubled in the United States (U.S.) alone; today, more than two-thirds of Americans are currently overweight or obese in the U.S. (An et al. 2017; See Figure 2.3). These numbers are directly correlated with increasing fast-food restaurants and access to healthy food markets (Mejova 2015). The effect of supply shock makes healthier food options more expensive and unaffordable, which nudges people to consume inexpensive and less nutritional foods. Using this mindset, public officials strategize zoning laws to cluster unhealthy food options, called food-swamps, near shopping districts for consumer convenience (Smoyer-Tomic et al. 2008). This act is used to increase economic equity, but obesity becomes a public health concern in return (Smoyer-Tomic et al. 2008). According to Jason Block and colleagues' geocoding census tracts, geographic location and landmarks highly depend on fast-food restaurants (Block et al. 2004). The presence of highways also dictates the fast-food restaurant location. Where are most intersecting interstate highways located: Urban cities. Lastly, census tracts also found that nearly 60.6% of residential neighborhoods located next to highways consisted of black and peoples of color communities. These communities become targeted for food injustice, obesity, and respiratory issues caused by highway carbon emissions (Block et al. 2004).

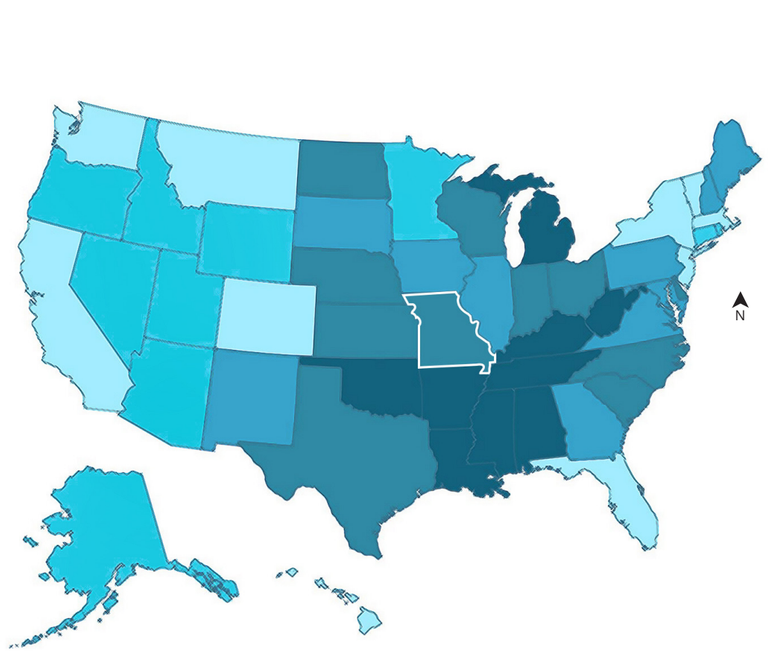


Figure 2.3

Percentage of adults with a body mass index of 30.0 or higher (Obese) based on reported height and weight. Missouri boundary highlighted in white (CDC 2020)

HISTORY DEFINED VULNERABLE COMMUNITIES

Inequality and insecurity are not only created through the industrial food system; but also historically connected to other systemic social, economic, and racial injustices (Alkon & Agyeman 2011). Links to historical racism created in the eyes of many white Americans and vulnerable defined communities can often be traced back to neighborhood redlining. Redlining is a nod to how lenders identified neighborhoods in the 1930s with a greater share of people more likely to evade mortgage payments (Brooks 2020; See Figure 2.4). These neighborhoods were directly targeted in and near black communities by the Federal Housing Administration. Racist American's did not want to be associated with people of color because of social image at the time. In return, housing in other parts of the city was primarily designed for white middle-class families, and peoples of color were pushed into urban housing projects in redlined neighborhoods. Today, neighborhood frameworks continue to see the consequences of zoning and redlining (Aaronson et al. 2020). Low-income housing located in historically redlined zones often contains infrastructure that hasn't been renovated or redeveloped since the 1930s. Dangerous buildings due to infrastructure issues cause residents to vacate and leave these blighted neighborhoods, creating an abundance of vacant lots in the heart of the city (Anderson & Minor 2017).

These Low-income individuals and peoples of color are often missing from the dominant food movement policies seen today. The United States decades of careless planning initiatives have brought economic insecurity and weakened entitlement programs, increasing the number of people who struggle to obtain basic needs (Alkon & Agyeman 2011). During the 2008 recession, massive unemployment rates and income losses struck the lives of everyday people in the U.S. Those who previously were insecure saw inequality widen to nearly unprecedented levels after the economy began to recover. During this time, enrollment in the Federal Supplement Nutrition Assistance Program (SNAP) reached record highs. Almost 45 million individuals sought assistance to purchase food, more than 20 million than the year before (Bartfeld et al. 2016). Production yields in extensive crop agriculture began to rise to fight "food-deserts," and climate change began to rise to an all-time high. This industrialized food system is ecologically damaging and exploitive to biota systems, workers, and farmers (Broad 2016). These systems are discriminatory towards vulnerable communities and ethnic minority groups and are often related to food insecurity and chronic disease due to food quality (Broad 2016).

These same communities are often home to vacant land, left undeveloped as a result of past racist policies like redlining. Between 12.5-15% of these city lands are generally vacant at any given time (Anderson & Minor 2017). These vacant lots can come in many forms, sizes, and clusters and range from severely blighted brownfields to foreclosures in residential properties. Sometimes referred to as abandoned wastelands, uncultivated lands, or green fields, these spaces are what could potentially create an extensive network of urban public areas (Anderson & Minor 2017). Although there are many names and uses for vacant lands, a standard set of definitions must be uncovered to identify if a lot can be classified as vacant. According to Joan Nassauer and Julia Raskin (2014), the following vacant urban landscapes all have these conditions in common:

1. They combine occupied structures, abandoned structures, and vacant, formerly occupied, land in a dynamic, patchy pattern.

2. They bear the legacies of past human uses, including contamination, altered hydrologies, altered soil profiles, and introduced species, including invasives.

3. In the near term, they have limited potential to attract financial investment: the real estate market is weak in highly vacant districts.

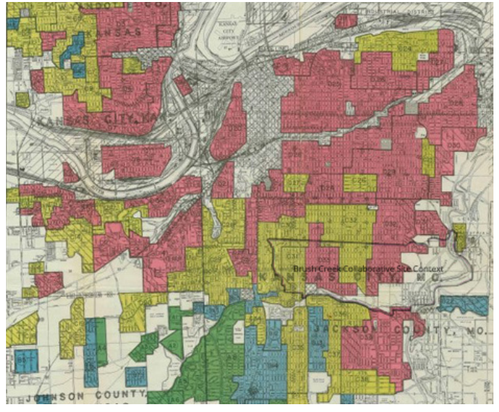


Figure 2.4

An example of a "redlining" map of Kansas City, ca. 1939 and the Brush Creek Study Area (National Archives at Kansas City, Missouri n.d.)

Vacant land is not necessarily flawed land (Pagano & Bowman 2000). Future planning policies have the potential to use these vacant lands as a key asset to a cities broader framework (Pagano & Bowman 2000). The creation of open public landscapes in the city can improve the quality of life for urban dwellers (Hadavi 2016). Recent studies have shown that using these vacant urban lands to produce and enhance food-systems will improve life quality (Hochedez 2016; Dunn 2010). Improving the quality of life also implies that the health of a community will improve (Dunn 2010).

A PUSH TOWARDS URBAN FOOD SYSTEMS

Food language is the very central part of human existence. From an early age, we learn the textures, smells, and visual features associated with food. Without food, we simply could not exist regardless of gender, age, and race. This language becomes an integral part of our identity. Throughout prehistory, farmsteads and gardens were at the center of planned spaces. Settlement analyses suggest that planning and using public space followed an ecosystem resilience theory that recognized urban food systems as equal to other services such as transport, electricity, entertainment, and sewage (Barthel et al. 2013; Brown & Brush 2018). Studies show that urban resilience cannot be achieved if regional and local food systems services are ignored (Barthel et al. 2013). These systems must work in conjunction with each other to find the perfect balance where climate change can be mitigated.

Food justice seeks to bring food language and healthy food access back into the lives of vulnerable communities (Szatrowski 2014). Bringing historical injustices in the food system to light will help cities plan food sovereignty alternatives. Allowing communities to access healthy foods and define their food and agricultural systems in the city calls for a greater distribution of power than "capitalocentric" planning seen today. Viewing food-systems as just another part of the economy will combat the few corporations that now control our entire food supply chain (Cameron & Wright 2014). This political power needs to reside with the powerless to diffuse the struggles associated with food insecurity.

The movement to remake the food-system can be accomplished through small acts such as insignificant backyard gardening. Aligning these gardens with an international movement associated with hundreds of small-scale urban farms across the globe can significantly impact the lives of many. Landscape architects and planners can play a more vital role in the food justice movement by considering if agricultural efforts truly benefit vulnerable communities. ***The Journal of American Planning Association*** **(Horst et al. 2017) highlights five steps towards improving food justice in vulnerable communities:**

01

"Planners can embed urban agriculture into long-term planning efforts so that urban agriculture is viewed as a priority, not just a place-holder for future developments on the land."

02

"Planners can develop mutually respectful relationships with food justice organizations to better understand their constraints and needs."

03

"Planners need to target outreach, programming, funding, and infrastructure for urban agriculture to organizations led by and benefiting members of historically disadvantaged communities."

04

"Planners can increase the amount of land permanently available for urban agriculture."

05

"Planners must confront and counter urban agriculture's contributions to displacement."

Rather than dumping and vandalism, vacant lands can be permanently used for urban agriculture. Community gardening and urban farming propose a way toward reducing green space weaknesses in neighborhoods and rebuilding communities (Gobster et al. 2020). The expansion of this green space is a tool for restoring vibrant communities while at the same time mitigating climate change by reducing impervious surfaces that increase temperatures in urban environments. These public green spaces can be transferred to these vulnerable communities to empower residents and bring attention to underrepresented neighborhoods, ultimately improving food justice (Brown & Brush 2018; Sternberg 2000). Lastly, to engage neighbors in the process of food integration into the built environment, community gardens can be used as a tool to promote security, and social understandability between neighbors (Brown & Brush 2018).

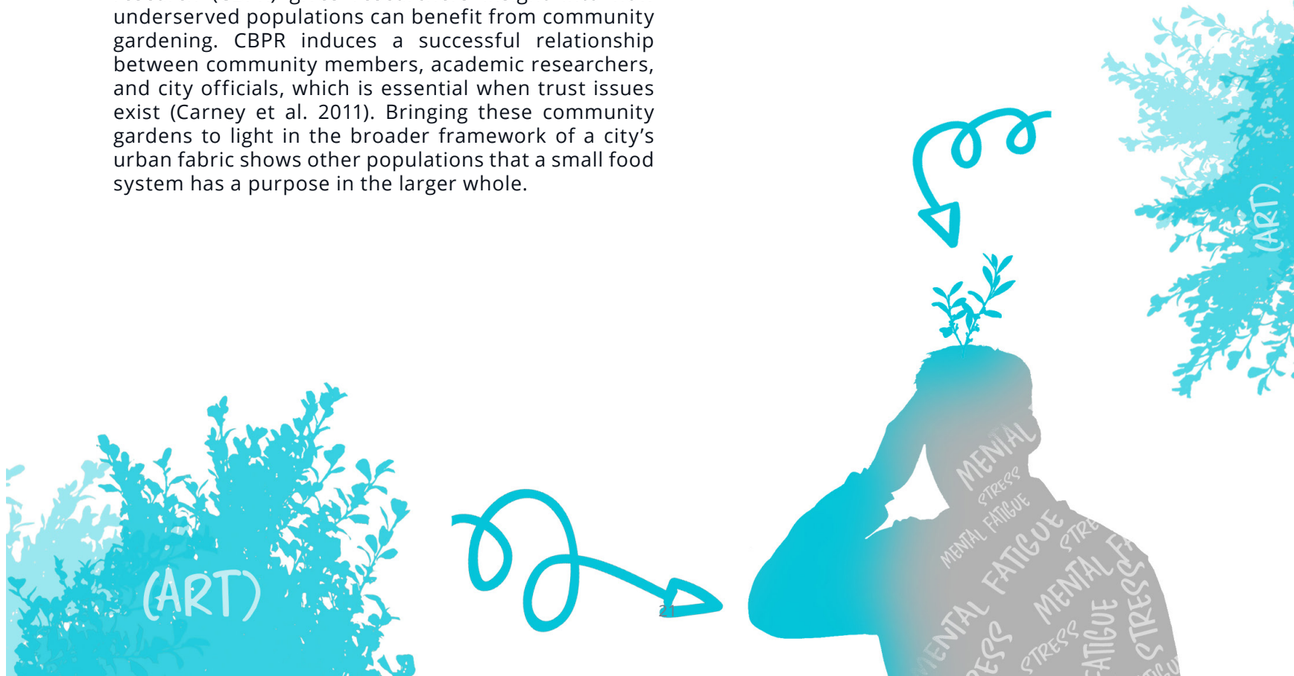
Community Gardening

Community gardening/urban farming may offer a way to change landscapes, occupy vacant lands, and increase food security in vulnerable communities (Gobster et al. 2020; Cameron & Wright 2014). The benefits of community gardening suggest that gardening provides meaningful amounts of healthy food, improves health, and provides several forms of ecosystem reliance (Okvat & Zautra 2011). Successful food gardening may enhance food security by delivering extensive nutritional quantities of food (Porter 2018). Gardening can be linked to food supply price and availability, which serve as barriers in typical grocery stores for low-income and people of color communities. A community garden's benefits can even extend beyond food security and point to mental and physical health.

Attention Restoration Theory (ART) proposes that exposure to nature is not only enjoyable but can also help us improve our focus and relieve mental fatigue (Kaplan 1995). This mental fatigue is reduced through contact with nature, which allows concentrated thoughts to rest (See Figure 2.5). Studies from the past decade have brought attention to these positive effects of gardening and lot greening. Participants claim gardening created a social connectedness of surrounding neighbors by sharing experiences, knowledge, and gardening skills (Mumaw et al. 2017). Stress is also relieved by helping the environment while interacting with neighbors (Mumaw et al. 2017; Van Den Berg & Custers 2011). Since ancient times, gardening or the natural environment's visitation have had restorative effects on stress and have been recognized as useful for therapeutic purposes (Van Den Berg & Custers 2011). A correlational study carried out by psychologists from the Wageningen University and Research Center has discovered that regular engagement in gardening can be a type of moderate exercise to reduce stress and lower the likelihood of depression and chronic health conditions (Van Den Berg & Custers 2011). These psychologists have also learned that physically active communities are sustainable and resilient to health implications (Carney et al. 2011; Castro et al. 2013). Physical activity within community gardens requires a level of participation and volunteering. Community-based participatory research (CBPR) gives researchers insight into how underserved populations can benefit from community gardening. CBPR induces a successful relationship between community members, academic researchers, and city officials, which is essential when trust issues exist (Carney et al. 2011). Bringing these community gardens to light in the broader framework of a city's urban fabric shows other populations that a small food system has a purpose in the larger whole.

Figure 2.5

Attention Restoration Theory, and stress reduction theory mental fatigue and stress relief representation



Before a neighborhood begins working together to construct a community garden, they must assess what type of garden fits their goals and needs. According to the Kansas Green Yards Newsletter, a production of the Department of Horticulture and Natural Resources at Kansas State University, there are three most common types of community gardens (Department of Horticulture and Natural Resources 2019; See Figure 2.6):

1. Communal and Neighborhood Gardens
2. Private Plot Gardens
3. Therapy and Healing Gardens

Communal and Neighborhood Gardens

A community/neighborhood garden is an allotment garden where people work together and garden, specifically vegetables and fruits (Rhoades 2018). Many subtypes exist within allotment gardens, including charity/church gardens for food pantries, educational gardens, and vocational training gardens. These gardens provide opportunities for a broader range of community members to gain skills and provide food for a greater number of people. Plots can be divided into smaller sections for individual members of a neighborhood or shared neighborhoods to use or can be shared equally across a more extensive section of land for free (Department of Horticulture and Natural Resources 2019).

Private Plot Gardens

Private plot gardens cover a large portion of urban areas. These gardens have tremendous potential for providing ample resources to those who rent or pay for their slice of land. Privacy means that any improvement to food systems and biodiversity is highly dependent on the actions of the residents that use them (Heezik et al. 2012). Rental fees within a private plot garden can also be unfair to an impoverished community, preventing everyone from having an equal opportunity to gardening (Flachs 2010). The necessary items for gardening, such as tools, soil, and mulch, tend to come with a price as well. These garden types work best in conjunction with co-op style health markets to provide job and training opportunities and produce to community members (Flachs 2010).

Therapy and Healing Gardens

Therapy through horticulture is a new practice discipline that has increased during the last 50 years (Simson & Straus 1997). Horticulture therapy is described as “a process through which plants, gardening activities, and the innate closeness we all feel toward nature are used as vehicles in professionally conducted programs of therapy and rehabilitation (Davis 1994). Therapeutic acts in landscapes such as crop production through gardening can increase cognitive recovery (Simson & Straus 1997). Gardening can help define common goals which all members with age restricting and mental disabilities can benefit from (Simson & Straus 1997).

Figure 2.6

Types of Communal Gardening (Shani, Spratt, Zanda, & Saniskoro 2020)

Linking all garden types, stated on page 24, within a food system has the potential to provide benefits of fresh and healthy produce to the community, support food security and financial savings for individuals, provide a direct supply of produce to surrounding health markets, and decrease climate change by improving the soil/water/air quality of an urban city which all would result in a healthy community (ioby.org 2018).

Stakeholder Health Markets

Stakeholder health markets are similar to farmers' markets but offer a more permanent solution to a steady income. Modeled after The Merc Co+op, unlike chains, these neighborhood owned markets provide a space to shop, eat, and work with a small one-time investment (themerc.coop n.d.). Produce sold at shareholder health markets are directly linked to surrounding community gardens at a reasonable price. Investing in local businesses creates a vibrant local economy that supports community garden producers and other non-profit organizations. Discounted share prices can be offered to vulnerable community members and food producers, which provides a discount on all food purchases and benefits of stock investment.

Methodology Framework Co-ops rely heavily on human interaction and social dilemmas. All members contribute labor to generate a public service which "free-riders" can benefit from (Tremblay et al. 2019). This service allows for a broader community scope to access products that are not accessible at other grocers, making co-ops a way to relieve stresses from poverty in urban areas (Tremblay et al. 2019).

The following study explores possibilities for connecting the Brush Creek Community of East Side Kansas City to a central food-system network to address the gaps between food justice and the local economy.

CONCLUSION

In summary, as human activity increases in the consumer market using large crop production, food security becomes an issue within urban metropolitan areas (Wheeler & Braun 2013). These food processes rely heavily on fossil fuels, which contribute to climate change and detrimental health impacts (Barthel et al. 2013). Low-income, persons of color communities have 2.4 higher exposure to unhealthy fast-food options, causing increased obesity and heart disease (Block et. al 2004). Food options can also be limited due to public transportation options, which many urban dwellers depend on to feed their households. Healthier chain grocery stores affect the supply shock making healthier produce options expensive and unfordable, nudging vulnerable communities to consume these inexpensive food options.

These systems must work in conjunction with each other to find the appropriate balance where climate change can be mitigated. Allowing communities to access healthy foods and define their own food and agricultural systems in the city calls for a greater distribution of power than "capitalocentric" planning seen today. Broken land caused by blighted and redlining can be used as a tool to increase green space and mitigate food insecurity and climate change. To combat these pressing issues, landscape architects and planners can play a more vital role in the food justice movement by considering if agricultural efforts truly benefit vulnerable communities.

CHAPTER THREE

METHODS

METHODS

STUDY AREA OVERVIEW

Nine neighborhoods along the Brush Creek Corridor in Kansas City, Missouri, were spatially analyzed using GIS to assess opportunity areas for strategic food-sharing design interventions (See Figure 3.1). Spatial maps' layering has shown design opportunities lie within two specific neighborhoods inside the Brush Creek site boundary. These neighborhoods' high vacancy has been linked to the redlining maps created by the Federal Housing Administration in the 1930s (Aaronson et al. 2020). Racial segregation and increased poverty along the Troost Avenue divide have become a deterrent in the years following and are seen today (See Figure 3.6).

To collect information relating to food insecurity and preferences, 68 members from the Ivanhoe Southeast neighborhood, Oak Park Southeast neighborhood, and greater Brush Creek area were involved in a survey study. This study was used to determine which vacant lots can

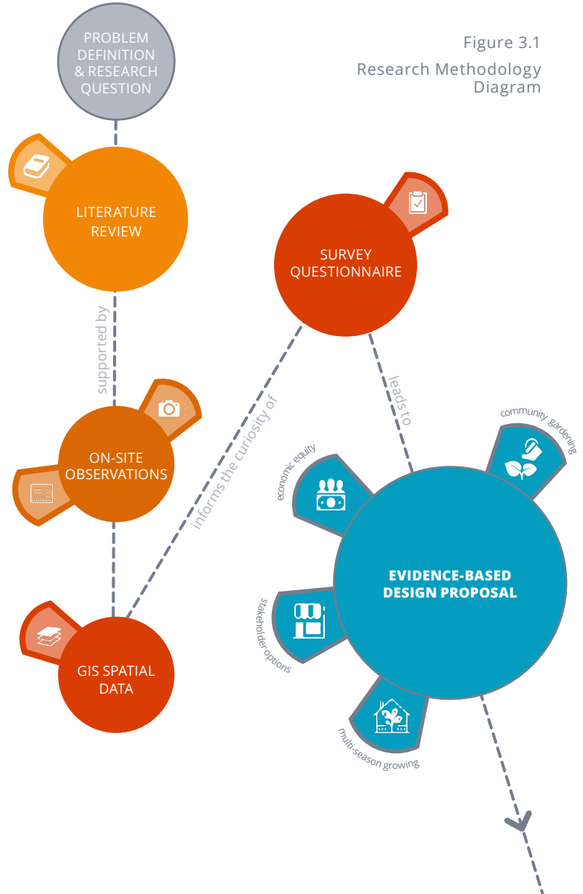


Figure 3.1
Research Methodology Diagram

Figure 3.2

Current community playground use on vacant lot (Jackson 2020)

Figure 3.2

Figure 3.3

Illegal dumping despite signs and fines (Jackson 2020)

Figure 3.3

Figure 3.4

Common existing conditions on vacant lands (Jackson 2020)

Figure 3.4

adequately serve in an integrative food-sharing design network. This network seeks to improve access to healthy food options and economic endeavors and decrease health implications associated with climate change and industrialized agricultural farming.

SITE VISITS & CHARACTER

The Brush Creek area is home to many dynamic neighborhoods. Some are enriched in the community, striving to create a clean, safe, and thriving environment for its members, like that of the northern Ivanhoe community, while others lack the participation needed to improve their community. During the past seven months, I have had the opportunity to explore these neighborhoods through three site visits and volunteering opportunities (See Figure 3.5). The first site visit helped me understand the physical conditions on-site such as grade, pedestrian conditions, illegal activities, and social networks. Pedestrians are seen in limited numbers possibly due to the sidewalk conditions and safety concerns. At various parks, families were seen taking place in play, picnicking, and general socialization (See Figure 3.2).

The second visit took place before the holiday season, which seemed to increase social groups' numbers along the street-sides. I confirmed that many of these individuals were homeless after serving over 300 homeless people's lunch at the True Light Family Resources Center in my family's food truck. Inspection of maintenance, illegal dumping, and upkeep within the area show that many vacant lots are overgrown with brush and contain rubble and trash despite ordinance signs (See Figure 3.3 & 3.4). With more eyes on the street and increased pedestrian activity, illegal activities and vegetation overgrowth are expected to gradually decrease. This action is known as "cues to care" (CTC), which are recognizable as designed and indicate lasting human presence to care for their surrounding landscape (Li & Nassauer 2020).

Figure 3.5

Brush Creek data collection timeline: site visits, meetings, and community events

SPATIAL ANALYSIS

Before conducting GIS spatial analysis, an understanding of the physical site must be conducted. An initial site visit of the nine neighborhoods within the Brush Creek study area was conducted in Fall 2020. This visit showed that vacancy was widespread across the entire site with more than 5% of total lands being vacant. Lack of food retail including healthy grocers on site were baren, while convenience stores and fast-food restaurant locations were the most prevalent source of food (See Figure 3.6).

After the site visit, GIS spatial analysis tools were used to identify neighborhoods with historic practices placing them in the path of vulnerability. These neighborhoods were selected as a priority for site specific food-sharing interventions. The first step of data analysis included GIS spatial analysis of the study site to identify most vulnerable neighborhoods along the Brush Creek Corridor. By overlaying vacant lands, farmland ratings, and demographic data including medium household income, education, age range, and racial density, I found two neighborhoods as most suitable to focus my study on. The Ivanhoe Southeast and Oak Park Southeast neighborhoods have the highest potential for healthy community improvement and food-sharing programs (See Figure 3.6). Low-income averages as well as high vacancy rates and prime farmland ratings confirm the vacant lands within the two neighborhoods are suitable for community gardening and green collar job creation through stakeholder health markets-built infrastructure. These two neighborhoods include the following characteristics:

Ivanhoe Southeast: Population 1,528, acreage 232

- Low-income average on site, and lowest education level on site
- Historically redlined as “hazardous”
- Largest accumulation of vacant lands in proximity to public zoned space
- Closest proximity to highway interstate 71 and a food swamp hub

Oak Park Southeast: Population 1,754, acreage 228

- Lowest income average on site
- Oldest population group
- Historically redlined as “hazardous”
- High farmland soil ratings
- Farthest heavily populated neighborhood from healthy food market options
- Abundance of vacant land

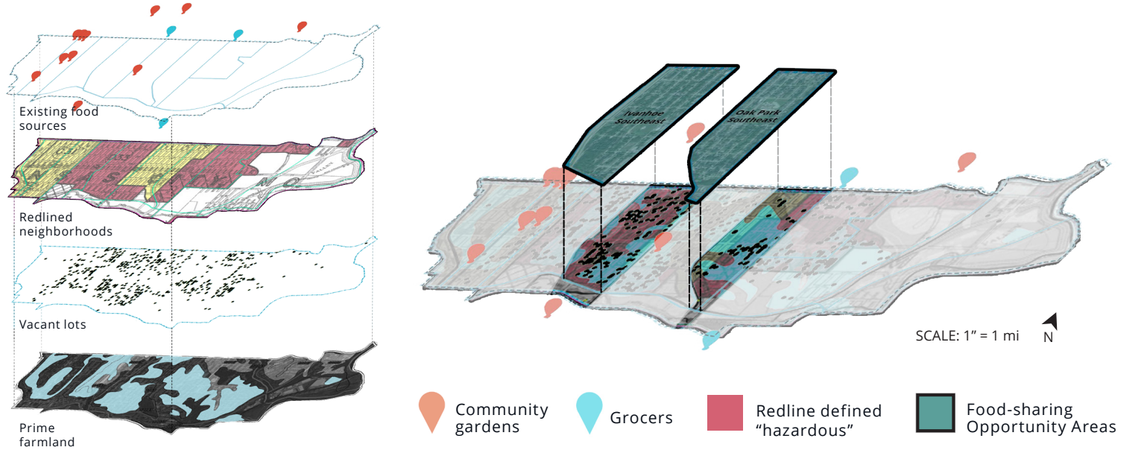
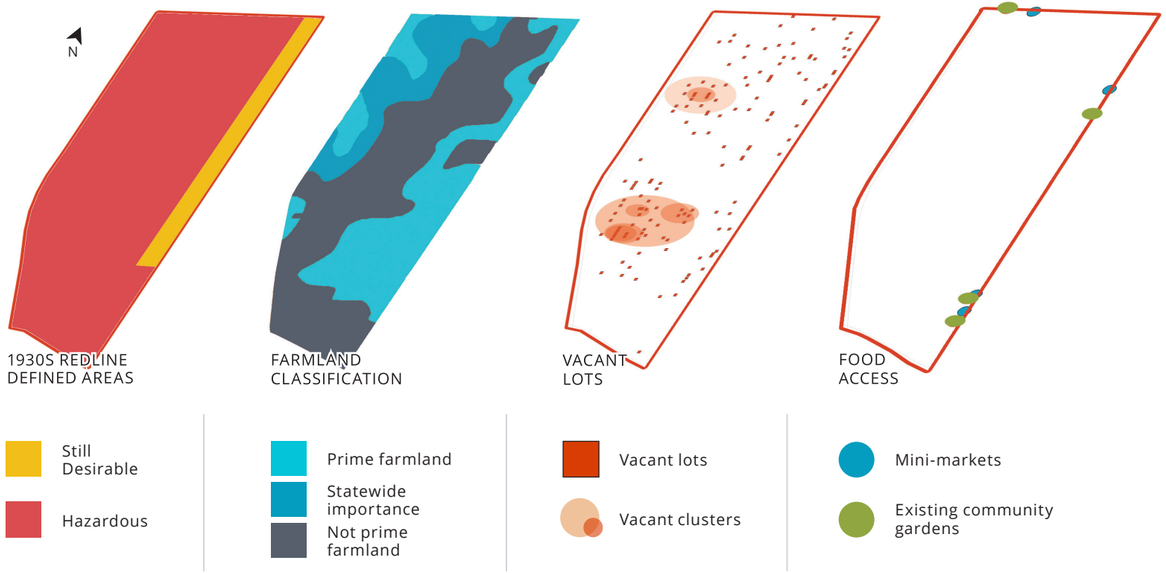


Figure 3.6
Spatial Design Neighborhood Selection (KCMO 2020)

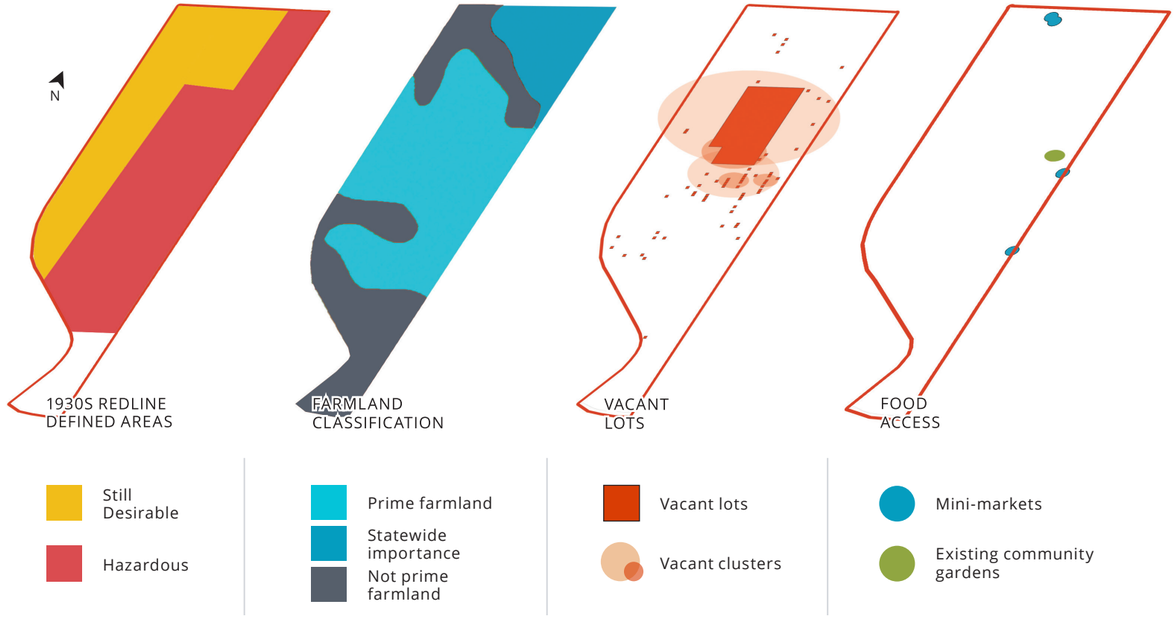
SPATIAL ANALYSIS: IVANHOE SOUTHEAST

Figure 3.7
Ivanhoe Southeast GIS spatial mapping



SPATIAL ANALYSIS: OAK PARK SOUTHEAST

Figure 3.8
Oak Park Southeast GIS spatial mapping

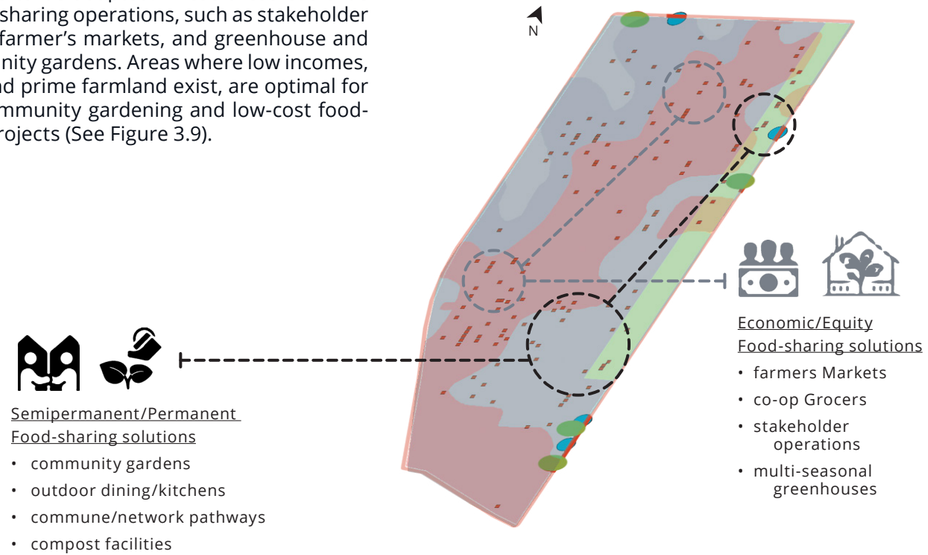


IVANHOE SPATIAL GIS LAYERING OUTCOMES

The Ivanhoe Southeast neighborhood's GIS spatial layering shows that much of the neighborhood's central portion contains farmland that is not prime for growing, but many vacant lands to be adapted. These areas could be designed for food-sharing operations, such as stakeholder co-op markets or farmer's markets, and greenhouse and raised bed community gardens. Areas where low incomes, vacant clusters, and prime farmland exist, are optimal for temporary use community gardening and low-cost food-sharing solution projects (See Figure 3.9).

Figure 3.9

Ivanhoe Southeast GIS spatial mapping



OAK PARK SPATIAL GIS LAYERING OUTCOMES

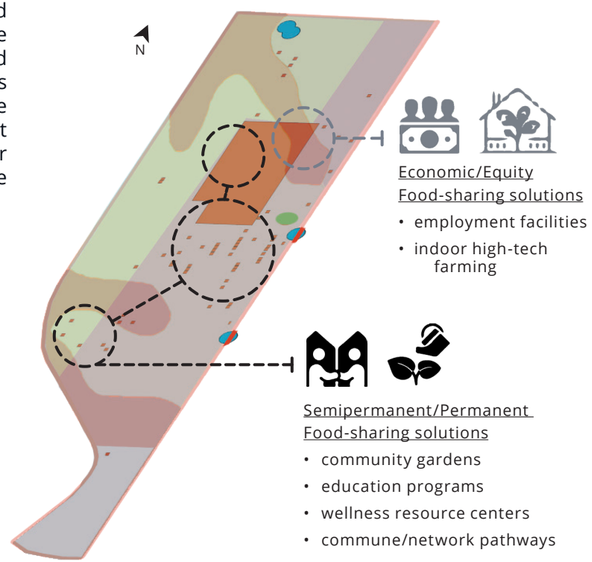
The Oak Park Southeast neighborhood's GIS spatial layering shows a sizeable vacant land cluster in the neighborhood's central portion. This vacant land cluster lies on prime farmland and houses an abandoned elementary school (Martin Luther King Elementary; See Figure 3.10). The facility's existing structure is in good condition, creating opportunities for a community wellness center that houses various food-sharing programs. These programs could include hunger relief aid, employment opportunities, community gardening, indoor/outdoor farmers markets, high-tech farming, and a family resource shelter (See Figure 3.11).

Figure 3.10

Abandoned MLK Elementary School (Jackson 2020)

Figure 3.11

Oak Park Southeast GIS spatial mapping



SOCIAL DATA COLLECTION

A survey was distributed both on-site and online to 68 Ivanhoe Southeast, Oak Park Southeast, and greater Brush Creek area residents from contacted neighborhood associations and resource centers. This survey included questions regaurding current food conditions such as proximity, access, and price supply and demographic dimensions of neighborhood households. Types of crop plantings and level of contribution were used to identify how a food-sharing program could be integrated into these residents' daily lives (See Appendix C for survey questions). This following information was used to identify how existing food systems can be implemented into a broader food-sharing network framework, while including on-site amenities.

Survey Distribution Process

After designing a survey questionnaire containing 21 questions relating to participant demographics, food security, access, and food preference, surveys were distributed in multiple ways. The first form of distribution included posting on the Facebook wall of organizations such as True Light Family Resource Center, Center for Neighborhoods, local churches and ministries, and neighborhood association pages. These responses were recorded through Qualtrics XM, an online version of the previously mentioned hard copy surveys. Second, emails were sent to three Ivanhoe Southeast neighborhood association members who distributed the online survey via weekly newsletter to the greater Ivanhoe community. The final form of distribution occurred in-person at the True Light Family Resource Center. Families staying at the center and an adjacent support housing center documented their responses over one week. An accumulation of these online and in-person responses ensures the data collected has minor variance and is between -1 and +1 error of skewness.

Participant Engagement

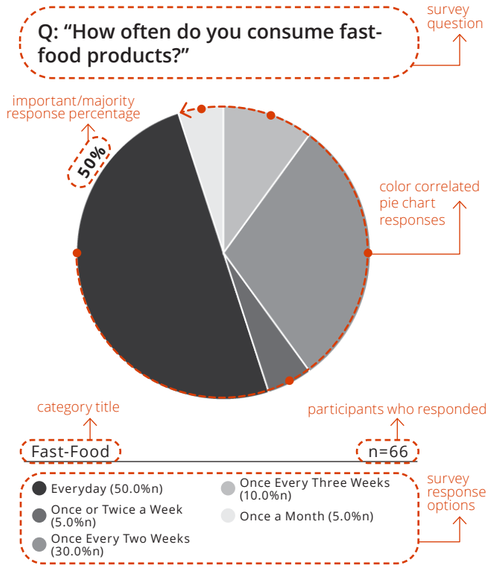
Out of the 50 hard copy surveys distributed, 32 surveys were returned. Participants took the remaining unreturned surveys during distribution and never returned to the True Light Family Resource Center after their initial visit. 36 total online surveys were completed through Qualtrics XM. The majority of these participants were recruited through the online Facebook Wall posts and neighborhood association web pages. These participants remained mainly in the two neighborhoods Ivanhoe Southeast, and Oak Park Southeast. In contrast, the hard-copy participant surveys varied due to the variety in vulnerability status at the True Light Family Resource Center. At a 70% or higher completion rate, 68 surveys were valid for data analysis.

DATA ANALYSIS

The 68 total completed surveys were formatted in excel by relating question number and response variable and exported to IBM SPSS Statistics 27 (See Appendix D for detailed SPSS data analysis statistics and frequencies). The questions were then categorized by demographic information, food security, food preference, and transportation. A standard five-point rating scale was used in most of the survey questions. The three most common variable scales were formatted in the following ways:

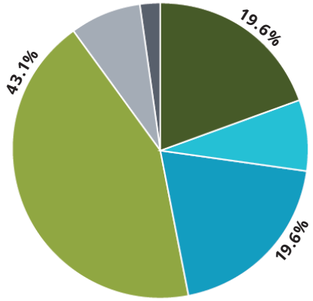
1. Strongly Disagree 2. Disagree 3. Neither Disagree or Agree 4. Agree 5. Strongly Agree	1. Everyday 2. Once or Twice a Week 3. Once Every Two Weeks 4. Once Every Three Weeks 5. Once a Month
1. Never 2. Rarely 3. Sometimes 4. Often 5. Always	

Each question was formatted as a frequency pie chart with a percentile value of 100. The raw frequency data and pie chart visuals were then used to format more visually appealing pie charts using the Adobe Illustrator application. Each pie chart located on succeeding pages 40 - 61 is formatted in the following way for comprehensibility:



Q: "Name the streets that intersect nearest to your home, state if you are homeless."

results categorized by common location area



Residency n=51

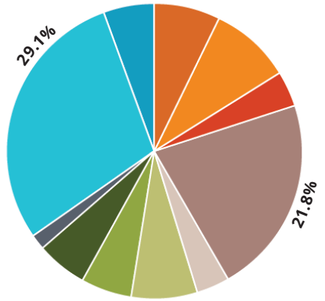
- Greater Brush Creek Community (43.1%n)
- Homeless (19.6%n)
- Oak Park Neighborhood (19.6%n)
- Greater Kansas City (2%n)
- Ivanhoe Neighborhood (7.8%n)
- East Side Kansas City (7.8%n)

Figure 3.12

Residency location within Kansas City, Missouri

Q: "What is your occupation or trade?"

results categorized by occupation types



Occupation n=55

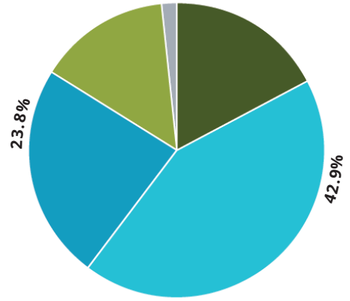
- Healthcare (7.3%n)
- Unemployed (21.8%n)
- Business & sales (9.1%n)
- Hospitality (5.5%n)
- Trade Jobs (3.6%n)
- Retired (7.3%n)
- Cleaning (5.5%n)
- Food Service (5.5%n)
- Religious Occupations (1.8%n)
- Service Jobs (29.1%n)
- Volunteering (3.6%n)

Figure 3.13

Participant occupancy and employment

Q: "What is your average annual household income?"

survey choices based on GIS area income levels



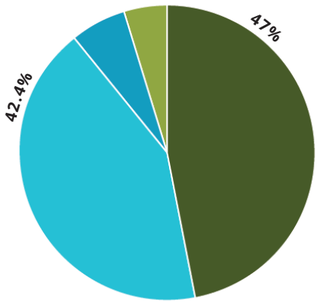
Household Gross Income n=63

- $0-15,000 (17.5%n)
- $35,001-50,000 (14.3%n)
- $15,001-25,000 (42.9%n)
- $50,000+ (1.6%n)
- $25,001-35,000 (23.8%n)

Figure 3.14

Participant household gross income based on GIS average area income levels

Q: "Including yourself, how many people are in your household?"



Household Members n=66

- 1-2 (47%n)
- 5-7 (6.1%n)
- 3-4 (42.4%n)
- 7+ (4.5%n)

Figure 3.15

Participant total household member numbers

Q: "Of the people in your household, how many are children?"

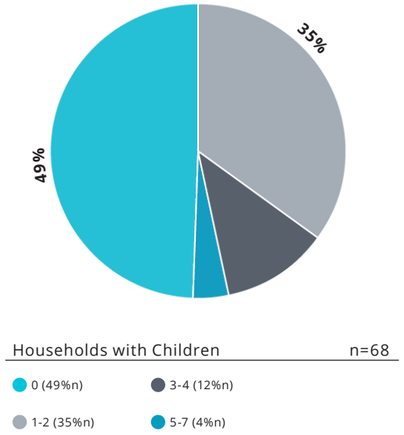


Figure 3.16
Participant households with children under the age of 18

Q: "What is your age?"

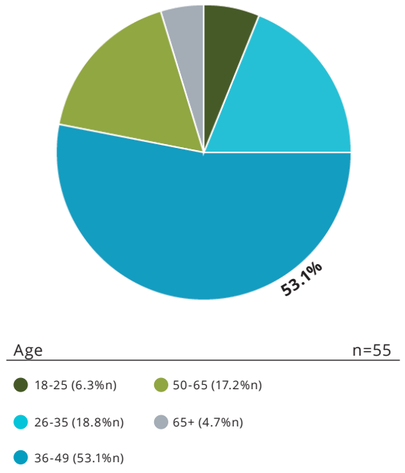


Figure 3.17
Participants age

Q: "What food assistance programs do you currently utilize?"

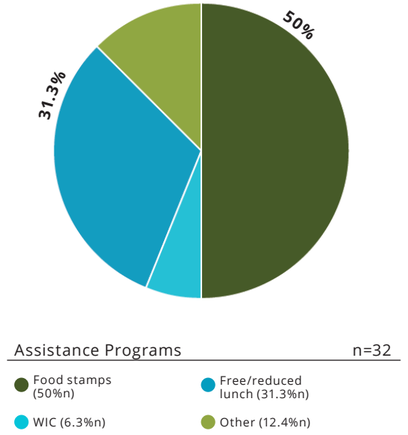


Figure 3.18
Participants who utilized food assistance programs

Q: "What neighborhood organizations are you currently involved in?"

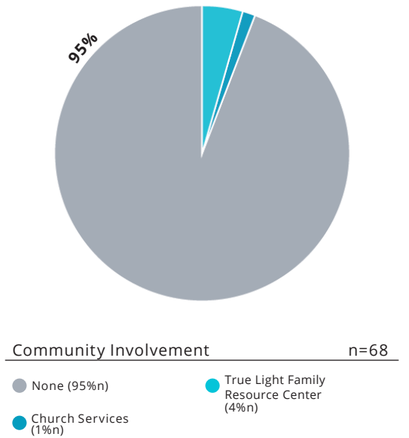


Figure 3.19
Participants involved in community programs

Household Information

Of the surveys completed, almost one-fourth of the respondents indicated they were either homeless or seeking shelter (See Figure 3.12). The number of homeless respondents then translates to the number of participants who are currently unemployed, one-fourth of all responses (See Figure 3.13). Even though the data shows high levels of unemployment and homelessness, many of these respondents indicated that their gross household income was higher than those who declared having an occupation. We can then assume that these participants utilize government unemployment relief programs. The majority of gross household income was less than $25,000, with an average of 1-4 members in each household, including at least one child in more than half of all households (See Figure 3.16). With this found information, we can assume that families located in the selected site locations and the greater Brush Creek area will benefit from implemented food-sharing programs that increase employment opportunities and stimulate community members to increase their involvement in the community. These employment and volunteer programs may provide an extra source of income for those currently employed and a permanent, stable income for those currently unemployed. This income will then be used to decrease community food security and increase the quality of life by removing stress created from financial issues.

Assistance and Community Organizations

Due to the area's average low-income and unemployment, assistance programs were considered during the creation of the survey. Of the participating respondents, 50% indicated they used food stamps to purchase all of their meals. 31.3% declared their children had to utilize free or reduced lunch programs at school. These numbers are directly correlated to income levels because individuals need to qualify to receive assistance. To use the programs listed in Figure 3.19, the applicant must meet the following qualifications:

Food Stamp Qualification (cbpp.org 2020)

- Household income must be at or below 130% of poverty line
- For the 2021 fiscal year, earn less than $1,810 a month
- Hold assets of $2,250 or less

WIC (Women, Infants, and Children Supplemental Nutrition Program; USDA 2020)

- Women - Pregnancy and up to six weeks after birth of an infant, six months after birth of infant, up to infants first birthday
- Infants - Up to the infant's first birthday
- Children - Up to the child's fifth birthday
- Must be seen by a physician, or nutritionist to determine whether individual is at nutrition risk

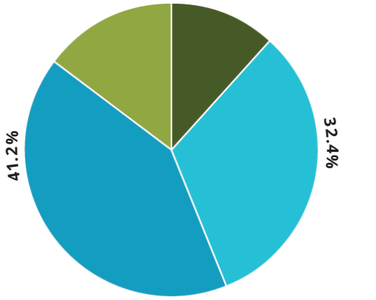
Free or Reduced Lunch (USDA 2020)

- Children currently participating in SNAP, TANF, or FDPIR programs may qualify
- Children living with families with incomes at or below 130%-185% of the poverty level eligible for free meal or reduced lunch

The introduction of food assistance programs associated with educational facilities will provide children with a healthy food source while teaching the benefits of nutritious eating. These programs may also assist extended families related to the child who utilizes the program. These assistance programs will also greatly benefit the homeless community located in the Brush Creek area. Many of the current food banks and food pantries located in the area require a fee to utilize the program and require contracts to hold the applicant accountable. Food programs that rely on the community rather than monopoly will provide a secure food source for all homeless or housed members.

Lastly, 95% of respondents indicated they were not involved in community organizations or community programs (See Figure 3.19). This result may be partially due to the lack of community programs in specific areas within the Brush Creek community. Another assumption made is the participant's lack of time to spend volunteering in community programs. The participants may work long hours, which occur the majority of sunlight hours when these programs operate. A variety of neighborhood food programs implemented with multiple levels of participation will allow community members to choose how much time they spend volunteering and how intensive the participation will be.

Q: "(I/we) couldn't afford to eat healthy balanced meals in the last 12 months."



Affording Healthy Meals n=68

- Strongly Disagree (0%n)
- Agree (41.2%n)
- Disagree (11.8%n)
- Strongly Agree (14.7%n)
- Neither Disagree nor Agree (32.4%n)

Figure 3.20

Participants who feel they cannot afford healthy balanced meals

Q: "In the last 12 months, (I/we) ate less than (I/we) felt (I/we) should because there was not enough money for food."

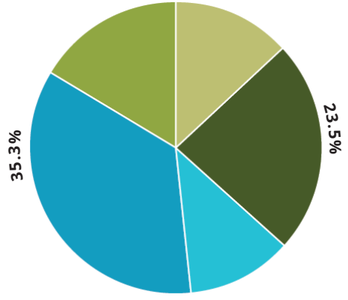
Available Funds n=55

- Strongly Disagree (0%n)
- Agree (50%n)
- Disagree (11.8%n)
- Strongly Agree (10.3%n)
- Neither Disagree nor Agree (27.9%n)

Figure 3.21

Participants who do not have adequate funding for food

Q: "I find myself choosing fast-food meals over healthy balanced meals because of cheaper food pricing."



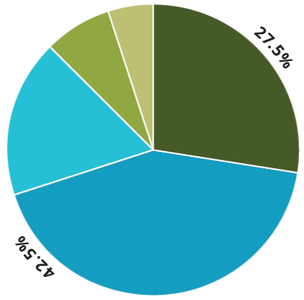
Fast-Food Preference n=68

- Strongly Disagree (13.2%n)
- Agree (35.3%n)
- Disagree (23.5%n)
- Strongly Agree (16.2%n)
- Neither Disagree nor Agree (11.8%n)

Figure 3.22

Participants who choose fast-food meals due to pricing

Q: "[IF AGREED PREVIOUSLY] How often did this happen?"



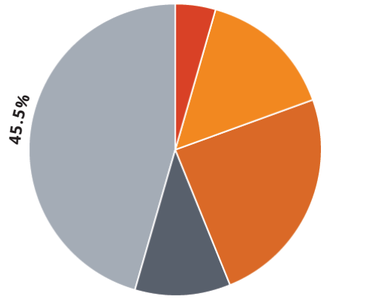
Fast-Food Occurrence n=40

- Everyday (27.5%n)
- Once Every Three Weeks (7.5%n)
- Once or Twice a Week (42.5%n)
- Once a Month (5%n)
- Once Every Two Weeks (17.5%n)

Figure 3.23

Occurrence of fast-food purchase

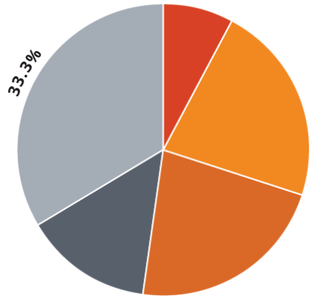
Q: "How often do you purchase foods in each category in a typical month?"



Grains n=66

- Everyday (4.5%n)
- Once Every Three Weeks (10.6%n)
- Once a Week (15.2%n)
- Once a Month (45.5%n)
- Once Every Two Weeks (24.2%n)

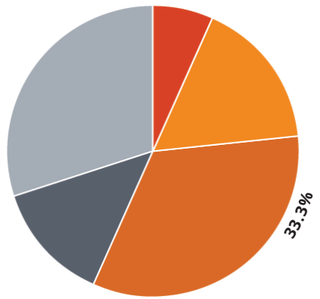
Figure 3.24
Purchased grains in a typical month



Vegetables n=63

- Everyday (7.9%n)
- Once Every Three Weeks (14.3%n)
- Once a Week (22.2%n)
- Once a Month (33.3%n)
- Once Every Two Weeks (22.2%n)

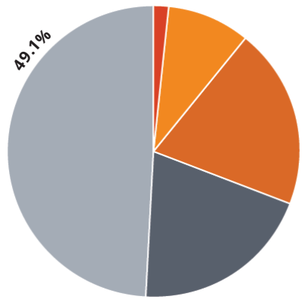
Figure 3.25
Purchased vegetables in a typical month



Fruits n=60

- Everyday (6.7%n)
- Once Every Three Weeks (13.1%n)
- Once a Week (16.7%n)
- Once a Month (30%n)
- Once Every Two Weeks (33.3%n)

Figure 3.26
Purchased fruits in a typical month



Milk & Dairy n=55

- Everyday (1.8%n)
- Once Every Three Weeks (20%n)
- Once a Week (9.1%n)
- Once a Month (49.1%n)
- Once Every Two Weeks (20%n)

Figure 3.27
Purchased milk and dairy in a typical month

Q: "How often do you purchase foods in each category in a typical month?"

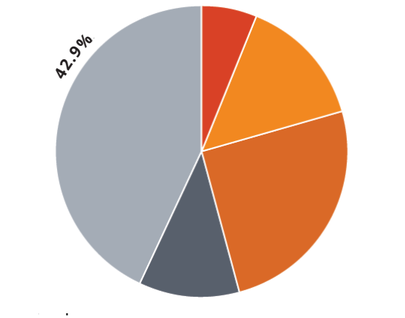


Figure 3.28
Purchased meat and beans in a typical month

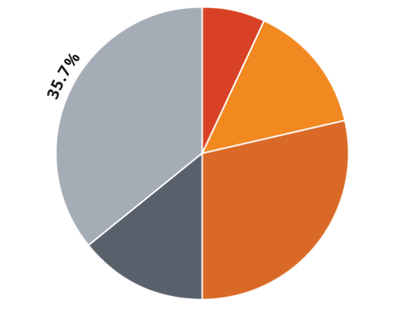
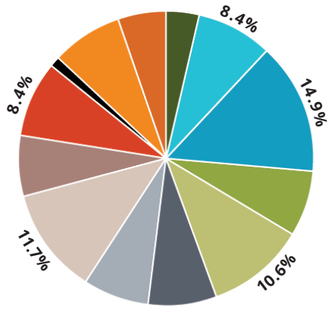


Figure 3.29
Purchased non-perishables in a typical month

Food security surrounding the respondents appeared to be lacking after receiving feedback about health and nutrition. 35.3% of participants agreed they found themselves choosing fast-food meals over healthy meals due to cheaper pricing (See Figure 3.22). Although many of all respondents agreed to pick fast-food, most homeless respondents disagreed with this statement. I did not hypothesize this outcome because of the assumption that the homeless populations would have ease in purchasing fast-food. The food requires less space and is usually cheaper than most store-bought food products. Analysis of the homeless respondent's opinions would. Further unexpected results included the correlation between participants who agreed they could not afford healthy balanced meals but disagreed with choosing fast food due to cheaper pricing.

41.2% of participants stated they could not afford healthy, balanced meals in the last 12 months. This data directly correlates with available funds used to purchase items seen in Figure 3.21 (See Figure 3.20 & Figure 3.21). 50% of participants agreed they ate less than they should due to available funding and lack of money. Assuming that half of the participants feel they cannot purchase healthy food, food-sharing programs such as community gardens and seasonal greenhouse gardens can serve as an excellent support device for food security.

Q: “Select four vegetables that you prefer to cook with or eat.”

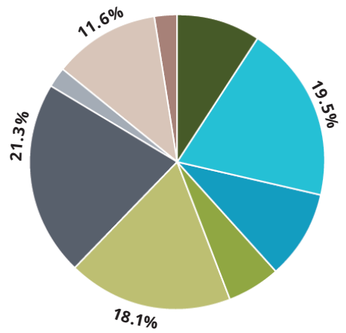


Preferred Vegetables n=68

- Eggplant (3.6%n)
- carrots (8.4%n)
- Peppers (14.9%n)
- Zucchini (7.3%n)
- Broccoli (10.6%n)
- Herbs (7.7%n)
- Brussels Sprouts (6.9%n)
- Cabbage (11.7%n)
- Cauliflowers (6.6%n)
- Cucumbers (8.4%n)
- Kale (1.1%n)
- Collard Greens (7.7%)
- Lettuce (5.1%n)

Figure 3.30
Preferred vegetables to cook with and/or eat

Q: “Select four fruits that you prefer to cook with or eat.”

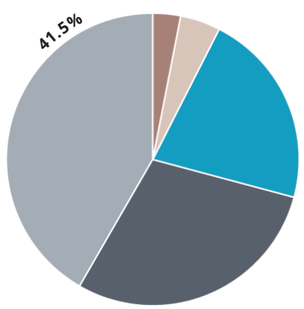


Preferred Fruits n=54

- Watermelon (9.3%n)
- Blackberries (19.5%n)
- Blueberries (9.7%n)
- Raspberries (5.5%n)
- Apples (21.3%n)
- Apricots (2.7%n)
- Nectarines (11.6%n)
- Plums (2.3%n)
- Grapes (18.1%n)

Figure 3.31
Preferred fruits to cook with and/or eat

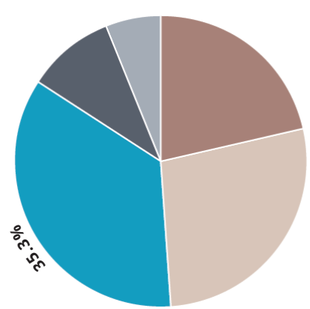
Q: “How often do you purchase foods from each category in a typical month?”



Chain Grocery Store n=65

- Never (3.1%n)
- Rarely (4.6%n)
- Sometimes (21.5%n)
- Often (29.2%n)
- Always (41.5%n)

Figure 3.32
Chain grocery stores as a preferred food purchasing location

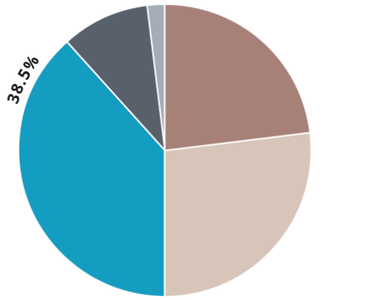


Neighborhood Market n=51

- Never (21.6%n)
- Rarely (27.5%n)
- Sometimes (35.3%n)
- Often (9.8%n)
- Always (5.9%n)

Figure 3.33
Neighborhood markets stores as a preferred food purchasing location

Q: “How often do you purchase foods from each category in a typical month?”

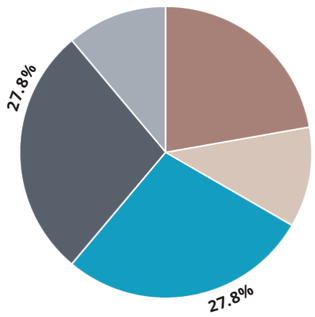


Gas Station n=52

- Never (23.1%n)
- Often (9.6%n)
- Rarely (26.9%n)
- Always (1.9%n)
- Sometimes (38.5%n)

Figure 3.34

Gas stations as a preferred food purchasing location

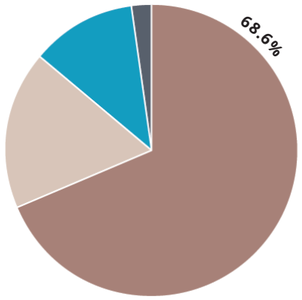


Fast-Food Restaurants n=54

- Never (22.2%n)
- Often (27.8%n)
- Rarely (11.1%n)
- Always (11.1%n)
- Sometimes (27.8%n)

Figure 3.35

Fast-food restaurants as a preferred food purchasing location

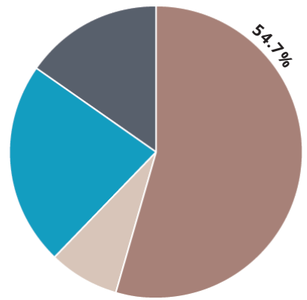


Warehouse Store n=51

- Never (68.6%n)
- Often (2.0%n)
- Rarely (17.6%n)
- Always (0%n)
- Sometimes (11.8%n)

Figure 3.36

Warehouse stores as a preferred food purchasing location



Food Bank/Pantry n=53

- Never (54.7%n)
- Often (15.1%n)
- Rarely (7.5%n)
- Always (0%n)
- Sometimes (22.5%n)

Figure 3.37

Food banks or food pantries as a preferred food purchasing location

Q: "How often do you purchase foods from each category in a typical month?"

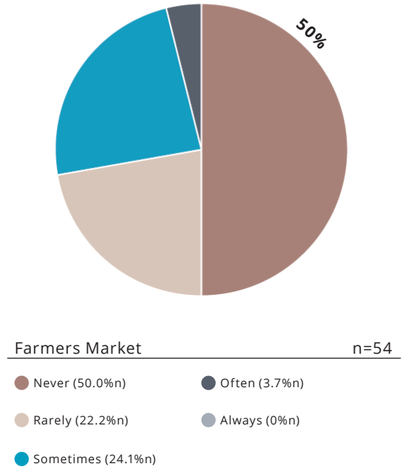


Figure 3.38
Farmers markets as a preferred food purchasing location

Q: Please list top grocery store where you purchased most of your food in the last month?."

Top stores listed followed by a sum of "other" stores

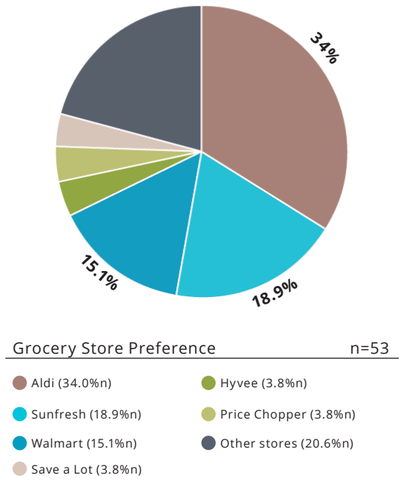


Figure 3.39
Preferred grocery store to purchase produce

Q: "What is the primary reason that you shop at your top food store?"

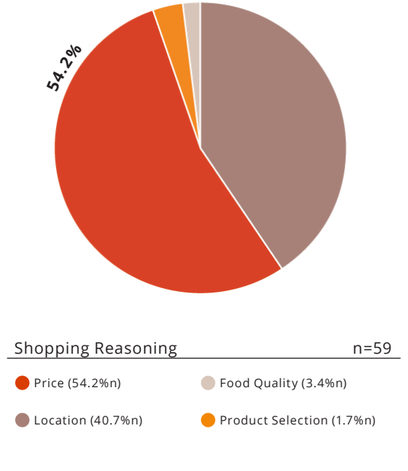
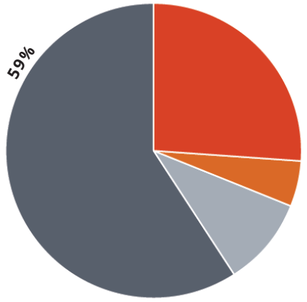


Figure 3.40
Primary reasoning for shopping at preferred grocery store

The food preference section informs what foods the community prefers when implementing a community garden and/or neighborhood co-op markets. A list of vegetables and fruits suggested by Kansas City Community Gardens (KCCG) for the Kansas City Climate was recommended for participants to choose from. The top five vegetables preferred by respondents included peppers, carrots, cucumbers, cabbage, and broccoli (See Figure 3.30). The top fruits preferred by respondents were apples, blackberries, nectarines, and grapes (See Figure 3.31).

The majority of respondents preferred chain grocers to obtain their food products (See Figure 3.32). I hypothesized this majority answer due to the lack of local markets in the area. The top three food stores preferred were Aldi, Sunfresh, and Walmart (See Figure 3.39). All of these stores are located outside of the site boundary. Lastly, most participants chose their preferred food store due to food price rather than location, quality, or selection (See Figure 3.40).

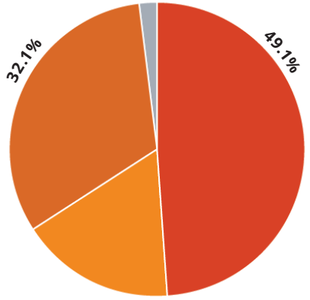
Q: “How do you get to the store where you purchase your food?”



Personal Vehicle n=61

- Never (26.2%n)
- Often (9.8%n)
- Rarely (0%n)
- Always (59.0%n)
- Sometimes (4.9%n)

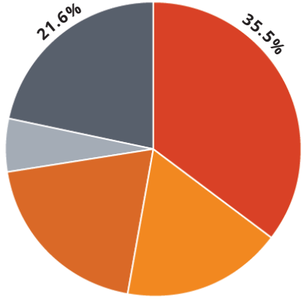
Figure 3.41
Personal vehicle as a preferred method of transportation for traveling to a store



Carpool n=53

- Never (49.1%n)
- Often (1.9%n)
- Rarely (17.0%n)
- Always (0%n)
- Sometimes (32.1%n)

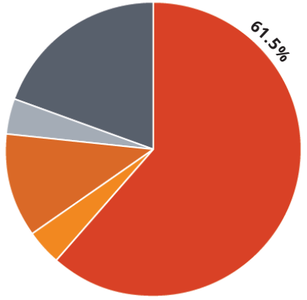
Figure 3.42
Carpool as a preferred method of transportation for traveling to a store



Pubic Transportation n=51

- Never (35.3%n)
- Often (5.9%n)
- Rarely (17.6%n)
- Always 21.6%n)
- Sometimes (19.6%n)

Figure 3.43
Public Transportation as a preferred method of transportation for traveling to a store



Walking n=52

- Never (61.5%n)
- Often (3.8%n)
- Rarely (3.8%n)
- Always (19.2%n)
- Sometimes (11.5%n)

Figure 3.44
Walking as a preferred method of transportation for traveling to a store

Q: "How do you get to the store where you purchase your food?"

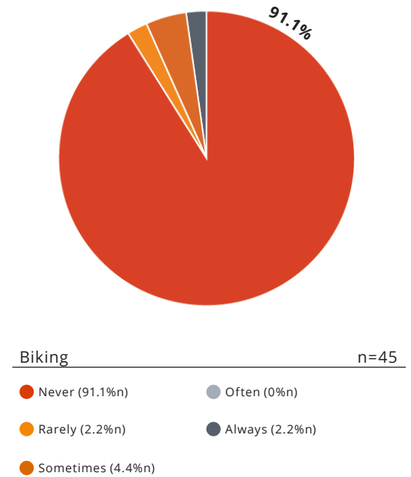


Figure 3.45
Biking as a preferred method of transportation for traveling to a store

Q: "How long does it take you to get to the store where you purchase food?"

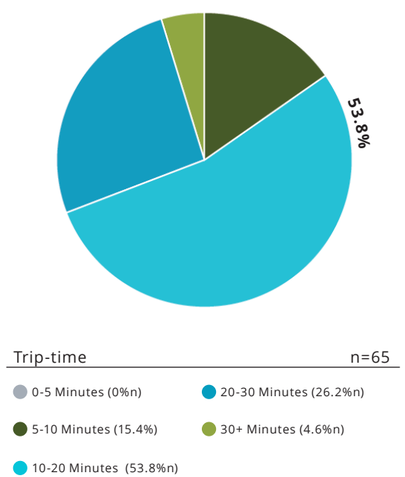


Figure 3.46
Total trip-time to reach preferred store location

Access is limited within the Brush Creek area. The majority of public transportation runs north to south rather than east to west. With the lack of east-west public transportation, many respondents preferred personal vehicles over public transportation methods. More than 60% of respondents never choose to walk or bike to their preferred store. After an initial site visit, the pedestrian conditions were found to be unsuitable for passive walking conditions. Many of the sidewalks lacked connection and were outdated. Improving relationships between current food systems and proposed is required to increase food security and community involvement within the selected site areas.

Lastly, 53.8% of participants stated that their preferred store's travel time was 10-20 minutes. Assuming that most participants use their personal vehicle to travel to their preferred store, walking travel time would require 30+ minutes. By providing neighborhood food interventions, community members will directly access their favorite produce in less than a 10-minute walking time.

Bivariate Correlations

Using SPSS Statistics, two-tailed Pearson correlations were conducted to examine the associations across different variables (See Appendix D for correlational analysis results). This correlative technique is used to show how greatly two variables are related to one another. Each correlation was measured using a preset coefficient of one in SPSS. Both positive and negative correlations were detected. To validate the degree of correlation only moderate (.40 to .75) and high degree (.75+) correlations were recorded. This number then translates to a percentage in which the correlation will occur, either negative or positive.

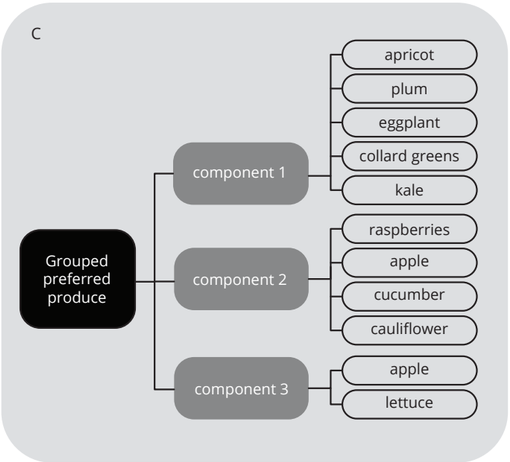
Five correlations across the variables were documented including relations to available funds, transportation and access, and store preference. Those who felt they were unable to eat adequate meals due to lack of funding also reported eating fast food due to cheaper pricing. This observation occurred at a moderate degree of .455, meaning 45 out of 100 times this correlation occurred in participant responses (See Figure 3.47). Those who responded to only personal vehicles to access their preferred stores never chose to walk or use public transportation due to the negative correlation data output of -.657 (See Figure 3.49). Those who use public transit also chose to walk, and vice versa, with walkers choosing to use public transportation (See Figure 3.49). The majority of participants who choose to purchase food from warehouse stores also decided to buy foods from farmer's markets. This occurrence happened at a moderate degree of .531 (See Figure 3.48). These shoppers indicated they do not purchase fruits and vegetables at warehouse locations, creating a correlation to farmer's markets and fresh produce consumption. Lastly, the correlational data analysis shows that participants who shop at fast-food restaurants also indicated they purchase vegetables and fruits often. This occurrence happed at a moderate degree of .439 (See Figure 3.48). We can then interpret that the participants are willing to consume healthy food options but often do not have the funds to do so.

Factor Analysis

I performed factor analysis to explore the participant preference for correlating crop plantings (See Appendix D for factor analysis output). SPSS statistics factor analysis groups similar variables as a way of dimension reduction. I used principal components method for factor extraction based on three fixed factors with varimax rotation method and chose to drop loadings below .45 for stronger results. Then I conducted reliability test for each factor and recorded the Cronbach's alphas. The results showed which fruits and vegetables can be grouped into planting beds within a community garden setting (See Figure 3.50). The factor analysis showed participants chose apricots, eggplants kale, cucumber and grapes as a group (Cronbach's alpha=.53). The next preferred group included cauliflower, apples and broccoli (Cronbach's alpha=.42). The third group included herb, collard greens and lettuce (Cronbach's alpha=.89; See Figure 3.50).

Figure 3.47

Occurrence of participants who choose fast food when they do not have adequate funding for healthy meals



(A) Figure 3.48

Correlation between farmer's market and warehouse purchases

(B) Figure 3.49

Participants preference to use personal vehicles or public transportation and walking combined

(C) Figure 3.50

Factor analysis component grouping of preferred produce

SUMMARY

To ensure site-selected locations were suitable for design and most beneficial for community members, I used many methods of data collection. Inventory and analysis of selected sites included site observation, literary research, GIS spatial data, and social data collection through surveys. All collected information was used to understand which design applications were best suitable for neighborhood site selections.

Using GIS spatial analysis to support literary research, I examined the site to discover the area defined as most vulnerable. Maps analyzed included farmland ratings, existing food sources, education levels, race, age, income, historic redlining, and vacant lots. I concluded that the Ivanhoe Southeast and Oak Park Southeast neighborhoods would benefit most from food-sharing implementation. These neighborhoods house the least amount of existing food sources and lie directly within the redlined defined “hazardous” zones from the 1930s. They have become communities who have endured systemic racism time and time again by segregation of resources due to redlining, which in turn, has left many neighbors to abandon their properties. The public bus systems run in a north/south pattern, making it hard to reach existing grocers that lie on many east/west streets outside the selected site boundary. By implementing food-sharing programs within these two neighborhoods, direct food access will give the residents a half-mile to mile range walking distance.

Two neighborhood site areas were allocated where social data collection would take place. Surveys were distributed via online sources such as ministry Facebook walls, neighborhood association newsletters, and website links allowed for a more significant population to be reached during the COVID-19 pandemic. Safety measures such as masks and social distancing allowed for in-person survey handouts to be distributed and filled out individually and returned at a later date. After analyzing the data, conclusions can be made that most participants and community members within the selected site boundary are food insecure due to unemployment and average low-income levels. Many of the participants were also homeless or seeking shelter and had multiple family members to support, which accounts for the high levels of food stamp assistance. Food preferences were documented in support of site-specific design interventions, including community gardening and greenhouse additions. These interventions will be discussed in the next chapter. Lastly, food store preference by participants indicated residents preferred chain grocers due to the price. Still, top listed stores such as Adli, Sunfresh, and Walmart, are most easily accessible through personal car transportation due to poorly designed public transportation systems within the Brush Creek area.

CHAPTER FOUR

DESIGN APPLICATION

DESIGN APPLICATION

URBAN FOOD-SHARING GUIDELINES

To allocate adequate food-sharing program that increase sustainability and healthy communities a set of guidelines for vacant lots and neighborhood typologies have been devised (See Figure 4.1).

Vacant Lot Programming

Vacant lots typologies seen in the following six categories further explain how programmed food-sharing elements can be implemented within selected vacant lots. These programs were cross-examined with existing neighborhood characteristics to identify sufficient adjacencies and neighborhood assets (See Figure 4.1).

Vacant lots adjacent to educational facilities

Educational facilities allow students to use schoolyards and adjacent vacant lots as their classrooms. Educational gardens inform children where their real source of food comes from and connect them to nature. They will learn valuable skills such as teamwork, biology, physical education, and social responsibility. These children will also be able to take the food produced home to their families to inform them of the benefits of community gardening.

Large vacant lots over 50,000 sqft.

Vacant lots over 50,000 sqft. may be separated into smaller plots for a variety of programs. These programs can include individual planting bed plots for neighborhoods to rent out to members. They can also be sectioned off and sold to developers providing a source of income for more permanent food-sharing solutions such as co-op markets and greenhouse rooftops often seen in ZFarming research (Zero-net Farming).

Vacant lots with existing infrastructure

Existing infrastructure provides space for employment centers, wellness centers, training facilities, and

stakeholder markets. Employment centers in conjunction with surrounding ministries and food sourced companies can increase food security throughout the Kansas City area. Training programs for farming will allow residents to get certifications to become local farmhands in the area. Indoor farmers markets allow for all-season food sale. Lastly, an indoor stakeholder market can enable a group of community members to come together to form a food market that multiple gardens and farms can contribute to all benefiting from owning their own business.

Vacant lots with standing water

Vacant lots with standing water may not be suitable for food production but can bring pollinators into the area through biodiverse vegetative plantings. These pollinators, including bees and butterflies, and butterflies, will ensure a heavier crop yield, healthier plants, and high-quality products.

Streets with a contained cluster of vacant lots

Streets with a contained vacancy may feel unsafe or out of place. These lots require temporary solutions to improve vacancy and abandonment of property. By increasing activity along the street, vacant lots will appear inviting. Temporary use such as community gardening will provide surrounding neighbors with fresh foods. These lots may then later be bought and restored into homes to strengthen the community.

Vacant lots adjacent to active ministries

Ministries adjacent to vacant lots will provide an additional source of food for existing food banks and pantries. These banks often contain non-perishables to offer long-lasting food sources for families. Although these foods last longer, they are not nutritional. Having an urban farm will provide fresh foods to families in need, increasing overall health and nutrition.

Neighborhood Programming

Neighborhoods with four or less existing food sources

Neighborhoods with four or fewer existing food sources lack supply for community members. Often these food sources include gas stations and convenience stores that do not have fresh produce. These neighborhoods will benefit by implementing all types of food-sharing programs, including community gardens, urban farms, rooftop gardens, rooftop greenhouses, stakeholder markets, co-op markets, and farmers markets.

Neighborhoods with high levels of unemployment and income levels less than $25,000

Residents' income will be increased through the selling of goods and providing food services. Unemployment will be decreased as employment programs through food-sharing are implemented across neighborhoods.

Neighborhoods with adjacent or existing community involvement programs

Neighborhoods with engaged members will influence neighboring communities to partake in food-sharing programs. With the help of active organizations, communities may push the need to implement a community garden by learning the everyday operations and function of grown food.

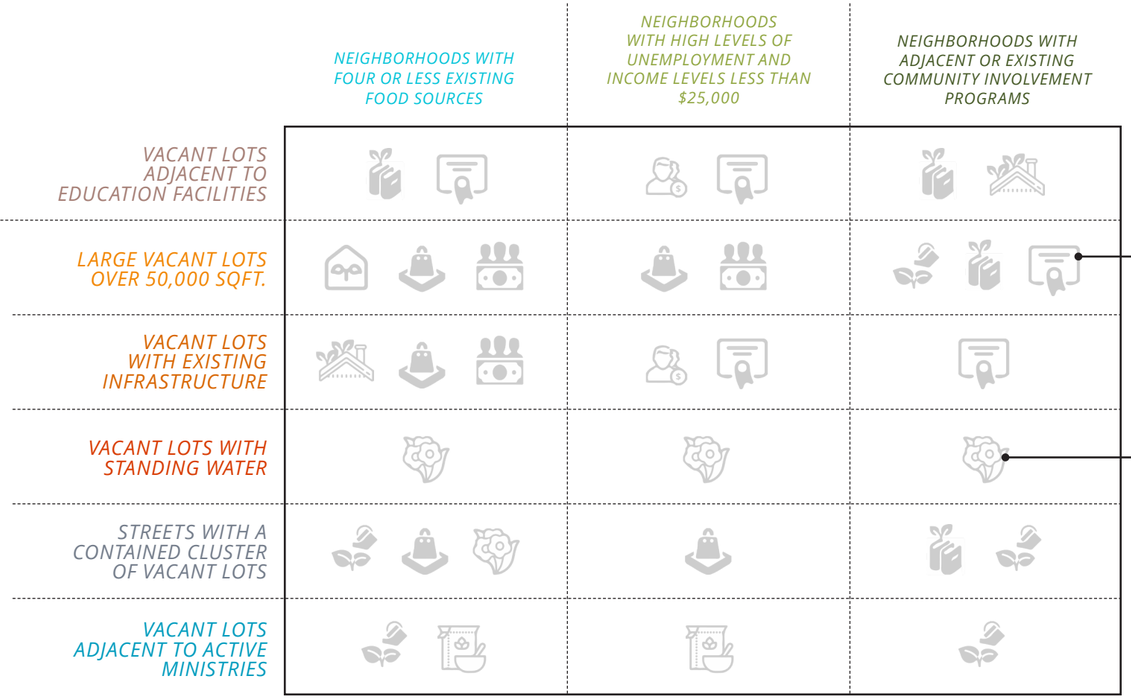


Figure 4.1

Food-sharing Guideline Chart for vacant lot selection

INTERVENTION #1 IVANHOE SOUTHEAST NEIGHBORHOOD LINK

VACANT LOT STRATEGIC FRAMEWORK

A literature review, site observation, GIS spatial mapping, and social data collection outcomes informed the strategic framework design for the Ivanhoe Southeast neighborhood. This framework outlines the selected lots for food-sharing design intervention, as well as secondary lot selection suggestions. Suggestions for vacant lot programming as well as plantings will further be discussed in the following section. Survey respondent's desire of food store preference, public transportation needs, and the location of existing food systems determined the location and span of the selected lots for design application. These lots provide opportunities to increase food security through a more extensive food network while providing space for social interaction and income drivers (See Figure 4.2).

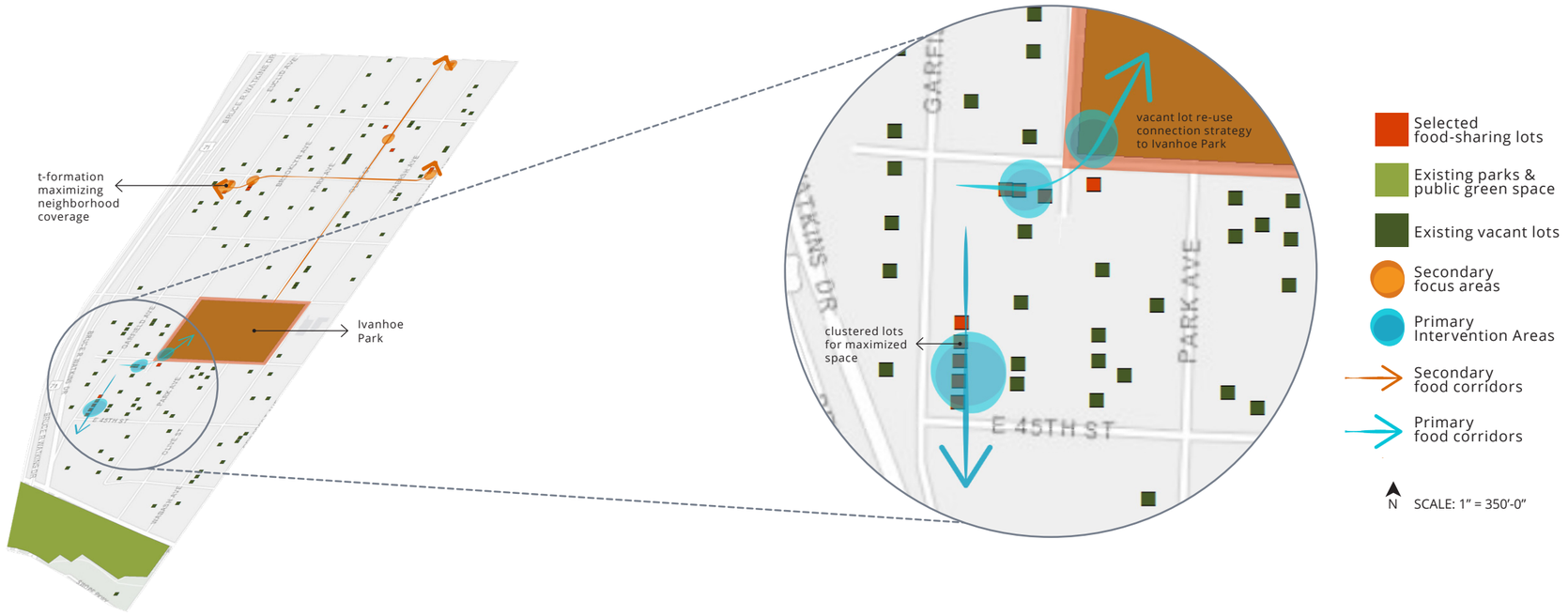
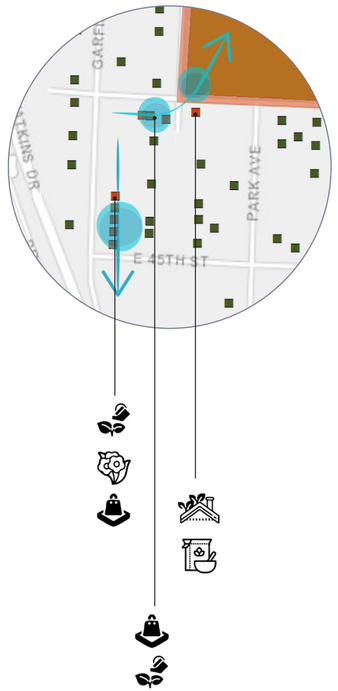


Figure 4.2

Ivanhoe Southeast Neighborhood vacant lot strategic plan



NEIGHBORHOOD LINK: GUIDELINE CHARACTERISTICS

GREEN ROOF/URBAN GREENHOUSE ROOF

NEIGHBORHOODS WITH FOUR OR LESS EXISTING FOOD SOURCES

POLLINATOR GARDEN

VACANT LOT WITH STANDING WATER

COMMUNITY/NEIGHBORHOOD GARDEN

STREETS WITH A CONTAINED CLUSTER OF VACANT LOTS

FOOD BANK/PANTRY SUPPORTING FARM

VACANT LOTS ADJACENT TO ACTIVE MINISTRIES

Figure 4.3

Ivanhoe Southeast design intervention guideline characteristics

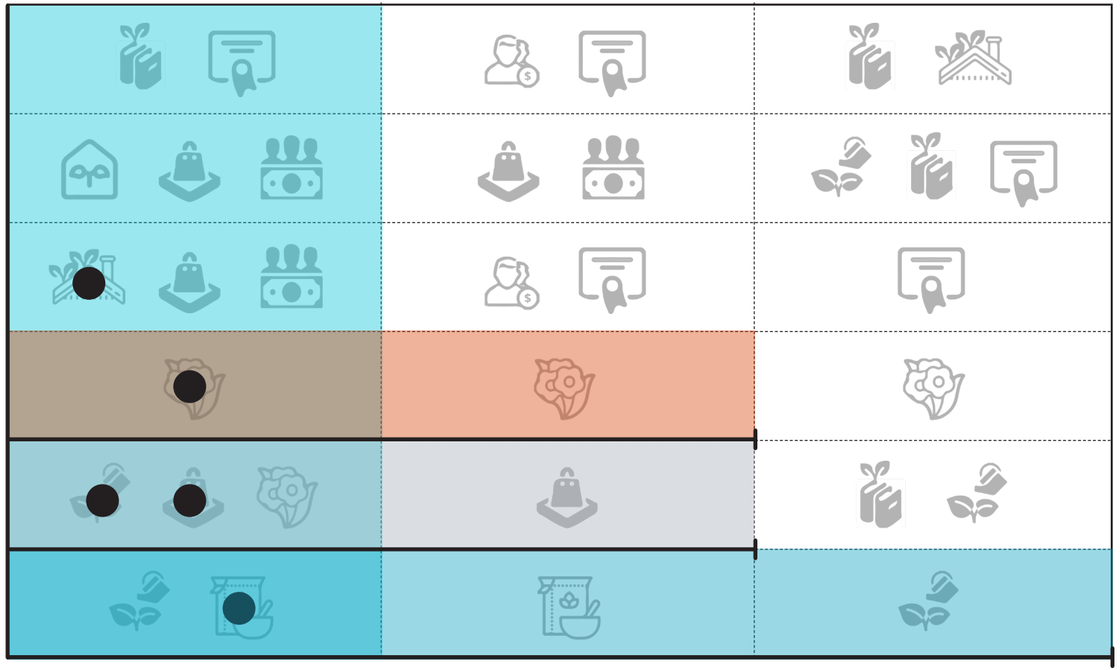


Figure 4.4

Ivanhoe Southeast design guideline matrix correspondence

NEIGHBORHOOD LINK SITE ANALYSIS

Within the Ivanhoe Southeast Neighborhood Link, there are a total of 21 vacant lots. Seven of these vacant lots have been selected for design application (See Figure 4.5). The Neighborhood Link begins a block southeast of Ivanhoe Park and extends into the park. The block located between E. 45th St. and E. 44th St. contains the majority of vacant lots situated in the Ivanhoe community. These lots are filled with dense brush and treeline. Standing water is seen on the southern portion of vacant lots, where the topography is approximately 15 feet lower than that of the next topographic line.

Using the food-sharing guidelines discussed on page 66 will ensure all selected lots have a designated design application. Lastly, adjacent infrastructure such as Highway 71 to the west, Ivanhoe Park to the north, and the Prince of Peace Missionary Church enclose the selected site. The Prince of Peace Missionary Church provides a chance for food pantry users to access fresh produce within the chosen site boundary.

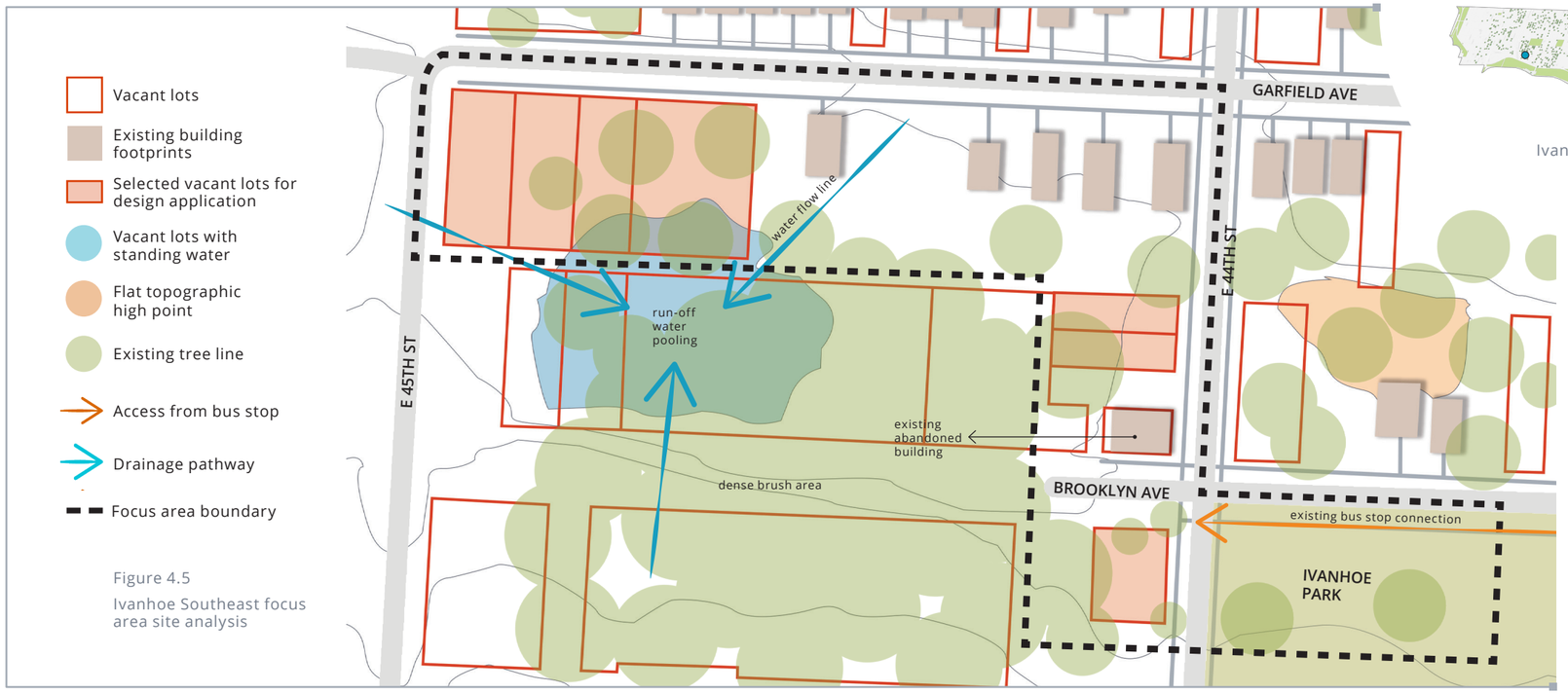


Figure 4.5
Ivanhoe Southeast focus area site analysis

Figure 4.6
Ivanhoe Southeast focus area key map

NEIGHBORHOOD LINK PROGRAM FEATURES

Program features found within the Neighborhood Link design include two community gardens located at the north and south of the design (See Figure 4.7). A pea gravel pathway connects the entirety of the site and spreads out into two community socializing areas. The southern gravel socialization area includes outdoor seating and a farmer's and a maker's market. Under the dense brush area is a designed bioswale filled with hydrophytic vegetation to mitigate water pooling. The foliage spreads into the site boundary and transitions into a grassland planting style native to the midwest. The northernmost gravel area includes space for social seating as well as food trucks. Using products directly sold from the Neighborhood Link Community Garden, food truck owners can ensure fresh food output to the surrounding community. Lastly, an abandoned building located on Brooklyn and E 44th St is used to assist the Prince of Peace Missionary Church with a direct supply of fresh produce to food pantry members. This building, along with adjacent greenhouses, is used to store produce and maintenance equipment. The program's features connected through the main pathway and existing sidewalks ensure a direct link throughout the Ivanhoe Southeast neighborhood.

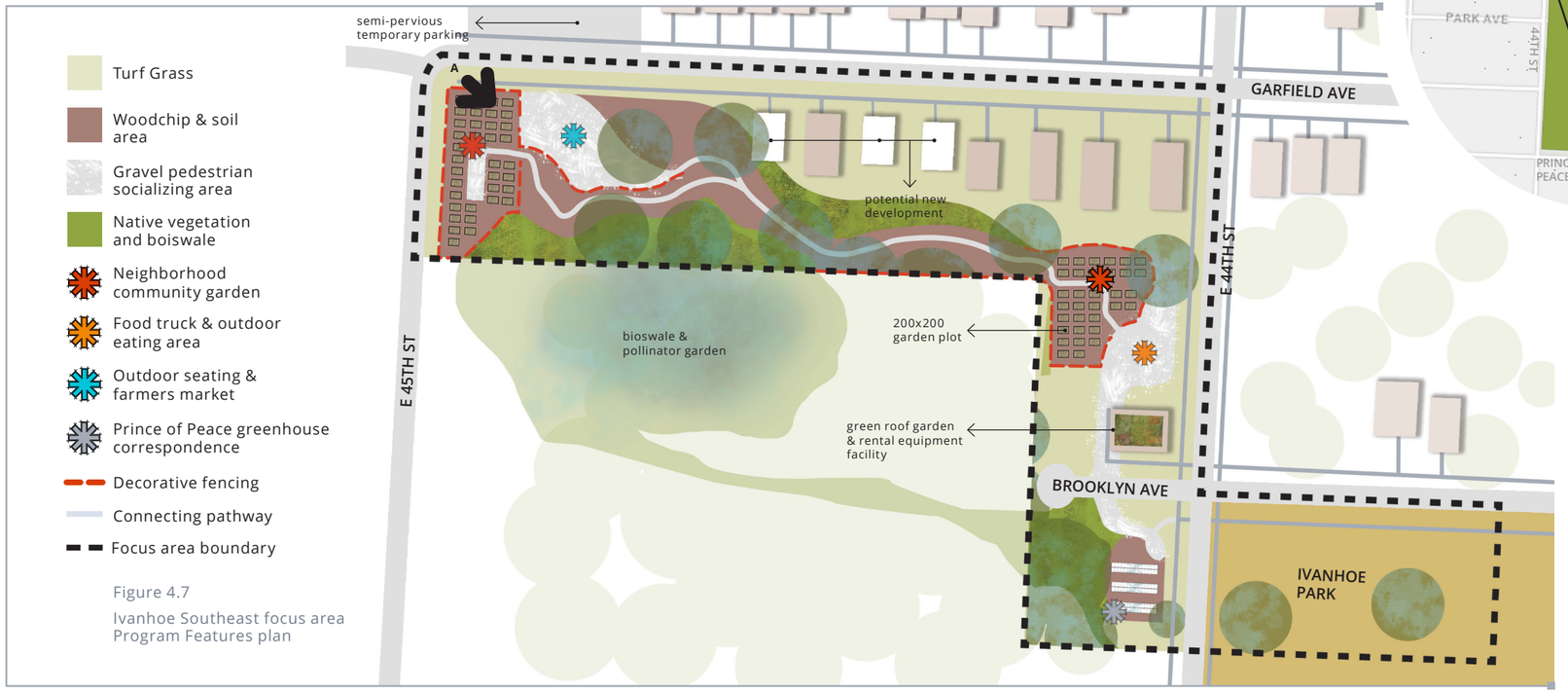


Figure 4.7

Ivanhoe Southeast focus area Program Features plan

Figure 4.8

Prince of Peace Missionary Church connection

Figure 4.9

Ivanhoe Southeast focus area phasing timeline, phase one

PHASE ONE (5 YEARS)

Phase One Design Makeup

1. Overgrown brush maintenance
2. Garfield Avenue sidewalk extension
3. Bioswale hydrophytic plantings
4. Raised garden planters
5. Manicured turf
6. Community volunteer program
7. Lawn and garden equipment rentals
8. Temporary fencing

Figure 4.10

Existing site characteristics within selected neighborhood link area

Figure 4.11

Preferred produce plantings and correlational plant clusters

Figure 4.12

Ivanhoe Southeast focus area phasing timeline, phase two

PHASE TWO (10 YEARS)

Phase Two Design Makeup

1. Community check - in: Phasing evaluation/revision
2. Increased housing development
3. Street tree integration
4. Bioswale hydrophytic plantings
5. Raised garden planters
6. Outdoor socializing and picnic area
7. Community volunteer program
8. Lawn and garden equipment rental
9. Temporary fencing
10. Temporary community garden signage

Figure 4.13

Ivanhoe Southeast focus area phasing timeline, phase three

PHASE THREE (15 YEARS)

Phase Three Design Makeup

1. Community check - in: Phasing evaluation/revision
2. Increased housing development
3. Street tree integration
4. Permanent community garden signage
5. Raised garden planters
6. Farmer's market canopy tent space
7. Maker's selling stations
8. Decorative fencing and animal-proofing

Neighborhood Link Phase Three Evaluation & Revision

Phasing is a critical step for project implementation and future food-security projections. The design projections found in this chapter are estimates which can be adjusted according to user needs. In this scenario, phases may be advanced to the development pace of the Ivanhoe Southeast community. If members of the Neighborhood link feel they are ready to increase crop production and expand their community gardening program, they may do so. Flexible phasing ensures the community has direct control of their food security, and the implemented programs fit the needs of the active members.

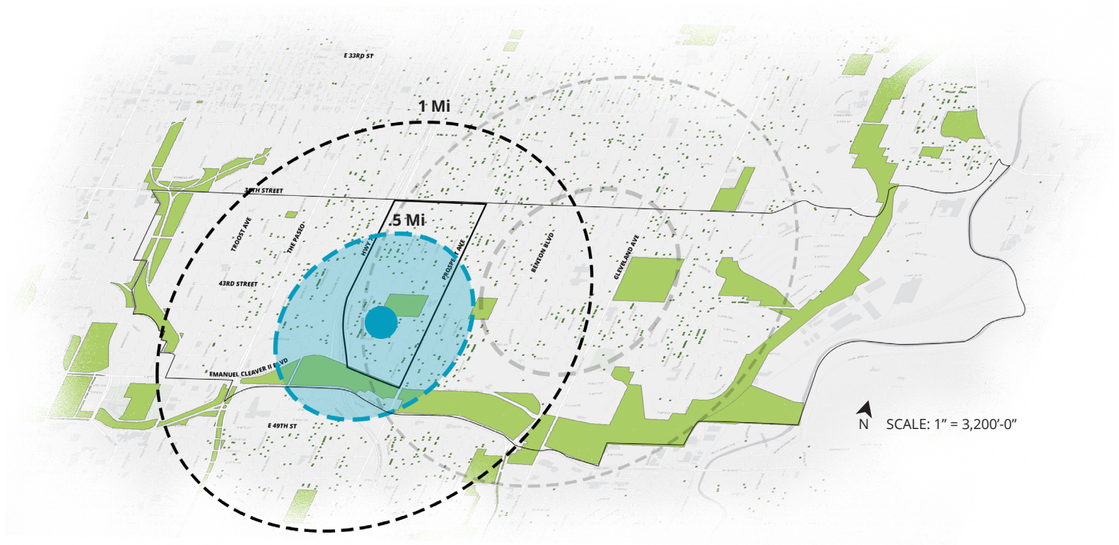


Figure 4.14

Ivanhoe Southeast Neighborhood Link food security community outreach; Large dashed circle = 1 mi, and small dashed circle = .5 mi

INTERVENTION #1 IVANHOE SOUTHEAST NEIGHBORHOOD LINK DESIGN SUMMARY

The Neighborhood Link addresses the community survey responses by incorporating food preferences, increasing sources of income, expanding food pantry food freshness through community grown crops, and extending growing seasons. The Midwest climate supports produce selected by participants such as peppers, broccoli, cabbage, and carrots. Climate-friendly plantings will cultivate a heavy yield of crops to increase income levels at the selling stage. This produce sold at a reduced price creates high demand by surrounding community members, ensuring a year-round crop production cycle. The Greenhouses supporting the existing Prince of Peace Missionary Church will allow for this all-season growing to occur.

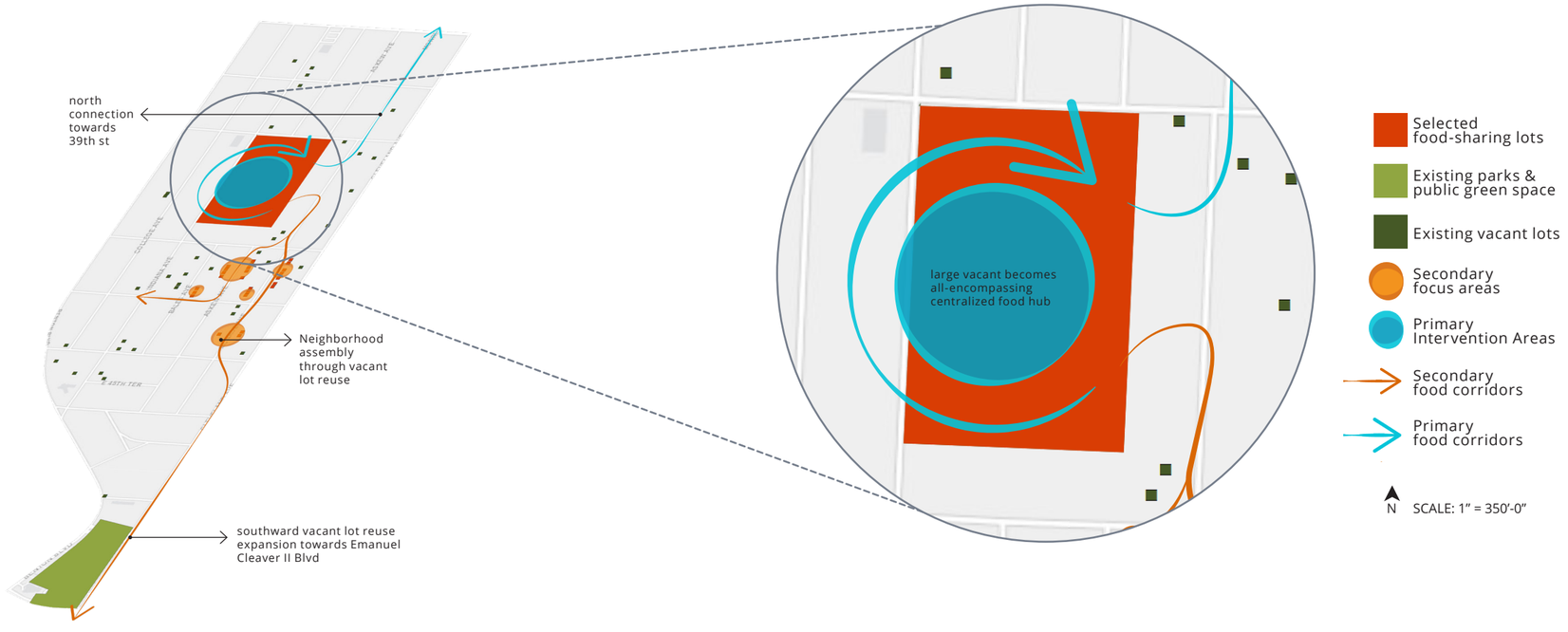
Social events and activities draw attention to Garfield Avenue and 44th St street-fronts. By creating continuous activation along a street front, more eyes-on-the-street decreases vacancy rates within a dwindling community and increases feelings of safety. Food trucks, outdoor seating, and markets all serve as food-sharing programming as event space. Farmer's markets allocate canopy tent space for residents to sell crops grown at the Neighborhood Link Community Garden. A makers market designates space for diverse products to be sold for artists, woodworkers, and other forms of creative works. These relationships built between community garden members and makers extend goods and services that are either bought or traded. For example, the wooden fence seen in phases one and two is transformed into a permanent decorative fence in phase three by a woodworker's relationship with Neighborhood Link members.

The Neighborhood Link design application serves the Ivanhoe Southeast community and extends across the larger Brush Creek site boundary (See Figure 4.14). Residents within a half-mile radius may access the Neighborhood Link space by walking. A further mile radius also indicates walking and public transportation distance for the greater Brush Creek Area.

INTERVENTION #2 OAK PARK SOUTHEAST
BRUSH CREEK FOOD RESERVE

VACANT LOT STRATEGIC FRAMEWORK

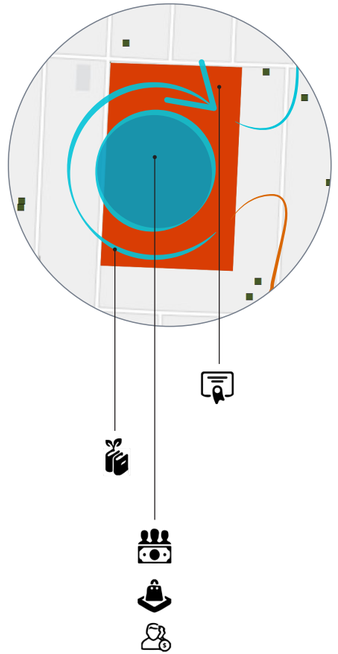
The Brush Creek Food Reserve strategic vacant lot framework includes Emanual II Boulevard's connection to the south, and E 39th Street, to the north. The existing Martin Luther King Elementary school's 900,000+ sqft. Of abandoned land may be repurposed to serve as a food security hub for the surrounding Brush Creek community. By repurposing this large lot, smaller surrounding vacant lots to the south will slowly be adapted as complete streets for new housing development and increased community activity (See Figure 4.15). Playgrounds, community gardens, and pocket parks will contribute to the community's public green space. These elements, followed by an in-depth public transportation plan, will ensure equity across all neighborhoods within the greater site boundary.



N SCALE: 1" = 1,000'-0"

Figure 4.15

Oak Park Neighborhood vacant lot strategic plan



BRUSH CREEK FOOD RESERVE: GUIDELINE CHARACTERISTICS

STAKEHOLDER INVESTMENTS

LARGE VACANT LOTS OVER 50,000 SQFT.

FARMERS MARKET & EMPLOYMENT

NEIGHBORHOODS WITH HIGH LEVELS OF UNEMPLOYMENT AND INCOME LEVELS LESS THAN $25,000

EDUCATION GARDEN

VACANT LOTS ADJACENT TO EDUCATION FACILITIES

TRAINING PROGRAMS

VACANT LOTS WITH EXISTING INFRASTRUCTURE

Figure 4.16

Oak Park Southeast design intervention guideline characteristics

Figure 4.17

Oak Park Southeast design guideline matrix correspondence

BRUSH CREEK FOOD RESERVE SITE ANALYSIS

The Brush Creek Food Reserve consists of one large 9,000+ sqft unoccupied building. This lot is adjacent to four other vacancies. I will reuse only the abandoned lot with the existing Martin Luther King Elementary School for this design application. The Brush Creek Food Reserve is sandwiched between two bus stop areas located on E 43rd St and E 44th St (See Figure 4.18). Two active ministries and an adjacent Christian academy, Kids in Christ, border the vacant lot to the east. The Kids in Christ Academy LLC is located within the same block and will serve as a dependent organization for the Brush Creek Food Reserve.

The existing tree line serves as a buffer between the existing neighborhood community and the Brush Creek Food Reserve to assure safety. Water drainage moves from the northwest edge of the site to the south. Lastly, an existing parking lot may be utilized for future parking while being adapted into a semi-pervious lot into later phasing.

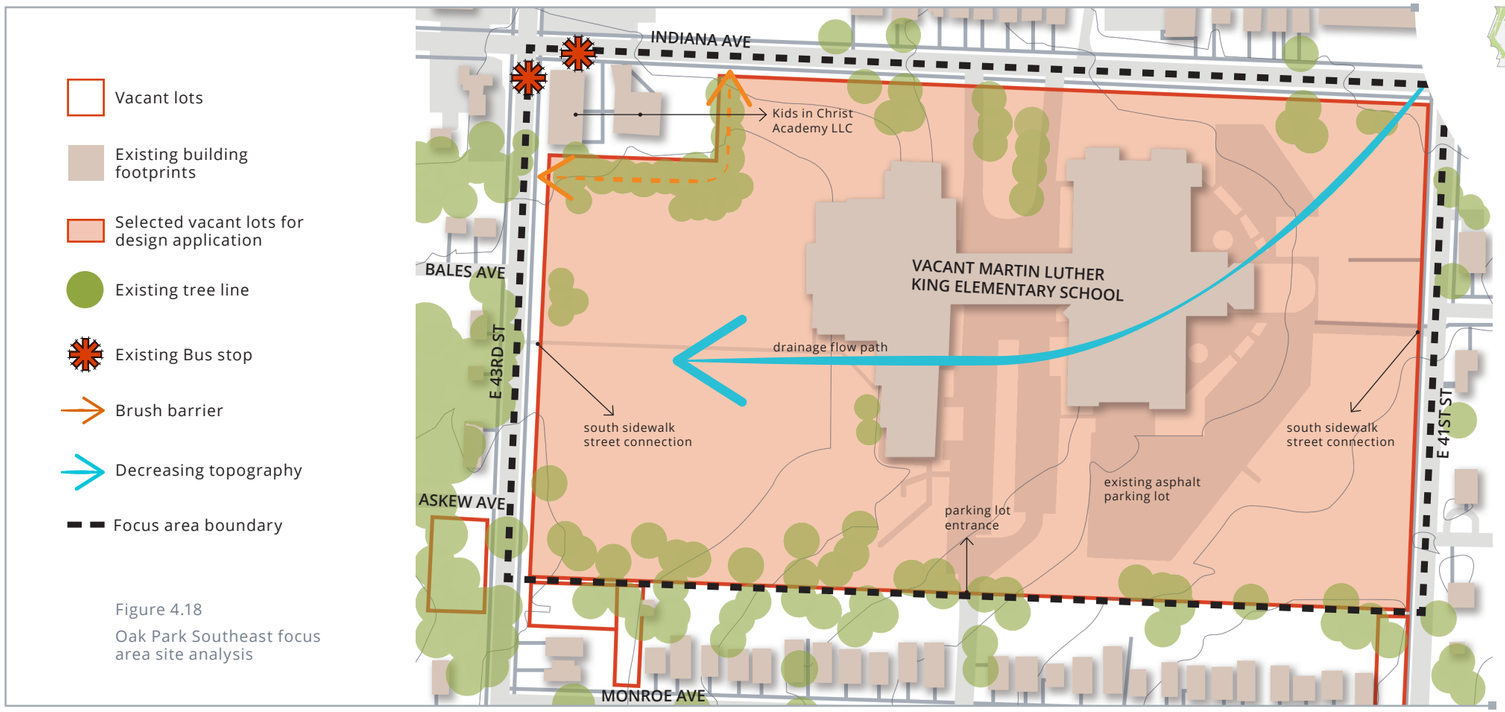


Figure 4.18
Oak Park Southeast focus area site analysis

Figure 4.19
Oak Park Southeast focus area key map

BRUSH CREEK FOOD RESERVE PROGRAM FEATURES

Existing elements found at the abandoned lot of the Brush Creek Food Reserve play a significant role in community asset strengthening. The large 140,000 sqft. elementary building will serve as a food hub for the greater Brush Creek area (See Figure 4.20). Equipped with a multi-facility format, the reserve houses a community-owned co-op market supplied from neighboring community gardens and a rooftop garden during the growing seasons. A conjoining indoor-outdoor farmers market will allow neighbors and at-risk job seekers to acquire a source of income after incarceration (See Figure 4.21). Purposeful human interaction and social services will let these families get back on their feet after they have experienced active vulnerability in their lives. Training courses and small farm certification programs will allow community members to understand the urban farming business, allowing them to start-up their urban farms and become farmhands at larger surrounding companies such as Woodland City Farms to the north. The Kids in Christ Academy LLC will serve as an organization partner to the Brush Creek Food Reserve. Daily horticulture classes will allow the elementary students to explore the curiosity of fresh produce and build communication skills that are crucial to human development. The Brush Creek Food reserve will be a great place to cultivate meaning behind new food sources that end food security.

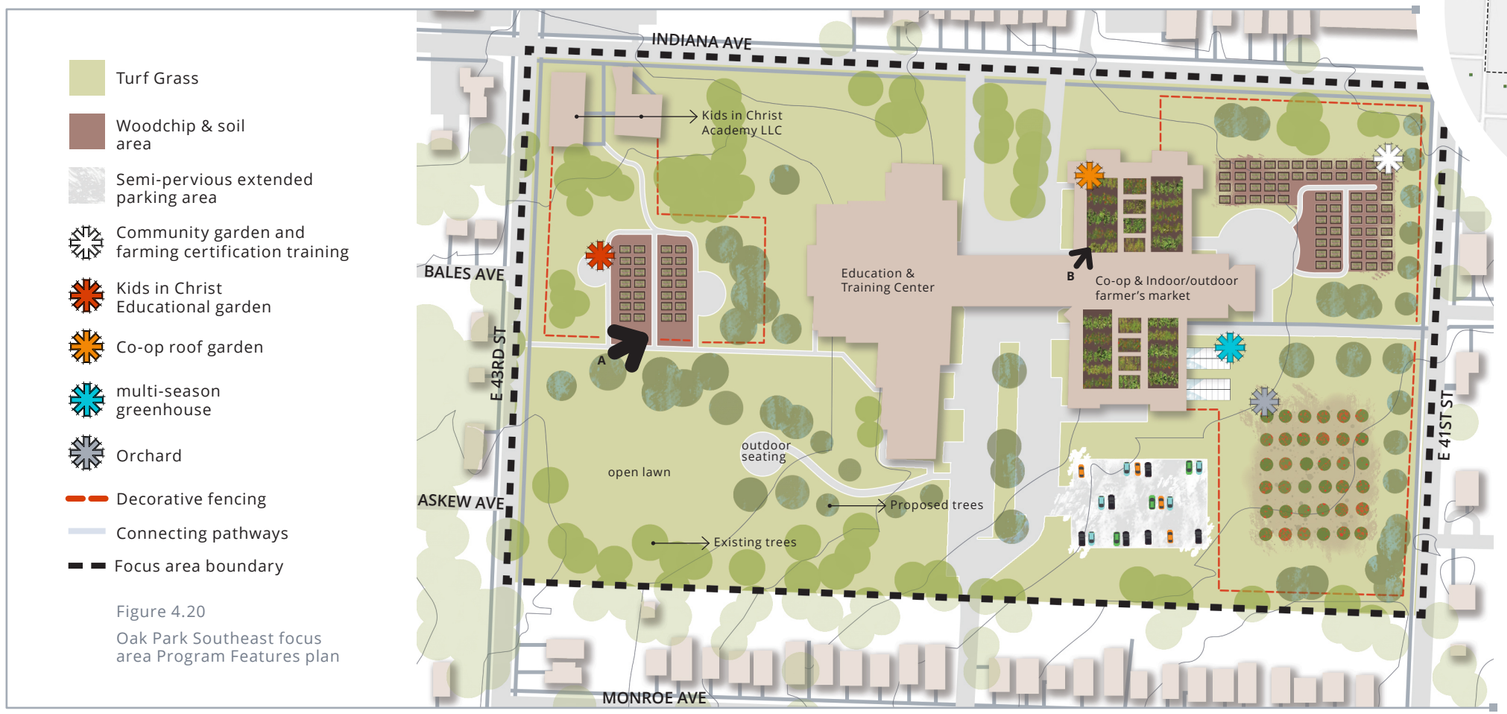


Figure 4.20
Oak Park Southeast focus area Program Features plan

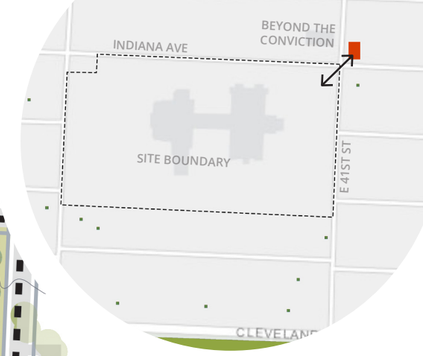


Figure 4.21
Beyond the Conviction, employment center connection

Figure 4.22

Oak Park Southeast focus area (A) phasing timeline, phase one

PHASE ONE (5 YEARS)

Phase One Design Makeup

1. Connection pathway to Kids in Christ Academy LLC
2. Academic children's gardening program
3. Raised planter beds
4. Shade tree integration
5. Gravel pathway connecting to Brush Creek Food Reserve
6. Temporary educational garden signage

Figure 4.23

Existing site characteristics within Oak Park Southeast focus area (A)

Figure 4.24

Oak Park Southeast focus area (A) phasing timeline, phase two

PHASE TWO (10 YEARS)

Phase Two Design Makeup

1. Community check - in: Phasing evaluation/revision
2. Connection pathway to Kids in Christ Academy LLC
3. Academic children's gardening program
4. Outdoor picnic and social eating
5. Shade tree integration
6. Semi-pervious permanent sidewalk
7. Multi-age gardening equipment
8. Temporary educational garden signage

Figure 4.25

Preferred produce plantings and correlational plant clusters

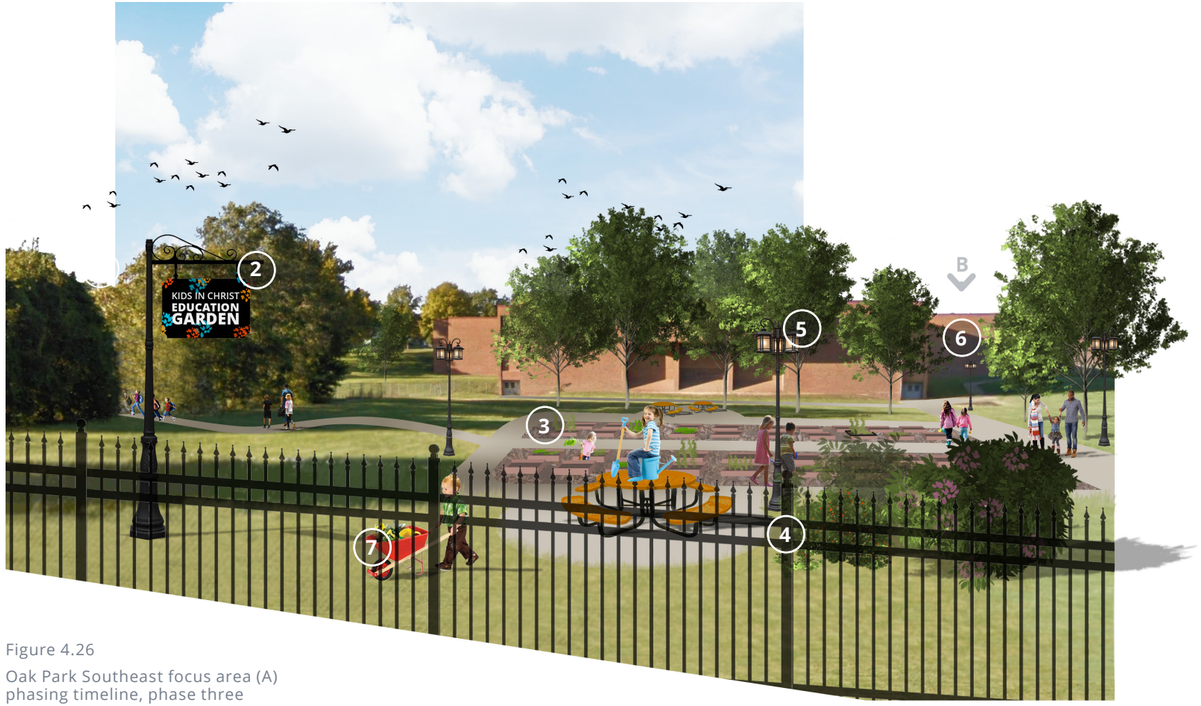


Figure 4.26

Oak Park Southeast focus area (A) phasing timeline, phase three

PHASE THREE (15 YEARS)

Phase Three Design Makeup

1. Community check - in: Phasing evaluation/revision
2. Kids in Christ Education Garden signage
3. Academic children's gardening program
4. Decorative fencing and animal-proofing
5. Outdoor lighting
6. Brush Creek Food Reserve Co-op greenroof
7. Multi-age gardening equipment

Brush Creek Food Reserve Phase Three Evaluation & Revision

Increased educational programs aided by the vacant lot owner, Kansas City Public Schools (KCPS), will determine the Brush Creek Food Reserve design's phasing life span. The children's education garden's extent may be expanded to nearby schools and even outside of the determined study area. Employment events in conjunction with the adjacent Beyond the Conviction may extend into the training center for individuals after incarceration. The Brush Creek Food Reserve building interior may be renovated as funds are made available through the Reserve Co-op's profits.

Figure 4.27

Oak Park focus Southeast area (B): 'The Reserve Co-op' seasonal roof garden

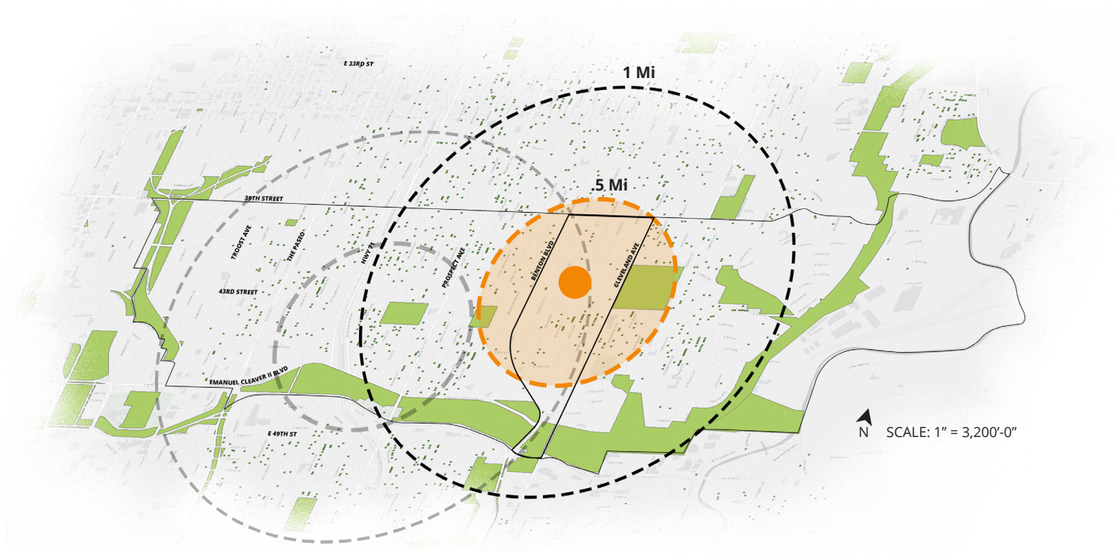


Figure 4.28

Oak Park Southeast Neighborhood Link food security community outreach; Large dashed circle = 1 mi, and small dashed circle = .5 mi

INTERVENTION #2 OAK PARK SOUTHEAST BRUSH CREEK FOOD RESERVE DESIGN SUMMARY

The Brush Creek Food Reserve will serve as a food hub extending to multiple neighborhoods. This hub seeks to close the food desert gap within the more significant Brush Creek site boundary while decreasing food-swamp clusters' physical and social effects. Through organization partner collaboration such as Beyond the Conviction and Kids in Christ Academy LLC, educational programs, training courses, and farmhand certifications will ensure the future knowledge of the surrounding area is broadened around the health benefits of food. An outdoor children's garden and indoor greenhouse facility will provide children with everyday access to fresh food sources for themselves and their families. These gardens will engage children's senses and even serve as sensory therapy for children with deprivation disabilities. Encouraging children to eat healthier will exchange a positive attitude towards hard work that will extend to their children.

Extended community gardens and orchards will allow members of the Brush Creek area that lack neighborhood gardens to rent their own gardening space. Weekly farmers market sales and a year-round community-organized co-op will increase economic commerce in Kansas City, MO. By integrating an indoor-outdoor layout into the existing building facade, the Reserve Farmer's Market may serve as a multi-seasonal food security station for the rest of Kansas City. These products will support families, decrease climate effects used to distribute goods into the city, increase physical health, all while reducing the vacant lot patchwork seen across the Brush Creek and Blue River area.

A reserve co-op facility will act as the more permanent solution to food security. During light crop yield, such as the winter months, indoor greenhouses overseen by shareholder volunteers will provide food for the direct adjacent communities. This co-op will offer various discounts to neighborhood members, such as co-op funds and credit plans. Co-op vendor funds allow vendors to put a cap limit on how much money they will be given to the retail owner based on annual income. Co-op member plans enable members to purchase foods with a monthly credit fee rather than an upfront purchase. These credit plans will allow families to buy foods when household gross income is low.

The Brush Creek Food Reserve serves the Oak Park Southeast neighborhood and extended areas of the community (See Figure 4.28). Located near major roadways such as E 39th St and Emanuel Cleaver II Blvd encourages urbanites from other parts of Kansas City, MO, to explore the curiosity of new food options.

PILOT MODEL APPLICATION

Pilot studies are a crucial part of good design. The pilot study acts as a pre-test for interested designers and future researchers and warns them where the implemented research project could fail (Van Teijligen & Hundley 2002). Figure 4.29 shows reasons for conducting “The Urban Foodie” pilot model study.

This small-scale study investigates crucial components of increased community health and equitable food security for the Brush Creek Community of Kansas City, MO. Using controlled survey trials specific to a city’s community, the researcher will attempt to predict the appropriate design application using the stated guidelines on pages 69-71. The application of “The Urban Foodie” study in various other locations will improve upon the initial research found during the methodology processes. The designer or applicant must ensure the feasibility of the design application within their city through similar methodology processes, including both spatial data collection and community input. The selected design area must be historically susceptible to vulnerability through either systemic racism brought on by redlining practices and segregated resource access or geographical hazards.

1. *Assessing the feasibility of a (full-scale) study*
2. *Designing a research protocol or guideline*
3. *Assessing whether the research guideline is realistic*
4. *Establishment whether the sampling technique is effective*
5. *Assessing the likely success of the proposed design approach*
6. *Identifying logistic problems which might occur using proposed methods*
7. *Collecting preliminary data*
8. *Determining what resources are needed for a planned design*
9. *Assessing the proposed data analysis techniques to uncover problems*
10. *Training researcher in many elements of the research process*
11. *Convincing funding bodies that the researcher is component*
12. *Convincing funding bodies that the study is feasible and fundable*
13. *Convincing stakeholders the study is worth supporting*

Figure 4.29

Reasons for conducting a pilot study
(Van Teijligen & Hundley 2002)

CHAPTER FIVE

CONCLUSION

CONCLUSION

CONCLUDING REMARKS

This study suggests that geographical spatial analysis and community surveying are efficient ways to identify community vulnerabilities. These vulnerabilities include food insecurity and lack of access to healthy food sources, systemic racism caused by historical redlining practices of politicians, and obesity and health-related issues caused by food swamp clustering in black communities. This method of data analysis gave a detailed account of existing resource access through public transportation and existing street networks. Within The Brush Creek area of east-side Kansas City, Missouri, two neighborhoods were identified as containing vulnerable conditions that would significantly benefit from food-sharing network design integration. The studied neighborhoods, Ivanhoe Southeast and Oak Park Southeast have a total population of 3,282, as provided by U.S. census data. This data is adequate to the U.S. defined urban neighborhoods as a population with at least 2,213 people per square mile (Kolko 2016). Through GIS spatial data analysis, I have determined these neighborhoods are located more than one mile away from adequate food sourcing for the entire neighborhood. Using the socio-demographic information, I have defined these neighborhoods as food insecure due to high poverty rates, low income, and extended distance (greater than 1 mile) to grocery access. This geopolitical analysis alone is not a reliable source to understand the Ivanhoe Southeast and Oak Park Southeast's food environment. Community engagement and an understanding of qualitative data through community member opinions was explored.

A Community food security survey provided information about participant household location, transportation and access, food preference, community activity,

Figure 5.1

Brush Creek Food Reserve community
Co-op green roof with pollinator garden

and vulnerability concerning available food funding. Food price and affordability were significant issues for survey participants. Over 50% of participants stated they chose their preferred food store due to the price of products. Participants chose the most convenient store location to their homes if the food prices were affordable. Although the most common food store location was located in the North Ivanhoe neighborhood, many participants stated Walmart was their preferred food store because of price, even though the nearest Walmart is over four miles away from the selected study areas. Many of the survey respondents stated they use food stamps to purchase their foods. This response leads to the hypothesis that food store preference may also be based on which stores accept food stamps as a form of payment.

Shortcomings in community engagement and food resource support were found through surveying. Over 95% of respondents indicated that they do not partake in any community organizational activities, whether that be community gardening, food bank services, or family resource services. This evidence suggests that social networks within the Brush Creek community are weak and may be strengthened through community ran operations such as the 'Neighborhood Link' and 'Brush Creek Food Reserve' design application, stated in chapter 4 (See Figure 5.1). If there were more community gardening, healthy food access through co-ops and training programs, there would be probably more robust support in the survey responses related to community engagement.

PROJECT LIMITATIONS

Sustainable urban agriculture is a new topic in the research field. Due to traditional agriculture practices and consumer demand, we have increased supply globally and have modified crops to prevent disease, pests, and other plantings' blights. In turn, this process of farming has decreased sustainability and increased climate effects throughout the globe. Because the topic of urban farming and urban community gardening is new, published literature has only begun to study the benefits that urban farming practices can provide. Many of the found literature works were case studies found in other countries where farming is found at a smaller scale and more local to the city of sale. The U.S. needs to direct more attention to the production process and distribution of products in a local format to increase food security in areas where most people reside, the city. Urban farming and urban food policy's long-term benefits have yet to be fully established because of the meager 20-year discussion of the topic.

In this study, survey data was collected from Brush Creek community members. Social data collection formats were adjusted due to the COVID-19 pandemic. Because of social distancing policies, in-person survey collection and community engagement activities were limited.

Online survey distribution was extensively relied on to gain information about the selected study areas. Lastly, any in-person survey collection was completed individually with the True Light Family Resource center's help. The resource center required a contact-less survey response format to keep participant's identities confidential and safety the main priority. These limitations resulted in having a sample that was not fully representative of the residents of the study area. While I got valuable findings, the small sample size reduced the reliability of the analysis results and negatively impacted the generalizability of the study. It also prevented the possibility of conducting more in-depth data analysis.

COMMUNITY ENGAGEMENT STRATEGIES

Throughout this report, multiple community engagement activities occurred to understand the community members' needs and daily life activities within the Greater Brush creek area. Alongside the True Light Family Resource Center, my family and I served food to over 300 homeless community members during the holidays. I found that these interactions with members describing their current food security needs were the most significant influences of both the Neighborhood Link and Brush Creek Food Reserve designs. I believe the methodology process shown in chapter 3 does not describe the importance of these in-person interactions. Further interaction with the adjacent aiding program facilities, including Prince of Peace Missionary Church, Kids in Christ LLC, and Beyond the Conviction, will ensure both designs and community programs suit the surrounding community.

POLICY AND PLANNING

From literature research and spatial analysis, I have realized that the study participants' needs have not been met through current city planning policies and design implementations. Encouragement of Integrating a food-network system within an existing community will require full participation. This study may be used as the vessel that begins the conversation about food security among political groups and organizations interested in healthy food access. Any urban system cannot simply be implemented without the research level completed in this proposal. Without knowing how a more effective food system acts in the urban economy cycle, communities' gentrification and segregation will continue through poor planning practices. Therefore, future research will need more detailed and comprehensive analyses of place-based factors and residents' feedback to come up with more realistic applicable solutions for expanding healthy food networks.

A community plan derived from the residing neighborhoods and city officials will allow residents to have a direct phasing strategy of future implementation. This study's pilot model will enable city officials to correctly phase development projects and ensure poverty and social justice are being addressed through food-sharing. Funding sources available to the community can include, but are not limited to, ULI: From Vacant to Vibrant Program, Kansas City Community Gardens: KC Water Grants Fund Water Systems At Community Gardens & Urban Farms, LISC: CCED Small Business Stabilization Fund, Heartland Conservation Alliance: Green Guard Stewardship Program, and Missouri Department of Conservation: Community Conservation Funding.

FUTURE RESEARCH

Future studies should investigate how community gardening and community ran co-op integration should be zoned into an existing city framework. Government bodies may utilize vacancy and temporary space within a city's framework to benefit its surrounding communities. Research should use the community as an asset to investigate how individual neighborhoods can increase commerce and economic drivers rather than big-box retail grocers, which drive the U.S. economy today.

CHAPTER SIX

END MATTER

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APPENDICES

APPENDIX A: GLOSSARY

Anthropogenic

Of, relating to, or resulting from the influence of human beings on nature (Merriamwebster 2020.)

Bidirectional Relatioanship

Involving, moving, or taking place in two usually opposite directions (Merriamwebster 2020).

Blight

A deteriorated condition (Merriamwebster 2020).

Carbon Footprint

The amount of greenhouse gases and specifically carbon dioxide emitted by something (such as a person's activities or a product's manufacture and transport) during a given period (Merriamwebster 2020).

Census Tract

An administrative district used in collating census data (Merriamwebster 2020).

Climate Change

Significant and long-lasting change in the Earth's climate and weather patterns (Merriamwebster 2020).

Co-op

A Cooperative (Merriamwebster 2020).

Economy

The structure or conditions of economic life in a country, area, or period. An economic system (Merriamwebster 2020).

Equity

Justice according to natural law or right specifically: freedom from bias or favoritism (Merriamwebster 2020).

Federal Housing Administration

Agency within the Department of Housing and Urban Development charged with assisting lower-income and nontraditional home buyers in financing home purchases. The FHA was created in 1934 to help out home buyers and the housing industry, which was devastated by the onset of the Great Depression. Today, the FHA fulfills its mission primarily through programs that provide, guarantee, or insure loans to first-time, lower-income, or nontraditional home buyers (HUD n.d.).

Food Security

Able to consistently access or afford adequate food (Merriamwebster 2020).

Food Swamp

areas with a high-density of establishments selling high-calorie fast food and junk food, relative to healthier food options (Cooksey-Stowers 2017).

Fossil Fuels

A fuel (such as coal, oil, or natural gas) formed in the earth from plant or animal remains (Merriamwbester 2020).

Geocoding

The process of transforming a description of a location—such as a pair of coordinates, an address, or a name of a place—to a location on the earth's surface (ArcGIS 2020).

Green House Gas (GHG)

Any of various gaseous compounds (such as carbon dioxide or methane) that absorb infrared radiation, trap heat in the atmosphere, and contribute to the greenhouse effect (Merriamwebster 2020).

Horticulture

The science and art of growing fruits, vegetables, flowers, or ornamental plants (Merriamwebster 2020).

APPENDIX A: GLOSSARY

Landscape Architect

A person who develops land for human use and enjoyment through effective placement of structures, vehicular and pedestrian ways, and plantings (Merriamwebster 2020).

Metropolitan

The primate of an ecclesiastical province (Merriamwebster 2020).

Obesity

A condition characterized by the excessive accumulation and storage of fat in the body (Merriamwebster 2020).

Planner (City Planner)

the activity or profession of determining the future physical arrangement and condition of a community, involving an appraisal of the present condition, a forecast of future requirements, a plan for the fulfillment of these requirements, and proposals for constructional, legal, and financial programs to implement the plan (Dictionary.com 2020).

POC

Person/people of color (Merriamwebster 2020).

Politics

The art or science concerned with guiding or influencing governmental policy (Merriamwebster 2020).

Redlining

A recommended safety limit : the fastest, farthest, or highest point or degree considered safe. The illegal practice of refusing to offer credit or insurance in a particular community on a discriminatory basis (as because of the race or ethnicity of its residents (Merriamwebstter 2020).

Shareholder

One that holds or owns a share in property especially: Stockholder (Merriamwebster 2020).

Sustainability

Of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged (Merriamwebster 2020).

Vacancy

A vacant, empty, or unoccupied place, as untenanted lodgings or offices (Dictionary.com 2020).

Viability

The ability to live, grow, and develop (Merriamwebster 2020).

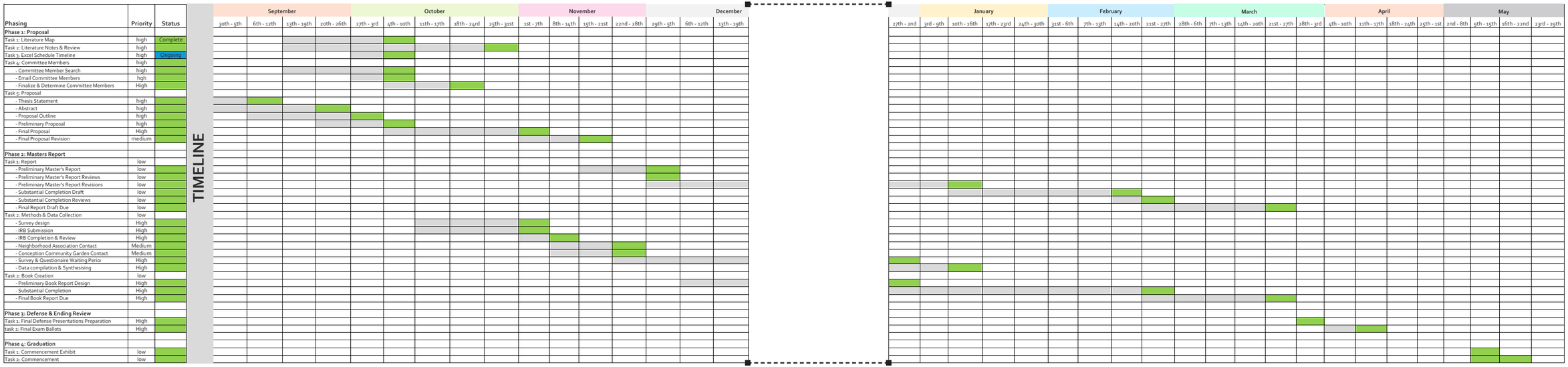
Vulnerability

Openness to attack or hurt, either physically or in other ways; susceptibility (Dictionary.com 2020).

Zoning

The act or process of partitioning a city, town, or borough into zones reserved for different purposes (such as residence or business) (Merriamwebster 2020).

APPENDIX B: MASTERS REPORT TIMELINE



Phasing	Priority	Status
Phase 1: Proposal		
Task 1: Literature Map	high	Complete
Task 2: Literature Notes & Review	high	
Task 3: Excel Schedule Timeline	high	Ongoing
Task 4: Committee Members	high	
- Committee Member Search	high	
- Email Committee Members	high	
- Finalize & Determine Committee Members	High	
Task 5: Proposal		
- Thesis Statement	high	
- Abstract	high	
- Proposal Outline	high	
- Preliminary Proposal	high	
- Final Proposal	High	
- Final Proposal Revision	medium	
Phase 2: Masters Report		
Task 1: Report	low	
- Preliminary Master's Report	low	
- Preliminary Master's Report Reviews	low	
- Preliminary Master's Report Revisions	low	
- Substantial Completion Draft	low	
- Substantial Completion Reviews	low	
- Final Report Draft Due	low	
Task 2: Methods & Data Collection	low	
- Survey design	High	
- IRB Submission	High	
- IRB Completion & Review	High	
- Neighborhood Association Contact	Medium	
- Conception Community Garden Contact	Medium	
- Survey & Questionaire Waiting Perio	High	
- Data compilation & Synthesising	High	
Task 2: Book Creation	low	
- Preliminary Book Report Design	High	
- Substantial Completion	High	
- Final Book Report Due	High	
Phase 3: Defense & Ending Review		
Task 1: Final Defense Presentations Preparation	High	
task 2: Final Exam Ballots	High	
Phase 4: Graduation		
Task 1: Commencement Exhibit	low	
Task 2: Commencement	low	

APPENDIX C: SURVEY QUESTIONNAIRE

Debriefing Statement

Kansas State University

COMMUNITY FOOD SECURITY SURVEY

This survey is conducted on behalf of Paden Chesney, a Master's degree candidate in Landscape Architecture at Kansas State University. Your participation will help identify barriers related food access and security to help better understand the food environment throughout the Brush Creek Community area.

Participation in this survey is voluntary and completely anonymous. You may skip any questions if you feel uncomfortable responding. Please direct any concerns to paden1015@ksu.edu. Thank you for your participation!

To take this survey online visit:	or scan the QR Code:
https://kstate.qualtrics.com/jfe/form/SV_88OQrnXTiHL6rd3	

Anticipated Risks

There is minimal risk involved in this study. Participation in the survey is voluntary and completely anonymous. You may skip questions if you feel uncomfortable answering.

IRB Approval Form

KANSAS STATE UNIVERSITY | University Research Compliance Office

TO: Dr. Sara Hadavi — Proposal Number: 10315
Landscape Architecture/Regional and Community Planning
Seaton Hall

FROM: Rick Scheidt, Chair
Committee on Research Involving Human Subjects

DATE: 11/24/2020

RE: Proposal Entitled, "Masters Project Report"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §104(d), category: 2, subsection: ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

Section 1: Food Intake

SECTION 1: FOOD INTAKE
Please select the following statements which are true:

Question 1.1:
(I/we) couldn't afford to eat healthy balanced meals in the last 12 months.

○ Strongly Disagree ○ Disagree ○ Neither Agree nor Disagree ○ Agree ○ Strongly Agree

Question 1.2:
In the last 12 months, (I/we) ate less than (I/we) felt (I/we) should because there was not enough money for food.

○ Strongly Disagree ○ Disagree ○ Neither Agree nor Disagree ○ Agree ○ Strongly Agree

Question 1.3:
I find myself choosing fast-food meals over healthy balanced meals because of cheaper food pricing.

○ Strongly Disagree ○ Disagree ○ Neither Agree nor Disagree ○ Agree ○ Strongly Agree

Question 1.3a:
[IF ANSWERED AGREED ABOVE] How often did this happen?

○ Everyday ○ Once a Week ○ Once Every Two Weeks ○ Once Every Three Weeks ○ Once a Month

SECTION 1: FOOD INTAKE
Please select the following statements which are true:

Question 1.4:
How often do you purchase foods in each category in a typical month?

Food Type	Everyday	Once a Week	Once Every Two Weeks	Once Every Three Weeks	Once a Month
Grains	○	○	○	○	○
Vegetables	○	○	○	○	○
Fruits	○	○	○	○	○
Milk	○	○	○	○	○
Meat & Beans	○	○	○	○	○
Non-perishables	○	○	○	○	○

Question 1.5:
According to Kansas City Community Gardens (KCCG) the following vegetables and fruits are prime for production in the Kansas City Climate. From the list below, select 4 vegetables and 4 fruits that you prefer to cook with or eat.

Vegetables (select 4):
- ○ Eggplant
- ○ Carrots
- ○ Peppers (bell, sweet, hot)
- ○ Zucchini
- ○ Broccoli
- ○ Herbs (basil, chives, cilantro, dill, parsley, ect.)
- ○ Brussel Sprouts
- ○ Cabbage
- ○ Cauliflower
- ○ Cucumber
- ○ Kale
- ○ Collard Greens
- ○ Lettuce

Fruits (select 4):
- ○ Watermelon
- ○ Blackberries
- ○ Blueberries
- ○ Raspberries
- ○ Strawberries
- ○ Grapes
- ○ Apples
- ○ Apricots
- ○ Nectarines
- ○ Plums

APPENDIX C: SURVEY QUESTIONNAIRE

Section 2: Community Food Access

SECTION 2: COMMUNITY FOOD ACCESS
Please select the following statements which are true:

Question 2.1:
How often did you purchase foods in each category in a typical month?

Food Type	Never	Rarely	Sometimes	Often	Always
Grocery store chain (Walmart, Aldi, ect.)	O	O	O	O	O
Small neighborhood store (Short Stop)	O	O	O	O	O
Gas Station (Conoco, Shell, ect.)	O	O	O	O	O
Warehouse store (Sam's, Costco)	O	O	O	O	O
Food bank/pantry (Kangaroo Pantry, ect.)	O	O	O	O	O
Farmer's market (KC River Market, ect.)	O	O	O	O	O
Local or home garden/community garden	O	O	O	O	O
Fast-Food restaurant	O	O	O	O	O
Other:_____ [please describe]	O	O	O	O	O

Question 2.2:
How often do you go to the store to purchase food?

O Everyday | O Once a Week | O Once Every Two Weeks | O Once Every Three Weeks | O Once a Month

Question 2.3:
Please list three food stores where you purchased most of your food in the last month?

_____ (Food Store 1)
_____ (Food Store 2)
_____ (Food Store 3)

SECTION 2: COMMUNITY FOOD ACCESS
Please select the following statements which are true:

Question 2.4:
What is the primary reason that you shop at your top food stores?

Reasoning	Food Store 1:	Food Store 2:	Food Store 3:
Location	O	O	O
Prices	O	O	O
Food quality	O	O	O
Product selection	O	O	O

Question 2.5:
How do you get to the store where you purchase your food?

Transportation Type	Never	Rarely	Sometimes	Often	Always
Personal Vehicle	O	O	O	O	O
Carpool	O	O	O	O	O
Public Transportation	O	O	O	O	O
Walk	O	O	O	O	O
Bike	O	O	O	O	O

Other: _____ [Please Describe]

Question 2.6:
How long does it take you to get to the store where you purchase food?

O 0-5 minutes | O 5-10 minutes | O 10-20 minutes | O 20-30 minutes | O 30+ minutes

Section 3: Demographic Information

SECTION 3: DEMOGRAPHIC INFORMATION
Please select the following statements which are true:

Question 3.1:
Name the streets that intersect nearest to your home.

_____ (Street/Road/Avenue)
_____ (Street/Road/Avenue)

Question 3.2:
What is your age?

O 1-25 | O 26-35 | O 36-49 | O 50-65 | O 65+

Question 3.3:
Including yourself, how many people are in your household?

O 0 | O 1-2 | O 3-4 | O 5-7 | O 7+

Question 3.4:
Of the people in your household, how many are children?

O 1-2 | O 3-4 | O 5-7 | O 7-8 | O 8+

Question 3.5:
What is your occupation or trade? [Please Describe Below]

SECTION 3: DEMOGRAPHIC INFORMATION
Please select the following statements which are true:

Question 3.6:
What is your average annual household income?

O $0 to $15,000 | O $15,001 to $25,000 | O $25,001 to $35,000 | O $35,001 to $50,000 | O $50,000+

Question 3.7:
Do you utilize any of the following food assistance programs? (Check all that apply)

O Food stamps | O WIC Special Supplemental Nutrition Program for Women, Infants and Children | O Free or reduced lunch | O Other: [Please Describe] _____

Question 3.8:
Are you currently involved in any neighborhood organizations? (Please describe your organizations below:)

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

		Data Source	AFFORD1	MONEY2	FASTFOOD2	FASTFOOD-OCCURANCE3
N	Valid	68	68	68	68	40
	Missing	9	9	9	9	37
Mean		1.47	3.59	3.59	3.18	2.20
Median		1.00	4.00	4.00	4.00	2.00
Std. Deviation		.503	.885	.833	1.326	1.091
Variance		.253	.783	.694	1.759	1.190
Skewness		.121	-.143	-.369	-.256	.953
Std. Error of Skewness		.291	.291	.291	.291	.374
Percentiles	100	2.00	5.00	5.00	5.00	5.00

Statistics

		PURCHASE_GRAINS4	PURCHASE_VEGETABLES4	PURCHASE_FRUITS4	PURCHASE_MILK4
N	Valid	66	63	60	55
	Missing	11	14	17	22
Mean		3.77	3.43	3.43	4.05
Median		4.00	3.00	3.00	4.00
Std. Deviation		1.298	1.364	1.267	1.113
Variance		1.686	1.862	1.606	1.238
Skewness		-.518	-.199	-.155	-.865
Std. Error of Skewness		.295	.302	.309	.322
Percentiles	100	5.00	5.00	5.00	5.00

Statistics

		PURCHASE_MEAT/BEANS4	PURCHASE_NONPERISHABLES4	PRODUCEVEG_EGGPLANT5	PRODUCEVEG_CARROT5
N	Valid	63	56	68	68
	Missing	14	21	9	9
Mean		3.70	3.57	.15	.35
Median		4.00	3.50	.00	.00
Std. Deviation		1.328	1.305	.357	.481
Variance		1.762	1.704	.127	.232
Skewness		-.487	-.365	2.038	.629
Std. Error of Skewness		.302	.319	.291	.291
Percentiles	100	5.00	5.00	1.00	1.00

		PRODUCEVEG_PEPPERS5	PRODUCEVEG_ZUCCHINI5	PRODUCEVEG_BROCCOLI5	PRODUCEVEG_HERBS5
N	Valid	68	67	68	68
	Missing	9	10	9	9
Mean		.57	.33	.44	.31
Median		1.00	.00	.00	.00
Std. Deviation		.498	.473	.500	.465
Variance		.248	.224	.250	.217
Skewness		-.304	.748	.242	.846
Std. Error of Skewness		.291	.293	.291	.291
Percentiles	100	1.00	1.00	1.00	1.00

Statistics

		PRODUCEVEG_BRUSSELSPROUTS5	PRODUCEVEG_CABBAGE5	PRODUCEVEG_CAULIFLOWER5	PRODUCEVEG_CUCUMBER5
N	Valid	67	68	68	68
	Missing	10	9	9	9
Mean		.30	.47	.26	.34
Median		.00	.00	.00	.00
Std. Deviation		.461	.503	.444	.477
Variance		.213	.253	.198	.227
Skewness		.901	.121	1.091	.699
Std. Error of Skewness		.293	.291	.291	.291
Percentiles	100	1.00	1.00	1.00	1.00

Statistics

		PRODUCEVEG_KALE5	PRODUCEVEG_COLLARDGREENS5	PRODUCEVEG_LETTUCE5	PRODUCEFRUIT_WATERMELON5
N	Valid	68	68	68	68
	Missing	9	9	9	9
Mean		.04	.31	.22	.29
Median		.00	.00	.00	.00
Std. Deviation		.207	.465	.418	.459
Variance		.043	.217	.174	.211
Skewness		4.541	.846	1.378	.924
Std. Error of Skewness		.291	.291	.291	.291
Percentiles	100	1.00	1.00	1.00	1.00

		PRODUCEFRUIT_BLACKBERRIES5	PRODUCEFRUIT_BLUEBERRIES5	PRODUCEFRUIT_RASPBERRIES5	PRODUCEFRUIT_GRAPES5
N	Valid	68	68	68	68
	Missing	9	9	9	9
Mean		.62	.31	.18	.57
Median		1.00	.00	.00	1.00
Std. Deviation		.490	.465	.384	.498
Variance		.240	.217	.147	.248
Skewness		-.495	.846	1.736	-.304
Std. Error of Skewness		.291	.291	.291	.291
Percentiles	100	1.00	1.00	1.00	1.00

Statistics

		PRODUCEFRUIT_APPLES5	PRODUCEFRUIT_APRICOTS5	PRODUCEFRUIT_NECTARINES5	PRODUCEFRUIT_PLUMS5
N	Valid	68	68	68	68
	Missing	9	9	9	9
Mean		.68	.07	.37	.07
Median		1.00	.00	.00	.00
Std. Deviation		.471	.263	.486	.263
Variance		.222	.069	.236	.069
Skewness		-.772	3.342	.561	3.342
Std. Error of Skewness		.291	.291	.291	.291
Percentiles	100	1.00	1.00	1.00	1.00

Statistics

		FOOD1_GROCER6	FOOD1_NEIGHBORHOOD6	FOOD1_GASSTATION6	FOOD1_FASTFOOD6
N	Valid	65	51	52	54
	Missing	12	26	25	23
Mean		4.02	2.51	2.40	2.94
Median		4.00	3.00	2.50	3.00
Std. Deviation		1.053	1.120	1.015	1.323
Variance		1.109	1.255	1.030	1.752
Skewness		-.942	.374	.155	-.199
Std. Error of Skewness		.297	.333	.330	.325
Percentiles	100	5.00	5.00	5.00	5.00

		FOOD1_WAREHOUSE6	FOOD1_FOODBANK6	FOOD1_MARKET6	STORETRIP7
N	Valid	51	53	54	67
	Missing	26	24	23	10
Mean		1.47	1.98	1.81	3.33
Median		1.00	1.00	1.50	3.00
Std. Deviation		.784	1.185	.933	1.133
Variance		.614	1.403	.871	1.284
Skewness		1.528	.615	.675	.023
Std. Error of Skewness		.333	.327	.325	.293
Percentiles	100	4.00	4.00	4.00	5.00

Statistics

		FOODSTORE01_8	FOODSTORE02_8	FOODSTORE03_8	REASONING9
N	Valid	53	53	42	59
	Missing	24	24	35	18
Mean		6.00	6.55	8.36	1.66
Median		3.00	4.00	7.00	2.00
Std. Deviation		6.892	6.758	6.366	.633
Variance		47.500	45.676	40.528	.400
Skewness		1.817	1.482	1.009	.839
Std. Error of Skewness		.327	.327	.365	.311
Percentiles	100	27.00	26.00	28.00	4.00

Statistics

		TRANSPORTATION_PV10	TRANSPORTATION_CARPOOL10	TRANSPORTATION_PT10	TRANSPORTATION_WALK10
N	Valid	61	53	51	52
	Missing	16	24	26	25
Mean		3.75	1.87	2.61	2.15
Median		5.00	2.00	2.00	1.00
Std. Deviation		1.729	.941	1.550	1.626
Variance		2.989	.886	2.403	2.643
Skewness		-.887	.416	.461	.938
Std. Error of Skewness		.306	.327	.333	.330
Percentiles	100	5.00	4.00	5.00	5.00

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

		TRANSPORTATION_BIKE10	TRIPTIME11	HOME12	AGE13	HOUSEHOLD14
N	Valid	45	65	51	64	66
	Missing	32	12	26	13	11
Mean		1.20	3.20	3.18	2.95	2.68
Median		1.00	3.00	4.00	3.00	3.00
Std. Deviation		.726	.754	1.337	.898	.788
Variance		.527	.569	1.788	.807	.620
Skewness		4.145	.325	-.441	-.042	1.221
Std. Error of Skewness		.354	.297	.333	.299	.295
Percentiles	100	5.00	5.00	6.00	5.00	5.00

Statistics

		CHILDREN15	OCCUPATION16	INCOME17	ASSISTANCE18	INVOLVEMENT19
N	Valid	39	55	63	32	4
	Missing	38	22	14	45	73
Mean		1.46	8.07	2.40	2.06	1.25
Median		1.00	8.00	2.00	1.50	1.00
Std. Deviation		.854	3.746	.993	1.162	.500
Variance		.729	14.032	.985	1.351	.250
Skewness		2.132	-.342	.449	.398	2.000
Std. Error of Skewness		.378	.322	.302	.414	1.014
Percentiles	100	4.00	13.00	5.00	4.00	2.00

Frequency Table

Data Source

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Online	36	46.8	52.9	52.9
	Printed	32	41.6	47.1	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

Individual Frequency Analysis

AFFORD1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	10.4	11.8	11.8
	Neither Disagree no Agree	22	28.6	32.4	44.1
	Agree	28	36.4	41.2	85.3
	Strongly Agree	10	13.0	14.7	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

MONEY2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	10.4	11.8	11.8
	Neither Disagree nor Agree	19	24.7	27.9	39.7
	Agree	34	44.2	50.0	89.7
	Strongly Agree	7	9.1	10.3	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

FASTFOOD2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	11.7	13.2	13.2
	Disagree	16	20.8	23.5	36.8
	Neither Disagree nor Agree	8	10.4	11.8	48.5
	Agree	24	31.2	35.3	83.8
	Strongly Agree	11	14.3	16.2	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

FASTFOOD-OCCURANCE3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	11	14.3	27.5	27.5
	Once or Twice a Week	17	22.1	42.5	70.0
	Once Every Two Weeks	7	9.1	17.5	87.5
	Once Every Three Weeks	3	3.9	7.5	95.0
	Once a Month	2	2.6	5.0	100.0
	Total	40	51.9	100.0	
Missing	System	37	48.1		
Total		77	100.0		

PURCHASE_GRAINS4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	3	3.9	4.5	4.5
	Once a Week	10	13.0	15.2	19.7
	Once Every Two Weeks	16	20.8	24.2	43.9
	Once Every Three Weeks	7	9.1	10.6	54.5
	Once a Month	30	39.0	45.5	100.0
	Total	66	85.7	100.0	
Missing	System	11	14.3		
Total		77	100.0		

PURCHASE_VEGETABLES4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	5	6.5	7.9	7.9
	Once a Week	14	18.2	22.2	30.2
	Once Every Two Weeks	14	18.2	22.2	52.4
	Once Every Three Weeks	9	11.7	14.3	66.7
	Once a Month	21	27.3	33.3	100.0
	Total	63	81.8	100.0	
Missing	System	14	18.2		
Total		77	100.0		

PURCHASE_FRUITS4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	4	5.2	6.7	6.7
	Once a Week	10	13.0	16.7	23.3
	Once Every Two Weeks	20	26.0	33.3	56.7
	Once Every Three Weeks	8	10.4	13.3	70.0
	Once a Month	18	23.4	30.0	100.0
	Total	60	77.9	100.0	
Missing	System	17	22.1		
Total		77	100.0		

PURCHASE_MILK4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	1	1.3	1.8	1.8
	Once a Week	5	6.5	9.1	10.9
	Once Every Two Weeks	11	14.3	20.0	30.9
	Once Every Three Weeks	11	14.3	20.0	50.9
	Once a Month	27	35.1	49.1	100.0
	Total	55	71.4	100.0	
Missing	System	22	28.6		
Total		77	100.0		

PURCHASE_MEAT/BEANS4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	4	5.2	6.3	6.3
	Once a Week	9	11.7	14.3	20.6
	Once Every Two Weeks	16	20.8	25.4	46.0
	Once Every Three Weeks	7	9.1	11.1	57.1
	Once a Month	27	35.1	42.9	100.0
	Total	63	81.8	100.0	
Missing	System	14	18.2		
Total		77	100.0		

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Individual Frequency Analysis

PURCHASE_NONPERISHABLES4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	4	5.2	7.1	7.1
	Once a Week	8	10.4	14.3	21.4
	Once Every Two Weeks	16	20.8	28.6	50.0
	Once Every Three Weeks	8	10.4	14.3	64.3
	Once a Month	20	26.0	35.7	100.0
	Total	56	72.7	100.0	
Missing	System	21	27.3		
Total		77	100.0		

PRODUCEVEG_EGGPLANT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislike Eggplant	58	75.3	85.3	85.3
	Prefer Eggplant	10	13.0	14.7	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_CARROT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Carrot	44	57.1	64.7	64.7
	Prefers Carrot	24	31.2	35.3	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_PEPPERS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Peppers	29	37.7	42.6	42.6
	Prefers Peppers (bell, sweet, hot, ect.)	39	50.6	57.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_ZUCCHINI5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Zucchini	45	58.4	67.2	67.2
	Prefers Zucchini	22	28.6	32.8	100.0
	Total	67	87.0	100.0	
Missing	System	10	13.0		
Total		77	100.0		

PRODUCEVEG_BROCCOLI5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Broccoli	38	49.4	55.9	55.9
	Prefers Broccoli	30	39.0	44.1	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_HERBS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Herbs (basil, cilantro, parsley, ect.)	47	61.0	69.1	69.1
	Prefers Herbs (basil, cilantro, parsley, ect.)	21	27.3	30.9	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_BRUSSELSPROUTS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Brussel Sprouts	47	61.0	70.1	70.1
	Prefers Brussel Sprouts	20	26.0	29.9	100.0
	Total	67	87.0	100.0	
Missing	System	10	13.0		
Total		77	100.0		

PRODUCEVEG_CABBAGE5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Cabbage	36	46.8	52.9	52.9
	Prefers Cabbage	32	41.6	47.1	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_CAULIFLOWER5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Cauliflower	50	64.9	73.5	73.5
	Prefers Cauliflower	18	23.4	26.5	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_CUCUMBER5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dislikes Cucumber	45	58.4	66.2	66.2
	Prefers Cucumber	23	29.9	33.8	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_KALE5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	65	84.4	95.6	95.6
	Kale	3	3.9	4.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_COLLARDGREENS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	47	61.0	69.1	69.1
	Collard Greens	21	27.3	30.9	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEVEG_LETTUCE5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	53	68.8	77.9	77.9
	Lettuce (iceburg, romaine, butter, ect.)	15	19.5	22.1	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_WATERMELON5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	48	62.3	70.6	70.6
	Watermelon	20	26.0	29.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Individual Frequency Analysis

PRODUCEFRUIT_BLACKBERRIES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	33.8	38.2	38.2
	Blackberries	42	54.5	61.8	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_BLUEBERRIES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	47	61.0	69.1	69.1
	Blueberries	21	27.3	30.9	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_RASPBERRIES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	56	72.7	82.4	82.4
	Raspberries	12	15.6	17.6	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_GRAPES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	29	37.7	42.6	42.6
	Grapes	39	50.6	57.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_APPLES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	22	28.6	32.4	32.4
	Apples	46	59.7	67.6	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_APRICOTS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	63	81.8	92.6	92.6
	Apricots	5	6.5	7.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_NECTARINES5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	43	55.8	63.2	63.2
	Nectarines	25	32.5	36.8	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

PRODUCEFRUIT_PLUMS5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	63	81.8	92.6	92.6
	Plums	5	6.5	7.4	100.0
	Total	68	88.3	100.0	
Missing	System	9	11.7		
Total		77	100.0		

FOOD1_GROCER6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	2	2.6	3.1	3.1
	Rarely	3	3.9	4.6	7.7
	Sometimes	14	18.2	21.5	29.2
	Often	19	24.7	29.2	58.5
	Always	27	35.1	41.5	100.0
	Total	65	84.4	100.0	
Missing	System	12	15.6		
Total		77	100.0		

FOOD1_NEIGHBORHOOD6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	11	14.3	21.6	21.6
	Rarely	14	18.2	27.5	49.0
	Sometimes	18	23.4	35.3	84.3
	Often	5	6.5	9.8	94.1
	Always	3	3.9	5.9	100.0
	Total	51	66.2	100.0	
Missing	System	26	33.8		
Total		77	100.0		

FOOD1_GASSTATION6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	12	15.6	23.1	23.1
	Rarely	14	18.2	26.9	50.0
	Sometimes	20	26.0	38.5	88.5
	Often	5	6.5	9.6	98.1
	Always	1	1.3	1.9	100.0
	Total	52	67.5	100.0	
Missing	System	25	32.5		
Total		77	100.0		

FOOD1_FASTFOOD6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	12	15.6	22.2	22.2
	Rarely	6	7.8	11.1	33.3
	Sometimes	15	19.5	27.8	61.1
	Often	15	19.5	27.8	88.9
	Always	6	7.8	11.1	100.0
	Total	54	70.1	100.0	
Missing	System	23	29.9		
Total		77	100.0		

FOOD1_WAREHOUSE6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	35	45.5	68.6	68.6
	Rarely	9	11.7	17.6	86.3
	Sometimes	6	7.8	11.8	98.0
	Often	1	1.3	2.0	100.0
	Total	51	66.2	100.0	
Missing	System	26	33.8		
Total		77	100.0		

FOOD1_FOODBANK6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	29	37.7	54.7	54.7
	Rarely	4	5.2	7.5	62.3
	Sometimes	12	15.6	22.6	84.9
	Often	8	10.4	15.1	100.0
	Total	53	68.8	100.0	
Missing	System	24	31.2		
Total		77	100.0		

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Individual Frequency Analysis

FOOD1_MARKET6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	27	35.1	50.0	50.0
	Rarely	12	15.6	22.2	72.2
	Sometimes	13	16.9	24.1	96.3
	Often	2	2.6	3.7	100.0
	Total	54	70.1	100.0	
Missing	System	23	29.9		
Total		77	100.0		

STORETRIP7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Everyday	3	3.9	4.5	4.5
	Once a Week	12	15.6	17.9	22.4
	Once Every Two Weeks	26	33.8	38.8	61.2
	Once Every Three Weeks	12	15.6	17.9	79.1
	Once a Month	14	18.2	20.9	100.0
	Total	67	87.0	100.0	
Missing	System	10	13.0		
Total		77	100.0		

FOODSTORE01_8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aldi	18	23.4	34.0	34.0
	Hyvee	2	2.6	3.8	37.7
	Walmart	8	10.4	15.1	52.8
	Price Chopper	2	2.6	3.8	56.6
	Save a lot	2	2.6	3.8	60.4
	Sunfresh	10	13.0	18.9	79.2
	McDonalds	1	1.3	1.9	81.1
	Quicktrip	1	1.3	1.9	83.0
	Constintinos	1	1.3	1.9	84.9
	Happy Foods	1	1.3	1.9	86.8
	Blue Valley Market	1	1.3	1.9	88.7
	Short Stop	1	1.3	1.9	90.6
	Conoco	1	1.3	1.9	92.5
	Burger King	1	1.3	1.9	94.3
	St James Food Pantry	1	1.3	1.9	96.2
	CVS	2	2.6	3.8	100.0
	Total	53	68.8	100.0	
Missing	System	24	31.2		
Total		77	100.0		

REASONING9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Location	24	31.2	40.7	40.7
	Price	32	41.6	54.2	94.9
	Food Quality	2	2.6	3.4	98.3
	Product Selection	1	1.3	1.7	100.0
	Total	59	76.6	100.0	
Missing	System	18	23.4		
Total		77	100.0		

TRANSPORTATION_PV10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	16	20.8	26.2	26.2
	Sometimes	3	3.9	4.9	31.1
	Often	6	7.8	9.8	41.0
	Always	36	46.8	59.0	100.0
	Total	61	79.2	100.0	
Missing	System	16	20.8		
Total		77	100.0		

TRANSPORTATION_CARPOOL10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	26	33.8	49.1	49.1
	Rarely	9	11.7	17.0	66.0
	Sometimes	17	22.1	32.1	98.1
	Often	1	1.3	1.9	100.0
	Total	53	68.8	100.0	
Missing	System	24	31.2		
Total		77	100.0		

TRANSPORTATION_PT10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	18	23.4	35.3	35.3
	Rarely	9	11.7	17.6	52.9
	Sometimes	10	13.0	19.6	72.5
	Often	3	3.9	5.9	78.4
	Always	11	14.3	21.6	100.0
	Total	51	66.2	100.0	
Missing	System	26	33.8		
Total		77	100.0		

TRANSPORTATION_WALK10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	32	41.6	61.5	61.5
	Rarely	2	2.6	3.8	65.4
	Sometimes	6	7.8	11.5	76.9
	Often	2	2.6	3.8	80.8
	Always	10	13.0	19.2	100.0
	Total	52	67.5	100.0	
Missing	System	25	32.5		
Total		77	100.0		

TRANSPORTATION_BIKE10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	41	53.2	91.1	91.1
	Rarely	1	1.3	2.2	93.3
	Sometimes	2	2.6	4.4	97.8
	Always	1	1.3	2.2	100.0
	Total	45	58.4	100.0	
Missing	System	32	41.6		
Total		77	100.0		

TRIPTIME11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-10 Minutes	10	13.0	15.4	15.4
	10-20 Minutes	35	45.5	53.8	69.2
	20-30 Minutes	17	22.1	26.2	95.4
	30+ Minutes	3	3.9	4.6	100.0
	Total	65	84.4	100.0	
Missing	System	12	15.6		
Total		77	100.0		

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Individual Frequency Analysis

HOME12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Homeless	10	13.0	19.6	19.6
	Ivanhoe Southeast Neighborhood	4	5.2	7.8	27.5
	Oak Park Southeast Neighborhood	10	13.0	19.6	47.1
	Greater Brush Creek Community	22	28.6	43.1	90.2
	East Side Kansas City	4	5.2	7.8	98.0
	Greater Kansas City Area	1	1.3	2.0	100.0
	Total	51	66.2	100.0	
Missing	System	26	33.8		
Total		77	100.0		

AGE13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	4	5.2	6.3	6.3
	26-35	12	15.6	18.8	25.0
	36-49	34	44.2	53.1	78.1
	50-65	11	14.3	17.2	95.3
	65+	3	3.9	4.7	100.0
	Total	64	83.1	100.0	
Missing	System	13	16.9		
Total		77	100.0		

HOUSEHOLD14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2	31	40.3	47.0	47.0
	3-4	28	36.4	42.4	89.4
	5-7	4	5.2	6.1	95.5
	7+	3	3.9	4.5	100.0
	Total	66	85.7	100.0	
Missing	System	11	14.3		
Total		77	100.0		

CHILDREN15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2	27	35.1	69.2	69.2
	3-4	9	11.7	23.1	92.3
	7-8	3	3.9	7.7	100.0
	Total	39	50.6	100.0	
Missing	System	38	49.4		
Total		77	100.0		

OCCUPATION16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Healthcare and Medicine	4	5.2	7.3	7.3
	Business and Sales	5	6.5	9.1	16.4
	Trade Jobs	2	2.6	3.6	20.0
	Unemployment	12	15.6	21.8	41.8
	Volunteer	2	2.6	3.6	45.5
	Retired	4	5.2	7.3	52.7
	Hospitality	3	3.9	5.5	58.2
	Cleaning and Maintenance	3	3.9	5.5	63.6
	Religious Occupations	1	1.3	1.8	65.5
	Service Occupations	16	20.8	29.1	94.5
	Food Services	3	3.9	5.5	100.0
	Total	55	71.4	100.0	
Missing	System	22	28.6		
Total		77	100.0		

INCOME17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$0-$15,000	11	14.3	17.5	17.5
	$15,001-$25,000	27	35.1	42.9	60.3
	$25,001-$35,000	15	19.5	23.8	84.1
	$35,001-$50,000	9	11.7	14.3	98.4
	$50,000+	1	1.3	1.6	100.0
	Total	63	81.8	100.0	
Missing	System	14	18.2		
Total		77	100.0		

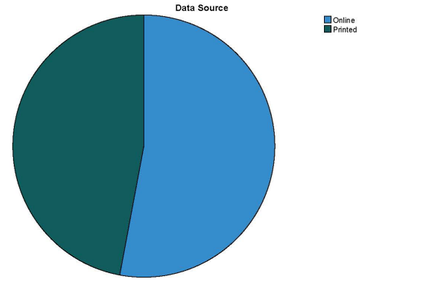
ASSISTANCE18

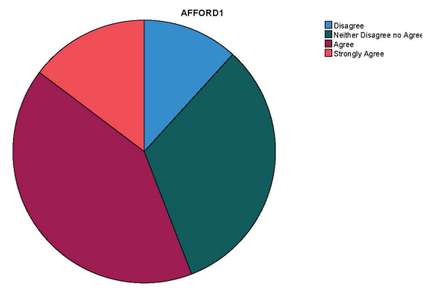
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Food Stamps	16	20.8	50.0	50.0
	WIC (Women Infants and Children Supplemental Program)	2	2.6	6.3	56.3
	Free or Reduced Lunch	10	13.0	31.3	87.5
	Other	4	5.2	12.5	100.0
	Total	32	41.6	100.0	
Missing	System	45	58.4		
Total		77	100.0		

INVOLVEMENT19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True Light Family Resource Center Volunteer	3	3.9	75.0	75.0
	Tabor Church Breakfast Service Volunteer	1	1.3	25.0	100.0
	Total	4	5.2	100.0	
Missing	System	73	94.8		
Total		77	100.0		

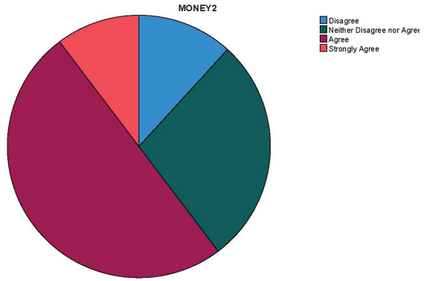
Frequency Pie Chart Outputs

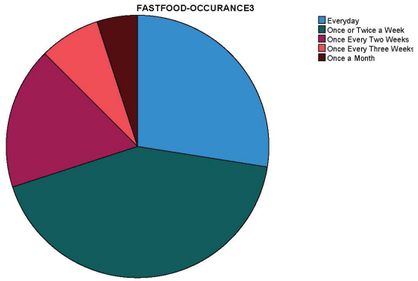


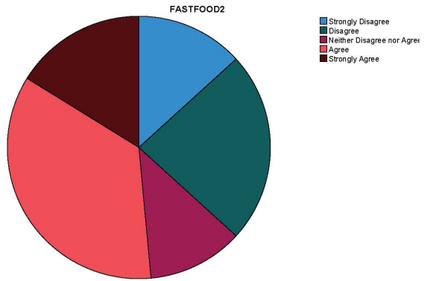


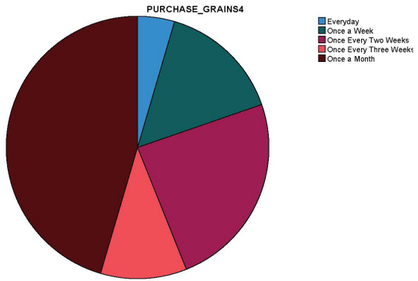
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

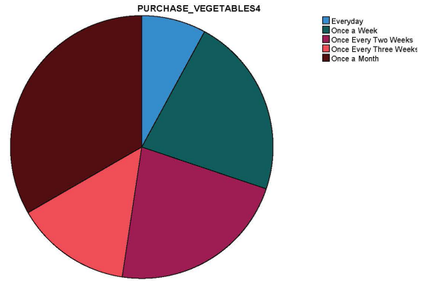
Frequency Pie Chart Outputs

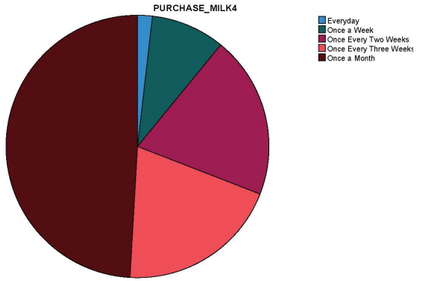


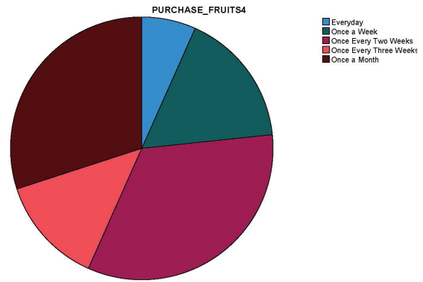


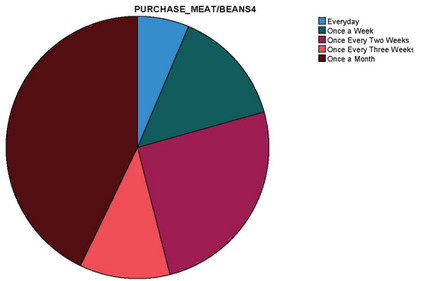






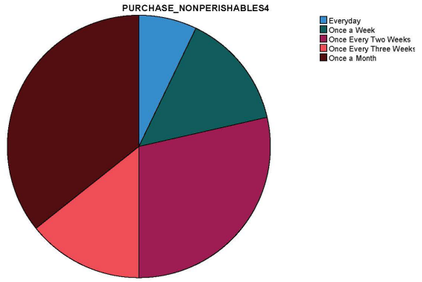


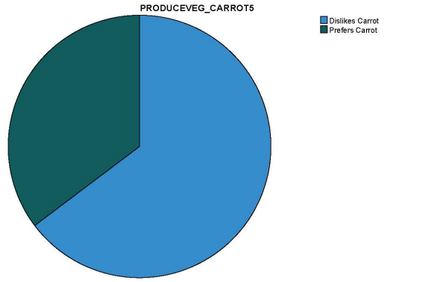


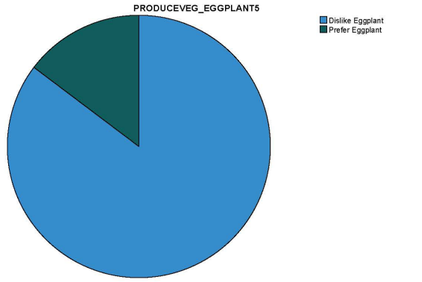


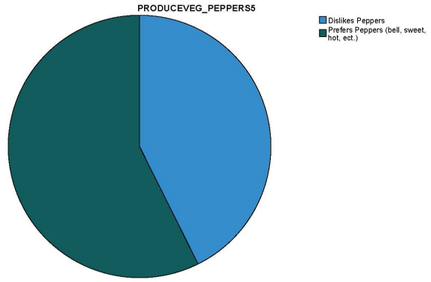
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

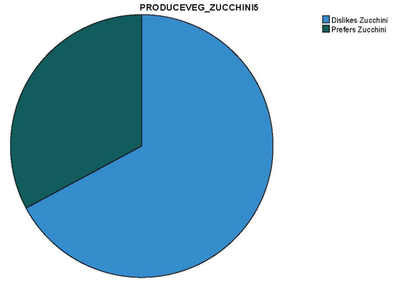
Frequency Pie Chart Outputs

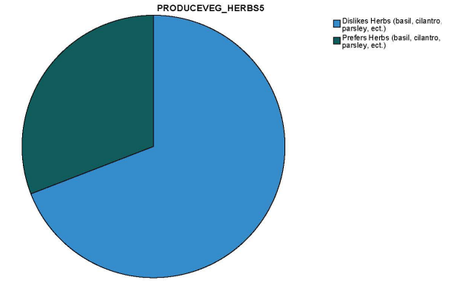


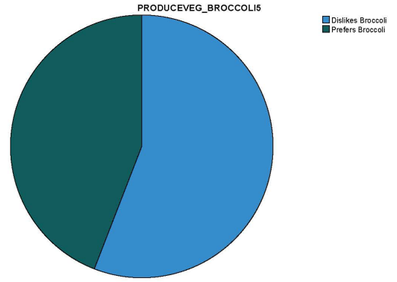


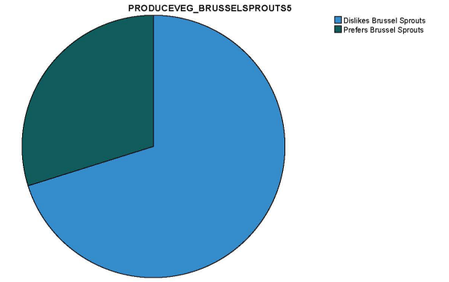






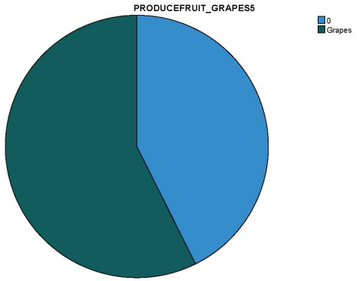


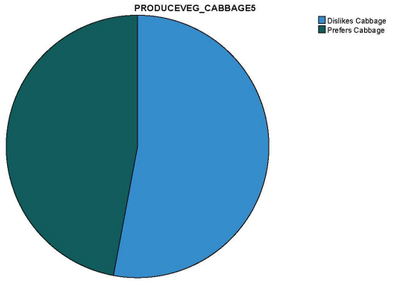


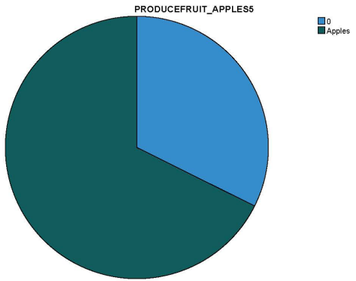


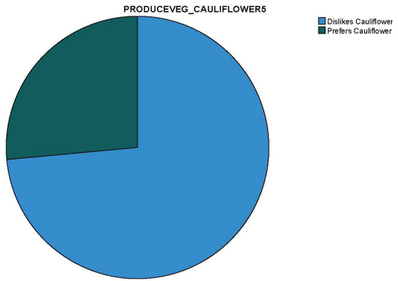
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

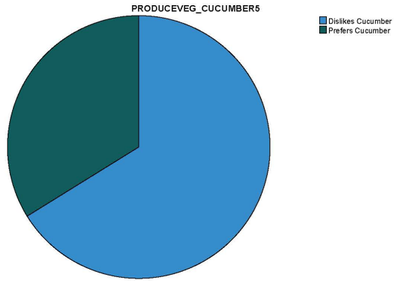
Frequency Pie Chart Outputs

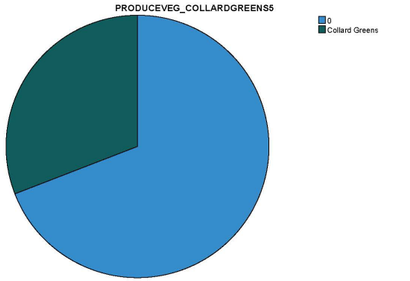


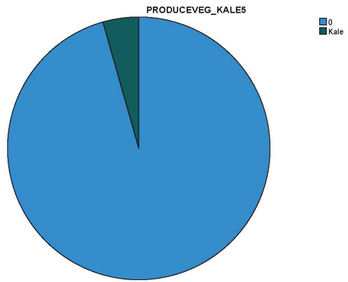


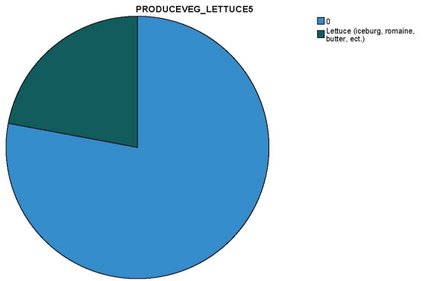






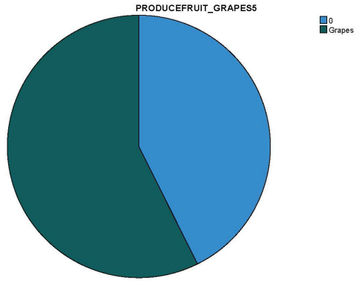


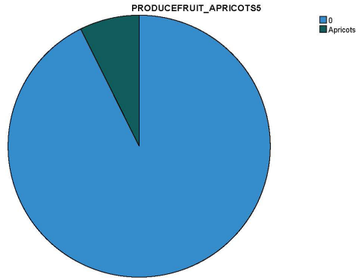


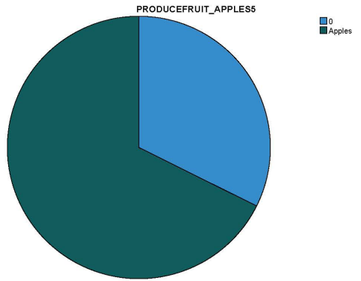


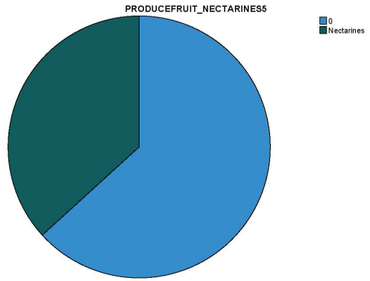
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

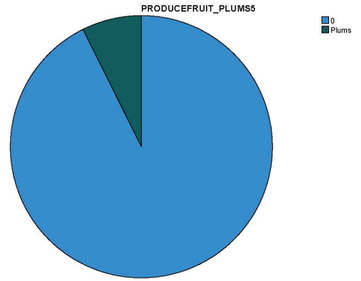
Frequency Pie Chart Outputs

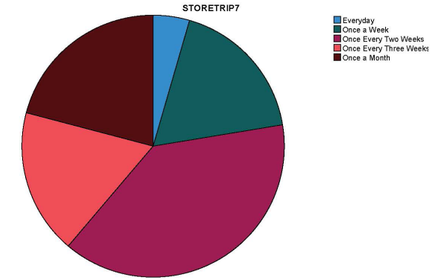


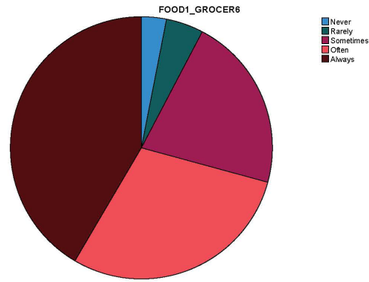


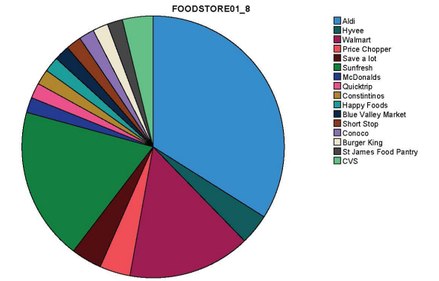






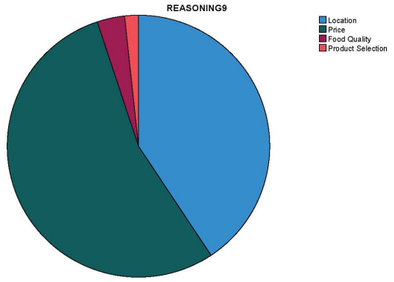


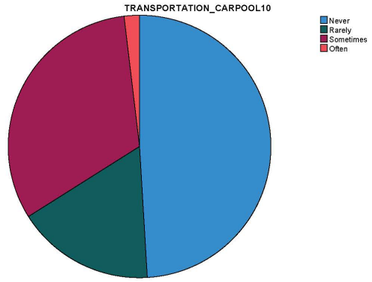


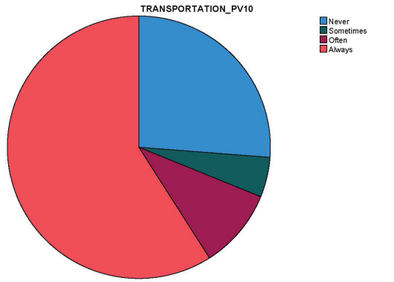


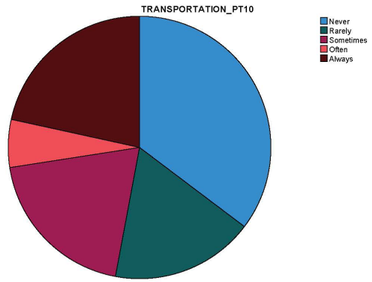
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

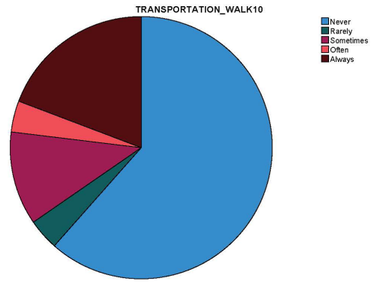
Frequency Pie Chart Outputs

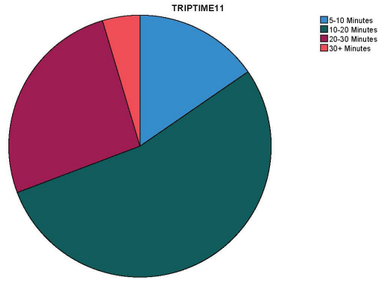


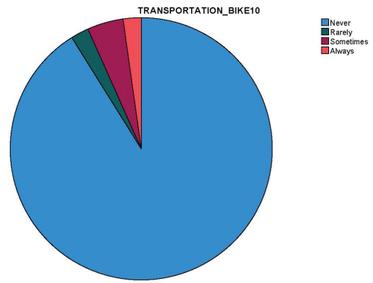


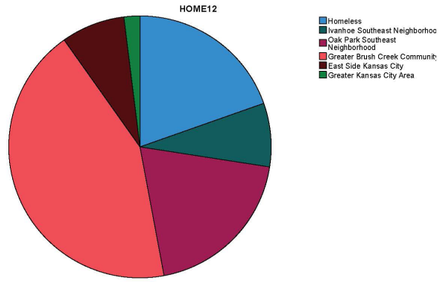






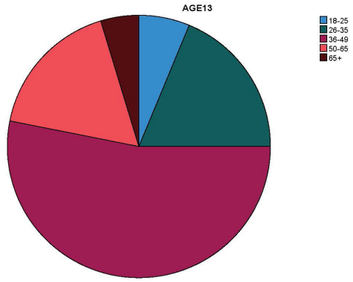


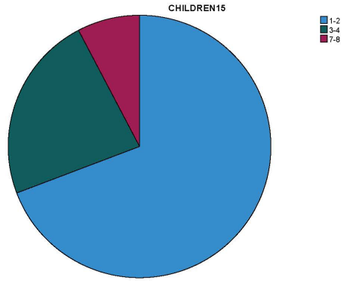


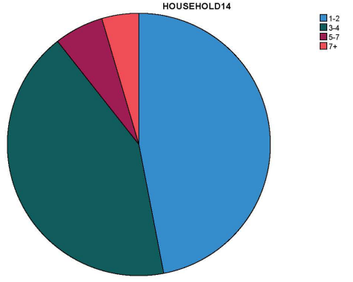


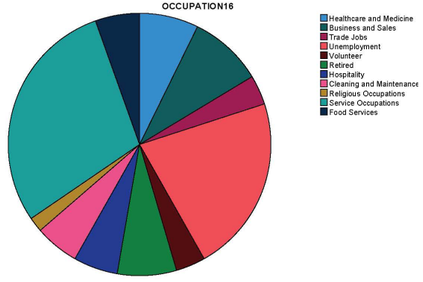
APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

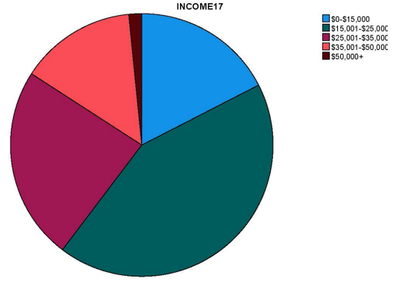
Frequency Pie Chart Outputs

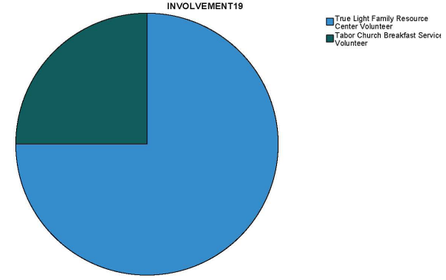


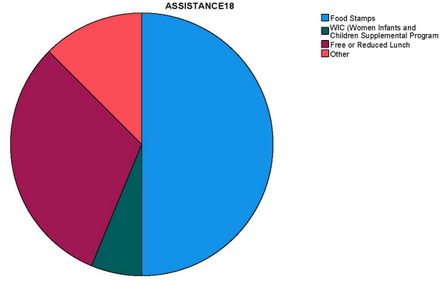












APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Bivariate Correlational Data

Correlations

		TRANSPORTATION_PT10	TRIPTIME11	TRANSPORTATION_PV10
TRANSPORTATION_PT10	Pearson Correlation	1	.391**	-.657**
	Sig. (2-tailed)		.005	.000
	N	51	51	48
TRIPTIME11	Pearson Correlation	.391**	1	-.405**
	Sig. (2-tailed)	.005		.001
	N	51	65	59
TRANSPORTATION_PV10	Pearson Correlation	-.657**	-.405**	1
	Sig. (2-tailed)	.000	.001	
	N	48	59	61
TRANSPORTATION_WALK10	Pearson Correlation	.452**	.098	-.694**
	Sig. (2-tailed)	.001	.489	.000
	N	51	65	61

Correlations

		TRANSPORTATION_WALK10
TRANSPORTATION_PT10	Pearson Correlation	.452**
	Sig. (2-tailed)	.001
	N	47
TRIPTIME11	Pearson Correlation	.098
	Sig. (2-tailed)	.489
	N	52
TRANSPORTATION_PV10	Pearson Correlation	-.694**
	Sig. (2-tailed)	.000
	N	47
TRANSPORTATION_WALK10	Pearson Correlation	1
	Sig. (2-tailed)	
	N	52

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation Matrix

		PURCHASE_GRAINS4	PURCHASE_VEGETABLES4	PURCHASE_FRUITS4
Correlation	PURCHASE_GRAINS4	1.000	.584	.496
	PURCHASE_VEGETABLES4	.584	1.000	.880
	PURCHASE_FRUITS4	.496	.880	1.000
	PURCHASE_MILK4	.810	.465	.485
	PURCHASE_MEAT/BEANS4	.768	.354	.472
	PURCHASE_NONPERISHABLES4	.457	.115	.044
Sig. (1-tailed)	PURCHASE_GRAINS4		.000	.000
	PURCHASE_VEGETABLES4	.000		.000
	PURCHASE_FRUITS4	.000	.000	
	PURCHASE_MILK4	.000	.000	.000
	PURCHASE_MEAT/BEANS4	.000	.005	.000
	PURCHASE_NONPERISHABLES4	.000	.209	.379

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.556
Bartlett's Test of Sphericity	Approx. Chi-Square	232.699
	df	15
	Sig.	.000

Component Matrix[a]

a. 2 components extracted.

Correlation Matrix

		PURCHASE_MILK4	PURCHASE_MEAT/BEANS4	PURCHASE_NONPERISHABLES4
Correlation	PURCHASE_GRAINS4	.810	.768	.457
	PURCHASE_VEGETABLES4	.465	.354	.115
	PURCHASE_FRUITS4	.485	.472	.044
	PURCHASE_MILK4	1.000	.664	.382
	PURCHASE_MEAT/BEANS4	.664	1.000	.471
	PURCHASE_NONPERISHABLES4	.382	.471	1.000
Sig. (1-tailed)	PURCHASE_GRAINS4	.000	.000	.000
	PURCHASE_VEGETABLES4	.000	.005	.209
	PURCHASE_FRUITS4	.000	.000	.379
	PURCHASE_MILK4		.000	.003
	PURCHASE_MEAT/BEANS4	.000		.000
	PURCHASE_NONPERISHABLES4	.003	.000	

Total Variance Explained

	Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.529	42.147	42.147
2	2.324	38.739	80.885

Extraction Method: Principal Component Analysis.

Component Transformation Matrix

Component	1	2
1	.738	.675
2	.675	-.738

Correlations

		FOOD1_GROCER6	FOOD1_NEIGHBORHOOD6	FOOD1_GASSTATION6
FOOD1_GROCER6	Pearson Correlation	1	-.370**	-.160
	Sig. (2-tailed)		.008	.257
	N	65	51	52
FOOD1_NEIGHBORHOOD6	Pearson Correlation	-.370**	1	.381**
	Sig. (2-tailed)	.008		.006
	N	51	51	51
FOOD1_GASSTATION6	Pearson Correlation	-.160	.381**	1
	Sig. (2-tailed)	.257	.006	
	N	52	51	52
FOOD1_FASTFOOD6	Pearson Correlation	-.130	.167	.340*
	Sig. (2-tailed)	.351	.243	.014
	N	54	51	52
FOOD1_WAREHOUSE6	Pearson Correlation	-.131	.183	.010
	Sig. (2-tailed)	.359	.203	.943
	N	51	50	50
FOOD1_FOODBANK6	Pearson Correlation	-.034	.244	.174
	Sig. (2-tailed)	.810	.084	.223
	N	53	51	51
FOOD1_MARKET6	Pearson Correlation	.043	.287*	.058
	Sig. (2-tailed)	.757	.041	.685
	N	54	51	51

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Bivariate Correlational Data

Correlations

		FOOD1_FASTFOOD6	FOOD1_WAREHOUSE6	FOOD1_FOODBANK6
FOOD1_GROCER6	Pearson Correlation	-.130	-.131	-.034
	Sig. (2-tailed)	.351	.359	.810
	N	54	51	53
FOOD1_NEIGHBORHOOD6	Pearson Correlation	.167	.183	.244
	Sig. (2-tailed)	.243	.203	.084
	N	51	50	51
FOOD1_GASSTATION6	Pearson Correlation	.340*	.010	.174
	Sig. (2-tailed)	.014	.943	.223
	N	52	50	51
FOOD1_FASTFOOD6	Pearson Correlation	1	.103	.111
	Sig. (2-tailed)		.477	.437
	N	54	50	51
FOOD1_WAREHOUSE6	Pearson Correlation	.103	1	.305*
	Sig. (2-tailed)	.477		.029
	N	50	51	51
FOOD1_FOODBANK6	Pearson Correlation	.111	.305*	1
	Sig. (2-tailed)	.437	.029	
	N	51	51	53
FOOD1_MARKET6	Pearson Correlation	.032	.531**	.244
	Sig. (2-tailed)	.820	.000	.084
	N	52	50	51

Correlations

		FOOD1_MARKET6
FOOD1_GROCER6	Pearson Correlation	.043
	Sig. (2-tailed)	.757
	N	54
FOOD1_NEIGHBORHOOD6	Pearson Correlation	.287*
	Sig. (2-tailed)	.041
	N	51
FOOD1_GASSTATION6	Pearson Correlation	.058
	Sig. (2-tailed)	.685
	N	51
FOOD1_FASTFOOD6	Pearson Correlation	.032
	Sig. (2-tailed)	.820
	N	52
FOOD1_WAREHOUSE6	Pearson Correlation	.531**
	Sig. (2-tailed)	.000
	N	50
FOOD1_FOODBANK6	Pearson Correlation	.244
	Sig. (2-tailed)	.084
	N	51
FOOD1_MARKET6	Pearson Correlation	1
	Sig. (2-tailed)	
	N	54

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Descriptive Statistics

	Mean	Std. Deviation	N
PURCHASE_VEGETABLES4	3.43	1.364	63
PURCHASE_FRUITS4	3.43	1.267	60
FOOD1_GROCER6	4.02	1.053	65
FOOD1_NEIGHBORHOOD6	2.51	1.120	51
FOOD1_GASSTATION6	2.40	1.015	52
FOOD1_FASTFOOD6	2.94	1.323	54
FOOD1_WAREHOUSE6	1.47	.784	51
FOOD1_FOODBANK6	1.98	1.185	53
FOOD1_MARKET6	1.81	.933	54

Correlations

		PURCHASE_VEGETABLES4	PURCHASE_FRUITS4	FOOD1_GROCER6
PURCHASE_VEGETABLES4	Pearson Correlation	1	.909**	.032
	Sig. (2-tailed)		.000	.805
	N	63	60	61
PURCHASE_FRUITS4	Pearson Correlation	.909**	1	.093
	Sig. (2-tailed)	.000		.486
	N	60	60	59
FOOD1_GROCER6	Pearson Correlation	.032	.093	1
	Sig. (2-tailed)	.805	.486	
	N	61	59	65
FOOD1_NEIGHBORHOOD6	Pearson Correlation	-.053	-.040	-.370**
	Sig. (2-tailed)	.722	.788	.008
	N	48	47	51
FOOD1_GASSTATION6	Pearson Correlation	.140	-.011	-.160
	Sig. (2-tailed)	.339	.939	.257
	N	49	48	52
FOOD1_FASTFOOD6	Pearson Correlation	.404**	.439**	-.130
	Sig. (2-tailed)	.003	.001	.351
	N	51	50	54

Correlations

		FOOD1_NEIGHBORHOOD6	FOOD1_GASSTATION6	FOOD1_FASTFOOD6
PURCHASE_VEGETABLES4	Pearson Correlation	-.053	.140	.404**
	Sig. (2-tailed)	.722	.339	.003
	N	48	49	51
PURCHASE_FRUITS4	Pearson Correlation	-.040	-.011	.439**
	Sig. (2-tailed)	.788	.939	.001
	N	47	48	50
FOOD1_GROCER6	Pearson Correlation	-.370**	-.160	-.130
	Sig. (2-tailed)	.008	.257	.351
	N	51	52	54
FOOD1_NEIGHBORHOOD6	Pearson Correlation	1	.381**	.167
	Sig. (2-tailed)		.006	.243
	N	51	51	51
FOOD1_GASSTATION6	Pearson Correlation	.381**	1	.340*
	Sig. (2-tailed)	.006		.014
	N	51	52	52
FOOD1_FASTFOOD6	Pearson Correlation	.167	.340*	1
	Sig. (2-tailed)	.243	.014	
	N	51	52	54

APPENDIX D: SPSS DATA ANALYSIS RAW OUTPUT

Bivariate Correlational Data

Correlations

		FOOD1_WAREHOUSE6	FOOD1_FOODBANK6	FOOD1_MARKET6
PURCHASE_VEGETABLES4	Pearson Correlation	-.463**	-.179	-.267
	Sig. (2-tailed)	.001	.214	.061
	N	48	50	50
PURCHASE_FRUITS4	Pearson Correlation	-.480**	-.122	-.156
	Sig. (2-tailed)	.001	.410	.284
	N	46	48	49
FOOD1_GROCER6	Pearson Correlation	-.131	-.034	.043
	Sig. (2-tailed)	.359	.810	.757
	N	51	53	54
FOOD1_NEIGHBORHOOD6	Pearson Correlation	.183	.244	.287*
	Sig. (2-tailed)	.203	.084	.041
	N	50	51	51
FOOD1_GASSTATION6	Pearson Correlation	.010	.174	.058
	Sig. (2-tailed)	.943	.223	.685
	N	50	51	51
FOOD1_FASTFOOD6	Pearson Correlation	.103	.111	.032
	Sig. (2-tailed)	.477	.437	.820
	N	50	51	52

Correlations

		PURCHASE_VEGETABLES4	PURCHASE_FRUITS4	FOOD1_GROCER6
FOOD1_WAREHOUSE6	Pearson Correlation	-.463**	-.480**	-.131
	Sig. (2-tailed)	.001	.001	.359
	N	48	46	51
FOOD1_FOODBANK6	Pearson Correlation	-.179	-.122	-.034
	Sig. (2-tailed)	.214	.410	.810
	N	50	48	53
FOOD1_MARKET6	Pearson Correlation	-.267	-.156	.043
	Sig. (2-tailed)	.061	.284	.757
	N	50	49	54

P

Correlations

		FOOD1_NEIGHBORHOOD6	FOOD1_GASSTATION6	FOOD1_FASTFOOD6
FOOD1_WAREHOUSE6	Pearson Correlation	.183	.010	.103
	Sig. (2-tailed)	.203	.943	.477
	N	50	50	50
FOOD1_FOODBANK6	Pearson Correlation	.244	.174	.111
	Sig. (2-tailed)	.084	.223	.437
	N	51	51	51
FOOD1_MARKET6	Pearson Correlation	.287*	.058	.032
	Sig. (2-tailed)	.041	.685	.820
	N	51	51	52

Correlations

		FOOD1_WAREHOUSE6	FOOD1_FOODBANK6	FOOD1_MARKET6
FOOD1_WAREHOUSE6	Pearson Correlation	1	.305*	.531**
	Sig. (2-tailed)		.029	.000
	N	51	51	50
FOOD1_FOODBANK6	Pearson Correlation	.305*	1	.244
	Sig. (2-tailed)	.029		.084
	N	51	53	51
FOOD1_MARKET6	Pearson Correlation	.531**	.244	1
	Sig. (2-tailed)	.000	.084	
	N	50	51	54

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		AFFORD1	MONEY2	FASTFOOD2	FASTFOOD-OCCURANCE3
AFFORD1	Pearson Correlation	1	.455**	.432**	-.062
	Sig. (2-tailed)		.000	.000	.704
	N	68	68	68	40
MONEY2	Pearson Correlation	.455**	1	.269*	-.071
	Sig. (2-tailed)	.000		.026	.665
	N	68	68	68	40
FASTFOOD2	Pearson Correlation	.432**	.269*	1	-.409**
	Sig. (2-tailed)	.000	.026		.009
	N	68	68	68	40
FASTFOOD-OCCURANCE3	Pearson Correlation	-.062	-.071	-.409**	1
	Sig. (2-tailed)	.704	.665	.009	
	N	40	40	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Factor Analysis Data Output

Rotated Component Matrix[a]

	Component 1	2	3
PRODUCEVEG_HERBS5	.633		
PRODUCEVEG_COLLARD GREENS5	.595		
PRODUCEVEG_LETTUCE5	.545		
PRODUCEFRUIT_RASPBERRIES5			
PRODUCEFRUIT_PLUMS5			
PRODUCEVEG_BRUSSELS PROUTS5			
PRODUCEFRUIT_NECTARINES5			
PRODUCEVEG_CABBAGE5			
PRODUCEVEG_ZUCCHINI5			
PRODUCEFRUIT_BLACKBERRIES5			
PRODUCEVEG_CARROT5		-.616	
PRODUCEFRUIT_APRICOT S5		.597	
PRODUCEVEG_EGGPLANT 5		.592	
PRODUCEVEG_KALE5		.538	
PRODUCEVEG_CUCUMBER5		.459	
PRODUCEFRUIT_GRAPES 5		.459	
PRODUCEVEG_CAULIFLOWER5			.545
PRODUCEFRUIT_APPLES5			.594
PRODUCEVEG_BROCCOLI 5			.473
PRODUCEFRUIT_WATERMELON5			-.461
PRODUCEVEG_PEPPERS5			
PRODUCEFRUIT_BLUEBERRIES5			