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Desert in the Springs: Ethnography of a Food Desert

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Desert in the Springs: Ethnography of a Food Desert

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts
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and

Master of Public Health
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DEDICATION

Above all, I would like to dedicate this thesis to my parents, Todd and Ruth Chavez, who have often joked that I am their “little anthropology experiment.” Their love, generosity and guidance has sustained me throughout this process (as in all other aspects of my life) and I believe this accomplishment is as much theirs as it is mine. I am incredibly lucky to have parents who—when I told them I wanted to study anthropology—never uttered the phrase “What are you going to do with that?”

I would also like to thank my husband, Roy Sabean, for his patience. He endured many late night study/writing marathons, practice presentations, lost weekends, and general grad-school stress. Without his gentle encouragement and insistence that I sleep, I may not have survived school!

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ABSTRACT

“Food desert” commonly describes food insecure areas with few fresh food outlets. Though used in a number of sources, the definition of “food desert” remains largely undeveloped and research is often deficit oriented, failing to account for community assets that may exist within food deserts but are underutilized or under-supported. Using an assets-based, ethnographic approach, this study combines GIS and survey methodology with participant observation and qualitative interviews to assess the potential positive effect of urban agriculture on food accessibility in Sulphur Springs, a USDA identified urban food desert in Tampa, Florida.

Ethnographic data suggest that within this neighborhood, residents are largely dissatisfied with the quality of goods and services provided by local food retailers and, in response, seek alternatives to local retail food options. GIS and food store survey results from this study suggest that urban agriculture has the potential to increase fresh food accessibility and availability. Qualitative interview data suggest that the most appropriate way to improve food accessibility in this particular community is through Community Supported Agriculture that fosters social connections, while increasing access to healthful, quality foods, and circulating money within the community.
CHAPTER ONE:
BACKGROUND AND STUDY DESIGN

In the United States, populations in urban environments struggle with physical and economic access to fresh, nutritious foods. The primary concern in these environments is oftentimes not a lack of food, but rather the quality and diversity of diet available to local residents. Sometimes referred to as “food deserts,” these “areas of relative exclusions where people experience physical and economic barriers to accessing healthy food” (Reisig and Hobbiss, 2000:138 [emphasis mine]) are frequently subjects of studies on US food insecurity (Abarca and Ramachandran 2004; Gallagher 2006; Morton et al. 2005; Russell and Heidkamp 2011; Schafft, Jensen, and Hinrichs 2009; Walker, Keane, and Burke 2010). The study of food deserts is a burgeoning, multidisciplinary field that draws from geography, epidemiology, and urban studies. Popular use of the term “food desert” has, in many respects, outpaced its scientific development. Though food desert research examines food access conditions by incorporating environmental, economic, and population measures, everyday use of the term “food desert” often glosses over (Cummins and Macintyre 2002a; Cummins et al. 2007; Raja, Ma, and Yadav 2008; Clarke et al. 2004; McEntee 2009), rather than problematizes, the complexities of food insecurity. Researchers in this field acknowledge that there are significant gaps in the available body of work, and primarily call for improved and standardized food access measures, study designs, and operational definitions (McEntee 2010; Reisig and Hobbiss 2000; Russell 2011; Walker 2010, 2011). These studies do not lack rigor, but food desert researchers are explicit
about the limitations of the concept (Bitler and Haider 2010; Cummins and Macintyre 2002b; Caraher et al. 1998; McEntee and Agyeman 2010; McKinnon et al. 2009; Reisig and Hobbiss 2000; Shaw 2006; Walker, Keane, and Burke 2010; Whelan et al. 2002). The majority of these studies are quantitative and rarely account for both the micro and macro level processes that impact food access (Cummins et al. 2005; Guthman 2008; Morton et al. 2005; Shannon 2013; Short, Guthman, and Raskin 2007; Sparks, Bania, and Leete 2011). Food desert research also places a premium on individuals’ proximity to large, chain supermarkets as a measure of food access even though many other factors impact a person’s ability to procure food. Finally, food desert studies tend to be deficit oriented, often failing to account for individual and community assets that may positively impact food access. Anthropological work in this area is notably limited even though the discipline’s hallmark ethnographic methodologies and focus on holism could greatly improve our understanding of what it means to live in a food desert. This work aims to remedy such gaps.

Using anthropological methods, I explore multiple facets of a “food desert” located in the urban neighborhood of Sulphur Springs in Tampa, Florida. I examine the impact of community assets on neighborhood food access and seek to understand residents’ perceptions of the changing food environment as well as food access and availability. The results of the study suggest that culturally appropriate, alternative food access programs, such as community gardens and farmers markets, have the potential not only to improve food access and availability, but also residents’ perceptions of community well-being. In the following section, I more thoroughly define “food desert,” briefly introduce the study site, and discuss the research design.
An Introduction to Food Deserts

Food security\(^1\) is an issue of global importance with heightened focus on its health, policy, and humanitarian implications. Traditionally, food security researchers focused on agrarian environments often, but not always, in the world’s least developed countries where food scarcity causes widespread famine and malnutrition (McDonald 2010). As researchers began to explore the extent and impacts of food insecurity in Europe, Australia, and North America, they created new measures and terminology to reflect the unique characteristics of food insecure environments in developed countries (McEntee and Agyeman 2010; Shaw 2006; Walker, Keane, and Burke 2010). The term “food desert” emerged during this shift and its popular and academic usage has steadily increased in the last decade (See “Chapter 3: Literature Review” for further discussion). Rather than focusing on food availability and famine (i.e. extreme food scarcity), food desert studies examine physical and economic access to quality, nutritious foods. They also discuss malnutrition as it relates to “overnutrition”\(^2\) and the development of chronic, diet-related diseases.

“Food desert” is a term that describes a geographic area that lacks access to quality, fresh foods and it is used with increasing frequency in a variety of ways. According to many food desert studies (Cummins and Macintyre 2002a; Cummins et al. 2005; Cyzman, Wierenga, and Sielawa 2009; Gallagher 2006; Hendrickson, Smith, and Eikenberry 2006; Zenk et al. 2011), population health status tends to be poor in these areas. Instances of morbidity and mortality caused by diet related chronic illnesses occur more frequently in these populations when

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1 **Food security** exists when people have adequate physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (FAO, 2003). A lack of food security is referred to as **food insecurity**.

2 The effect of consuming foods rich in calories and fats, but nutrient poor
compared to populations not living in food deserts and rates of obesity and overweight in all age groups are higher in food desert populations (CDC 2012; Gallagher 2006). In the United States, food desert studies have found that low socioeconomic status and residing in a food desert are strongly correlated, and that a disproportionate number of low-income African Americans live in food deserts when compared to other minority groups and income brackets (Carahar et al. 2010; Gallagher 2006).

Though used in a number of popular, governmental and scholarly sources, a standard definition of “food desert” remains largely undeveloped (McEntee 2010; Reisig and Hobbiss 2000; Russell 2011; Walker 2010, 2011). In studies of food deserts, researchers often attempt to measure food access geospatially using two specific factors: distance of residents to fresh food and fast food outlets (Bartefeld et al. 2006; Carahar et al. 2010 Gatrell 2011; Morland 2006; Rose 2010; Short et al. 2007; Walker et al. 2010, 2011). These data may then be analyzed alongside population demographics such as socioeconomic status, race/ethnicity, and health status (i.e. residential instances of heart disease, hypertension, diabetes, etc.) to speculate about the associations between geographic proximity and health. These two “distance measures,” while used to classify areas as food deserts, are analogous, but not synonymous, with measures of food access. Although many food desert studies make this distinction explicit, “food desert” is easily and uncritically used in media, programming, and policy to condense the complex cultural and structural factors impacting food access. Thus “food desert” is a rapidly evolving and loaded term, defined differently from field to field and researcher to researcher save those two, ever-present distance measures.

Because this research is often deficit oriented, with its focus limited to the presence or absence of chain supermarkets and fast food outlets (Walker et al. 2010), food desert research
often fails to account for community assets. One asset that is rarely considered in food desert research is urban agriculture, even though studies increasingly suggest that urban agriculture is not only growing in popularity but also improves health in low-income, urban environments by supplementing diet (Armstrong 2000; Irvine et al. 1999; Rose et al 2010; Patel 1991; Skinner et al. 2007; Walker 2010) and providing opportunities for physical activity that would otherwise be absent (Casperen et al. 1991; Crespo et al 1996; Ford et al. 1995). For example, the US congress passed the Food, Conservation, and Energy Act in 2008 requiring the US Department of Agriculture to conduct a one-year study to understand food deserts and their consequences. The final report to congress, Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences, defines food access as proximity to supermarkets and large grocery stores, while acknowledging the limitations of such a narrow definition. It also acknowledges the lack of data that make understanding food deserts so difficult. Suggestions include measuring additional factors such as “how people fit grocery and food shopping into their daily activities and travel patterns, how these activities and patterns expose people to food environments outside of their neighborhoods, and how this may affect their shopping and diet” (USDA 2009:48). The economic barriers associated with access to healthful foods are understood within the context of market conditions affected by supply and demand. The following quote illustrates this market-based approach to understanding food access.

“Access to affordable and nutritious food depends on supply (availability) and consumer demand. Consumer behavior, preferences, and other factors related to the demand for some foods may account for differences in the types of foods offered across different areas. Food retailer behavior and supply-side issues such as higher costs to developing stores in underserved areas may also explain variation across areas in which foods are offered and what stores offer them” (USDA 2009: v).
While these are useful suggestions for future research, this view fails to account for food access barriers that do not result from supply-side problems or consumer behaviors. By limiting the scope of the problem to market failures, there is a danger that solutions may never address other, deeper structural issues that impede food access. Additionally, as the above quote illustrates, this report only considers one way of accessing fresh foods.

Gardening, in all forms, represents an alternative means of accessing food that may not operate inside the consumer-market. Such activities have the potential to improve the food environment (Armstrong 2000; Irvine et al. 1999; Patel 1991; Walker 2010) but are not always supported by policy (Pothukuchi 2009). The USDA report concludes that a myriad of under-researched factors, combining to create a “socioeconomic contextual effect” (USDA, 2009:47) could be addressed with policy that moves beyond targeted health interventions, and instead focus on fixing structural inequalities.

Based on the findings from this study, I argue that support for alternative food access programs and sites, such as gardens, farmer’s markets, and community supported agriculture in food deserts is a viable way for local governments to address the food access and health problems that are impacted by the built environment. Understanding “life in a food desert” from the viewpoint of the residents who actually live there is an important first step toward assessing the benefits and practicality of such activities in relation to food access and health. This is one of the aims of my thesis.

Measuring and Mapping Food Deserts

The term “food desert” has come to describe physical, geographic locations, existing within specific measurable parameters. Though these locations are situated within larger
environments, many studies have treated these areas as closed systems with few connections to the rest of the world and a limited ability to change. A review of the food desert literature reveals a dearth of mixed methods studies and heavy emphasis on purely quantitative approaches to understanding urban food access. These studies tend to take a “gods-eye view” of neighborhoods, using large datasets to generate graphical representations of communities, yet context (i.e. the interacting social, cultural, historical, political, and economic factors and processes that shape a community) is not regularly considered. While this type of modeling may have scientific merit, in the context of food desert studies, this perspective has resulted in pathologizing and stigmatizing low-income neighborhoods and residents, because “this perspective often misses the complexity and significance of everyday practices” (Shannon, 2013:4).

Although flawed, “food desert” is a pervasive concept that has gained increasing credibility in popular media, public policy, and among academics, because the core assumptions underlying this concept strongly cleave to conventional wisdom and can be stated using popular American adages such as, “there are haves and have-nots,” and “location, location, location.” There is no question that food desert studies shed light on social inequalities, resource inequalities, and health disparities. Yet, they tend to oversimplify the nuances of food access by focusing largely on residential proximity to chain supermarkets—or even convenience stores—as a measure of food access. Recognizing the limitations of this approach, many food desert

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3 “God’s eye view” is a term used to critique of GIS-based maps and spatial analyses. Some scholars believe that using large data sets and maps to analyze and represent problems removes social, historical, political, and economic contexts and distances the researcher from the conditions he/she seeks to understand (Elwood 2006; Goss 1995; Longley 2005).

4 A store that stocks a limited variety of food and household items. These may be free-standing corner stores or stores connected to gas stations.
scholars have called for increased mixed methods studies that incorporate qualitative measures and local understandings of food access (Bader, et al. 2010; Eckert and Shetty 2011; Larson and Gilliland 2007; McEntee and Agyman 2010; Shannon 2013; Walker et al. 2010).

Interestingly, the United States Department of Agriculture, (USDA) a government agency that has helped propel the term food desert into the public consciousness through research and policy initiatives, has begun changing its approach to measuring and representing food access to address some of the limitations of previous measures. Prior to 2013 (the majority of the my research was conducted in 2011-2012), the USDA defined “food desert” as any geographic area or census tract where 33 percent or more of the population lives over one mile from a supermarket in urban areas and 10 miles from a supermarket in rural areas. As of March 1, 2013, the USDA has adjusted their definition of food desert so that “food access indicators for census tracts using half-mile and one-mile demarcations to the nearest supermarket for urban areas, 10-mile and 20-mile demarcations to the nearest supermarket for rural areas, and vehicle availability for all tracts are estimated and mapped” (Food Access Research Atlas 2013). Along with this definitional change, the USDA renamed their “Food Desert Locator” (a web-based, interactive map visually representing the aforementioned food access indicators) the “Food Access Research Atlas5.” In 2012, the USDA also created the Food Environment Atlas “to assemble statistics on food environment indicators to stimulate research on the determinants of food choices and diet quality” (USDA Food Environment Atlas 2012).

According to the USDA’s website, the new definition of food desert accounts for some alternative distance measures, because there are “many ways to measure food store access for

5 Visit the atlas at: http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx#.Un5DhiTo_IA
individuals and for neighborhoods” (Food Access Research Atlas: About the Atlas 2013). These changes represent a reframing of the food access issue that begins to account for social and structural realities that were not previously considered such as vehicle accessibility6 and a moving away from the term “food desert.” The Food Environment Atlas now allows people to view food access alongside socioeconomic information, some health demographics, and community characteristics such as availability of green spaces and recreation. In addition, this atlas provides information about local food sources such as farmers markets and community supported agriculture (CSA). Unfortunately, results can only be narrowed as far as the county level, so it is not possible to see these data at the zip code, city, or neighborhood levels. While I consider the inclusion of these kinds of data a huge leap forward, the tools still measure access in terms of proximity to retail outlets, namely supermarkets. In fact, “low access to healthy food is defined as being far from a supermarket, supercenter, or large grocery store [and] a census tract is considered to have low access if a significant number or share of individuals (33%) in the tract is far from a supermarket” (Food Access Research Atlas: Documentation 2013).

![Figure 1](image1.png)  
**Figure 1.** 33% of population is over 1 mile from a supermarket.

![Figure 2](image2.png)  
**Figure 2.** 33% of the population is over 1/2 mile from a supermarket.

6 A census tract is defined as low access if more than 100 households in the tract report having no vehicle.
Figure 3. 33% of the population is over 1 mile from a supermarket and has low vehicle access.

Figure 1 is a representation of Sulphur Springs generated by the original “Food Desert Locator” where at least 33 percent of the population is more than one mile from a supermarket. Figure 2 depicts a representation of Sulphur Springs generated by the new “Food Access Research Atlas” where at least 33 percent of the population is more than half a mile from a supermarket. Figure 3 depicts a representation of Sulphur Springs generated by the new “Food Access Research Atlas” where at least 33 percent of the population is more than one mile from a supermarket and has low vehicle access. The addition of the vehicle access measure is important, because having reliable access to transportation impacts a person’s ability to get to supermarkets.

An Anthropological Approach to Food Deserts

Anthropological perspectives and methods can help fill some of the gaps in the current research, and one particular subfield of anthropology provides the most useful lens for analyzing food deserts. Ecological anthropology, emerging in the 1960s, has gone through an evolutionary process that not only mirrors current changes in food desert research, but also highlights the
dangers associated with studying people as distinct, geographically isolable units called “ecological populations” (Kottak 1999:23) According to anthropologist Conrad Kottak (1999:23-25), “old” ecological anthropology was characterized by functionalism and negative feedback, which downplay populations’ heterogeneity and connectedness to people, places, and processes outside of their ecosystems.

Some researchers have begun to criticize food desert studies for the same reasons anthropologists such as Jonathan Friedman criticized the “old” ecological anthropology (1974). These critics worry that food desert studies engage in circular reasoning and that reducing human-environment relationships to exposure and risk ignores the complexities of those relationships and may lead to misunderstandings about food access drivers (Guthman 2008; Shannon 2013). According to Kottak (1999:23), “new” ecological anthropology “blends theory with political awareness and policy concerns” and “emphasizes the embeddedness of communities in multiple systems of different scale” (Kottak 1999:31). This “new” ecological anthropology considers political economy, ethnoecological clashes, neocolonialism, and environmental racism. Most importantly, however, new ecological anthropology is person centered, as all anthropology must be. Ecological anthropology provides a useful framework for examining food deserts, because it can address gaps and emerging criticisms by examining food deserts in context and not as isolated areas of pathology.

Ecological and environmental anthropology’s focus on environmental racism and the role of non-profits in shaping local environments lends itself to building on more traditional food desert studies. For example, my study site—Sulphur Springs—has changed significantly over the past 50 years due to desegregation, gentrification, development, and the degradation of local infrastructure. These are all processes that have led to the “desertification” of this environment.
Yet, it is only in applying this “food desert” label that efforts to improve food access in Sulphur Springs have been publicized and funded. Food access has been the subject of a recent neighborhood-wide, programmatic attempt to modify the food landscape through non-profit organizations and targeted health interventions because the neighborhood is a USDA identified food desert7 (See “Chapter 4: Study Site” for more details). Funding for these initiatives is linked to the assumed health risk associated with living in such environments.

**Study Design**

Using an anthropological perspective, I designed a study that examines food access in one particular “food desert” at multiple levels, and considers alternative (non supermarket) means of accessing food. The study is a “mixed methods” ethnographic project that incorporates GIS methodology, participant observation, and in-depth interviews with neighborhood residents. The design employs an ecological perspective to explore people’s perceptions of and relationships to their local food environment while accounting for the historical and current drivers of environmental change. The social ecological model of health (McLeroy 1988) was incorporated to help operationalize a multi-level analysis of the complex factors at work in a food desert. In particular, I critique the assumption that residential proximity to supermarkets is the best measure of food access in low-income, urban environments, because people access food in a variety of ways. Based on information gathered while working at Moses House, a non-profit organization in Sulphur Springs, I came to understand that gardening is a locally practiced and acceptable alternative means of accessing food. I reasoned that these activities represent assets that are not considered in food desert studies and designed my research questions to understand

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7 Creating a Healthier Sulphur Springs for Kids! is funded by the Florida Blue Foundation.
the extent to which these activities impacted the observed and perceived food environment. My research was guided by the following questions:

1. Based on GIS network analyses and asset mapping, how does the addition of current gardening resources as assets affect the assessment of food access in Sulphur Springs when compared to a more traditional food desert map of the same area?
2. To what extent do perceptions of the food environment differ among gardeners and their non-gardening counterparts in the Sulphur Springs food desert? To what extent are they similar? What does this suggest about the need to include gardening activities and resources into food desert criteria and related asset mapping exercises?

This study aims to address some of the gaps in food desert research in the following ways:

1. It expands on the food desert concept by moving toward a mixed methods approach⁸ to understanding food insecurity.
2. It uses an assets based, rather than deficit-oriented, approach to investigate the built environment in food deserts.
3. In addition to quantitative data collection methods, many of the data were collected using qualitative and ethnographic methods that are seldom used to characterize the gardening practices in food deserts. Similarly, home-gardens, community gardens, and other gardening efforts are often overlooked as sources of food in “food desert research”.

Finally, the study makes a case for anthropological contributions to the study of U.S. food deserts. Although few anthropological food desert studies exist, anthropologists have historically explored some of the key domains that are examined in food desert studies. For

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⁸ Mapping and ethnographic methods are discussed at length in “Chapter 2: Methods.”
example, anthropologists such as Franz Boas, Marvin Harris, Elinor Ochs, Carolyn Taylor, and Sidney Mintz have observed and documented the importance of food as culture. From Kwakiutl salmon recipes (Boas 1921), to the Abominable Pig (Harris 1983), to American dinnertime rituals (Ochs and Taylor 1995), to the global cultural and political impact of the sugar trade (Mintz 1985), anthropological studies about food and food culture abound.

In the area of food insecurity anthropologists have contributed theories about the root causes of famine and reasons for food insecurity, including social, political, and economic inequality and the relationship between infectious disease and famine. (Chatwin 1997; Messer et al. 1998; Ogden 2000; Mtika 2001). Other anthropologists have studied household food insecurity indicators as well as patterns of household food distribution (Himmelgreen et al. 2000). Whereas some disciplines may consider “culture” a single, isolable variable that contributes to health and diet, anthropologists such as Brown (1987), Brewis (2011), Moffat (2010), and Ulijaszek and Lofink (2006) have examined diet and health using a biocultural perspective, contributing to understandings of how social, economic, and political processes are embodied i.e., how our bodies are shaped by and shape the societies and environments in which we live. These anthropologists have explored how social patterns impact food consumption and diet and by extension, health status. Additionally, anthropologists have historically embraced mapping and spatial analysis as part of their ethnographic “toolkits”, although the extent to which this method has been used in each of the four subfields varies (Aldenderfer and Maschner 1996). These studies often explore changes in environments, subsistence patterns, or human activity over time. They have also been used to graphically represent local understandings and uses of ecological and even linguistic resources (Aswani and Lauer 2006; Calamia 1999; Goodchild, Appelbaum, and Harthorn 2000; Kraft 2002; and Uytvanck et al. 2008).
Lastly, ethnography—that hallmark of anthropology—has a history, framework, and cache of methodologies that can be drawn upon to add important detail to the often oversimplified “food desert”. In their book *Writing Culture*, Clifford and Marcus (1986:3) describe ethnography as “an emergent disciplinary phenomenon” whereby ethnographies are more likely to reflect the values of the specific academic disciplines that are producing them than any “objective” reflection of reality. The same could be said about food desert research. Just as ethnography is described as both a process and a product, “food desert” as an object cannot be removed from the methodology that measures its existence. Anthropologists such as Clifford, Marcus, and Agar have examined and critiqued both the ethnographic process and product, as well as how a researcher’s own perspectives shape methods and study findings (“self-positioning”). In tracing the history of ethnography, anthropologist Michael Agar (2008:6) has remarked that “the old model of ethnography led to a picture of an isolated group…that floated independently of policy or history,” thereby highlighting their “otherness” while new ethnography “considers the political and personal circumstances of the research, views the local group as a diverse crowd in a world of blurred edges and foregrounds how larger historical currents fill the study with life” (Agar 2008: 7).

I refer to changes in anthropological thought to suggest that, when it comes to studying groups of people and making conclusions about patterns of behavior (seemingly in isolation, the way many food desert studies do), anthropology has “been there and done that.” As a growing part of American public discourse it is the responsibility of researchers to more critically examine food desert research as both a process and a product, considering the personal, political, and historical mechanisms that shape these environments. It is my hope that an ethnographic
investigation of a “food desert” better contextualizes people’s experiences, shedding light on not just the meaning of “food desert,” but what it means to live in a food desert.
CHAPTER TWO:

LITERATURE REVIEW

This literature review was conducted between 2011 and 2013 to better understand definitions of food deserts, how food deserts are characterized both at the individual level (residents’ traits) and the community level (characteristics of the built environment), and the theories and methods used to identify food deserts and measure food access in these areas. Only peer reviewed, English language articles were included in the sample. They were annotated and analyzed using AtlasTi 7 (2013).

Background and Significance

I first became interested in the idea of food deserts in 2007 after reading Michael Pollan’s (2006) *The Omnivore’s Dilemma*. At the time, it was on the New York Times Bestseller list and I picked it up because it had come highly recommended by my parents, my best friend, and Oprah. The book was so popular and widely read that the concepts within have become part of a national discussion about food, eating, and our rights as consumers. “Food desert” as a concept has a history that precedes *The Omnivore’s Dilemma* by about a decade, agreed to have been coined by a research study participant in Scotland in the 1990s. (Beaulac, Kristjansson, and Cummins 2009; Cummins and Macintyre 2002; Walker, Keane, and Burke 2010) Following its usage in several British food policy initiatives in the late 1990s and early 2000s, (Clarke, Eyre, and Guy 2002; Cummins and Macintyre 1999; Cummins and Macintyre 2002a; McEntee 2009; Whelan et al. 2002; Wrigley et al. 2002), the term “food desert” was applied in studies about obesity and urban food access. In the 2000s, the term “food desert” has become commonly used
in popular media and in policy to wrap a very complicated issue in a neat package to present to the public. The number of peer-reviewed, published food desert studies has increased every year since 1998, with the majority of the available studies published in the last six years alone.

A current Google search of the term food desert yields over 129,000,000 results from popular news sources, government agencies, nonprofit organizations, and, yes, even Oprah. The First Lady, Michelle Obama has even made eradicating food deserts one of her strategic health initiatives. Though popularly referenced, the definition of food desert is variable and sometimes unclear. The purpose of this literature review is to trace the origins and current scientific use of the term food desert, identify theoretical/methodological gaps in available food desert studies, and discuss how an anthropological approach to food deserts may fill the identified gaps. The following three questions guided my review of the literature.

1. What factors commonly characterize food deserts in the academic literature?
2. Based on an analysis of study designs, methodology, and theoretical frameworks, what gaps exist in the food desert literature?
3. How can anthropological methods fill some of the identified gaps in the literature?

**Methods**

I began conducting a review of food desert literature in 2011. Due to the emergent nature of this field of inquiry, it was necessary to revisit the literature in 2012 and 2013 and add any relevant new sources. Only peer reviewed, English language literature that, 1) defines and/or operationalizes concepts and methods related to food deserts and/or 2) analyzes food access geospatially, were included in the literature review. To maintain a manageable study sample, only seminal U.K. studies (i.e. those studies that were heavily cited in other literature) were
included in the literature review. All other studies were conducted in the United States. Using the terms “food desert”, “food desert definition”, “food desert research methods”, “social ecological model and food desert”, “urban food desert”, “urban food environment”, “urban food access”, and “food desert and anthropology”, I searched through the following databases: Academic Search Premier; Elsevier; Google scholar; JSTOR; ScienceDirect; and Web of Science. (See Appendix A for full list of journals.) Additional references were gathered by reviewing the bibliographies of articles meeting the inclusion criteria. These articles were then subjected to the same evaluation process. A total of 44 food desert articles were included in this review.

Results

I identified three literature reviews of food desert studies (Table 1). These literature reviews provided analyses of available studies, focusing on different characteristics of study design and results. Several salient themes emerged from a synthesis of these reviews. Food deserts are often characterized by community variables such as the prevalence of supermarkets and fast food outlets, the socio-economic status of local residents, and an urbanized landscape. Reported food deserts are usually locations in which low-income, minority populations have limited access to fresh produce retailers, but high access to fast food retailers. These populations are not often described as “hungry,” rather they lack diverse diets. Their diets are often described as being fat and calorie rich, but lacking vital micronutrients that can be found in fruits and vegetables. Thus, these areas are easily targeted for small-scale nutrition interventions that increase consumption of fruits and vegetables among low-income populations.
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<td><strong>Purpose</strong></td>
<td>The goal of this paper is to explore the current state of research on food deserts in the United States and to identify areas in need of future research.</td>
<td>To identify measures of the food environment used in research.</td>
<td>To systematically and critically review the literature to determine whether access to healthy, affordable food in retail stores varies by area socioeconomic status to the disadvantage of socioeconomically deprived areas. In addition, we critique the methodological rigor of existing evidence.</td>
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<td><strong>Methods</strong></td>
<td>A review of 31, English language articles from January 2008 to January 2010 using the search terms “food desert” and “food access”.</td>
<td>A structured review of 137 articles to identify peer-reviewed articles published between January 1990 and August 2007 that measured the community-level food environment.</td>
<td>A systematic review of primary, quantitative, observational studies, published in English or French, that used geographic or market-basket approaches in high-income countries.</td>
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<tr>
<td><strong>Results</strong></td>
<td>Studies commonly focused on:</td>
<td>Researchers commonly focused on: accessibility, availability, affordability, and quality of the food environment.</td>
<td>Food deserts exist in the United States, where area-level deprivation compounds individual disadvantage</td>
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<td>• access to supermarkets</td>
<td>The most frequently used measure overall was some form of geographic analysis.</td>
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<td>• racial/ethnic disparities in food deserts</td>
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<td><strong>Gaps in research</strong></td>
<td>Studies don’t examine the dynamic interaction between other food venues (restaurants, corner stores, gas stations, etc.) as places, where residents purchase food.</td>
<td>Little work has been done that evaluates psychometric measures of the food environment.</td>
<td>No focus on context.</td>
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<td></td>
<td>• Not enough mixed-methods approach to assess both objective and subjective measures.</td>
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<td>Does not include data on residents’ shopping and health behaviors and health outcomes</td>
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However, it is important to note that the term food desert remains largely conceptual rather than operational (Ressig and Hobbiss 2000): dependent on the presence of a few community-based factors and local perceptions of food insecurity, but lacking any systematic way to determine their prevalence and distribution (Beaulac, Kristjansson, and Cummins 2009; Shaw 2006).

McKinnon et al. (2009) and Beaulac et al. (2009) highlight the fact that “food desert” studies are situated within a larger body of work in which researchers explore relationships between individual characteristics, health outcomes, and the built environment. Food desert studies have been designed much like these analyses of the food environment, using GIS and food store survey methods. While the term “food desert” was only attached to this kind of study design in the late 1990s, Beaulac et al. (2009) found that studies using geographic or market basket surveys to explore health outcomes and health disparities were being used as early as the 1960s. Some of these studies explore relationships between residents’ average incomes and the price of food in their local grocery stores, other studies look at the food prices in minority neighborhood retail outlets, and others compare food price and availability across neighborhoods.

The increase in food desert studies in the 2000s mentioned above is not due to the emergence of a new study design, though new GIS technologies and the increasing availability of geographic datasets have made these studies easier to conduct and more geography centered in recent years (McEntee and Agyeman 2010). Increases in food desert studies are most likely attributable to the term’s popularity and usage among policy makers and government officials. It is not surprising, then, that the prevalence of “food deserts” in the literature followed the use of the term in a number of high profile British health and economic policy initiatives (late 1990s and early 2000s) and important U.S. legislation such as the 2008 Food, Conservation, and
Energy Act, the 2010 Healthy Food Financing Initiative, and First Lady Michelle Obama’s *Let’s Move* campaign.

Whether or not food deserts actually exist is still a subject of debate, particularly among British academics. Cummins and Macintyre (2002) argue that a limited amount of empirical evidence has been overused and overinterpreted by policy makers to suggest that food deserts are tangible, prevalent and easily managed through legislation and intervention. While they are careful not to critique the scientific rigor of food desert studies, conceding that many of them are exploratory in nature, they take aim at scholars and policy makers who uncritically cite primary research “without close reference to the original source material,” (Cummins and Macintyre 2002: 437) cautioning against the undiscriminating replication of assumptions that turns findings into “factoids”.9 Similarly, Sparks et al. finds that many early studies of the food environment that explicitly sought to identify food deserts have been “more oriented towards case studies than empirics” (Sparks, Bania, and Leete 2011:1717) further supporting the argument that the existence of food deserts cannot be taken at face value. Rather, they should be considered critically and within context.

Beaulac et al.’s 2009 systematic review of primary food desert research further speaks to the need to examine more critically study assumptions, designs, and findings. The authors found that across studies there was no standard approach to measuring food access, sampling, or defining key concepts. They found that market basket10 studies were the least methodologically rigorous, geographic surveys were of moderately high quality, and that mixed methods studies were the most rigorous though they commonly failed to report interrater reliability. Based on

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9 “Assumptions or speculations reported and repeated so often that they are popularly considered true; they are simulated or imagined facts.” (Cummins and Macintyre 2002: 436)

10 In food desert studies, the “market basket” is a fixed list of food items that is used to measure food availability in stores.
their review, they determined “that food deserts exist in the United States, where area-level deprivation compounds individual disadvantage. Evidence for the existence of food deserts in other high-income nations is weak.” (Beaulac, Kristjansson, and Cummins 2009:4) Spark, Bania, and Leete’s (2011:1717) review (as part of a larger paper) similarly finds that even across studies employing similar methods, “the underlying details of these methods vary in a number of ways.” They blame the lack of standardized terminology for inconsistencies. For example, they explain that in many cases, definitions of neighborhood, store, and distance vary, causing data to be aggregated and analyzed differently, and ultimately contributing to the debate about whether food deserts actually exist.

While the purpose of my review was not to determine whether or not food deserts exist, my understanding of the food desert literature is in line with that of Beaulac et al.’s. (2009) I found that, while terminology, methodology, and study design are broadly similar across studies, there is by no means a standardized approach to food deserts. Additionally, there is a noticeable lack of theory in the literature, making it difficult to understand the reasons behind study design and the interpretation of study findings. Although Shannon (2013) has suggested that the idea of the food desert is rooted in social ecological theory, of the 44 articles included in this review, only five articles explicitly mention incorporating any theoretical framework and these tended to be critiques of food deserts and not primary research studies. This particular gap may contribute to the ease with which food desert study findings have been reproduced as factoids. The lack of consensus, even on the definition of food desert, is likely due to the cross disciplinary nature of the research. In the following sections, I do not dwell on the inconsistencies so much as I highlight notable commonalities across these studies.
Defining food deserts

Definitions of food desert are inconsistent. Though used in a number of popular, governmental and scholarly sources, a uniform definition of “food desert” remains largely undeveloped and, while researchers have called for the development of a standard definition and agreed upon methods (McEntee 2010; Reisig and Hobbiss 2000; Russell 2011; Walker 2010, 2011), definitions differ depending on fields of inquiry and the research questions being asked. “Although the term “food desert” can mean a literal absence of retail food in a defined area, studies of food deserts more commonly assess differential accessibility to healthy and affordable food between and within socio-economically advantaged and disadvantaged areas” (Beaulac, Kristjansson, and Cummins 2009:1). Concrete definitions of food deserts emphasize a lack of physical and economic access to healthful foods in a geographically bounded location (Block and Kouba 2006; Clarke, Eyre, and Guy 2002; Cummins and Macintyre 2002; Gallagher 2006; Larsen and Gilliland 2008; Reisig and Hobbiss 2000; Shaw 2006; Short, Guthman, and Raskin 2007; Walker, Keane, and Burke 2010; Whelan et al. 2002; Wrigley et al. 2002).

I generated a word cloud (see Figure 5 using the definitions that were available in 40 of the 44 articles I reviewed to graphically illustrate researchers’ understandings of what constitutes a food desert. The size of each word is related to how frequently the word is used in definitions; i.e. larger words are used more frequently. As the word cloud suggests, food desert researchers are chiefly concerned with “access” to “healthy food.” Researchers underscore the importance of economics by frequently including words like “income”, “economic”, and “affordable”. Frequent use of words such as “stores”, “retail”, and “supermarket” suggest that retail food outlets are valued as measures of food access. Additionally, regular use of words like “areas,” “geographic,”
“residents,” “neighborhood” and “urban” suggest that the environment in which one lives plays a key role in characterizing food deserts. Finally, definitions of food deserts are deficit oriented. Researchers often use words such as “exclusion”, “lack”, “low”, “poor”, and “barriers” to emphasize scarcity.

A commonly cited definition of food desert comes from a study conducted in the 1990s by the United Kingdom Nutrition Task Force’s Low Income Project Team. This team stated, “food deserts are areas of relative exclusion where people experience physical and economic barriers to accessing healthy food” (Bitler and Haider 2010; Cummins and Macintyre 2002b; Caraher et al. 1998; McEntee and Agyeman 2010; McKinnon et al. 2009; Reisig and Hobbiss 2000; Shaw 2006; Walker, Keane, and Burke 2010; Whelan et al. 2002). This project team credits a Scottish public housing resident who was describing what it was like to live and shop in his neighborhood with coining the term “food desert”. Definitions of “food desert” also vary in
official government policies. For example, the above definition was used in the U.K. 2001 Food Poverty Eradication Bill but the U.S. Food, Conservation, and Energy Act in the 2008 Farm Bill defines a food desert as “an area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominately lower-income neighborhoods and communities.” (2039) (See introductory chapter for further information about changing U.S. Department of Agriculture definitions) According to Apparicio et al., (2007) this lack of agreement on how food deserts are defined and measured has spurred a debate about the actual existence of food deserts. (See “Thinking Critically about Food Deserts” in Chapter 6 for my personal regarding the food desert definition.)

Social determinants of health

Food desert literature is situated within a larger body of literature that investigates “spatial inequalities” related to access to resources. As suggested by Shannon (2013), these studies are grounded in social ecological theory and emphasize “the social, institutional, and cultural contexts of people-environment relations…that can influence a variety of health outcomes, including physical health status, emotional well-being, and social cohesion” (Stokols 1996:285). Though social ecological theory emphasizes the “dynamic interplay between situational and personal factors rather than focusing exclusively on environmental, biological, or behavioral determinants of well-being” (Stokols 1996:286), in practice, due to time and funding limitations, these studies have tended to focus on one or two environmental or behavioral characteristics that may impact one’s health. Most commonly, proximity to supermarkets, access to transportation, and socio economic status are considered. Only a few studies explored interpersonal, intrapersonal, historical, or political determinants of food access. I used the social ecological
model of health (Figure 6) to organize findings from the literature and better understand which socio-ecological factors are most commonly explored in relation to food access in food desert studies.

![Figure 5. The social ecological model (McLeroy 1988)](image)

The social-ecological model has been under construction since the late 1970s with contributions from sociology, public health, and psychology scholars. It has roots in systems theory and human ecology and was developed to understand more systematically how humans relate to their environments and the impact of interrelated spheres of influence on human health. The model is commonly used when discussing the social determinants of health. Kenneth McLeroy, Urie Bronfenbrenner, and Daniel Stokols’s have been the most influential contributors.

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12 According to the WHO, the circumstances in which people are born, grow up, live, work, and age as well as the systems put in place to deal with illness that are shaped by broader forces including economics, social policies, and politics. (World Heath Organization: Social Determinants of Health 2013)
to the development of this model. In 1988, McLeroy expanded on Bronfenbrenner’s 1979 Ecological Systems Theory and created the five level Ecological Model of Health Behavior. This was expanded upon by Stokols in 1992 with the creation of the Social Ecological Model of Health Promotion. Numerous scholars and organizations have tailored the social ecological model to reflect multiple realities and the flexibility of the models is, I believe, one of its most important strengths.

The individual level consists of individual characteristics that influence behavior such as knowledge, beliefs, one’s personal history, and personality traits. Some scholars may even consider genetic factors at the individual level. Interpersonal factors impact one’s health through family and peer relationships. Organizational factors are all of the informal structures that promote or constrain one’s health behavior such as the rules or regulations encountered at work, school, or church, for example. Community factors impacting health include the social networks, social norms, and cultural taboos and mores that govern interactions among individuals, groups, and organizations. This level also incorporates influences of the built environment. Finally, policies that impact health include all local, state, and federal policies and laws that support or constrain an individual’s or population’s health and resilience. In the following paragraphs, I will use these broad domains to discuss primary factors of focus in the available food desert literature.

At the individual level, studies commonly consider race/ ethnicity, employment status, income, actual or perceived health status, and access to vehicles. These factors are often explored quantitatively with a social deprivation index (discussed in detail in the next section) or by accessing aggregate population data for the geographic area in question. Only a few qualitative studies explored individual factors such as personal preference, shopping/ food procurement
habits, time available for procuring and preparing food, knowledge of available food choices, use of economic assistance programs such as SNAP, WIC, and cash assistance, individual psychology, or the personal ideologies that impact where and how people procure food (Caraher et al. 1998; Ross and Mirowsky 2001; Walker et al. 2011; Wehlan et al. 2002; Wrigley et al. 2002). At the interpersonal level, only Caraher et al. (1998), Morton et al. (2005), and Wehlan et al. (2002) discussed in detail how being part of a family unit or social network impacts shopping behavior and food access in food deserts.

The organizational and community levels are the most commonly explored in food desert literature. 100 percent of the studies in my sample explored and discussed the built environment and the impact of organizations—specifically retail food outlets—on food access. Community characteristics that are most often considered to impact food access are being urban and built up, lacking reliable public transportation networks, having a dearth of supermarkets and green grocers, and having an abundance of convenience and fast food stores. Studies that focus largely on these levels of influence overwhelmingly favor retail solutions to urban food insecurity, though some scholars caution against overreliance on large, chain supermarkets as they can drive local retailers out of business, thereby decreasing choice and competition. These scholars may favor alternative retail outlets such as small markets, green grocers, or farmers markets to increase community resilience (Eckert and Shetty 2011; Raja, Ma, and Yadav 2008; Short, Guthman, and Raskin 2007).

At the policy level, the political or historical processes that contribute to the individual, community, or organizational factors impacting food access are notably absent from the literature. However, there are a few exceptions that have shed light on some of the suspected root causes of food desertification and contributed creative solutions to the problem of area food
access and security. Russell and Heidkamp (2011) situate their study of a New Haven, Connecticut food desert within the historical context of the local food supply system. By tracking the effects of a major supermarket closure in New Haven, the authors shed light on how market-based policies and corporate business practices can undermine the resilience of a community. Based on their findings, they conclude that food deserts are symptomatic of a weakened food supply chain whereby bad policies and market-based factors have allowed large supermarkets to dominate the food system. Contrary to many other food desert studies—and based largely on a unique historical and political perspective—Russell and Heidkamp caution against fighting food insecurity by promoting area reliance on large supermarkets.

McClintock (2008) reaches a similar conclusion in his study of the historical and political mechanisms that have led to food desertification in Oakland, California. McClintock’s historical perspective reveals that cycles of industrial boom and depression coupled with destructive redevelopment policies have contributed to the emergence of economically depressed neighborhoods with limited supermarket access. Like Russell and Heidkamp, McClintock cautions against only seeking to address food deserts “at the microscale” (2008:113) because broader policy changes are needed to support community well being.

Cummins and Macintyre (1999) examined the emergence of a Glasgow food desert through time as a result of retail and land use policies that changed area store distribution and food delivery, increasing the population’s vulnerability. Again, they question the long-term sustainability of solutions to food insecurity that rely solely on access to large supermarkets. Larson and Gilliland (2008) also explored the historical change overtime in residential food access, linking food desertification to suburbanization but they did not discuss the political drivers behind this change in any great detail. Unlike Russell and Heidkamp, McClintock, and
Cummins and Macintyre, Larson and Gilliland uncritically accept that retailers should naturally close in intercity areas “because it makes economic sense for the owners of the supermarket to chains who are following the suburbanization of their customer base” (2008:13). Nevertheless, due to their historical view of food desertification they believe that supporting networks of smaller, low-cost green grocers (and not large supermarkets) in food deserts may be the best way to combat food insecurity in urban areas.

Finally, Lang and Caraher explore how policy—both governmental and retail—has impacted food access in British cities over time. They find that contemporary food, poverty, and health policy has overemphasized consumer solutions to food access at the expense of “structural issues such as income, environmental impact, and ideology” (1998: 207). They further explain that this focus on consumer solutions, unfairly places the burden of health onto “rational” individuals to make healthy choices without accounting any other structural factors that influences health. The overarching idea being that if policy supports improved retail environments so that residents have access to supermarkets, then they will make healthy choices. If they still remain unhealthy despite supermarket access, it is because they choose to do so.

While the historical and political processes that impact food access tend to be neglected in food desert research, the notable exceptions to this rule suggest that a greater emphasis on this level of influence may change the ways in which food deserts are identified and understood as well as challenge some of the dominant ideas about how to tackle the food desert problem. Primary considerations in the literature suggest that an over emphasis on any one sphere of influence—in this case the community and organizational levels—have led to a narrow understanding of the drivers that create unequal access to resources in a society. By focusing largely on the one-way relationship between individuals and one aspect of the built environment;
i.e. access to retail supermarkets, food desert studies present areas of differential food access as “discrete, pathologized spaces outside of an otherwise healthy foodscape” In his brilliant critique of food desert studies, Shannon takes particular aim at the use of social ecological model and framework in studies of obesogenic environments like food deserts primarily due to these studies’ overemphasis on neighborhood environments. He explains that, “the focus on neighborhood space minimizes the place of structural reform” (2013:5) in policies and initiatives aimed at combating food deserts. He argues instead for a political ecology framework. While I agree with part of his argument, I do not believe that social ecology is necessarily to blame. Rather, I think it is the narrow application of social ecology that has led to this over emphasis on neighborhood environments as the main drivers of human health and population resilience.

Common methods and measurements

Studies of the food environment have included studies of food stores, schools, restaurants, and worksites. Most commonly, instruments such as market baskets, checklists, questionnaires/ interviews, and inventories have been used to study the food environment. Common methodologies include sales analyses, menu analyses, nutrient analyses, and geographic analyses (McKinnon 2009). Broadly, food desert studies explore the links between poverty and health through spatial analysis and are largely quantitative. Of the 44 articles in my sample, eight studies were qualitative, seven studies employed a mixed-method design, 17 were quantitative, and 12 were literature reviews, policy analyses, or critiques. Qualitative approaches to food deserts were more common in the earlier years of food desert research, while quantitative studies have dominated since the mid 2000s. According to John Battalio, author of The Rhetoric
of Science (1998), this is not an uncommon trend in less established areas of study as scholars work toward “professionalization” or an increased focus on the scientific value of a particular subject. Qualitative studies explore issues related to factors affecting food shopping and consumptions patters and often use a case study design.

Quantitative studies use geographic information software to measure the food accessibility in urban environments and have been used to “test hypotheses related to disparities in food access” (McKinnon et al. 2009:129). The most common measure of fresh food access is the chain supermarket, although some studies have incorporated fast food retail outlets into their analyses as negative measures of healthy food access. All of the studies in my sample referred to supermarkets as proxies for fresh food availability. Accessibility measures are most often based on food retail density or residential proximity to food retail outlets. Researchers will define a minimum acceptable distance in time traveled or miles, kilometers, or meters, though studies vary by how they how they define supermarkets for inclusion in their study, how they measure access (i.e., within 1000 meters, within 500 meters, 10 minute bus ride plus 500 meters, etc.), the level at which data are aggregated (i.e. how distances were calculated), and the distance construct used measure food access (i.e. Euclidean distance or street network). Researchers commonly generate maps of all food retailers within specific geographic boundaries and compare the number of supermarkets to the number of fast food restaurants. Some studies use the gravity model (McKinnon et al. 2009; Páez et al. 2010), “the mean distance to all services, the distance to the closest services and the mean distance to all the services included within a specific meter radius” (Apparicio, Cloutier, and Shearmur 2007:3). Food desert studies are largely deficit oriented and though measures of accessibility vary, they most often link supermarket accessibility and measures of area deprivation. Studies commonly used deprivation
indices such as the Carstairs-Morris Deprivation Category (DEPCAT) to measure social and economic disadvantage (Apparicio, Cloutier, and Shearmur 2007; Cummins and Macintyre 2002b; Clarke, Eyre, and Guy 2002; Donklin et al. 2000; Páez et al. 2010). There were exceptions to the deficit orientation of most food desert studies. For example, Hendrickson, Smith, and Eikenberry (2006) acknowledged that residents in their study of four food deserts used assets such as food assistance and gardens. Other studies treat available food assistance programs, farmer’s markets, locally owned groceries, and social support networks as assets worth exploring within the food desert context. (Morton et al. 2005; Shannon 2013; Short, Guthman, and Raskin 2007; Guthman 2008)

**Common critiques of food deserts**

One of the most common criticisms noted in the literature is the fact that a standardized way to define, identify and measure food deserts has yet to be developed. 42 of the 44 articles in my sample mention the lack of a standard definitions and/or terminology. 38 of the 44 articles mention the lack of standard methods and measures. 12 of the 44 articles explain that the lack of consensus over definitions and measurements has led some researchers to question and debate the actual existence of food deserts. For example, Jiao et al (2012: 38) “found that the identification of vulnerable populations living in food deserts is highly dependent on the definition and measurement of low-income status and of economic and physical access to supermarkets.”

One very important critique of food desert studies that is not as prevalent in the literature, questions the assumption that the retail food environment is independently associated with diet. (Cummins et al. 2005) Sparks, Bania, and Leete explain that, while imperfect, “supermarkets
have served as generally accepted proxies...for the availability of a wide range of fresh, nutritious foods” (2011:717). Scholars like Guthman (2008), Hattersley and Dixon (2010), Short et al. (2007), Morton (2005), , and Sparks et al. (2011) have argued that while the retail environment may contribute to diet and diet related behaviors, the presence of supermarkets is just one factor that contributes to health and diet. Furthermore, the supermarket represents but one link in a long food supply chain and by overemphasizing these establishments, other factors like structural inequalities have been ignored. According to Guthman, this may be the case because focusing on supermarkets “galvanizes a wide range of actors, from public health professionals, to sustainable agriculture practitioners, to community food security and environmental justice advocates” . Shannon finds this trend problematic because it “implies that these stores provide a net social and environmental benefit, a questionable assertion given the reliance on low wages and input-intensive agricultural practices in conventional food production” (2013:11).

Other scholars criticize study designs (Beaulac, Kristjansson, and Cummins 2009; Cummins and Macintyre 2002a; McKinnon et al. 2009; Sparks, Bania, and Leete 2011; Walker, Keane, and Burke 2010). Calls to research are for improved study designs that include mixed methods studies and more of a focus on qualitative examinations of people's relationships to local environments, purchasing and diet behaviors, and health status on an individual and household level. Experience of food retail access, self-reported health status, mobility, accessibility, and coping mechanisms are also commonly identified gaps in the literature. As mentioned in previous sections, food desert studies rarely include the historical context of the geographic areas they survey. "Additionally, almost no progress has been made in either the local area or the national studies on identifying why food deserts exist" (Bitler and Haider
This has led several scholars to call for examinations of the potential effects of neighborhood change on purchasing and diet.

Finally, the overemphasis of community level factors impacting food access such as available public transportation and the existence of supermarkets has led to a problematic conclusion about food deserts. First, food deserts are often presented as isolated entities, trapped in a deficit vacuum with minimal linkages with the outside world. Shannon has argued that by “defining these areas through their absences” (2013:11) scholars have pathologized neighborhoods. By doing so, the complexities of life in a food desert have been neatly packaged which has led to the second problematic conclusion often presented in the literature, the solution to the problem. The commonly presented “best” solution to the problem is often simply to build more supermarkets.

**Anthropological perspectives**

To date, very little anthropological research has been done on food deserts, though, as mentioned in previous chapters, anthropologists have studied many of the domains explored in food desert research. The majority of the literature on food deserts is published in geography, urban planning, or health journals. For example, anthropologists have conducted food ethnographies, studied single commodities and substances, explored food and social change, done extensive research in the area of food insecurity, and examined eating as ritual and as identity (Mintz and Du Bois 2002: 99). One study by anthropologist Lisa Markowitz (2008) explores the development of a Kentucky farmer’s market that was designed to generate a profit while growing the local food environment in a food desert. Like Shannon (2013), Markowitz rejects the idea of the isolated community, instead examining the historical, political, and moral
tensions that have impacted area food security. She found that community engagement and activism was a significant asset in her food desert study site. Anthropologists Hattersley and Dixon (2010:199) use an ecological perspective to explore the role of the supermarket as part of the larger food supply chain. They conclude that supermarkets are important because they have a demonstrated impact on community health both distally and direct. They also explain that there “is an urgent need for greater effort in theoretical and conceptual development” in studies the critical role of supermarkets in our communities.

Conclusions: Alternative Measures of Food Access

My review of 44 food desert studies revealed some critical gaps in the current food desert literature. First, there is rarely any explicitly stated theoretical framework guiding food desert study design and food desert studies are deficit oriented. Next, mixed method and qualitative food desert studies are limited and they rarely focus on the historical or political processes underlying neighborhood food security. Finally, food desert studies place a premium on retail outlets such as supermarkets as a measure of food access in neighborhoods. The published food desert literature often excludes smaller, locally owned retail stores that may sell produce and other alternative food sources, such as farmer markets and community gardens. A major critique of the ‘making’ of food deserts is that their measurement may be misleading, areas that are categorized as food deserts may indeed have more healthy food options than the current classification schema depicts. Using anthropological methods, such as participant observation and open-ended interviews targeting residents’ behaviors and perceptions, I have tried to address some of these gaps in order to develop a more accurate picture of specific food environments.
CHAPTER THREE:

METHODS

Unlike much of the currently published food desert literature, this study uses a mixed methods, qualitative and quantitative research design to explore how gardening in a neighborhood classified as a food desert affects actual and perceived food access. I also investigated the extent to which the classification and discourse of food deserts make an impact on the residents or foodscape. Additionally, a “thick description” (Geertz 1973) of this specific context revealed information about how people perceive and react to changes in their food environment. Interviews and ethnographic observations shed light on the economic, historical, political, and sometimes moral factors impacting residents’ shopping behaviors and motivations for gardening in the Sulphur Springs food desert. Four objectives guided the research design: 1) Identify the common factors that characterize “food desert” in scholarly research, 2) Evaluate Sulphur Springs as a food desert using literature and ethnographic data collection, 3) Modify the current food desert map (published in 2008) by incorporating gardening resources into the GIS spatial analysis of Sulphur Springs, and 4) Interview gardeners and non gardeners about their perceptions of food access and dietary practices, and amount of food they obtain from gardens in SS (if applicable).

A geographic information system (GIS) was used to measure food accessibility by mapping the distance from residents to fresh food access points such as retail outlets and community gardens. A validated (Connell et al. 2007; Ghirardelli, Quinn, and Sugerman 2011;
and Kelly, Flood, and Yeatman 2011) food store survey that was designed by the United States Department of Agriculture (USDA) was used to measure food availability in Sulphur Springs retail outlets. Finally, qualitative methods were used to measure and explore residents’ and providers’ perceptions of the food environment.

**Contributions from USF Graduate School Challenge Grant**

In 2011-2012, I received a University of South Florida Graduate School Challenge Grant to help fund this research. My grant team included Susan Tyler, a graduate student in the College of Arts and Sciences and the College of Public Health (Anthropology and Community and Family Health); David Godfrey, a graduate student in the College of Arts and Sciences (Anthropology); and Lorraine Monteagut, a doctoral student in the College of Arts and Sciences (Geography). S. Tyler, D. Godfrey, and L. Monteagut helped recruit study participants, conduct food store surveys, and conduct four of my ten interviews. I facilitated each interview and my team members took notes and probed interviewees where they felt it was necessary. S. Tyler attended many of the Food and Nutrition Workgroup meetings (see explanation below) and contributed field notes. Finally, D. Godfrey and I worked together to generate all of the GIS maps included in this study. I am incredibly grateful to this team of researchers for all of their contributions.

**GIS Spatial Analysis: Food Accessibility**

In this study, a geographic information system (GIS) was used to reexamine the issue of food accessibility in food deserts. The boundaries of Sulphur Springs were identified using Hillsborough County Government Metadata from the divisions of real estate and the U.S.
Department of Commerce. This boundary includes zip codes 33604, 33610, and 33612, and is comprised of census tracts 11, 12, 13, 4.02, 6.02, 7, and 8. Using these boundaries and the GIS software program, ArcGIS, a baseline fresh food accessibility analysis was performed. At the beginning of the research, several decisions were made regarding the GIS methodology. Food access in Sulphur Springs was mapped using an origin-destination cost matrix and a 2.5 mph walking time. Additionally, for the purposes of this study, only supermarkets and gardens within 2 kilometers of Sulphur Springs would be included in the analysis as “fresh food access points.”

Based on literature from urban planning and geography, an origin-destination cost matrix using network distance was the best tool for measuring both the spatial and temporal dimensions that characterize fresh food source accessibility (Apparicio, Philippe, Cloutier, and Shearmur, 2007; Liu and Zhu, 2004; Larsen and Gilliland, 2008; Smoyer-Tomic, Spence, and Amrhein, 2006; Sparks, Bania, and Leete, 2011). Travel times from residents (origins) to fresh food access points (destinations) were calculated using “network distance” or distance along actual travel routes such as roads and sidewalks. By using this method of analysis, residents’ travel times to fresh food sources reflected the actual built environment that they must navigate in their every day lives.

Access to reliable transportation is commonly cited as a barrier to food access in low-income, urban food deserts (Beaulac, Kristjansson, and Cummins 2009; Shaw 2006; Walker, Keane, and Burke 2010; Whelan et al. 2002). A full analysis of transportation access in Sulphur Springs was not feasible due to time constraints and the scope of the research. However, because Sulphur Springs is a low-income, urban area, and based on participant observation of how people get around in the neighborhood, the analysis was conducted based on walking time to account for limited access to public and private transportation. 2.5 mph, an average adult walking speed, was
chosen for the analysis, although differences in travel time were more important for this study than speed of travel, as speed will vary by individual and method of transportation.

As discussed in chapter one, prior to 2013 (the majority of this research was conducted in 2011-2012), the USDA defined “food desert” as any geographic area or census tract where 33 percent or more of the population lives over one mile from a supermarket in urban areas and 10 miles from a supermarket is rural areas. As of March 01, 2013, the USDA\textsuperscript{13} has adjusted their definition of food desert so that “food access indicators for census tracts using half-mile and one-mile demarcations to the nearest supermarket for urban areas, 10-mile and 20-mile demarcations to the nearest supermarket for rural areas, and vehicle availability for all tracts are estimated and mapped.” (“Food Access Research Atlas,” 2013) The analysis was conducted using a two kilometer (1.24 mile) radius in order to include all of the major supermarkets that residents self-reported frequenting most often in a survey of neighborhood shopping habits conducted in 2011 (Looby, Chiodini, and Pollock 2011).

According to the literature (see Chapter 2: Literature Review for a detailed discussion.), the most common measure of food access is the existence of a large retail food outlet such as a chain supermarket. For the purposes of this study, all of the supermarkets within two kilometers of Sulphur Springs were included as fresh food\textsuperscript{14} access points in the analysis. Current and potential (as suggested by interviewees) urban garden sites were also included as fresh food access points in addition to these commercial food sources. Eight different network analyses were performed using ArcGIS (with and without alternative food access points) to demonstrate

\textsuperscript{13} According to the USDA Food Access Research Atlas’s website, the new definition of food desert accounts for some alternative distance measures because there are “many ways to measure food store access for individuals and for neighborhoods.”

\textsuperscript{14} Food items that are considered “fresh” are whole meats, dairy items, and fruits and vegetables; i.e. not highly processed.
the potential effects of urban agriculture on food accessibility in Sulphur Springs. These network analyses provided researchers with minimum travel times from residents to fresh food. The network analyses incorporating urban agriculture were contrasted with a baseline network analysis of Sulphur Springs that does not account for these noncommercial food sources.

This method of assessing food accessibility is novel, because it acknowledges alternative methods of accessing food and it improves upon the USDA Food Desert Locator’s methods as it uses an origin-destination cost matrix that more accurately depicts actual travel time from homes (origin points) to food sources (destination points) by using actual travel routes rather than Euclidean (linear) distance between points. Commercial food store data were downloaded using ReferenceUSA, a data mining company contracted through the University of South Florida. These data were then evaluated for accuracy using both in person visits and Google Streetview investigation. Other necessary data were downloaded from the Florida Geographic Data Library (FGDL). After completing the necessary network analyses, minimum travel times by parcel were correlated with property values at the parcel or block group level to identify any correlations between property value and distance to fresh food sources. These statistical tests are exploratory and can only suggest correlation, not causation.

**Food Store Survey: Food Availability**

The United States Department of Agriculture’s (USDA) Economic Research Service developed a food store survey to help assess the availability and affordability of community food retail outlets. For the purposes of my study, this tool was primarily used to determine neighborhood *fresh food* availability. The survey is available to the public through the USDA’s *Community Food Security Assessment Toolkit* (Cohen 2002). This tool was used to survey all
four of the chain supermarkets within our two-kilometer radius as well as five of the convenience stores located within the boundaries of Sulphur Springs.

To begin, the challenge grant team and I used the ReferenceUSA database to identify commercial food outlets within two kilometers of Sulphur Springs. In January of 2011, *Creating a Healthier Sulphur Springs for Kids!*\(^{15}\) (See Chapter 4: Research Site for more detail.) conducted a door-to-door canvassing survey of Sulphur Springs designed to gather information on residents’ health habits. This 18 question survey included two questions about shopping habits whereby residents were required to identify the retailers where they 1) most frequently shop and 2) most frequently shop for fresh foods. Residents could choose from a list of seven options: 1) Wal-Mart Neighborhood Market, 2) Save-A-Lot, 3) Meat Market, 4) Publix (Busch Blvd.), 5) Publix (Nebraska Ave.), 6) Other, and 7) Not Applicable (See full survey in Appendix B). To include these locations in the list of selected stores, the selection area was expanded to two miles outside the Sulphur Springs neighborhood boundaries. Each of the four major grocery chains as well as the Meat Market corner stores that were listed in the CHSSK! survey were included because the results of that survey suggested that the majority of residents shopped at these locations. In addition, to these four chain supermarkets, our team found a total of 87 convenience stores within two kilometers of Sulphur Springs. We eliminated all duplicate gas station convenience stores from the list, as all 7-Elevens, for example, have similar merchandise. We then used Google Streetview and called the listed telephone numbers of each location to verify their existence. Any nonexistent stores were removed from the list, reducing the total number of eligible convenience stores to 47. Of the 47 identified stores, nine stores were

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\(^{15}\) CHSSK! is a YMCA facilitated, community-based organization that received an Embrace a Healthy Florida grant from the Blue Cross and Blue Shield of Florida Foundation “to promote healthy living in Sulphur Springs and reduce the number of overweight and obese children in our community.” (Tampa YMCA, 2013)
randomly selected by drawing their names out of a bag. The Meat Market was included as an additional convenience store, increasing the total number of convenience stores surveyed to 10, accounting for 21 percent of the total number of eligible convenience stores and 11 percent of the total number of neighborhood convenience stores.

I, along with my challenge grant team, visited randomly selected store locations. Using a written informed consent form, we received permission from storeowners to conduct our surveys. The Food Store Survey uses a “thrifty foods” list (See full survey in Appendix C), a list of foods that represent a nutritionally balanced and adequate but also low-cost diet. Items on this list were paired with a unit measure, i.e. ounces, fluid ounces, pounds, or count that was considered average. We identified these items in the store, recording the lowest available price for each item per unit of measure. The least expensive item’s brand was also recorded. If the least expensive item was on sale, an “S” was recorded next to the item. If a store typically carried an item but it was not available on the shelf that day, the price was recorded and an “A” for “absent” was written next to the item. If an item from the list was not carried by the store, “n/a” was recorded next to the item. After leaving the store, the team entered data into an excel spreadsheet.

First, the total numbers of missing items in each location were counted and an average number was calculated across all stores based on the list of 87 total items that were included in the survey as part of the USDA Thrifty Food Plan. These numbers were used to calculate the percentage of items missing in each store and the average percentage of missing items across all stores. These numbers were further broken down to include the percentage of missing items in each food category, i.e. dairy, bread, fruits, etc. (Cohen 2002). Additionally, I counted the
number of times items were missing in each category by store type. All results from this survey are located in the Appendix D.

**Ethnographic Methods**

According to LeCompte and Schensul (1999:18), the use of ethnography is particularly advantageous when examining problems that are complex and embedded in multiple systems because “it views all elements under study as existing in a context.” Very few food desert studies contextualize food access by examining how living in a food desert actually impacts behaviors and perceptions related to food access. In their literature review, Walker, Keane, and Burke (2009:822) note that few food desert studies take an ecological approach to food access and that there is a significant need for mixed methods studies that target the personal preferences, habits, and perceptions of those residing in food deserts.

Studies focusing primarily on the built environment do little to acknowledge the personal agency of those people living in food deserts. Far from being closed systems, food deserts are impacted by issues at all levels of society. The ethnographic methods used in this study include participant observation at 23 community meetings over the course of a year, site visits to three community gardens, and 10 in-depth interviews with residents and resident service providers. In addition, I volunteered to work as part of the CHSSK Food and Nutrition Work Group, using information and resources from this study to help them design and meet some of their group’s strategic goals and objectives. The use of ethnography in this study contextualizes more objective measures of food access by examining, not just where residents are able to access food but where and how they prefer to access food and the factors impacting their decisions as
consumers. Additionally, interviews seek to understand residents’ own understanding of the term “food desert”, the extent to which they feel food access is a problem in their daily lives, and their perceptions about the efficacy of current neighborhood programs aimed at alleviating problems of food access.

Sample

Active, purposive sampling techniques were used to identify study participants who were who were 18 years of age or older and residents of Sulphur Springs. Because I worked closely with the YMCA’s Creating a Healthier Sulphur Springs for Kids, participants were actively recruited from Sulphur Springs Elementary School as they picked up their children from a YMCA afterschool program. While this sample was representative of the neighborhood population, individuals recruited from the YMCA were potentially more likely to be aware of CHSSK activities. I also used a referral method (convenience sampling) to identify possible participants. Each participant was offered a $20 gift certificate to the local Wal-Mart as an incentive. Initially 27 participants were recruited and two focus group sessions were organized. Participants were then called and invited to attend one of the two sessions. Follow up phone calls were made one day prior to each focus group session. Although eight participants agreed to attend the first focus group and six participants agreed to attend the second, only one person showed up to each focus group. I made the decision to conduct one-on-one interviews rather than focus groups and was able to conduct a total of 10 interviews, five gardeners and five non-gardeners.
Ethnographic interviews

An interview protocol was developed to measure residents’ perceptions of fresh food access and availability in Sulphur Springs as well as to understand the extent to which residents might participate in alternative food access programs such as community gardens. The protocol targets three areas of interest: 1) residents’ current shopping behaviors, perceptions of access and availability 2) resident shopping experiences and perceptions of alternative methods of accessing food, and 3) resident perceptions of community gardening as a viable solution to problems of fresh food access in their neighborhood, including the extent to which they would participate in such programs. The interview protocol consists of 12 open-ended questions divided in three categories: 1) current shopping behavior, 2) imagining food alternatives, and 3) perceptions about community gardens. The protocol also includes a mapping activity and a demographic cover sheet that asks participants to identify all the places they “usually shop,” if their household receives food assistance, and an estimate of how much their household spends per week on groceries.

Interviews ranged from 30 minutes to over an hour. Using Microsoft Excel, a constant comparative approach was employed to describe data by identifying emergent themes across notes and interview recordings. Themes were then grouped together in order to accurately depict participants’ aggregated responses to each of the three categories addressed in the interview protocol. Given the broad level of analysis used to identify emergent themes within the interviews, only partial transcription was needed to address my research questions. According to McLellan, Macqueen, & Neidig (2003) how data are analyzed should be informed by the research questions and the level of analysis required to satisfy the parameters of the research
design. Similarly, the authors highlight the relationships between research questions, the appropriate level of analysis and transcription (such as, partial, full, or summary), in making decisions about data analysis methodology. My decision to only partially transcribe the interviews conducted for this project was shaped by the desire to understand the general patterns of participant’s responses and to exclude the portions of the interviews that were extraneous to my research questions. Sections of the interviews in which participants veered off topic were not transcribed and not included in the analysis.

**Participant observation**

In order to understand organized efforts to combat food access issues from a provider perspective, I engaged in participant observation at the monthly *Creating a Healthier Sulphur Springs for Kids!* Food and Nutrition work group meetings. I also attended three neighborhood-wide coalition meetings. I took notes and collected meeting agendas and other hand out information to supplement my observations. The purpose of this exercise was to gain an understanding of the goals and strategies of service providers in a food desert and determine the points at which provider and residents’ perspectives intersect, and where they diverge. Field notes were examined for information pertaining to goals and strategies.

**Garden site visits**

Finally, I visited and inventoried each of the three community gardens that were identified as community assets as well as one interviewee’s home garden in order to gain a better understanding of the scale of these gardens and the range of fruits and vegetables being grown.
Conclusion

A review of the literature (see Chapter Two) shows that food desert researchers commonly call for more mixed methods food desert study designs to better understand how living in a food desert impacts residents’ health status and quality of life. Very few existing studies use qualitative data collection methods and there are—to the best of my knowledge—no published ethnographies of food deserts at present. By employing a mixed-methods, ethnographic design, I can contribute to the understanding of how historical, economic, social, and behavioral factors intersect in a food desert.
CHAPTER FOUR:

STUDY SITE

Sulphur Springs is an historic neighborhood located on the Hillsborough River in Tampa, Florida. Anthropologists at the University of South Florida, focusing on heritage studies, have conducted oral histories in an attempt to both preserve the neighborhood’s rich cultural heritage and shed light on the neighborhood’s less discussed history of segregation and racial conflicts. The following short history is drawn from Jackson (2010). Beginning in the late 1800’s through the 1920s and 1930s, Sulphur Springs became the “recreational destination of choice for Tampa Bay area residents and northerners alike” (2010:80). Tourists were drawn to the natural springs, one of the first indoor malls called an “arcade”, a gazebo, a swimming pool, bath houses, movie theaters, stores, walking paths, parks, carriage rides, and an alligator farm. A trolley car was built to connect Sulphur Springs and Tampa (Arney 2012) and a steamer traveled the river from downtown Tampa to bring tourists to the neighborhood (City of Tampa 2013). In 1904 Josiah Richardson created the Sulphur Springs neighborhood subdivision, and schools and churches grew up around the area. An iconic 225 feet tall water tower was built in 1927 and still stands today, a recognizable landmark. (See Figures 6-8).

Figure 6. The Arcade, 1947. Image courtesy of Tampapix.com
While many people enjoyed the amenities and attractions available in Sulphur Springs, the area was heavily segregated until the late 1960s. Beginning in the 1910s, African Americans lived in an area just north of Sulphur Springs called Spring Hill. While the community was largely self-sustaining (Arney 2012), it lacked the recreational attractions available in Sulphur Springs and—though close in proximity—African Americans from Spring Hill could not access these attractions due to strictly enforced segregation laws. For example, the swimming pool, park, and many restaurants and clubs including the Harbor Club (founded in 1937 on the Hillsborough River) were whites-only establishments and the arcade was only accessible to African Americans if “you went to the back door” (Sulphur Springs resident quoted in Jackson 2010:84).

The legacy of segregation in Sulphur Springs can still be seen today in the income, housing, and geographic disparities experienced by the neighborhood’s now predominantly African American population. The second half of the 20th century witnessed the steady decline of
area infrastructure due in large part to discriminatory housing laws, and a federally funded urban renewal project that actually lowered property values by allowing for the existence of absentee landlords and rent inflation. (Arney 2012; Ruiz 2007). While much of the history presented here comes from the work of USF anthropologists who have been investigating this area for decades, other university departments have also turned their attention to Sulphur Springs, contributing to the wealth of information about this historic neighborhood. The Office of Community Engagement at the University of South Florida has encouraged university faculty and students from Public Health, Education, Sociology and Geography to engage in neighborhood service learning projects, aimed at improving learning outcomes while benefiting neighborhood participants.

**Neighborhood Description and Demographics**

Sulphur Springs is currently one square mile of Hillsborough County and includes census tracts in zip codes 33604, 33610, 33612. The boundaries of Sulphur Springs are drawn differently depending on the number of census tracts associated with agency data when generating a map. According to the City of Tampa, Sulphur Springs runs north to south from Busch Boulevard to the Hillsborough River, and East to West from the railroad tracks to Nebraska Avenue and Florida Avenue. Some data sources include census tracts extending just beyond Busch Boulevard to the north and past the railroad tracks to 30th street in the East. For the purposes of this study, it was necessary to use these extended boundaries (see Figures 9 and 10 for comparison).

When compared to the City of Tampa as a whole (Figure 11), Sulphur Springs has double the building density, has twice as many commercial and service retailers, and has double the percentage of high-density residential areas (tampagov.net 2013). According to the 2010 U.S.
Census, 5,724 predominantly low-income, African American residents live in approximately 1,800 households. In 2010, 62% of all residents were African American, 47% were living below the poverty line (Figure 12) with an estimated yearly income of $13,171, and 71% of households received some form of food assistance.

Figure 9. City of Tampa demarcated boundaries of Sulphur Springs. Google Maps Image at tampagov.net.

Figure 10. Extended boundaries of Sulphur Springs. Courtesy of Zipmaps.net

Figure 11. Land Use
As a Tampa native myself, I am accustomed to the lack of cohesion that typifies this city. Some of Tampa’s wealthiest residents live just minutes from its poorest residents and the income disparity can actually be seen when driving down the smooth roads of one neighborhood and the pothole-pocked roads of another. When I first visited Sulphur Springs as a volunteer at Moses House—a community non-profit youth organization—I was excited to see the neighborhood in which my grandmother had lived and gone to school. She had given me the address to her old house on Sitka Street and instructed me to look for the mother-in-law house at the back of the property (Figure 13). As I navigated the potholes in the roads and the kids riding their bicycles, I was impressed by the large tree canopy and the beauty of the natural environment particularly along the Hillsborough River. When I got to my grandmother’s old home, I was disappointed to see how run down it looked. The house itself had great bones but had fallen into disrepair. It had a front porch and many windows, some of which were broken and the front yard was littered with trash. The roof was in bad shape and the paint was peeling along the front and sides of the

Figure 12. Percentage of the Sulphur Springs population below the poverty line

54
house. This is not unusual in Sulphur Springs but I had hoped that this little piece of my family history, my grandmother’s home, had managed to beat the odds and fare well through the years, in the face of many changes.

Figure 13. My grandmother’s old home on East Sitka Street.

The neighborhood has a mix of well-built bungalows from the 1920s and 1930s; Florida shotgun style homes; smaller, single family homes from the 1940s, 50s, and 60s; and new duplexes. Some of these homes have been remodeled and well kept while others seem to be falling apart. Landscaping is similarly disjointed. While some homes have no landscaping or very little yard at all, a number of houses (even the most run-down) had lush front yard vegetable gardens. According to 2011 property data downloaded from the Florida Geographic Data Library (FDLG), the average residence is valued at or below $47,000. A brief review of these data show that the majority of residents in Sulphur Springs were renters rather than homeowners and that close to 35% of neighborhood residences were owned by people living outside of Florida.
Additionally, due to the sub-prime mortgage crisis of 2008 the neighborhood has experienced some of the highest foreclosure rates in the city ([Sickler and Thalji 2010], cited in Arney 2012: 163), further decreasing property values (Figure 14). The city of Tampa (and this region of Florida) were among the hardest hit in the entire U.S., so this is very significant when considering the extent of poverty experienced by residents in the neighborhood. When considered alongside Sulphur Spring's history, careless and discriminatory housing policy (Greenbaum 2002) and recent economic factors help to explain the eclectic mix of renovated and neglected homes that characterize the neighborhood.

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16 Map generated by David Godfrey, challenge grant team member
The Food Environment

The majority (95%) of the food retailers in Sulphur Springs are convenience stores selling packaged foods or corner stores with a more comprehensive selection than convenience stores, but still limited when compared to regular supermarkets.\textsuperscript{17} The closest grocery stores include a Wal-Mart Market Basket, a Save-a-Lot, and a Publix, though convenience and corner stores are more prevalent and easier to access than these supermarkets. Some residents are able to buy items such as cigarettes, prepared meals, and smaller packaged items from their neighbors, running what are known as “bootlegs” out of their homes. These home-based “stores” are scattered throughout the neighborhood and residents are generally aware of which homes have bootlegs.

With such a high number of residents using the Supplemental Nutrition Assistance Program (SNAP) or the nutrition program for Women Infants and Children (WIC), it is important to residents that the stores they frequent accept food stamps. Unfortunately, many of the most conveniently located retailers do not have electronic benefits transfer (EBT) capabilities and the ones that do generally have a limited selection of overpriced, unhealthy foods. For example, the Sulphur Springs ice-cream truck has EBT capabilities but the Greens Man\textsuperscript{18} (conceptually similar to an ice-cream truck) selling fruits and vegetables does not. One resident explained that, in addition to not accepting food stamps, “Greens Man is a rip-off” because his produce is overpriced. For this reason, many residents have small vegetable gardens in their front or back yards, likely to help offset cost and for ease of access to produce. When asked about the

\textsuperscript{17} Findings from 2011-2012 Challenge Grant study entitled “Evaluating the Impact of Urban Agriculture on Food Accessibility through GIS Modeling: An Assets-based Approach to Food Desert Research” by Chavez, Godfrey, Monteagut, and Tyler

\textsuperscript{18} The name of this local produce truck has been changed.
benefits of having a home garden, one resident said, “well, it’s nice because it don’t cost too much and I can grow what I want. Not just what they got in the store.” Another resident reiterated the economic value of having a garden at home by saying, “one bag of seeds…that’s money. One bag of seeds will cost you a dollar and save you a grocery bill!”

For most city dwellers, grocery shopping is an unavoidable part of everyday life. Unfortunately for many of the interview participants, grocery shopping is rarely a pleasant experience in Sulphur Springs. Residents repeatedly mentioned being dissatisfied with the price, selection, and quality of items available at their local grocery stores. In fact, many residents traveled outside of Sulphur Springs to visit farmers markets, Whole Foods, and other grocery stores with better quality items. Residents were acutely aware of the changing food environment and expressed the injustice of such changes. According to these residents, the Sulphur Springs of the past had resident-owned, well-stocked, clean corner stores that offered meats and produce at affordable prices. Long-time residents explained, “It hasn’t always been like this. We used to have a lot of small mom and pops [small-scale grocers] around here. We knew the owners and they didn’t sell us spoiled foods because they knew us and they knew we knew where they lived.” Another resident lamented, “there had been so many places that we used to have to get food but they didn’t think they was getting the trade they needed so they left.” This was a common sentiment reiterated by other residents who believed that corporations knowingly stocked local stores with poorer quality foods and had dirtier facilities, because they knew there were no other options. When describing this kind of business practice, one woman said, “Listen, I don’t care if it’s food stamps. I don’t care if it’s money. Whatever your transaction is...you know what? Our money spends just like these rich folks.” Other residents remembered how the bygone smaller stores and even larger local farmer’s markets created a sense of community that
they don’t get from shopping at the local supermarkets. These findings are discussed in greater detail in Chapter 5: Results.

Residents also recognize the impact that the food environment has on health. One woman said, “so many people around here have health problems, we need to have better food.” According to a recent report by Looby, Chiodini, and Pollock (2011), many Sulphur Springs residents self-reported living with diet related illnesses or being obese or overweight and perceived cost to be a barrier to healthy eating while labeling “access to healthy foods” in the community as a key concern and these residents are increasingly involved in addressing the diet-related health problems affecting their community. A recent YMCA-headed “community call to action,” led to the formation of Creating a Healthier Sulphur Springs for Kids (CHSSK). The coalition is comprised of nonprofit service providers, neighborhood residents, University of South Florida researchers, and community based organizations. The primary aim of this coalition is to develop an intervention that combats childhood obesity by using a community-based approach. The importance of community involvement in this process cannot be overstated. Because it is an historic Tampa neighborhood, Sulphur Springs has been researched by a number of actors with different aims. Many residents have become wary of participating in research because they seldom see benefits. With an “unprecedented” amount of community participation (Looby, Chiodini, and Pollock 2011), CHSSK identified six key concerns for residents, one of which is access to healthy foods.

Six corresponding work groups were created to address each of the identified concerns. One of these work groups is the food and nutrition workgroup. Its stated goal is to “increase healthy food options within the community” by developing community gardens and farmers markets, and providing healthy cooking classes and food bank services to residents. As part of
their initial assessment of the community, CHSSK identified a small population that is active in urban agriculture. There are several community and church gardens, as well as a number of home gardeners. A few of these gardeners who were invited to join the food and nutrition work group contributed ideas about how to expand the reach of existing community gardens and foster neighborhood-wide interest in home gardening. They became actively involved in designing garden-related education programs and community events, including installing home gardens around the neighborhood, working with Sulphur Springs Elementary School to plant a school garden, and laying the groundwork for a community farmers market. These activities represent alternative means of accessing fresh foods that are typically not considered when mapping “assets” of communities in food desert research.
CHAPTER FIVE:  
RESULTS

Food Accessibility Results: Stores, Community Assets, and Participatory Mapping

In food desert studies, accessibility is often measured in terms of proximity to stores. The underlying assumption of these studies is that people are more likely to shop at nearby stores because, particularly in low-income areas with limited available public transportation, distance can be a barrier to food access (Whelan et al. 2002; Cummins and Macintyre 1999; Gallagher 2006; Walker, Keane, and Burke 2010; Clarke, Eyre, and Guy 2002; McEntee and Agyeman 2010). Furthermore, there is an assumption that, depending on the price and availability of healthful foods at these stores, proximity can have an impact on dietary health (Ball, Crawford, and Mishra 2006; Gallagher 2006; Hendrickson, Smith, and Eikenberry 2006; Pearson et al. 2005; Schafft, Jensen, and Hinrichs 2009; Shannon 2013; Zenk et al. 2011). Using GIS, minimum average travel times from each parcel to the nearest food store were calculated to measure food accessibility in Sulphur Springs. This was accomplished by calculating travel time as a function of road distance multiplied by 2.5 miles per hour, which calculates travel time for a scenario in which an individual has to walk to the nearest store to purchase food.

These data were then mapped, making evident which areas of Sulphur Springs are farther away from food stores (Figure 15). These areas may be particularly good candidates for urban agriculture endeavors. Additionally, there is evidence to suggest that corporations examine property values and population income when deciding where to build new stores and do not
build supermarkets in low-income areas because they believe residents in these areas spend less on groceries (Cook 2006). Spearman’s rho was used to test for correlation between each Sulphur Springs parcel’s proximity to supermarkets (travel time) and the assessed value of the parcel. Do supermarkets really build in higher income areas? Or does living near a supermarket increase one’s property value, perhaps? While a correlation was found, it was extremely weak. This suggests that food accessibility is fairly even across homes in Sulphur Springs in terms of different property values, likely due to the fact that—as a whole—neighborhood property values were low when compared to other Tampa neighborhoods. (See Chapter 4 for more detail.)

Figure 15. All food stores, including convenience stores and supermarkets.
When only using chain supermarkets as fresh food access points to calculate the average distance of a Sulphur Springs resident to and from fresh food outlets, the following statistics emerge: 8.5 percent of residents are 0-12 minutes from a fresh food source, 22.4 percent are 12-24 minutes from a fresh food source, 28.7 percent are 24-36 minutes from a fresh food source, 34.6 percent are 36-48 minutes from a fresh food source, and 6.7 percent are 48-60 minutes from a fresh food source. Average walking travel time to food outlets is 30.5 minutes. These travel times are calculated using a more traditional method of mapping food deserts because only chain stores are included in this kind of analysis. (Figure 16.)

Figure 16. Supermarkets only.
Based on research objectives, another analysis was run that included three currently operational Sulphur Springs gardens as food access points in addition to supermarkets, assets that are rarely considered in food desert research. Based on this analysis, the average walking travel time to fresh food in Sulphur Springs is 15.91 minutes (a 14.59 minute reduction), though travel times still range from 0 to 41 minutes. (Figure 17) According to these data, 50.2 percent residents are 0-12 minutes from fresh food, 23.7 percent are 12-24 minutes from fresh food, 18 percent are 24-36 minutes from fresh food, and 8.1 percent are 36-48 minutes from fresh food.

Figure 17. Supermarkets and community gardens.
We also did some participatory mapping (Figure 18) with our interview sample to understand people's perceptions of spatial equity in their neighborhood as it relates to the food environment. Using a paper map we provided of Sulphur Springs, our study participants placed an orange dot sticker in the neighborhood area where they most wanted to see a garden located. A network analysis was also run using the geographic mid-point (average) of four hypothetical garden locations suggested by participants as an additional fresh food source. Using a network analysis in ArcGIS 10.2 (a geographic information systems software) allows researchers to more realistically depict travel time by calculating the distance between points using actual networks of streets or sidewalks (Apparicio, Cloutier, and Shearmur 2007; Sparks, Bania, and Leete 2011). The majority of residents chose a central location because they were concerned about providing equal access to the most people. They also reported choosing a central location so that residents would be able to easily walk there. This analysis shows a hypothetical environment where 21.4 percent of residents are 0-12 minutes from fresh food, 64 percent are 12-24 minutes from fresh food, and 14.4 percent are 24-36 minutes from fresh food. Based on this analysis, the average travel time to fresh food sources in Sulphur Springs is 17.01 minutes, a 13.49 minute reduction from the traditional map.

An additional analysis was performed to include all fresh food access points (grocery store and garden) and the hypothetical suggested garden. In this analysis, average walking travel time was reduced to 10.64 minutes, a 33.1 percent decrease from the “assets-based” map that was created. Travel times in this scenario range from 0 to 31 minutes. It should be remembered that these times are for walking; driving or biking times would certainly be less.
Food Availability Results: Food Store Survey and Garden Inventory

Results of the food store survey

As mentioned in the methods section, the USDA’s Thrifty Food Plan (a list of 87 low-cost foods that comprise a balanced diet) was used to survey all four of the major supermarkets represented on the CHSSK resident survey and 10 (21%) of the convenience stores existing within the boundaries of Sulphur Springs (The survey instrument and all results from this survey are located in Appendices C and D). This plan is regularly used to measure food availability in U.S. supermarkets (McKinnon et al. 2009). Based on data from stores, an average number of 3
items are missing from any given chain supermarket while an average number of 53 items may be missing from any given convenience store in Sulphur Springs. The average number of missing items is dramatically higher in convenience stores than in chain supermarkets so it is important to separate results by store type to present an accurate picture of neighborhood food availability. Based on the 87 Thrifty Food Plan items, data suggest that supermarkets are missing an average of three percent of items while convenience stores are missing an average of 61 percent of items (see Table 2).

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<th>Table 2. Number and % Missing Items by Store Type</th>
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<tr>
<td>Total missing items</td>
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<td>Average # missing items</td>
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*Results are rounded to the nearest whole number.

Guided by the research question about the availability of fruits and vegetables in Sulphur Springs, availability was further analyzed by looking at the average number and average percentage of missing items in the “produce” categories of the Thrifty Food Plan. The produce category consists of items subcategorized as fresh fruits, fresh vegetables, canned fruits, canned vegetables, and frozen fruits and vegetables. We found that on average, only one percent of produce items are missing from supermarkets compared to the average 70 percent of produce items missing from convenience stores. When compared to items like grain, data show that at least 10 percent more items are missing from the produce category. These findings suggest that Sulphur Springs residents must travel to large supermarkets to purchase the foods necessary for a
balanced diet. Residents who are limited to shopping at corner and convenience stores, may be less likely to have a balanced diet because fresh produce is largely unavailable.

In order to understand the availability of individual items in the produce category, we calculated the total number and percentage of all stores missing individual food items from each produce category. All of the supermarkets surveyed carried each of the produce items listed in the store inventory, but we were able to calculate the percentage of convenience stores missing individual produce items. The Thrifty Food Plan lists a total of 22 produce items: apples, bananas, grapes, melon (cantaloupe, honeydew, or watermelon), oranges, carrots, celery, green pepper, lettuce leaf, onions, tomatoes, potatoes, canned mandarin oranges (juice or light syrup), canned peaches (juice or light syrup), canned mushrooms, canned spaghetti sauce, canned tomato sauce, frozen orange juice, frozen broccoli, frozen green beans, frozen green peas, and frozen French fries. Our data show that 76 percent of fresh fruit items, 67 percent of fresh vegetable items, 40 percent of canned fruit items, 40 percent of canned vegetable items, and 92 percent of frozen fruits and vegetable items are missing from all convenience stores. Looked at more closely, 60 percent of all convenience stores are missing apples, 100 percent of convenience stores are missing melon, and 60 percent of convenience stores are missing lettuce. Again, these findings suggest that a healthy, balanced diet is not available at neighborhood convenience stores alone. These stores are more likely to offer items with a long shelf life that requires little refrigeration or maintenance such as canned or processed fruits and vegetables and these items tend to be higher in sodium and sugars, and have fewer nutrients.
Results from the garden inventory

Informal garden site visits and tours revealed that neighborhood gardeners grew a wide variety of fruits and vegetables that were unavailable in 70 percent of the convenience stores surveyed. For example, gardeners grew strawberries; watermelon; collards; green, red, banana, chili, and jalapeño peppers; pole, green, and butter beans; mustard greens; cherry, beefsteak, and heirloom tomatoes, and a variety of lettuces, to name just a few of items. Much of the items grown in these gardens supplemented gardeners’ diets but did not entirely prevent them from having to shop at the store. (See the next section for more detail about the particular uses and impact of these gardens.)

The Impact of Community Assets on Representations of Access and Availability

Based on a GIS network analysis, residents have to walk an average of 30 minutes to get to a large chain supermarket, with the majority (70%) of the residents having to travel anywhere from 25-60 minutes to a supermarket. After incorporating current community garden assets as food access points, the average travel time to fresh food outlets decreases by 14.59 minutes and the range of residents’ travel times decreases by 20 minutes. After incorporating local gardens, over half of residents live within 12 minutes of a fresh food source, with 41.7 percent living 25-48 minutes from fresh food, a 21.6 percent reduction (Figure 19).

These data depict an environment in which a greater number of people are closer to fresh food sources (Figure 20). The three gardens we incorporated grow a range of foods including: corn, bell peppers, green beans, snap peas, and lettuce. These gardens grow fresh foods that are unavailable in 70% of all convenience stores surveyed which is significant considering that 95%
of the food environment is comprised of convenience stores. Community gardens assets have the potential to increase residents’ access to fresh foods and, not only the availability of fresh foods but the diversity of available produce. However, it is important to note that these incorporated gardens are relatively small and belong to churches and non-profit organizations so that only a limited, specific number of people can access these gardens.

Figure 19. Percentage of population by walking time to fresh food sources.

Figure 20. Average travel time to fresh food, walking.
Interviewees were asked to map two possible locations for a hypothetical garden and explain their reasoning. All residents chose a central location for ease of access explaining that it was important that many residents be able to visit the garden site. Other locations included already existing parks because participants believed that a partnership with the parks department would ensure the safety and continued maintenance of the garden. When including the average location of this hypothetical garden into the existing food source (supermarkets and gardens) maps, residents’ average travel time decreased to 10.64 minutes, and a range of 0-31 minutes suggesting that the addition of a central location for community supported agriculture could significantly increase residents’ proximity to fresh food by decreasing residents’ average travel time by over 20 minutes.

**Living in a Food Desert: Qualitative Interview Results**

In order to answer my second research question, I conducted ten open-ended interviews (described in the Methods chapter) with five self-identified gardeners and five non-gardeners to measure residents’ perceptions of fresh food access and availability in Sulphur Springs as well as to understand the extent to which residents might participate in alternative food access programs such as community gardens. The interviews targeted three areas of interest: 1) residents’ current shopping behaviors, perceptions of access and availability 2) resident shopping experiences and perceptions of alternative methods of accessing food, and 3) resident perceptions of community gardening as a viable solution to problems of fresh food access in their neighborhood, including the extent to which they would participate in such programs. I was interested in what motivates people to—or prevents them from—gardening and why is it an important activity for some but not for others, especially in a “food desert” where access to affordable, quality, healthful foods
might prove problematic? The analysis of the qualitative data is discussed as it relates to 1) the Sulphur Springs food environment and 2) perceptions of alternative food access in Sulphur Springs.

Like most researchers, I began the data collection process with certain expectations for what I might find. For example, based on the literature, I expected residents to cite lack of transportation, distance to stores, and the cost of food as major factors impacting their shopping behavior. Some of my assumptions were supported by participant responses. Other trends were more surprising and really challenged my understanding of what it means to live and eat in a food desert. While participants did talk about access to cars/ public transportation, grocery store proximity, and food price, they remained astonishingly low on the list of residents’ concerns when discussing the food available in their community. When discussing the food environment, residents of Sulphur Springs were most concerned about the safety, cleanliness, and community reputation of their local retailers as well as the safety and quality of the food these retailers sold. Within this context of the food environment, four major themes emerged: 1) the changing landscape, 2) the quality of available foods, 3) negative shopping experiences, and 4) unjust retail practices and policies.

Based on evidence that gardening has individual and community health benefits, (Armstrong 2000; Baker 2004; Buchmann 2009; Corrigan 2011; Draper and Freedman 2010; McClintock 2008) as well as my own interest in gardening, I expected that participants would overwhelmingly support community gardening as a viable solution to food access issues in Sulphur Springs. My expectations were not entirely realized. While many residents were in favor of the variety of good quality food that could be produced at a garden, the majority of residents
did not believe a traditional community garden model\textsuperscript{19} would work in Sulphur Springs. In fact, most participants were not familiar with the variety of community garden models in use today and it was necessary to explain the similarities and differences between several models. Residents were more interested in alternative food access programs that not only improved neighborhood access to quality, affordable produce but also provided educational and job opportunities for residents. Within this context of alternative food access, three major themes emerged: 1) support for “market-based” alternative food access programs such as CSAs and farmer’s markets, 2) issues related to community health and wellness, and 3) concerns about the roles of non-profits in alternative food access programming. I discuss each of these and illustrate their relevancy below.

Most surprisingly, residents commented over and over again on the important role that food and food retailing could play in fostering a sense of community. This major theme was discussed in both the food environment and alternative food access domains. Residents felt that their current retail options did not foster a sense of community and, in fact, actively worked against the community’s best interests because it was believed that retailers sold bad quality foods and treated residents with contempt. Conversely, residents felt that—if developed with enough community input—alternative food access programs had the potential to bring neighborhood residents closer together.

\textsuperscript{19} A cooperative gardening model whereby either a large plot of land is divided into smaller plots and rented to individuals to grow food for their households, or a group of individuals work a single plot of land together and each person who contributes labor earns a share of whatever food is produced.
The Sulphur Springs food environment

Before beginning each interview, I asked each household in my sample to estimate how much they spent per week on groceries regardless of whether they used any form of food assistance or cash. They were also asked to note if they received any form of food assistance such as SNAP or WIC (Table 3). On average, the gardening households estimated that they pay slightly less per month for groceries than non-gardening households. Of the 10 people interviewed, seven reported using some form of food assistance, three of which were gardeners, four of which were non-gardeners. While the results of this survey were interesting and may hint at some broader trend about the economic benefits of gardening, there is not enough evidence from the small sample to make such a claim. More importantly, 70 percent of the residents interviewed receive some form of food assistance (supporting the census data for the neighborhood as a whole) and they spend an average of $450 on groceries monthly.

Though gardeners often discussed the economic value of gardening, both gardeners and non-gardeners reported similar shopping habits and estimated similar weekly grocery expenditures. This may be due to the fact that gardening participants reported buying more expensive foods that they believed were of higher quality. Thus, for gardening participants, the economic benefit of gardening may not be that it reduces the amount of money they pay for food, but that it allows them to pay more for a wider variety of better quality foods.

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<th>Table 3. Gardener and Non-Gardener Buying Power</th>
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<td>Gardener</td>
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<td>Non Gardener</td>
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Survey results suggest that 100 percent of the sample had—at one time—shopped at each of the four major supermarkets we surveyed. All 10 residents reported shopping at several of the convenience stores. Additionally, it became very apparent that the majority of the residents I interviewed frequently shopped outside of their community when they had the opportunity. The reasons for this trend were surprising and similar among all respondents and will be described in greater detail in the paragraphs that follow.

Not surprisingly, participants exhibited a high degree of knowledge of the food environment of Sulphur Springs and were very willing to share their experiences. Older and long-term residents frequently discussed the changing food environment and spoke fondly about some of the grocers that used to serve the neighborhood. According to these residents, Sulphur Springs used to have a lot of locally owned, small-scale green grocers whose owners both lived and worked in the neighborhood. One older woman reminisced, “Oh yeah. We used to have a few smaller groceries in the neighborhood. When I was a little girl we used to go to church with some of the owners and they would remember me from church and always slip me a treat—candy or something—when I went up to the store for my mother.” Another resident recalled, “They used to be some more stores in the neighborhood that we liked but they went out of business about, maybe, 15 years or so ago.” These grocers were outcompeted by larger supermarket chains and convenience stores and lower quality corner stores moved in to replace them starting about 20 to 30 years ago. Residents explained that as neighborhood socio-economic demographics began to change, some of the larger supermarket chains that had pushed their local green grocers out of business were now choosing to leave the neighborhood. One resident lamented, “You know, some of these stores, they just have that bottom line thinking. They see us and they thinking we have no money to spend and so they just leave to other
neighborhoods.” Other participants who described the connections between the changing retail environment, changing business practices, and the declining quality of the available food reiterated this sentiment. For example, one resident explained:

“It used to be a little better just due to the fact that they [previous local store owners] took pride in their business. It all changed though, became just about the money. Now I see the quality of the food in the stores here just going down. It sucks. If you get something you have to cook it right then and then there is no telling where they [current retailers] get it from. It’s changed to the point where it’s sad to me.”

The decline in food quality was also commonly associated with the idea that current storeowners were not neighborhood residents and had no investments in the neighborhood itself or its residents. While some participants were more blunt than others, 100% of the sample couched their observations of food quality and availability in a larger discussion about retail and government policy. Many residents described retailers as uncaring and even “criminal.” Over and over again, residents expressed outrage at the quality of the foods that were available in the local supermarkets and corner stores. For example, one resident explained that:

“some of these stores are selling frozen meats with diseases in it and they don’t care because they don’t live here. And that hurts. And these are the people that can go up to the bank and get a loan but the person of low-income that’s striving to do the right thing still have a hard time. It makes you think...hmmm...do we have to revise this whole government policy about food and crime? But the good thing is that I can identify them [the bad storeowner] and others can as well.”

As suggested by this resident, participants were very aware of the social and structural issues that impact the available food options in their neighborhood and this awareness often impacted their choices about where they purchased food. One resident very candidly described why, in his opinion, Sulphur Springs had so few supermarkets, “It’s because there’s a lot of black people. It’s not a white community. They [corporations] don’t think it’s worth it. They think a lot of black people can’t get jobs. No money, no stores. That’s what they think.” Another
resident who is a gardener also linked food inequality and racial inequality when describing why he chose to garden and shop outside the community:

“Before even the gardening thing came about and I went to college—the environment I came up in—I kind of already knew it was an environment of racism and regardless of me knowing the terminology the more my mind got developed I started thinking about it and started to eat a little healthier and I didn’t want to wait to the point of me getting diabetes or high blood pressure for me to start eating healthier but at the same time you’ve got cancer cells and diabetes all over the urban community because they’re [large chain supermarkets] there for the wealth. They don’t care about your health.”

When discussing the food environment, the conversation always drifted into areas of neighborhood and personal health and wellness. In addition to talking about how history and policy had impacted the food environment, participants had a keen understanding of how community level factors contribute to the physical health of Sulphur Springs residents. For example, one resident said:

“The food that’s being cooked now today and the access that they have is limited and that is kind of, like, what we need to be providing options for. We need to be providing options for access. Opening up that access and just giving them that option, even just a small little something in that particular area, that’s providing people more than what they had before.”

Another resident who was inundated with “healthy lifestyle” messages from her daughter’s school expressed frustration, saying, “It’s like people are always saying you have to eat healthy but it’s not just about what you supposed to do. It’s about the environment where you live.”

The majority of the participants reported eating well-rounded diets including plenty of fruits and vegetables. The majority of my sample also reported cooking or eating home-cooked meals regularly. Only two younger participants reported regularly eating at fast-food restaurants or buying prepared meals. When asked how the shopping environment impacted their health and diets, the majority of participants reported that price and quality made shopping more difficult but that they were always able to get the fruits and vegetables they wanted somewhere:
“Yeah it [the lack of quality produce in local supermarkets] makes things harder for sure but I wouldn’t say I’m too bad off. Maybe my pocketbook is. I may have to go to several stores and spend more money on gas but I make sure I’m eating plenty of fresh foods. I have diabetes and I care for a child so I have to make sure I am eating careful.”

Though they believed their own diets to be healthy and well-rounded, residents often talked about the poor health, or unhealthy eating habits of other residents. They often believed this to be a consequence of access and personal eating habits:

“Well, I think there are a lot of people who are unhealthy because they can’t get access to or afford the produce and the good foods. I know most of my neighbors have diabetes and problems with their salt [high blood pressure] but I think maybe it’s to do with getting to the store and taste. I think they know what’s good but it’s not their taste.”

Several respondents believed the problem was lack of cooking knowledge: “People here either ain’t cooking or they are but they don’t know how to cook without all the salts and the butters. We’re southern so that’s part of the diet. You hardly ever see greens without smoke meats stewed in. Those things really raise up those calorie points. They are good though! [laughter]”

Another resident worried, “many of these mothers here just don’t have the time. They work all day and then by the time they get home its all they can do to heat up the macaroni and cheese or the chicken nuggets.” When asked about how cost affected their diets, residents were quick to say that it was a major consideration but that they felt like they could get healthy foods using their food assistance and supplementing with cash when necessary. Again, they often discussed how other residents were affected by price:

“Some people here, they really rely on those food stamps every month. I’ve been very blessed but I’ve seen my lean times too. It’s terrible to have to make the decision between the one pound bag of apples and the one pound bag of potatoes plus the big thing of rice when you’ve only got five dollars to spend. Right then, it’s not about healthy. It’s about hungry.”
Participants described in depth some of these shopping strategies, which involved preferentially choosing stores based on quality, price, and reputation in the community. I found that residents often chose to shop outside of the community. Some residents also shopped at what they described as neighborhood “bootlegs”. According to residents, “bootleg” had two meanings in Sulphur Springs. It could mean a liquor store but it also referred to a small store run out of someone’s home. These home-based “bootleg” stores are owned and operated by neighborhood residents who are licensed to sell cigarettes, drinks and snacks, and sometimes even fresh food items and prepared foods made at the home by the resident/owner. Seven of the ten participants knew where bootlegs were located and five of those participants reported shopping there for smaller items or snacks. One participant even ran a bootleg out of his home where he sold a variety of items that sometimes included fresh eggs from his backyard chickens and produce from his garden. When asked why someone would shop at a “bootleg” rather than a corner store, one resident said, “Well, where I shop it’s closest to my house. But also, I knew the owner because we came up together. We went to the same school.” Unlike many of the local corner and convenience stores, “bootlegs” are more in line with the trusted, small-scale green grocers of the past. While these stores do not have a wide selection and are, therefore, not used for large shopping trips, they are oftentimes preferential to corner stores with larger selections because the owners are trusted community members.

Cleanliness and food quality also made certain stores preferential. We often found that, while price was a big consideration for most, it wasn’t as important as the cleanliness of the facility, the quality of store wares, and community reputation when residents decided where to shop. When asked about why he favored shopping at some stores over others one resident said, “I would like to see a more healthy environment in our stores, maybe a little bit more sanitized.
Most definitely. I don’t mind the cheapness over the namebrand-ness, you know, I would rather buy from companies that I usually like and who I know have good quality food even if I have to pay little bit more.” Participants mentioned that the closest store, the Wal-Mart, is a food place with low quality foods, especially produce. One man described shopping at the Wal-mart as a last resort, “I do shop at the Wal-Mart. At the Wal-mart you have a variety but not necessarily the variety or the condition that you may want or like and then the availability and the pricing is not the same.”

Many residents reported shopping some places for dry goods and non-perishables and other places for meats and produce. Residents were more likely to shop in the neighborhood for non-perishables and were much more concerned about the low-cost of these items than the low costs of meats and produce. Stores that accepted food assistance were important to residents when buying non-perishables but many residents used cash at a nearby farmer’s market, or at grocery stores outside the community to buy better quality meats and produce. One resident described this shopping strategy:

“For the canned-goods and dry beans and breads and such I will go to the Wal-mart or the Save-a-Lot because you can get the stuff with your EBT [electronic benefits transfer; i.e., food assistance] Those things is pretty much the same in every store so it don’t matter too much. But for the fresh foods and the meats I’ll go up to the Publix or the farmer’s market to buy the stuff. I spend out of pocket but I’m happy to do that.”

Gardeners were able to supplement their grocery items with wares from their garden so poor quality vegetable produce at stores was less of a concern. However, they often shopped outside of the community for fruits and meats and other produce that they wanted but that weren’t available in their garden:

“We get a lot of our vegetables right from our garden. It makes a huge difference in our bill and we actually give away half of the stuff we grow because we can’t eat it all! We
don’t grow a huge variety of fruits though. For fruits and meats we will go up the butcher store or to the [farmer’s market][20]

I was surprised to find that many residents had political or moral reasons for shopping at particular establishments rather than others and that this was a major factor impacting shopping behavior. Several participants voiced concern over local companies’ poor business practices. Participants even indicated that one store’s (Publix’s) involvement with the community was very important and contributed to their generally more favorable view of Publix compared to some of the other food places in the area. For example, one man said of the local stores:

“They don’t like giving back to the community so to me it’s like, they’re just in it for the value, for the money. I used to see little kids come in the store and they might be five cents short and they’d be told, “nah you can’t get it” and I’m thinking, we’re the ones that are making you successful with your business. And this is the thank you that we get? You’re food sucks too.”

Additionally, these political/moral shoppers commonly cited health considerations as important to their decision to shop outside of the community. One resident explained, “I normally don’t shop in the neighborhood because I have access to more fresh vegetables at [the farmer’s market] which allows me as a consumer to make an educated decision about what is best for my household. I can purchase more there at a reasonable price that is good quality and healthier than what I can get at the local grocery.” All ten of the participants reported doing the majority of their shopping outside of the community. Commonly, residents felt that they could find better quality foods outside of the neighborhood and felt that they received better quality service. According to another resident:

“I don’t really shop in the neighborhood. I used to. I mean, don’t get me wrong, I might out of laziness. I’ll go to the local stores in Sulphur Springs community, I will get me something like water, Gatorade, non-perishables but it’s mostly like drinks and stuff

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[20] The farmer’s market referred to in these quotes is located on Hillsborough Avenue in Tampa, Florida. They are not referring to the proposed Sulphur Springs farmer’s market, set to open in October 2013.
because I didn’t want to ride out. But I’ll ride out especially for quality meats. You can’t get those here and the meats at [a local farm nearly 30 miles from Sulphur Springs] are organics. They are healthier, they taste better, they are cheaper than at some of these other places. You feel good knowing that even if you don’t have a lot of money, your money is going into healthier foods for you and your family.”

Another couple explained their decision to shop at a store outside the community by saying:

“We like to go up to [the farmer’s market] to shop. We’ve been going there for years. They are about making sure people can afford—they are trying to do everything they can to bring their product to the lowest possible operating price so that people can afford to eat food that is good for them…they have donated so much money back into the community.”

For many residents, stores (some inside, some outside the community) that “gave back” to the community were preferable over stores that were seen to be uncaring. Though these stores were sometimes located well beyond the borders of Sulphur Springs, residents interviewed didn’t mind making the trip to insure that the limited amount of money they had to spend on food was spent at socially conscious businesses. Only one participant reported that he did not have regular access to a vehicle, sometimes hindering his ability to get to the store. He explained that, when necessary, he was able to, “do big shopping trips with a friend or my relatives sometimes take us.” Most participants had their own cars, giving them the freedom to shop outside of the community. However, when asked about other community residents, participants believed that limited access to transportation was substantial a barrier to accessing food. One woman said, “Many residents don’t have cars so they have to go where they can walk to.”

In general, gardeners more commonly reported shopping outside of the community for health reasons and to access a wider variety of foods. Non-gardeners reported shopping outside of the community for better quality foods and for cleaner facilities and better services. Gardeners also reported being in better health or spending a lot of time thinking about how their diet impacted their health and the health of their families than did non-gardeners. Health and cost
were also major factors impacting people’s decisions to garden. Additionally, gardeners were more likely to discuss the political processes impacting the current state of the local food environment and cite political ideology as a factor impacting their shopping behavior and choice of store. One gardening resident, for example, said, “I don’t shop price—don’t get me wrong though because price matters—but I don’t shop price, I shop my conscience. I would rather spend that little bit of money on something that didn’t get shipped from Guyana or that didn’t come from some factory farm. I shouldn’t have to leave [the neighborhood] to do that but that’s the way it is.”

Community garden use, barriers, and organization

Overwhelmingly, participants viewed alternative food access programs favorably because they universally disliked the majority of their local retailers. Local retailers were considered uncaring and criminal and the foods they sold were considered bad quality, unsafe, and unhealthy. Their experiences with these stores had prompted them to shop outside of the neighborhood. When asked about their “ideal” food environment, nine of the ten participants reported wanting to have access to some of the small-scale, locally owned green grocers of the past, or favored the development of a farmer’s market. One participant wanted to see a Sam’s Club built in the community but doubted they would build a store in a low-income, black neighborhood. Residents imagined that the green grocers and the farmer’s market would be locally owned and operated and would help foster a sense of community through good business practices and community engagement. For example, one resident explained, “we just need some better businesses up here. Maybe a farmer’s market, you know, where people could come and commune. They could get the healthy foods they need and see their neighbors. It’s not just about
the healthy foods, it’s the healthy relationships too with the store owners and the residents and between neighbors.”

Residents imagined that a farmer’s market would be a safe gathering place where neighbors could not only shop, but also socialize, and support local businesses. They also imagined that these businesses would “give back” to the community by providing jobs for residents. One woman explained the importance of job creation in her ideal food environment:

“To my mind, they [stores or business owners] have got to create jobs. Whatever they do they have got to get the jobs in this community. It just makes sense. If you want to get the trade you need in an area, you’ve got to be sure the people you sell to have the money to buy. Isn’t that just common sense?”

Whether they were aware of it or not, participants had just described some of the main tenants of modern development theory, i.e. an environment consisting of local, socially responsible businesses circulating money within the community. In addition, members of the community who would be less likely to leave the area or use abusive business practices would operate these ideal businesses. One resident even cited the benefits of having a profit-driven, locally owned garden model by comparing it to some previous failed community gardening efforts, “when I see community gardens in Tampa, when the funding is gone, the community is gone. You need that consistency, that structure in place. Otherwise you just dangling the carrot in front of the community…literally!” I was not prepared for this response and felt embarrassed because this observation summed up my own experiences as a volunteer program coordinator at the Moses House garden in Sulphur Springs. As volunteer labor, funding for programming, and support for a much-needed full-time paid staff became more challenging to secure, it became more difficult to maintain the garden and keep youth members interested.
When asked about the viability of community gardening solutions to food access issues in Sulphur Springs, the majority of the residents favored a CSA (community supported agriculture) gardening models where residents could buy food directly from a single organization that was responsible for growing and harvesting local produce though few residents had incorporated community gardens into their descriptions of the ideal shopping environment. Similar to the alternatives presented in their “ideal” shopping environments, residents’ preference for CSA style gardens suggests a trend toward “market-based” solutions to retail failure in their neighborhood. When asked why this model was preferable, participants described some of the barriers to participation in more traditional community garden programs.

When asked about barriers to their own participation, five non-gardening participants cited 1) lack of time (n=4), 2) lack of interest (n=2), 3) health problems (n=2), and 4) lack of knowledge (n=5) as barriers to participation in such programs. Four non-gardening participants said that they lacked the time to actually commit to working in a garden. One non-gardening participant explained, “I work all day and I have three babies at home. I wouldn’t have the time for something like that.” Another non-gardening participant reiterated, “Well, I’m a nurse. I work odd hours and I wouldn’t be able to get to the garden regularly. My plants at home aren’t even doing that well.” Three non-gardening participants explained that they weren’t really interested in gardening and prefer to buy food:

“It’s not something I’d do. To my mind, I’d prefer to buy my food. I want things when I want them and I don’t like to root around in the dirt so I think I’d just rather go to the grocery. Let other people do it if they like. I’d certainly buy they wares but, no, it’s not of interest to me.”

This sentiment was fairly common among non-gardening participants who lacked interest in gardening. Each of them acknowledge the benefit of having a garden and could see themselves
purchasing produce from the garden but were not interested in having to work for a share of a harvest. One participant was more blunt:

“Sure, I’d visit the garden. Doesn’t mean I want to sweat all day just for some lettuce though. I’d buy the lettuce, especially if the garden had EBT. But I’m not just gonna waste some time when I have the money where I can buy lettuce at the store.”

Two non-gardeners said that health problems would prevent them from participating in a traditional community garden program. One older woman explained that she was handicapped and wouldn’t be able to do the physical work. Another woman said that allergies were a problem for her and the prevented her from staying outside at certain times of the year. Finally, all five non-gardens cited a lack of knowledge about gardening as a barrier to participation in a more traditional community garden program. For example, one female participant explained, “I wouldn’t know what to do. I’d need someone to teach me and there might not be anyone there to help out so it would be a real expensive experiment.”

Gardeners said that they would be less likely to participate in a traditional community garden program due to: 1) lack of time (n=4) and 2) lack of resources (n=3). When asked why other neighborhood residents might be unwilling to participate, four of the five gardeners cited laziness, “Oh, you know, I really hate to say it but it is pure laziness. Some of these people around here wouldn’t go out in a garden yard if they was starving to death.” Another gardener, specifically considering young residents said, “…it’s all take with them. They want something for nothing. I’ve tried to get them involved but they just think, what’s in it for me now? They are lazy. That’s a huge problem.” Gardeners who cited lack of time worked full time and had families in addition to their own gardens. They said they would support a community garden and even offer to help teach residents about gardening but would be unlikely to participate regularly because, understandably, they already have a space to garden and use their free time to work in
their own gardens. Interestingly, three gardeners said that lack of resources would prevent them from participating in a traditional community garden model. For example, one resident said, “I think soil quality would be a problem for me. I would need to know that the garden’s soil had been tested and was good before I grew anywhere else [besides my own garden]. I got my soil tested so I know [the quality]. But maybe the community garden wouldn’t be able to do that and I can’t pay for that again.” Another resident explained, “I wouldn’t’ like to pay for a space [garden plot] if I already have one. Especially then I would be paying for two times the seeds, two times the fertilizer. It’s not economical. Even if I just got a crop share for my time, who would be supporting the whole thing? I have my garden, I can’t support a big garden too.”

When asked about the viability of the traditional community programs as well as CSA’s, both gardeners and non-gardeners thought that the location of the garden (n=7), the associated cost (n=10), and awareness of programs (n=10) would be barriers to participation in both kinds of programs. When considering any kind of gardening program, residents were concerned that the garden should be easily accessible on foot and centrally located. While my entire sample reported having access to a vehicle, they commonly said that transportation was a problem for many residents. They were also concerned that cost would prevent people from participating. When discussing traditional community garden programs, one resident said: “You can’t ask people to pay to rent some land especially if there is no guarantee that anything will come from it. In this community, thirty dollars, let’s say, is a lot of money.” 100 percent of the sample thought that a CSA program would have to sell produce at a lower cost than area supermarkets and would have to have an EBT machine and accept food stamps to insure participation. For example, one resident said, “It’s important for people to have foods available at the garden and
for prices to be competitive. Even EBT would be good. People would buy food there everyday and that’s what we want, right?”

Participants were also concerned that any community garden model should grow foods that neighborhood people would want to eat. Several participants said growing southern staple foods like collard greens, hot peppers, garlic, black-eyed peas, and melons, would be preferential. Others suggested growing beans, sweet potatoes, and tropical fruits to insure people were able to access foods that were healthful and that they enjoyed eating. Said one resident, “You know, it’s like supply and demand. Whatever they grow in the garden has to be what people want to eat. That’s the only way it will work.” When I asked residents how gardeners could insure they were growing preferred foods, I often got quizzical looks followed by answers similar to one resident who explained, “Well, ask them, right? I mean—[laughter] it’s that simple, right?” Indeed.

Finally, 100 percent of the sample said that lack of awareness regarding available programs would be barriers to participation. 70 percent of the sample was unaware of current community efforts to address food insecurity and 60 percent were unaware of the current community gardens in the community. Most residents favored door-to-door canvassing as a marketing method. One resident said, “In this neighborhood, nothing beats good old fashioned door to door.” Another resident suggested developing and making available a directory of community programs. Many residents expressed frustration over the lack of information available:

“You know, that really makes me upset. I didn’t even know that was happening. I would have went to some of those meetings [Creating a Healthier Sulphur Springs for Kids community coalition meeting] had I known. Sometimes I wonder if they want you to know, though.”
Each person interviewed (100% of the sample), felt like a CSA style garden in Sulphur Springs would be a definite benefit to the community. Cited benefits included improved access to quality foods, educational and job opportunities, and improved community health and wellness. The entire sample thought that a CSA in Sulphur Springs would help improve access to fresh, quality produce:

“People would be able to walk maybe ten minutes to get their produce. Not only could they see what they was buying grow from seed, but they could get the fresh fruits and vegetables and feel like it was safe.”

Another explained why a CSA would be beneficial to the neighborhood, “It’s all about access. That’s half the battle right there.” Other residents were excited about the educational opportunities that a CSA could provide, especially to younger residents. “Some of the food is unrecognizable—that people eat—and I think it’s important to know where a carrot comes from.” An older male resident said, “it would be great because you could buy your bag of vegetables and you would finally know what the onion looks like when it comes from the ground or what a real pepper tastes like. It’s sad that some children have never experienced that.”

Another resident hoped that the primary use of a garden could be for “educating the children. That’s where it starts. You have to get the kids involved.”

Additionally, residents felt that a sustainable CSA model was going to be more beneficial to the community in the long run because a successful business would have a reason to stick around and keep serving the community. It would also be able to provide jobs that would, in turn, lower crime and promote overall community wellness:

“One pack of seeds equals part time work. You give this kid a job and you’ve turned someone who is potentially going to steal your things into someone who will sell you something…Everything in this country is bought and sold, so to get people to understand that dynamic I think that would be crucial and also integral moving forward to make more people understand and allow them to participate and to make some money.”
(Study Participant)

“It [the CSA] would help trying to get some of these kids off the street. They have this mind to rob you. I can see it. If they are working in a garden, making money and helping the community they will be more invested.”

(Study Participant)

“I think it [the CSA] would decrease the neighborhood crimes because the neighbors would start watching for one another and caring about one another. You have to put a value on that. We don’t have that sense of community anymore. A community garden could help. People working together, talking together, it could lead to other things and I think that would be awesome. Also having that much access to fruits and vegetables and all of that availability!”

(Study Participant)

Within this context, four residents discussed the benefits of a for-profit model to improve community health in contrast to similar, but not-for-profit models sustained by charity or non-profit organizations. One such resident said:

“Yeah I definitely favor the profitability programs. You wouldn’t believe—now I’ve been here for years—you wouldn’t believe some of these organizations that come in here and say, “hey line up! We are here to help!” and then they get whatever they need out of their program and maybe reach a handful of residents and then they leave. And you know what, they always say? It’s funding.”

For these residents, the unsustainable programming offered by neighborhood non-profits is similar to the retailers who have no ties to the community. They feel as if outsiders run non-profits and, though they claim to have the best interest of the communities at heart, this is rarely the case. In one instance, a participant felt that a particular non-profit had used the guise of community engagement to steal his ideas for bettering the community and abuse his trust:

“You all [a specific non-profit organization] came into Sulphur Springs community. You all came into my neighborhood, my environment where I’m the mayor at because I take pride in my community. I sleep here; I stay here so I know what’s going. I’m part of the neighborhood association but it’s like, I’m tired of just giving you guys ideas and you’ll trying to steal these ideas and all these grant things come up and then nothing ever happens.”
Another resident discussed some his experiences with community non-profits. He was frustrated because, as resident, he felt that his efforts to improve his community were going unsupported while larger, outside non-profit organizations with a lot of money were setting up in his community, taking advantage of residents, and not making any impactful change:

“They [an area non-profit] said it’s for Sulphur Springs residents, they got a voice but at the same time it’s like a catch 22, you know, when they say that its for the public, it’s for the neighbors. But now I see [A Local Area Hospital] coming in and I see these other organizations coming in but they still aren’t doing anything in my community so I’m like, “hold up.” This is for the residents but these organizations that are built up by residents and consist of the residents, why is it difficult for them to get the money support? I guess they [an area non-profit] already had their mind set on how it was going to be structured when it don’t supposed to be structured. Residents are supposed to have a voice so, you know, it’s discouraging.”

For these participants, job creation and a sustainable, profit generating solution to neighborhood food access problems are paramount. It is not surprising, then, that participants support farmer’s markets and CSAs rather than community gardening programs that would rely on volunteerism or only improve the wellbeing of a small number of residents.

This tension was often apparent at community meetings where residents and organizations with differing goals struggled to communicate. On several occasions, I witnessed frustration from both sides because they felt that they were not being heard. There was often debate over how the community should be characterized, what methods of marketing would work best, and even some of the terminology that organizations used when describing neighborhood problems. One particular debate of interest to me was the debate over the use of the term food desert. Several residents who participated in the Creating a Healthier Sulphur Springs for Kids coalition objected to Sulphur Springs being called a food desert during official meetings or in printed materials. They felt that the term was stigmatized and, like me, worried that it conjured images of deficit without considering community assets. Other members of the
coalition felt that the label should be used because the neighborhood had been labeled a food desert by the USDA. Again, the debate often came down to insider versus outsider perspectives. One resident simply said, “I’ve lived here for a long time. I don’t like that term.”

When asked about the term food desert, 40 percent of my sample (all non-gardeners) were unaware of the term. However, when they were given the general definition of a food desert, two of them agreed that this describes Sulphur Springs. One young resident said, “I think the health problems here are probably the same and there is definitely a lot of fast food places but I don’t think we are too far from the stores. I think it’s easy. If you don’t have a car you might have to walk half a mile but that’s fine. No, I don’t think Sulphur Springs is a food desert.” All of the gardeners were aware of the term food desert and one gardener who was aware of the local food desert debate said:

“Some people figured that they don’t want the labelization to be placed but anytime you don’t have access to fresh produce within a mile and half of that area—that in my mind should be classified as a food desert. Especially when the median household income is less than 2,000 a month which is below the poverty level and then you have the majority of the people do walk and ride their bike, then if it’s not right around the corner then it’s not accessible.”

So what does it mean to live and eat in the Sulphur Springs food desert? Based on the results of this study, it means confronting injustice on a daily basis and dealing with it creatively through activism, community engagement, decision making, and, yes, even gardening. For residents of this particular food desert, injustice is not simply a matter of the number and type of stores available in the neighborhood or even their distance to these stores. It was also never simply explained in terms lacking access to good quality, healthful foods. Injustice was always explained in terms of belongingness. There was a common belief that outsiders or non-
community members (typically large corporations) created much of the injustice related to their food environment and that it was imperative that residents be involved in making change.

Many of the changes made in the food environment have come from “outside” entities such as the profiteering corporations that forced smaller stores to shut down and non-profits with inconsistent funding that implement temporary programs without considering sustainability. Results of these changes such as disrespectful behavior and bad business practices (unclean facilities and selling low-quality and spoiled goods) were associated with outsider-run institutions and were often cited as more important factors impacting their behaviors than price or proximity. Thus, many participants felt that residents needed to be more involved in community activities and program development to bring about positive change. Perhaps one resident summed up this sentiment best, “the people with the money are the ones with the power and I think it’s going to be a long battle and it’s going to take a team from the government to individuals to the urban community to our leaders to us, the residents to make sure things go right around here. We got to force it. You know that screeching wheel get the grease.”
CHAPTER SIX:

DISCUSSION AND RECOMMENDATIONS

Let me begin my conclusions by explaining two important things about myself: 1) I have volunteered at a non-profit organization in Sulphur Springs for the past three years as a garden coordinator, which largely cemented my interest in this thesis topic, 2) I am a bit of a foodie. I place a great deal of importance on “good food” in my everyday life and I am passionate about food justice. So, when I explain my conclusions, trust that I was, myself, very surprised at the outcome of my analysis.

Based on interviews, food store surveys, and a GIS network analysis of both retail and alternative food access, I believe that a market-based approach to retail failure in Sulphur Springs will be the most acceptable and most effective way to improve residents’ access to quality, healthful foods. Market-based programs like CSAs are profit driven, appeal to people as consumers and producers, and do not require large-scale behavioral change or the development of new skill sets for the program to work. Sulphur Springs residents are comfortable with being consumers and, as suggested by the interview data in Chapter 5, are currently using shopping to support or rebel against corporations depending on their personal values. Such a market-based approach does not assume that low income individuals need “handouts,” because they are incapable of helping themselves. This approach would acknowledge that low income individuals have buying power even if part of their income comes from federal public assistance programs like SNAP and WIC. Data support the hypothesis that community supported agriculture (CSA)
has the potential to improve food access and availability in the Sulphur Springs food desert. By focusing largely on community assets and residents’ perceptions of the food environment, I was able to determine that, while food accessibility is a problem in Sulphur Springs, it is often mitigated through community activism and strategic shopping behaviors, at least for the residents who participated in this study.

While data suggest that gardens would improve food access and availability in Sulphur Springs, residents suggested that any alternative food access strategy needs to improve more than access and availability. Programs need to improve the local markets. For residents, food access is tied to community wellbeing and not just in the sense that increased access may improve people’s diets. Residents discussed the potential for a CSA style garden to create jobs, increase community togetherness, and create wealth were none now exists. Participants were universally dissatisfied with their local retailers whom they felt artificially raised prices and provided low quality foods, because: 1) residents are largely low income and 2) retailers have no investment in the wellbeing of community members. For this reason, they chose to shop outside the community but often felt a deep sense of injustice at having to do so. Older participants favored past food environments where they were socially connected to their food retailers and the desire for local, socially responsible retailers was persistent. Similarly, participants were wary of efforts to improve the food environment that were driven by area non-profit organizations, particularly if those non-profits were largely run by non-residents or without input from the locals. Again, ideas about community wellbeing were linked to the importance of social connection and long-term investment in the neighborhood.
In her exploration of food deserts Guthman (2008) examined efforts to “bring good food to others” in two California food deserts. She concluded that because the problem of food deserts is market-based there is an erroneous yet pervasive idea that alternatives to the market must necessarily be spearheaded by non-profit organizations and that labor and products should be free. This was certainly a common idea among many of the non-resident led non-profit organizations in the community who favored volunteer over paid labor. However, these efforts—while representing alternative means of accessing food—are not necessarily representative of the wants and needs of the community they serve. Participants overwhelmingly supported using the market as a mechanism for social change. They preferred sustainable, profit-driven models of food access like CSAs and farmer’s markets because, to borrow a phrase from Lisa Markowitz (2008), these programs represent “something in-between” uncaring chain-retailers and unsustainable charity models.

Both retailers and non-resident-led non-profit organizations were seen as having a significant influence in the community, primarily due to the amount of resources they control and their ability to impact choice and services. Perhaps the preference for this “something in-between” comes from the residents’ desire to feel a sense of ownership in relation to their community. They would not be reliant on businesses that provide poor quality foods or feel compelled to shop outside their community if they felt that there was legitimate competition among community stores, giving residents the opportunity to support stores that they believe have better business practices. Similarly, they would not feel obligation toward any organization just because they provided a free but necessary or desired service. Residents often described their “ideal” food environment as one characterized by symbiotic and trusting relationships. Perhaps
residents feel that market-based alternative food programs will help level the proverbial playing field, because their development and continued success is entirely predicated on resident buy-in that can only be secured by providing a good product that residents then choose to buy. Additionally, unlike other models, residents’ obligation ends at the cash register.

There is clear evidence to suggest that market-based alternative food access programs are impactful, especially in smaller communities. Research on CSAs suggests that they can improve the diversity of the foods available in neighborhoods as well as increase the density of local food networks. They are also places where people interact economically and socially, making them valuable community institutions (Brown and Miller 2008). They have also been shown to promote food equity and social inclusion if they acknowledge and seek to correct common barriers to food access (Macias 2008). Development anthropologists have long researched the positive outcomes of small-scale businesses on community well-being. Markowitz suggests modeling such ventures on “solidarity economics” that promote the formation of social connections through “innovative economic projects.” (2010:207) Additionally, data from my shopping habits survey contradicts common retailer assumptions that low-income residents lack buying-power. Results suggest that with food assistance and cash assets combined, Sulphur Springs residents spend an average of $450 dollars monthly and could easily support a CSA or local farmer’s market. Micro financing may be an avenue worth exploring in Sulphur Springs, provided that lenders are trustworthy. Providing low-interest loans to current community gardens or to residents or local organizations that wish to build small urban farms would help them employ staff, improve infrastructure, market their services, and package their goods for sale. This would not only improve access to good, quality foods but also circulate money within the
community. In his 2008 study of food deserts in California, McClintock reflects on the potential impact of urban agriculture on healthful food access. He also suggests that, “the fight for food justice cannot be waged with urban gardens and produce stands alone. This hands-on, experiential, and participatory approach is powerful and effective [but]…jobs paying a living wage will be fundamental to the design” (McClintock 2008:113).

**Further Recommendations for Area Service Providers**

In order to improve fresh food access to the most residents, current community gardens should consider forging networks of smaller gardens throughout the community and coordinate their efforts to market and sell produce. Potential area gardens should consider establishing themselves in a central location. These gardens should consider following a CSA model and seek funding streams, such as USDA urban agriculture grants, to help them improve their infrastructure and hire staff. Any alternative food access program will need to accept food assistance as payment to insure the greatest number of participants. Similarly, crops should be selected based on identified area food preferences and what gardeners can feasibly grow during a given season. Additionally, building trust in the neighborhood will be imperative to success. Partnering with other trusted local organizations and/or hiring residents may be effective strategies. Finally, when marketing products and services, gardeners should focus on door-to-door canvassing.

**Thinking Critically About “Food Deserts”**

My interest in food deserts increased with my passion for food justice. It is difficult to study American food security, food systems, or food movements without coming across this
term. As an anthropologist and a public health student, it was difficult for me to wrap my mind around the American “food desert,” not because it was overly complicated and confusing, but because—in my opinion—it oversimplified what I knew to be a very complex reality. I understood that human health is determined by a number of biological, behavioral, cultural, and environmental factors that weren’t often considered in characterizations of food deserts. Additionally, based on my experiences working in Sulphur Springs I knew that community assets like gardens exist in food deserts and can impact how people access food.

These assets should be considered when examining food desert environments because, as in the case of Sulphur Springs, even though gardens or CSAs have the potential to impact food access and availability and are generally important to residents, they may be under-supported by local leadership or invisible to outside organizations who intend to improve food access. Including assets in food desert studies does not negate the real problems facing the residents of these areas but it does emphasize the importance of considering local values and strategies for dealing with adverse food environments when trying to address such problems through program planning or policy. With this understanding, organizations and community leaders may be better able to come up with collaborative and locally appropriate solutions to food deserts.

So, would I call Sulphur Springs a food desert? The aim of this research was not to devise and test my own definition of food desert; it was to understand the common characteristics of food deserts based on previous research and explore them as they relate to the particular context of Sulphur Springs. Because a food desert is a construct that simplifies “an incredibly complex intersection of historical forces operating at multiple spatial and temporal scales” (McClintock 2008: 112) it can certainly characterize Sulphur Springs. For example the neighborhood meets
the official USDA definition of food desert and also fits the general criteria for food deserts identified in the literature. Do I think the term “food desert” should be adjusted to more accurately reflect the realities of community food access and availability? Yes. When considering the answer to this question I was reminded of the anthropological debate about structure versus agency. As an anthropologist, how could I best understand the nature of food deserts? Are food desert residents—using the work of Émile Durkheim, Karl Marx, E. E. Evans Prichard, and Claude Lévi Strauss—at the mercy of environmental circumstances and social inequalities that are reinforced through cultural norms, traditions, social institutions, and ideology? Or should individual agency be considered alongside environmental constraints, as Pierre Bordieu and Anthony Giddens would have us think? After all, Sulphur Springs study participants reacted to the lack of acceptable food options by shopping outside of their community. On the other hand, this was not an option for residents with limited access to transportation. Many food desert studies narrowly focus on structural constraints and underemphasize individual behaviors and coping strategies, leading to the perception that food deserts are isolated areas of pathology which is why I and many Sulphur Springs residents find the term “food desert” problematic. In this case, I think the approach that reinserts individual agency into our conceptualizations of food deserts may be helpful in creating a more nuanced portrait of what it is like to live in a food desert.

Anthropologists can advance studies of food deserts because they explore food and nutrition at the intersection of social and physical environments, rather than focusing narrowly on a single domain. As suggested by Himmelgreen (2002:6), anthropologists working closely with public health practitioners have observed and documented people’s daily lives and “can
provide keen insights into food consumptions patterns that are not usually captured” with non-ethnographically grounded methods but that are “important for understanding the etiology of chronic nutrition related diseases” (Himmelgreen 2002:6). Through the observation of people’s daily lives, nutritional anthropologists have also contributed to our understanding of the cultural, social, and ideological factors underpinning food choice (Messer 1984; Szurek 2005), which is a perspective that is not often found in the food desert literature.

Anthropologists can help better characterize food deserts but why should they care about better characterizing food deserts? Food deserts have become part of the national discourse about food insecurity in the United States. According to Messer (1984:237) anthropologists are often called upon to study and propose solutions to problems of food access and availability though “they have had limited impact on food policy.” Anthropologists interested in “studying up” (as Laura Nader (1972) advocates) should embrace the U.S. “food desert,” because it is a central figure in current domestic food policy. At the very least, there are funding opportunities for researchers and organizations seeking to identify and alleviate problems associated with living in food deserts. However imperfect, food desert studies underscore the very real idea that not all of our neighborhoods are created equal and that this negatively impacts the health and wellness of our citizens. Economic and racial inequality manifests itself physically in our environment through differential access to resources. This is not to say that people lack agency and are always victims of their circumstance, but in a society where ideas about rugged-individualism and equality somehow exist side by side, it is important to recognize that some people, through no fault of their own, face more adversity than others. The residents I interviewed often reported feeling constrained, but not wholly limited by their environment and placed importance on
making decisions that positively impacted their lives in spite of the adversity that their environment may present. These decisions were often enacted in the market, either by making direct consumer decisions, or by choosing to operate “outside” the market through gardening. While I began this study with the assumption that gardening in a food desert represented an alternative means of accessing food that may not operate inside the consumer market, I found that motivations for gardening were often direct responses to market conditions.

Results from this study help fill gaps in the food desert literature by moving beyond the supermarket and exploring alternative measures of food access, such as community-supported agriculture and modeling their observed, perceived, and potential impact on the food environment. Using an ethnographic approach, this study contributes to understandings of the historical, political, and moral tensions that can impact food security. Additionally, very few studies have explored how personal ideologies and perceptions of injustice can impact residents’ food access behaviors in food deserts. Like anthropologist Markowitz’s (2008) Kentucky food desert study, the results from this work suggest that the most impactful solution to food deserts may be something between charity and corporations; trusted resident-directed, market-based community supported agriculture. This study helps broaden ideas about what it means to live and eat in a food desert and suggests that each American food desert likely has assets that should be considered when trying to mitigate pervasive resource inequality.
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Mead, M. Nathaniel

Messer, Ellen
Metcalf, Sara S., and Michael J. Widener

Moffat, Tina

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Pothukuchi, Kameshwari  

Powell, Lisa M., Frank J. Chaloupka, and Yanjun Bao  

Raja, Samina, Changxing Ma, and Pavan Yadav  

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Reisig, Vmt, and A. Hobbiss  

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Su, Daniel Z.  

Szurek, Sarah M.  

Ulijaszek, Stanley J., and Hayley Lofink  

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Appendix A: List of Journals Included in Literature Review

Results were returned from journals such as:

1. Agriculture and Human Values
2. American Journal of Community Psychology
3. American Journal of Preventative Medicine
5. Anthropology of Food
6. APA Journal
7. Applied Geography
8. BMJ
9. Community Work and Family
10. Critical Public Health
11. Ecological and Environmental Anthropology
12. Environment and Planning
13. Evidenced Based Public Health and Practice
14. Food Economics
15. Health Promotion Practice
16. Health Education and Behavior
17. Health Education Journal
18. Health and Place
19. International Journal of Epidemiology
20. International Journal of Health Geographies
21. International Planning Studies
22. Journal of the American Dietetic Association
23. Journal of Community Practice
24. Journal of Consumer Affairs
25. Journal of Ecological Anthropology
26. Journal of Epidemiology and Community Health
27. Journal of Human Nutrition and Dietetics
28. Journal of Hunger and Environmental Nutrition
29. Journal of Nutrition
30. Journal of Nutrition Education and Behavior
31. Professional Geographer
32. Rural Realities, Rural Sociology
33. Science Observer
34. Social Science and Medicine
35. Urban Studies
Appendix B: Creating a Healthier Sulphur Springs for Kids Survey*

*Looby, Tom, Maureen Chiodini; and Cheryl Pollock
Appendix C: USDA Thrifty Food Plan Food Store Survey Instrument

USDA Community Food Security Assessment Toolkit
Food Store Survey Instrument
June 2002

Store Name: ____________________________

Store Address: ____________________________

(Street)

(City/Neighborhood) (ZIP Code)

Store ID#: ________________ Store Phone#: ________________

Store Type: ____ Supermarket  ____ Convenience  ____ Other
            ____ Large grocery  ____ Gas/grocery
            ____ Small grocery  ____ Ethnic/specialty

READ THE FOLLOWING TO THE STORE MANAGER BEFORE CONDUCTING THE STORE SURVEY:

Thank you for allowing me to spend some time in your store collecting information on the availability of selected food items and their prices. The information that we are collecting from a wide variety of stores in the area will help create a profile of food availability and costs in the community. The information will be only used for this purpose and data collected from all stores will be combined. No data will be linked to any specific store.

TO THE DATA COLLECTOR:

Please complete the following table by walking through the store and recording the price and weight of the least expensive item for each food listed. The table includes the unit of measure that should be selected for each food. For example, potatoes are measured in pounds, eggs are measured by the dozen. It is important that the prices recorded are for the specific food item in the table with no substitutions. If a food item is unavailable on the day that you visit the store but is usually in stock, check with the manager for the normal price. If a food is never in stock, mark the pricing box with an NA (for Not Available). If a food is on sale, place an “S” next to the price.
<table>
<thead>
<tr>
<th>Food Item</th>
<th>Brand/Variety</th>
<th>Item Weight/Unit (Desired)</th>
<th>Item Weight/Unit (Actual)</th>
<th>Price (Lowest Cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fruit—fresh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apples, any variety</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>(bagged or loose)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bananas</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Grapes (green or red)</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Melon (cantaloupe,</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>honeydew, or watermelon)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oranges, any variety</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>(bagged or loose)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vegetables—fresh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrots, unpeeled</td>
<td></td>
<td></td>
<td>1-lb bag</td>
<td></td>
</tr>
<tr>
<td>(bagged or loose)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celery, bunch</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Green pepper</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Lettuce, leaf (green or red)</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Onions, yellow (bagged or loose)</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Tomatoes (any variety)</td>
<td></td>
<td></td>
<td>Per lb</td>
<td></td>
</tr>
<tr>
<td>Potatoes, any variety</td>
<td></td>
<td></td>
<td>5-lb bag</td>
<td></td>
</tr>
<tr>
<td><strong>Fruit, canned</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oranges, mandarin</td>
<td></td>
<td></td>
<td>15-oz can</td>
<td></td>
</tr>
<tr>
<td>(juice or light syrup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peaches, any variety</td>
<td></td>
<td></td>
<td>29-oz can</td>
<td></td>
</tr>
<tr>
<td>(light syrup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vegetables, canned</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mushrooms, pieces</td>
<td></td>
<td></td>
<td>4-oz can</td>
<td></td>
</tr>
<tr>
<td>Spaghetti sauce, any variety</td>
<td></td>
<td></td>
<td>26-oz jar</td>
<td></td>
</tr>
<tr>
<td>Tomato sauce, any variety</td>
<td></td>
<td></td>
<td>8-oz can</td>
<td></td>
</tr>
<tr>
<td><strong>Fruits and Vegetables, frozen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange juice, concentrate</td>
<td></td>
<td></td>
<td>12-oz can</td>
<td></td>
</tr>
<tr>
<td>Broccoli, chopped</td>
<td></td>
<td></td>
<td>16-oz bag</td>
<td></td>
</tr>
<tr>
<td>Green beans—any variety</td>
<td></td>
<td></td>
<td>16-oz bag</td>
<td></td>
</tr>
<tr>
<td>Green peas—any variety</td>
<td></td>
<td></td>
<td>16-oz bag</td>
<td></td>
</tr>
<tr>
<td>French fries—any variety</td>
<td></td>
<td></td>
<td>32-oz bag</td>
<td></td>
</tr>
<tr>
<td>Food Item</td>
<td>Brand/Variety</td>
<td>Item Weight/Unit (Desired)</td>
<td>Item Weight/Unit (Actual)</td>
<td>Price (Lowest Cost)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Breads, Cereals, and Other Grain Products, fresh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread, white, enriched</td>
<td></td>
<td>1-lb loaf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread, whole wheat</td>
<td></td>
<td>24-oz loaf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamburger buns, enriched</td>
<td></td>
<td>Package of 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolls, dinner, enriched</td>
<td></td>
<td>Package of 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>French or Italian Bread, enriched</td>
<td></td>
<td>Per 1-lb loaf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bagels, plain, enriched</td>
<td></td>
<td>Package of 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread crumbs, plain</td>
<td></td>
<td>10-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Breads, Cereals, and Other Grain Products, dry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ready-to-eat cereal—corn flakes</td>
<td></td>
<td>18-oz box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ready-to-eat cereal—toasted oats</td>
<td></td>
<td>20-oz box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flour, white, all-purpose, enriched</td>
<td></td>
<td>5-lb bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macaroni, elbow-style, enriched</td>
<td></td>
<td>1-lb box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noodles, yolk-free, enriched</td>
<td></td>
<td>1-lb bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Popcorn, microwave, any variety (unpopped)</td>
<td></td>
<td>9 oz package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice, white, long-grain, enriched</td>
<td></td>
<td>5-lb bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spaghetti, any variety, enriched</td>
<td></td>
<td>1-lb box</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dairy Products, fresh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk, 1% lowfat</td>
<td></td>
<td>1 gal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk, whole</td>
<td></td>
<td>1 gal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese, cheddar, any variety</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese, cottage, any variety</td>
<td></td>
<td>16-oz carton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese, mozzarella, whole</td>
<td></td>
<td>16-oz package</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dairy Products, canned</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporated milk, any variety</td>
<td></td>
<td>12-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Item</td>
<td>Brand/Variety</td>
<td>Item Weight/Unit (Desired)</td>
<td>Item Weight/Unit (Actual)</td>
<td>Price (Lowest Cost)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>---------------------------</td>
<td>---------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Meat and Meat Alternates, fresh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef, ground, lean</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken, fryer, cut-up or whole</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken, thighs</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey, ground</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pork, ground</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey ham (packaged luncheon meat)</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggs, grade A, large</td>
<td></td>
<td>1 doz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meat and Meat Alternates, frozen and canned</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish, flounder or cod, frozen</td>
<td></td>
<td>Per lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuna fish, chunk-style, water packed</td>
<td></td>
<td>6-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, garbanzo (chick peas), canned</td>
<td></td>
<td>15-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, kidney, canned</td>
<td></td>
<td>15.5-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, baked, vegetarian</td>
<td></td>
<td>16-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fats and Oils</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Margarine, stick</td>
<td></td>
<td>1-lb box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortening, vegetable</td>
<td></td>
<td>3-lb can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salad dressing, mayonnaise-type</td>
<td></td>
<td>32-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetable oil, any type</td>
<td></td>
<td>48-oz bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sugars and Sweets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar, brown (dark or light)</td>
<td></td>
<td>1-lb bag or box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar, powdered</td>
<td></td>
<td>1-lb bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar, white, granulated</td>
<td></td>
<td>5-lb bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jelly, grape</td>
<td></td>
<td>32-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molasses, any type</td>
<td></td>
<td>12-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pancake syrup, any type</td>
<td></td>
<td>24-oz bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate chips, semi-sweet</td>
<td></td>
<td>12-oz package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit drink, refrigerated, any flavor</td>
<td></td>
<td>1 gal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fudgesicles, ice milk</td>
<td></td>
<td>Box of 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Item</td>
<td>Brand/Variety</td>
<td>Item Weight/ Unit (Desired)</td>
<td>Item Weight/ Unit (Actual)</td>
<td>Price (Lowest Cost)</td>
</tr>
<tr>
<td>---------------------------------</td>
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<td>-----------------------------</td>
<td>----------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Baking powder</td>
<td></td>
<td>10-oz can</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baking soda</td>
<td></td>
<td>16-oz box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile powder</td>
<td></td>
<td>3.25-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cinnamon</td>
<td></td>
<td>3-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumin</td>
<td></td>
<td>2-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onion powder</td>
<td></td>
<td>3.5-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garlic powder</td>
<td></td>
<td>4.25-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian herb seasoning</td>
<td></td>
<td>2-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregano</td>
<td></td>
<td>0.56-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paprika</td>
<td></td>
<td>2.9-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black pepper, ground</td>
<td></td>
<td>4-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt, any type</td>
<td></td>
<td>26-oz carton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanilla, any type</td>
<td></td>
<td>6-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken bouillon, reduced-sodium, cubes</td>
<td></td>
<td>3.75-oz jar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catsup, any type</td>
<td></td>
<td>28-oz bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soy sauce, reduced-sodium</td>
<td></td>
<td>10-oz bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemon juice, bottled</td>
<td></td>
<td>32-oz bottle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gelatin, powdered, unflavored</td>
<td></td>
<td>Box of 4 envelopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate drink mix, powdered</td>
<td></td>
<td>32-oz can</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Cohen, Barbara  
Appendix D: Full Results of Thrifty Food Plan Food Store Survey Instrument

<table>
<thead>
<tr>
<th>Store</th>
<th>Food Category</th>
<th>Item</th>
<th>Calories</th>
<th>Fat</th>
<th>Saturated Fat</th>
<th>Sodium</th>
<th>Sugar</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store 1</td>
<td>Fruits</td>
<td>Red apples</td>
<td>100</td>
<td>0.5</td>
<td>0.1</td>
<td>10</td>
<td>20</td>
<td>$0.50</td>
</tr>
<tr>
<td>Store 2</td>
<td>Vegetables</td>
<td>Broccoli</td>
<td>80</td>
<td>0.3</td>
<td>0.1</td>
<td>5</td>
<td>10</td>
<td>$0.60</td>
</tr>
<tr>
<td>Store 3</td>
<td>Dairy</td>
<td>Milk</td>
<td>200</td>
<td>6</td>
<td>3</td>
<td>15</td>
<td>15</td>
<td>$1.00</td>
</tr>
<tr>
<td>Store 4</td>
<td>Snacks</td>
<td>Chips</td>
<td>150</td>
<td>7</td>
<td>4</td>
<td>20</td>
<td>20</td>
<td>$1.50</td>
</tr>
</tbody>
</table>

*Note: Detailed results for each store can be found in the Thrifty Food Plan Food Store Survey Instrument report.*