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Socio-spatial Constructs of the Local Retail Food Environment: A Case Study of Holyoke, Massachusetts

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SOCIO-SPATIAL CONSTRUCTS OF THE LOCAL RETAIL FOOD ENVIRONMENT:
A CASE STUDY OF HOLYOKE, MASSACHUSETTS

A Thesis Presented
By
WALTER F. RAMSEY

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
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Department of Landscape Architecture and Regional Planning
SOCIO-SPATIAL CONSTRUCTS OF THE LOCAL RETAIL FOOD ENVIRONMENT:
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ABSTRACT

SOCIO-SPATIAL CONSTRUCTS OF THE LOCAL RETAIL FOOD ENVIRONMENT:
A CASE STUDY OF HOLYOKE, MASSACHUSETTS

SEPTEMBER 2010
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This mixed-methods study addresses the relationship between the availability of food and realized food access by studying the retail food landscape of Holyoke, Massachusetts – a small, socio-economically diverse city. While a large body of empirical research finds that low-income communities and communities of color are especially likely to lack adequate access to healthy foods and experience increased vulnerability to food insecurity, few studies explore urban food environments through a mixed-methods case study approach. Through the use of food store mapping, store audits, and resident interviews, this research is a nascent attempt to articulate how the unique development histories and cultural politics of urban neighborhoods affect food access. The analysis finds that local food environments in Holyoke vary by social and spatial context. The study further considers how health and stability of a community is affected by the distribution and variety of food retail stores. In particular the study articulates the constructs of race and class in the food environment via the spatial mismatch of preferred food stores, mobility challenges, and the role of small urban food stores in the context of Holyoke’s foodscape. Implications for local food security policy are discussed.

Keywords: food security, social justice, food desert, local food environment, urban planning
TABLE OF CONTENTS

ACKNOWLEDGEMENTS..........................................................................................iii

ABSTRACT...............................................................................................................iv

LIST OF TABLES......................................................................................................vi

LIST OF FIGURES...................................................................................................vii

CHAPTER

1. INTRODUCTION TO COMMUNITY FOOD SECURITY...........................................1
2. CURRENT RESEARCH IN LOCAL FOOD ENVIRONMENTS.................................11
3. STUDY CONTEXT ............................................................................................26
4. STUDY APPROACH ..........................................................................................35
5. CATEGORIZATION OF FOOD STORES.................................................................45
6. PATTERNS IN THE HOLYOKE RETAIL FOOD ENVIRONMENT..........................53
7. SOCIO-SPATIAL CONSTRUCTS IDENTIFIED.......................................................70
8. SUMMARY AND POLICY IMPLICATIONS..........................................................87

APPENDICES

A: Definitions.........................................................................................................94
B: Matrix depicting quality of produce in Holyoke Stores......................................95
C: Summary table of food items available in Holyoke Stores...............................96

REFERENCES........................................................................................................97
LIST OF TABLES

Table 3.1: Median Household Income by Census Tract……………………………………31
Table 3.2: Holyoke Per Capita Income in 1999………………………………………………31
Table 3.3: National Origin of Holyoke Latinos………………………………………………32
Table 3.4: Means of Commute in Holyoke……………………………………………………33
Table 3.5: Summary Indicators for Chronic Disease Outcomes for Holyoke
and Region……………………………………………………………………………………34
Table 4.2: Selected Demographic Composition of Resident Focus Group………………45
Table 4.3: Selected Demographic Composition of Additional Interview Subjects……45
Table 6.1: Distribution of Market Type in Urban Core Neighborhoods………………45
Table 6.2: Presence of Food Stores in Selected Holyoke Areas…………………………57
Table 6.3: Summary of Stores per Store Type………………………………………………58
Table 6.4: Average Price of Selected Food Items by Store Type…………………………62
Table 6.5: Quality and Selection Index Results Aggregated by Location…………………65
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Methodological Approaches to Local Food Environment Research</td>
<td>20</td>
</tr>
<tr>
<td>2.2</td>
<td>Conceptual Model for Understanding the Local Food Environment</td>
<td>26</td>
</tr>
<tr>
<td>4.1</td>
<td>How this Study Approaches a Local Food Environment Assessment</td>
<td>37</td>
</tr>
<tr>
<td>5.1</td>
<td>Component Categories of Stores in the Local Food Environment</td>
<td>46</td>
</tr>
<tr>
<td>5.2</td>
<td>Characteristics of Food Store by Type</td>
<td>46</td>
</tr>
<tr>
<td>5.3</td>
<td>Stop and Shop, Supermarket. Holyoke, MA</td>
<td>47</td>
</tr>
<tr>
<td>5.4</td>
<td>Price Rite, Discount Grocery Market. Chicopee, MA</td>
<td>48</td>
</tr>
<tr>
<td>5.5</td>
<td>Price Rite, Discount Grocery Market. Chicopee, MA</td>
<td>48</td>
</tr>
<tr>
<td>5.6</td>
<td>Plaza Latina/Cuba Supermarket, Urban Full Service Market. Holyoke, MA</td>
<td>49</td>
</tr>
<tr>
<td>5.7</td>
<td>Bodega 24, Neighborhood Food Store. Holyoke, MA</td>
<td>51</td>
</tr>
<tr>
<td>6.1</td>
<td>Distribution of Food Retail Establishments in the Holyoke Market Area</td>
<td>54</td>
</tr>
<tr>
<td>6.2</td>
<td>Locations of Food Stores in the Holyoke Market Area</td>
<td>56</td>
</tr>
<tr>
<td>6.3</td>
<td>Percentage of Stores Offering Food Items</td>
<td>59</td>
</tr>
<tr>
<td>6.4</td>
<td>Average Price of Basket of Produce and Non-Produce Food Items</td>
<td>63</td>
</tr>
<tr>
<td>6.5</td>
<td>Location of Stores by Quality and Selection Rating</td>
<td>66</td>
</tr>
<tr>
<td>6.6</td>
<td>Latino Population and Store Distribution in Holyoke Urban Core Neighborhoods</td>
<td>68</td>
</tr>
<tr>
<td>6.7</td>
<td>Median Household Income and Food Store Distribution</td>
<td>69</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION TO COMMUNITY FOOD SECURITY

From a decrepit strip mall in an ocean of parking lots and second hand stores, one is taken aback by the bounty of produce within the dirty walls of Price Rite. In its “Produce Depot” there is a wide selection of ubiquitous American vegetables as well as a wide variety of traditional Latino produce: aloe vera, guava, prickle pear, lila yutica, malanga, batata, yucca, plantains, coconuts. The full service discount grocer enjoys steady business, especially on the first of the month when EBT cards are charged, but it seems that the lines are always long and the carts top-heavy with groceries. The customers come from various socio-economic backgrounds, and many of them are Latino. Perusing the produce, a customer will offer a traditional recipe for yucca. Customers bring their own bags or boxes and “bag” their own purchases. A store like this where food is cheap and variety good is considered a boon to the economically distressed population of Holyoke, Massachusetts, but there is one primary issue; this grocery store is in neighboring Chicopee, over two miles from the economically challenged Latino enclave comprising Holyoke’s urban core. The store is virtually unattainable by transit from the low-income neighborhoods of Holyoke- requiring the patience for multiple bus transfers or a formidable challenge on foot. A ride to the store is prized and often shared with others. Yet this supermarket remains preferred because of its rock-bottom prices and wide selection. Herein lies the conundrum faced by many of the urban poor in the United States: getting to the store.
1.1 Primary Issues

Food is “a product and mirror of the organization of society” (Counihan 1999, p.6), and today's industrial food system is a product of significant scientific and institutional advances over the previous centuries. The economic structure of the current food system provides an abundant and safe supply of food to the majority of the country. However one of the paradoxical consequences of this system is hunger and malnutrition in the midst of plenty.

The American urban landscape has changed significantly over the past few decades with the advent of the automobile as the transportation mode of choice. Privatized mobility allowed wealthier people to move outward from city centers toward the suburbs, and with them went many of the supermarkets that used to encompass urban areas. The steady suburbanization of major food retailers is contributing to the emergence of urban “food deserts,” areas within city centers where low-income people have poor access to vegetables, fruits, and other whole foods. Because many chronic diseases have been associated with the combination of low consumption of vegetables and fruits and high consumption of sugary or high-fat foods, the food environment of urban areas tends to be detrimental to the health of low income urban areas.

An understanding of the local food environment in small urban areas is the first step toward informed policy and planning that addresses food security. Knowing more about the level of access to shopping opportunities for healthy foods is essential for combining environmental approaches with traditional health interventions to make it easier for individuals to make healthy food choices. Measuring access to food is an enormous data collection task that requires information on all the food retailers in a
neighborhood or within access of the customer, the types and prices of food sold in these stores, a measure of the quality of the food, as well as an understanding of how customers get to the store. This information is essential in the preparation for policy change to strengthen food assistance programs, locate supermarkets, and promote entrepreneurship, or interventions to improve nutritional health needs to contextualize where people live and where they shop for food.

1.2 Planner’s role in local food environment research

The visibility of urban food environments has increased dramatically in the last decade, receiving attention from multi-disciplinary fields including public health, nutrition, sociology. While food and food systems have not traditionally fallen within the realm of urban planning, the field is in the midst of a marked shift (Pothukuchi and Kaufmann 2000, Campbell 2004, Hammer 2004). The planning profession “lays claim to being comprehensive in scope, future-oriented, and public interest driven, and of wanting to enhance the livability of human settlements” (Pothukuchi & Kaufman 2000 p1). Planners are in unique positions of power to mediate the connections between the different stakeholders in a food system. They are trained to analyze the interconnectedness of systems in cities and understand communities as a whole (Campbell 2004, Pothukuchi 2004). This implication of interconnectedness “should lead planners directly to a concern about food systems, as the food system is so intricately connected to the land and land use and so central to health and the goal of improving human settlements”.

Food stores represent not only an economic focus but a social one. They offer the natural means of bringing the people—whether old or new residents of the area together.
People who visit a food store for their Saturday grocery shopping have in mind shopping, but in thus mingling with their neighbors they may also find the makings of neighborliness. Along with schools and churches, a grocery store or food market has potential to be the backbone of public circulation that draws people into the heart of the site, creates new gathering places, and reconnects neighborhoods (Infill Philadelphia 2008). In contrast, the lack of larger markets costs communities in reduced job opportunities, fewer multiplier effects and entrepreneurship opportunities that grocery stores typically generate, and lower support for community activities. Furthermore, society as a whole loses out when food stamps and other government-funded vouchers return less value in smaller stores than they might at full-service supermarket (Pothkuchi 1999).

1.3 Thesis Purpose

The purpose of this research is to address the relationship between the local food environment and realized food access by studying the retail food landscape of a small, socio-economically diverse city. While a large body of empirical research finds that low-income communities and communities of color are especially likely to lack adequate access to healthy foods and experience increased vulnerability to food insecurity, few studies explore urban food environments in qualitative, case-study detail. This study provides evidence that local food environments vary by socio-spatial and cultural context and demonstrates how the health and stability of a community is affected by the local options and adaptations for purchasing food. The research is a nascent attempt to articulate how the unique economic development histories and cultural politics of urban neighborhoods affect food availability. I chose Holyoke, Massachusetts, a small post-
industrial city as a case-study because of the rich contrast in socioeconomic disparities existing within the city.

The study constitutes an overall assessment of retail food availability in the city of Holyoke. Community food assessments are activities that systematically collect and disseminate information on selected community characteristics so that community leaders and agencies may devise appropriate strategies to improve their localities. As such, they are an important tool constitute a first step in planning for community food security (Pothkuchi 1999). Inclusive of a community food assessment, this case-study research extends beyond the scope of a typical community food assessment by examining community member’s perceptions and realizations of food access in the local food environment. Similar to methods used in other local food environment research (Block and Kouba 2005, Short et al 2007, Freedman 2009), this case study evaluates access to healthy food on a neighborhood level and compares access across neighborhoods. It also documents the relationship between diet and food access.

Food deserts are a prevailing idea in food system research. They depict low-income urban neighborhood as places where transportation constraints of carless residents combine with a dearth of supermarkets to force residents to pay inflated prices for inferior and unhealthy foods at small markets and convenience stores (Wrigley 2002). Though I am not claiming that Holyoke is a food desert per se, alarming rates of diabetes and obesity have ignited significant concern among citizens and community organizations. This study, while in nature explores themes common to Food Desert literature, rejects many of the assumptions inherent that rhetoric. Rather, I adopt a
grounded theory approach to understanding human interaction with the local food environment.

The context sensitive mixed-methods approach involves food store mapping, food store auditing, and interviews with residents and storeowners. The intent is to first construct a nuanced picture of food access in a small city, then to interpret how the local food environment is a product of socio-spatial constructs. The implications of this thesis will inform food and planning policy in urban areas and advance the issues of public health and social equity to urban development.

1.4.1 Thesis Goals

The overarching goal of the thesis is to construct a nuanced perspective of the Local Food Environment in small, socio-economically diverse urban context, and to utilize this information to assess food security on a neighborhood scale. This exercise is a novel approach toward assessing food security, employing multiple-methods to distinguish a grounded model that rethinks how access to food is assessed from conventional approaches. The following goals comprise the overall goal:

1) To demonstrate how the local food environment is intimately tied to a city’s economic history, and the inherent ethnic-based spatial constructs within the City

2) To articulate how the local food environment affects the livelihood and welfare of Holyoke’s Latino population

3) To assess if small-scale urban food retailers can contribute to meeting Community Food Security

I employ the following objectives to reach these goals:
a. Analyze the distribution of food stores and foods within the community, correlate with demographic data.

b. Identify strategies and barriers to access to healthy foods in Holyoke through participant observation and resident/store owner interviews.

c. Establish an appropriate categorical framework for understanding the variety of store types in the city, to better understand the role of each store type.

1.5 Research questions

The research started with simple query too often overlooked by urban planners:

-Where is food available in the community?

This question incites further interest in the distribution of food from a social justice perspective:

-How do economic, social, and cultural systems influence distribution of food stores within the community (by store scale and, type)?

-How does the quality of food stores and products therein differ based on the social characteristics of people living near the stores?

I found that answering these questions is extremely limited when considering greater realities of the local food environment, so my research questions advanced deeper into the pursuit of qualitative reason.

-What does it mean to live in a community with limited access to food?

-What messages are conveyed through the presence of food store types or the lack thereof?
1.6 Assumptions and Limitations

Access to food is only one component of the greater urban food system, and is the focus of this research. The “food environment” can be interpreted in many different ways. For Glanz and colleagues (2007) the food environment is broadly defined to include home, community, and media/information environments. In this study, however, the food environment is limited to retail food stores. Since all people require food on a daily basis and shop for it frequently, food retailers should be recognized as more than simply another retail establishment.

If food availability contributes to health through optimal dietary patterns, then Holyoke residents may experience difficulty attaining good-quality diets from within the community. While Holyoke residents can and do travel for groceries, limited availability within the community creates barriers for those without easy access to a car. By studying only one community, I cannot come to a general conclusion about the influence of race, class, or urbanity on food access. But new questions do emerge from the research about how the urban context affects food security.

1.7 Benefit to the City and Holyoke Food and Fitness Policy Council

It is the intention to make any and all the information in this thesis available to the public so as to implement informed policy regarding the Holyoke food system. A copy of this thesis will be made available online and provided to appropriate agencies. The Holyoke Food and Fitness Policy Council (HFFPC) is a coalition of over 70 agencies and community members committed to improve Holyoke's residents' access to healthy foods and fitness opportunities. The HFFPC is a Kellogg Foundation funded organization. My community food assessment will provide the HFFPC with research to
inform the organization’s policy, as identified in the organization’s 4-year implementation plan. Additionally, I will provide the organization with a “Food Resources Map” that identifies where healthy foods are available in the city. I also plan to use my findings to inform the planning process for The City of Holyoke’s urban renewal plan, slated to begin in 2010. Ensuring equitable access to food, promoting livable and walkable neighborhoods, and cultivating entrepreneurial opportunities are important long-term objectives for the City of Holyoke to consider in the context of preserving and supporting healthy food stores across the city.

1.8  Organization of Thesis

The thesis is organized into eight chapters. Chapter 2 reviews the literature of local food environment research. This is followed by a profile of the case study site (Chapter 3), a description of the study approach (Chapter 4), a categorical summary of food stores in the city (Chapter 5), findings and patterns in the research (Chapter 6), a discussion of socio-spatial constructs identified in the research (Chapter 7). The thesis concludes with a discussion of the implications for planning and policy and contextualizes future research in Chapter 8.
CHAPTER 2

CURRENT RESEARCH IN LOCAL FOOD ENVIRONMENTS

The purpose of food environment and food desert research is to understand factors that contribute to food deserts and ultimately to identify ways to facilitate change for health and non-health benefits. This is an emerging field that brings together a variety of disciplines, including public health, nutrition, economics, geography, and urban planning. Evidence shows that food deserts exist in the United States along income, ethnic, and racial lines, particularly in urban environments.

2.1.1 Supermarket Flight and the Current State of the Urban Food Environment

The history of food retail over the last 50 years has been well documented from the perspective of the supermarket as the dominant source of food. As urban populations shifted to the suburbs post World War II, supermarket chains began to vacate the inner cities for the suburbs. The suburban realm provided a development context favorable for much larger stores. Fueled by low profit margins and automobile preference among consumers, supermarkets expanded the size and format of their suburban stores to increase sales volume. This necessitated both expansive land parcels that often are not available in inner city neighborhoods and easy automobile access for a significant portion of their customers. Through the 1980’s supermarket store openings exceeded closings nationally, but cities in the United States experienced a net loss of supermarkets due in part to urban America’s reduced purchasing power and decreased densities (Eisenhaur 2001). The ever-larger footprint of most grocery retailers has created a spatial mismatch
in many cities across the nation, where local communities have struggled to attract and retain food retailers. But effects of this phenomenon on inner city neighborhoods have only begun to be researched in the last 20 years.

The legacy of large supermarket chains avoiding low-income consumers and their neighborhoods is evident in the research. Several studies show that there are significantly fewer supermarkets located in low-income urban areas than in suburban areas or wealthier neighborhoods (Bell and Burlin 1993, Cotterill and Franklin 1995, Alwitt and Donley 1997, Chung and Meyers 1999, Morland et al 2002a). One could argue that the closures of city supermarkets in and of themselves has little to do with the racial composition of the areas they serve, as the decline may reflect the nationwide trend of consolidation in the grocery retail sector as stores become larger in size and fewer in number (Dunkley 2004). However, at least one study (Chung and Myers 1999) has found that large stores, such as supermarkets, are far more likely than smaller, independent stores to locate outside the inner city in higher income areas. As a result many urban neighborhoods are predominantly served by smaller stores and non-chain stores.

Many corner grocery stores in urban neighborhoods — which once featured meat, dairy, produce, and other foods — have shifted toward becoming alcohol, cigarette, and convenience food outlets. The shift in the nature of these corner stores occurred for a variety of reasons. Many small storeowners find it difficult to sell fresh foods because they lack sufficient experience with produce or other perishables (Short et al 2007). Corner stores also rely more on non-perishable foods that have long shelf lives because their stock turnover is generally slower than in larger markets that draw customers from a wider area. These same items require little sales experience, and they do not spoil and
they do not need care. Moreover, corner stores with limited space must focus on selling products that have the strongest demand and unfortunately alcohol, tobacco and snack foods are high on the list (Bolen and Hecht 2006).

2.2 Facilitators and Barriers to Healthful Eating in the Local Food Environment

Urban food security literature supports four general themes. These themes are that the local food environment are a determinant of community health, low-income populations pay more for food, racial and ethnic disparities persist in access to food, and transportation and mobility affect food access.

2.2.1 The Local Food Environment Affects Community Health

Americans face disparate health problems directly related to the availability of food in their given locales. The U.S. Department of Agriculture reports that in 2005, 11% of all U.S. households were "food insecure" because of a lack of sufficient food (Economic Research Service 2006). African-American and Latino households experienced food insecurity at far higher rates than the national average, 22% and 18% respectively. Paradoxically, while Dietz (2004) suggests that hunger and obesity are most prevalent in low-income populations, over two-thirds of Americans are overweight or obese (Ogden et al 2006). Traditionally, interventions to improve diet or treat obesity, especially among at-risk populations, have relied on individual-based behavior change, but with limited success (Garner 1997). This rise in obesity in recent decades has increased interest in the food environment as a possible causal factor, given its potential impact on behavior related to diet, weight, and health outcomes (Morland et al 2002b).

Food security research has, in turn, spurred many researchers to explore the influence of local food environments on health outcomes. The majority of the studies
suggest that neighborhood residents with better access to supermarkets and other retail stores providing access to healthful food products tend to have healthier food intakes. Supermarkets, as compared to other food stores, tend to offer the greatest variety of high-quality products at the lowest cost (Chung and Meyers 1999, Block and Kouba 2005, Glans et al 2007). As a result of the surrounding food environment, white Americans' fruit and vegetable intake is found to increase by 11% with the presence of one or more supermarkets in their neighborhood (Morland et al 2002b). At least three other studies among low-income individuals and households have found that better supermarket access or shopping in a supermarket has a direct, positive relationship to markers of a healthful diet (Laraia 2004, Zenk et al 2005a, Rose 2007).

In contrast, convenience stores sell mostly prepared, high-calorie foods, little fresh produce and at higher prices (Zenk et al 2005b, Larsen et al 2009). Chung and Meyers (1999) found that non-chain food stores were up to two times less likely to sell fruits and vegetables than chain supermarkets. A significantly smaller body of research has involved an assessment of products that are sold in smaller urban retail outlets (Raja et al 2008, Block and Kouba 2008). One illustrative study by Raja et al (2008), in a random sample of 102 individuals in New Orleans found that each additional linear meter of vegetable shelf space in local small food stores (within 100 meters or one city block of a residence) was related to an increase in vegetable intake of 0.35 daily servings. A trend was also found relating the availability of more fresh vegetable varieties in local stores to greater vegetable consumption.
2.2.1 Low-income Populations Pay More For Food

Variation in food cost and availability across space augments socioeconomic disparities. A substantial literature has explored whether the poor suffer from inadequate access to grocery stores or higher prices for food, and this question has recently been broadened to include local-level factors and the spatialization of poverty as significant determinants of food cost and availability. (Macintyre et al. 1993, Curtis and McClellan 1995, Chung and Myers 1999, Donkin et al. 2000, Eisenhauer 2001, Morland et al. 2002b, Latham and Moffat 2007). One can conclude from this work that poorer neighborhoods have fewer grocery choices and pay more for food.

Unhealthy foods are often cheaper and therefore more financially accessible to low-income families. While fruits and vegetables are low calorie and “nutrient dense” foods, limited income households, tend to focus their buying power on bulk foods that fill them up (Drewnowski 2004). Depending on income level, city households will spend from 10 to 40 percent of their income after taxes on food purchases, be it in the home or at eateries, with richer households spending a smaller proportion of their income on food (Senauer et al. 1991). Further, when affordable housing is in short supply in a city, poorer residents may be at greater risk of hunger, due to the graver short-term consequences of rent default over food intake reduction. Housing payments get priority over food purchases and food is also more easily obtained from other sources than is shelter (Pothukuchi 2005).
2.2.2 Racethnic Disparities Persist in Access to Food

Findings from the emerging public health literature support the idea that disparities in the food environment exist across racial lines (Alwitt and Donley 1997, Sloan et al 2003, Moore and Diez Roux 2006, Raja et al 2008). These studies find that chain supermarkets tend to be located in areas that are predominately populated by whites and by people representing middle or high levels of income, whereas convenience stores and smaller, non-chain grocery stores are more common in communities predominately populated by racial and ethnic minorities and people living at or below the federal level of poverty. Moore and Diez Roux (2006), for example, find that minority census tracts in North Carolina, Maryland, and New York State have twice as many grocery stores as white neighborhoods, while white census tracts have a greater number of supermarkets, adjusted for population density and census tract size.

Powell et al. (2007) examined the racial disparities of food availability, nationally by analyzing 28,050 zip codes by race, ethnicity, income, population, and degree of urbanization for the year 2000. Based on multivariate models, quite significant differences emerged:

- African-American populations had half the access to chain supermarkets as Caucasians, controlling for other factors;
- Hispanic populations had one-third the access to chain supermarkets as non-Hispanics, controlling for other factors;
- Lower-income neighborhoods overall had less access to chain stores than middle- and upper-income neighborhoods;
and independent, non-chain stores were more prevalent in predominantly African-American and Hispanic communities than in predominantly Caucasian communities.

A study commissioned by LaSalle Bank of Chicago examines the presence of food deserts (measured as the absence of grocery stores) in African American neighborhoods and correlates the presence with a higher incidence of negative health outcomes (Mari Gallaghar Research and Consulting Group 2006). Racial disparities in the food retail environment have been previously documented in the urban planning literature as well. Helling and Sawicki (2003) report that affluent black neighborhoods in Atlanta have poorer access—measured in terms of travel time—to retail, including food retail, than comparably affluent white households, suggesting that even after controlling for income racial disparities persist.

2.2.4 Transportation and Mobility in the Local Food Environment

The dominance of the automobile has a profound effect on how food is accessed. The transportation system attributes that planners strive for, such as lack of congestion, frequent transit service and good connectivity, are part of the mechanism that enables large stores. Whenever economies in scale exist, low costs of travel give larger stores an advantage over smaller stores. Dixon (2007) finds that in car-dominated cities, access to a car and food are related because the cheaper, healthier food outlets are typically in regional shopping centers. Her study of Australian cities finds that the lack of a car can reduce food access by 50%. Related research suggests that carless residents of low-income neighborhoods are either left reliant on corner groceries and liquor stores for their food purchases where they pay more for food that is of low quality and insufficient in
variety to produce nutritious family meals, or they are compelled to use higher cost alternative modes of transportation to purchase their food from distant supermarkets (Bell and Burlin 1993, Alwitt and Donley 1997, Kaufman et al 1997). The importance of food provisioning trips is supported by the fact that household and individual trips to grocery stores and other food outlets contribute at least 20% of the total urban transportation volume (Pothukuchi and Kaufman 1999).

According to Clifton (1999), the majority of Americans rarely use non-motorized modes of travel to access grocery stores. Among the factors leading and supporting this choice of access are ample parking availability at grocery stores, the inconvenience of carrying heavy loads of groceries, the lack of pedestrian facilities near the stores, as well as time and distance constraints. However, studies show that people do use non-motorized transportation to access commercial areas, with more people walking where appropriate pedestrian and transit infrastructure are available (Moudon et al 1997).

Transportation expenses are limited for the poor when other family expenditures such as food, shelter take a high priority. Once the work trip has been satisfied, money for other trips, for the poor, is not always available. One solution to cost-free travel is pedestrianism, but this, too, is difficult in urban and semi-urban areas where the pedestrian is second to the automobile. Low-income consumers are extremely motivated to comparison shop but may lack private vehicles. And in spite of low wages, the opportunity cost of shopping travel time may be high for poor workers with other time-consuming commitments, such as lengthy commutes or family responsibilities (Dunkely et al 2004). Transporting groceries on public transportation or on foot also limits the size of low-income consumers’ purchases (Bell and Burlin 2003).
2.3 Approaches to Understanding Local Food Environments

In the last decade, a growing understanding of the linkages between diet and health has led to increased scrutiny of the accessibility of healthful foods in certain environments. Measurement of the food environment is a burgeoning field of inquiry, and pioneering researchers have been innovative in their development and use of tools to assess these environmental effects. Studies in the U.S. first identified ‘grocery store gaps’ that is, inner-city areas experiencing disinvestment in retail grocery stores leaving low-income inner-city areas underserved by traditional grocery store retailing. This was followed by a number of U.K. studies that further refined the questions and research methodologies for defining food deserts generally defined as low income, urban areas with diminished walking distance access to larger stores (e.g. Whelan et al, 2002 Wrigley 2002, Wrigley et al 2003).

In review of the literature on food environment research methods, I find three distinct approaches: spatial/geographic, comparative store analysis, and community engagement. While most studies of the food environment employ one of these three general approaches, a more holistic approach incorporates two or three of the methods. The field emerged from the spatial/geographic approach (Wrigley 2002), and therefore most of the literature on food environments is empirical, data-driven spatial analyses. Of emerging import are comparative food store analyses which evaluate the price and availability of products within stores. Less utilized and understudied is the emic perspective of the community. Only a handful of studies span two of these approaches. Hand and Clifton (2001) and Freedman (2009) use community focus groups to ‘round out’ the empirical data.
2.3.1 Spatial/Geographic Approach

Space, defined by place, neighborhood, or environment—is a key dimension across which health is patterned. For example, according to calculations by the U.S. Centers for Disease Control and Prevention there is a fivefold difference in diabetes prevalence rates across New York City neighborhoods (Nord et al 2007). These differences could occur because residents are segregated by factors that research has shown are health-related, such as income, race, or ethnic group, but the features of the
places themselves may contribute to the problem. However, Moore and Diez Roux (2006) emphasize that environmental constraints and reinforcements, such as local food availability and affordability, are just some of many factors that affect health.

Geographic or spatial access from the home to food resources remains a major focus of research to understand access to a variety of healthy foods and to eliminate disparities in nutrition-related health conditions. Researchers have used many different databases and instruments to understand local food environments. Two important points emerged: (1) the local food environment is patterned by areas of socioeconomic, race, and ethnic composition; and (2) features of the local food environment have been cross-sectionally associated with the diet of residents and with related health outcomes.

Recent food environment studies in the United States and Canada have mainly consisted of GIS based local mapping projects where a ‘food desert’ is identified as an area that is more than a critical distance from a food store that supplies food of adequate nutritional value (Donkin et al 1999, Smoyer-Tomic et al 2006, Gallagher 2007). There are several measures that have been used to describe different dimensions of accessibility to food stores. The approach most prevalent in the literature is a measure of proximity or distance to the nearest food store (Zenk et al 2005, Larsen and Gilliland, 2008). Other dimensions include coverage, which is the number of food stores within a specified distance or buffer area (Apparicio et al 2007), food and price variety which is average distance to the three closest different chain-name supermarkets (Apparicio et al 2007) and density, which is the proportion of food stores per given geography (Andreyeva et al 2008). In general, these studies have defined reasonable access as having a supermarket within walking distance, and all have used supermarkets that belong to chains as a proxy
for fresh, affordable food. Recognizing that there is not a ‘perfect distance’ to food stores because of viabilities in mobility, store types, etc, Mari Gallagher’s research of Chicago and Detroit developed a “food balance score” looking at closest grocers and fast-food establishments instead of measuring distance. Gallagher based her findings on distance measurements as well, but it is really “relative measurement”.

### 2.3.2 Comparative Food Store Analyses

The USDA Community Food Assessment handbook sets guidelines for conducting comparative food store analyses. The literature suggests that this method has been greatly refined over the brief history of local food environment research. These assessments include availability, cost, and produce quality. Bell and Burlin (1993) were among the first to utilize a market-basket model and shopping diaries to document the local food environment. A limitation to these methods is that they have not incorporated differences in stores types. The closest supermarket may not always be acceptable to neighborhood residents in terms of food cost, selection, or quality, or in terms of store size or services offered (Smoyer-Tomic et al. 2006). A study by Block and Kouba (2005) evaluated several Chicago neighborhood food environments using 10 different store classifications. They summarize the data by community and store type, but the stores were difficult to compare from a quantitative standpoint.

Some studies have collected additional information about the locations of food retailers other than supermarkets, such as farmers’ markets, meat markets, bakeries, or veggie carts (Neckerman et al. 2009). Other studies actually measure a store’s contents to see if “healthy foods” are sold, how much shelf space is dedicated to them, and in which forms they are sold (e.g., fresh, frozen, or canned; low-fat or regular) (Rose 2007;
Sharkey and Horel 2008). Standardized tools for conducting such studies have also been developed and tested, such as the Nutrition Environment Measures Survey (NEMS) (http://www.sph.emory.edu/NEMS) Such extensive data collections have been conducted on more localized levels, for example, in New Orleans, New York City, and in six rural counties in Texas (Economic Research Service 2009).

2.3.3 Community Engagement

An increasing number of studies recognize that food environments have physical, geographical components (lack of nearby access), but highlight the attitudinal components (social or lifestyle reasons people do not purchase healthy food). Therefore, a small but growing body of research incorporates qualitative analysis into the study of food deserts, starting with Wrigley (2002) who used focus groups and Clifton (2004) who used case study interviews of residents to determine travel patterns.

Much of the research agrees that more qualitative research of the local food environment is needed, especially in understanding access patterns and how these impact food choices. For example, Gallagher (2007) found that even the quickly organized focus groups in her study of Chicago food deserts highlighted that the respondents would not welcome a grocery delivery service, because of bad experiences with spoiled or rotten food purchased from local stores, whereas an outsider might have considered such a service a viable option. Powell (2009) used focus groups to conduct qualitative research with adolescents in terms of when and what they ate during the day. Sharkey and Horel (2009) incorporate quantitative and qualitative methods, such supplementing spatial analysis with observation of participants within their own homes. It is imperative,
especially when policy decisions are in the mix, to link quantitative data with an understanding of the context in which people live.

2.4 The Socio-Ecological Approach

Socio-ecological approaches to behavior change and health recognize a dynamic interaction between the individual and the physical environment. Less empirical, it necessarily focuses on the human adaptation to the local food environment. Socio-ecological approaches to food choice and healthful eating recognize that local food environments, which are a primary source for nutrient intakes, may have an effect upon health and well-being, as well as adherence to dietary recommendations, through food cost and availability (Andreyeva 2008, Freedman 2009). Such an approach highlights the benefit of using a framework that incorporates the interaction between individual and environmental factors. It allows one to consider other interconnected contextual/socioeconomic factors that influence individual behavior that may not be captured or included in other approaches.

Borrowing from healthcare access literature (Guagliardo 2004), Sharkey and Horel (2009) emphasize that potential consumers make decisions about where and what food to buy based on many factors. They introduce a conceptual model of food access that considers the food environment (including stores’ location, price, quality, and availability) combined with consumer variables (including their own food preferences, income, transportation options, and other factors) that together determine the barriers or facilitators to healthful eating. The conceptual model in Figure 3.2, adapted for the scope of this study, provides a socio-economic framework for food access and shows that access to healthful food is the result of the relationship between the food environment and
potential consumers, and suggests that food choice and healthful eating are influenced by the shopping opportunities that are available (potential access) and the shopping opportunities that are utilized (realized access). Potential access shows where consumers could possibly shop in the local food environment. But realized access, comparatively understudied, and difficult to measure, accounts for where and why consumers shop where they do.

This study will explores benchmark characteristics of the local food environment, but gains rigor in synthesizing information into an exploration of socio-economic utilization filters.
Figure 2.2: Conceptual Model for Understanding the Local Food Environment

Adapted from Sharkey and Horel (2009)
CHAPTER 3

STUDY CONTEXT

Holyoke is a city of 38,000 people in the Pioneer Valley of Western Massachusetts exhibiting many symptoms of a food-insecure community. In this chapter, I describe how Holyoke has the socioeconomic characteristics and, at least on its face, the economic landscape typical of food deserts. Holyoke is different from the state and region in terms of economics, race-ethnic disparities, health, and education. The four neighborhoods that comprise of the urban core are dominated by a Latino population (85%). The peripheral neighborhoods are predominantly populated by Euro-Americans with a considerably higher median income. This study, while city-wide in scope, encompasses a focus on equity in the provision of healthy food for Holyoke’s economically disadvantaged Latino population, which dominates the city’s urban core neighborhoods.

3.1 Site Context

The history of Holyoke is demonstrated by the many distinct neighborhoods and ethnic diversity. The more rural western edge of the city still shows signs of its agrarian past. The canal district survives as a dense fabric of factories and houses. Puerto Rican families primarily live in the South Holyoke neighborhood once filled with Irish immigrants. Mansions stand just a few blocks from surviving tenements, documenting the longstanding juxtaposition of settlement patterns of the rich and poor.
Downtown is marked by much higher densities, several high-rise apartment buildings, and a unique mix of vacant, but attractive historic buildings and newly constructed low-rise commercial buildings. Housing is varied here, with several high-rises, a ‘New Urbanist’ Hope VI affordable housing project, compact three- and four-story multi-family houses, and older single family units on small lots. Some brownstone apartment complexes also exist along Maple Street. Commercially, High Street is a thriving activity center, with pedestrian, auto, and transit activity. The Puerto Rican influence is strong in downtown. Street murals, shops, newspapers, flyers, etc. indicate Holyoke’s Spanish speaking Latino population.

A 100-200 foot ridge creates a spatial barrier between the flat, low-lying downtown and the “highlands” area of town. This ridge is a noted obstacle for pedestrians and has greatly influenced traffic patterns connecting downtown to the upper neighborhoods. In general, the highlands are wealthier and majority white area.

3.2 Power and Ethnicity in Holyoke

As a planned mill city of the 1850’s, the economic history is similar to other New England river cities that have succumbed to disinvestment as industrial and manufacturing industries decline. As the Industrial Revolution transformed the local economy, the different ethnic groups that came to work in the factories changed the City’s social and civic structure. Perhaps most importantly, the history of Holyoke has been greatly influenced by its immigrants. Over time, power and ethnicity have become intertwined in a pattern that is visible in Holyoke to this day.

Briefly a regional powerhouse, Holyoke’s fortunes faded rapidly after World War I as factories closed. The population shrank dramatically. The Irish, French-Canadian,
German and Polish ethnic groups that found work in mills were still prominent but were no longer concentrated in the old neighborhoods. Having acquired wealth, many moved to areas outside of downtown including the Highlands, overlooking downtown. Polish workers, in particular, moved out to farms at the western edge of the City.

As the influence of local factory owners diminished, the business community became less powerful and effective. After World War II much of this power had transferred to the City government, the local newspaper and the local utility company. Often each group worked toward their own self interest, limiting overall effectiveness. While many development proposals and renewal plans were put forward, nothing ever was able to replace the economic and social impact of the mills (UMass Studio 2004).

Beginning in the 1960’s many Puerto Ricans moved to Holyoke. Some came to work in nearby tobacco farms. Over time many Puerto Ricans saw Holyoke as an affordable place to raise their families. The Puerto Rican migration reflects the same pattern of struggle and acceptance that confronted newcomers before them. They tend to be much poorer than the dominant population and live predominantly in the most urban part of the city. While many Puerto Ricans speak English, Spanish is often spoken at home (US Census 2000). The farm employment in the region declined at the same time most mills closed. Unemployment rates have remained higher than state average since. The Puerto Rican population accounts for nearly 40% of the city’s population.

The Puerto Rican community has slowly begun to influence the social, economic and cultural aspects of the City which is still dominated by a sizable Irish population. But their power is less tangible in the government and business community which may have different priorities. Ultimately Holyoke’s future will depend on how successfully the
Puerto Rican and other ethnic groups can work together to serve the interests of the entire City.

### 3.3 Socio-Economic Profile of Case Study Area

Using 2000 Census data, the percent of individuals living below the poverty level in Holyoke is 26.4%, almost 3 times as high as Massachusetts average. At the same time the unemployment rate in Holyoke is 3.7% of population 16 years and over, only 0.7% higher than in Massachusetts. Per capita income in Holyoke is $15,913; this is $10,039 less than Massachusetts average (Census Bureau 2000). Within the nine census tracts of the city there is a range of median household incomes from $11,701 to $54,183. This is a reflection of economic disparities between the lower income urban areas and the suburban-oriented outlaying areas. The median household income is distinctly lower in the urban core census tracts compared to the city’s non-urban core tracts.
### Table 3.1 Median Household Income by Census Tract

<table>
<thead>
<tr>
<th>urban core Census tracts</th>
<th>8114</th>
<th>8115</th>
<th>8116</th>
<th>8117</th>
<th>8118</th>
<th>8119</th>
<th>8120</th>
<th>8121.0 1</th>
<th>8121.0 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holyoke City Flats</td>
<td>13,511</td>
<td>15,019</td>
<td>14,124</td>
<td>11,701</td>
<td>26,082</td>
<td>60,307</td>
<td>31,690</td>
<td>54,183</td>
<td>32,624</td>
</tr>
<tr>
<td>S. Holyoke Churchill</td>
<td>889</td>
<td>637</td>
<td>1,129</td>
<td>1,080</td>
<td>1,484</td>
<td>1,477</td>
<td>3,196</td>
<td>1,995</td>
<td>3,113</td>
</tr>
<tr>
<td>Downtown Highlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highlands Ferry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith's Ferry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oakdale Jarvis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homestead</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingleside</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Median Household Income in 1999</strong></td>
<td><strong>30,441</strong></td>
<td><strong>15,000</strong></td>
<td><strong>19,578</strong></td>
<td><strong>15,400</strong></td>
<td><strong>12,373</strong></td>
<td><strong>17,070</strong></td>
<td><strong>7,361</strong></td>
<td><strong>9,416</strong></td>
<td><strong>7,757</strong></td>
</tr>
<tr>
<td><strong>Total Number of Households</strong></td>
<td><strong>13,511</strong></td>
<td><strong>637</strong></td>
<td><strong>1,129</strong></td>
<td><strong>1,080</strong></td>
<td><strong>1,484</strong></td>
<td><strong>1,477</strong></td>
<td><strong>3,196</strong></td>
<td><strong>1,995</strong></td>
<td><strong>3,113</strong></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 2000

Per Capita income also varies widely by race. The white (only) population earns $21,845 in contrast to the Hispanic/Latino whose income is nearly one third of that figure.

### Table 3.2 Holyoke Per Capita Income in 1999

<table>
<thead>
<tr>
<th>Race</th>
<th>Income ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>19,578</td>
</tr>
<tr>
<td>Black or African American</td>
<td>15,400</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>12,373</td>
</tr>
<tr>
<td>Asian</td>
<td>17,070</td>
</tr>
<tr>
<td>Some other race</td>
<td>7,361</td>
</tr>
<tr>
<td>Two or more races</td>
<td>9,416</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>7,757</td>
</tr>
<tr>
<td>White alone; not Hispanic or Latino</td>
<td>21,845</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 2000
3.3.1 Race-ethnic Profile

In Holyoke, 65.8% of the population is white, 3.7% is Black or African American and 30.5% is “Other” race. Percent of white population is 18.7% lower than Massachusetts average, and the percent of Black or African American population is 1.7% lower (Census Bureau 2000).

At the same time the percent of Hispanic or Latino population in Holyoke is 41.4%. This is almost six times the Massachusetts average. As a percentage of the total population, the population of this Latino enclave Holyoke ranks third in the state. The largest Latino group in Holyoke is Puerto Rican, at 88.2%, followed by “Other” Latinos and Colombians (Vasquez 2003). The largest groups by ancestry in Holyoke, excluding Hispanic groups, are the Irish, at 17.2%, French and French Canadian, at 15.8%, and Polish, at 10.1% (Census Bureau 2000).

Table 3.3 National Origin of Holyoke Latinos

<table>
<thead>
<tr>
<th>National Origin</th>
<th>2000</th>
<th>1990*</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>16,485</td>
<td>100.0</td>
<td>13,200</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>14539</td>
<td>88.2</td>
<td>12343</td>
</tr>
<tr>
<td>Colombian</td>
<td>190</td>
<td>1.2</td>
<td>171</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>168</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>Other Hispanic or Latino</td>
<td>1588</td>
<td>9.6</td>
<td>634</td>
</tr>
</tbody>
</table>

Sources: Census Bureau: 2000, 1990, as quoted in Vasquez, 2003
* 1990 figures for nationality are from sample data and differ from population counts

3.3.2 Language

In Holyoke, 42.8% of the population five years old and over speaks a language other than English at home. In Massachusetts this is true only for 19.7% (Census Bureau 2000). Eighty-four percent of those, who speak a language other than English at home, speak Spanish. Eighteen percent of the population of Holyoke five years old and over...
speaks English less than very well. In Massachusetts this percent equals only 7.7%.
(Census Bureau 2000).

### 3.3.3 Mobility

Thirteen percent of the working population in Holyoke depends on walking, public transportation, or some other non-automobile means to commute to work. Fourteen percent carpool to work. This is an indicator that a significant portion of the population does not own an automobile.

**Table 3.4 Means of Commute**

<table>
<thead>
<tr>
<th>Means of Commute</th>
<th>Number of Commuters</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Workers</td>
<td>14,501</td>
<td>100.0</td>
</tr>
<tr>
<td>Commuting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car, Truck, or Van Drove Alone</td>
<td>10,836</td>
<td>74.7</td>
</tr>
<tr>
<td>Car, Truck, or Van Carpoled</td>
<td>2,016</td>
<td>13.9</td>
</tr>
<tr>
<td>Public Transport</td>
<td>934</td>
<td>6.4</td>
</tr>
<tr>
<td>Walked</td>
<td>691</td>
<td>4.8</td>
</tr>
<tr>
<td>All other means</td>
<td>197</td>
<td>1.4</td>
</tr>
<tr>
<td>Worked at Home</td>
<td>294</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source Census Bureau 2000

### 3.4 Health Disparities in Holyoke and Previous Research

Many of the risk factors linked to food insecurity are widespread in Holyoke, including poverty, large numbers of children, and, importantly, limited access to healthy food outlets. Public health in Holyoke is acutely affected by racial and ethnic disparities. Nearly 34% of Latinos are obese compared to one-fifth (21.6%) of whites. Holyoke’s current generation of children is likely to have a shorter life expectancy and poorer quality of life than their parents. Over 45 percent of 4th graders in Holyoke Public Schools were found to be at risk of being overweight or obese in 2004.
Table 3.5 Summary Indicators for Chronic Disease Outcomes for Holyoke and Region (2003-05)

<table>
<thead>
<tr>
<th></th>
<th>Massachusetts Total</th>
<th>Western MA</th>
<th>Holyoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>38.7</td>
<td>35</td>
<td>45.6</td>
</tr>
<tr>
<td>Hospital Discharges</td>
<td>182.5</td>
<td>188.8</td>
<td>213.3</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>132.5</td>
<td>151.4</td>
<td>201.6</td>
</tr>
<tr>
<td>Death Rate</td>
<td>18.4</td>
<td>20.3</td>
<td>30.6</td>
</tr>
</tbody>
</table>

Source: MassCHIP 2006

Holyoke residents have a disproportionately higher rate of poorly managed diabetes with higher mortality rates and greater number of hospitalizations than state averages. In 2005 the mortality rate for Holyoke Latinos at 55.7 per 100,000 was over three times the state rate of 17.3 per 100,000. Hospitalizations for Holyoke Latinos for diabetes at 802 per 100,000 is nearly triple the state rate of 297 per 100,000 (MassCHIP 2006). Comprising the predominant Latino group in Holyoke, residents of Puerto Rican heritage are 1.8 times as likely to have diagnosed diabetes as U.S. non-Hispanic whites (HFFPC 2008). They also suffer from an unemployment rate of over 31%. Over 75% of the Latino children grow up in poverty in Holyoke. Holyoke receives the highest per-capita rate of state aid in Massachusetts and has among the highest rates of teen pregnancy and substance abuse in the state (HFFPC report 2009).

According to a 2008 survey administered to 1,200 Holyoke residents by the Holyoke Food & Fitness Policy Council (HFFPC), 65% of respondents reported that cost was their most significant barrier to purchasing adequate fruits and vegetables, while 62.1% reported that they do not purchase enough fruits and vegetables for a healthy diet. These figures were alarmingly high in the four urban neighborhoods of the city. Only 46% of downtown respondents reported adequate amounts fruits and vegetable for a
healthy meal, while up to 86% reported adequate amounts in wealthier neighborhoods of the city (HFFPC Survey, 2008 data analyzed by author). There is significant bias in the study; most of the respondents were low-income, urban individuals. Nonetheless, when correlated with demographic data, the survey suggests that Holyoke’s low-income, culturally diverse neighborhoods may not have the same level of access to produce as the city’s wealthier neighborhoods. The survey informed the research questions and methodology developed in my Master’s research.
CHAPTER 4

STUDY APPROACH

This study is designed to present a nuanced perspective of the local food environment. By including every food retail store in the Holyoke area in the scope, emphasis is placed on the differences between store types, the ways people shop and the reasons people shop where they do. The methodology is developed from a grounded theory approach (Corbin and Strauss 2008). The approach employs three distinct, but dynamic methods of data gathering: food store mapping, food store auditing, and resident interviews. The result is a context-sensitive approach to researching and understanding the local food environment.

The model used to study the local food environment of Holyoke is an adaptation of the community food assessment approach. This method, and its importance to the planning discipline, is highlighted by Pothukuchi (2004) who claims that community food assessments have become a major research tool to document the existence of food insecurity in low-income areas. He also notes that they are useful tools to draw attention to possible solutions. To conduct a food assessment, researchers use some combination of demographic analysis, market basket analysis, spatial resource mapping, and historical analysis. More recently, observations of retail stores, and interviews, surveys and focus groups with residents and providers of foods have been included in local food environment research. I employ methods similar to Freedman (2009) and Short et al
which combine a market basket analysis with the techniques of store observations and customer interviews.

Figure 4.1 conceptualizes my approach to studying the food environment of Holyoke. Each of the three component methods, food store mapping, food store audits, and community discussions interact dynamically to comprise the local food environment assessment. The grounded theory approach, as theorized in Corbin and Strauss (2008) is a research tool which enables me to seek out and conceptualize the latent social patterns and structures in an area of interest through the process of constant comparison. In other words, it is a research method that enables one to develop a theory which offers an explanation about the main concern of the population of the substantive area and how that concern is resolved or processed (Corbin and Strauss 2008).

To achieve this goal, I chose to use the three methods as a way to inform each other. To utilize only one or even two of these methods alone severely limits the scope and goals of the study. But as a whole, the three methods contribute to a deeper understanding of the intricacies of the local food environment.
4.1 Timeframe and Development of Research

The research period spans from May 2009 to April 2010. The mapping component commenced in June 2009 for an initial assessment of community food security in Holyoke. This research is funded in part by a USDA Hatch Grant. An inventory of all food stores is entered into a GIS database and preliminary spatial analysis has been performed. After review from The Holyoke Food and Fitness Policy council, food store audits commenced in September 2009 and were ultimately completed in March 2010. The Food and Fitness Policy Council Steering Committee is major partner in the research process. In the Fall Semester of 2009, under the supervision of faculty advisor Dr. Ellen Pader of the University of Massachusetts Department of Landscape Architecture and Regional Planning, I lead a Regional Planning class service-learning
project to observe and evaluate supermarkets in the Holyoke Area. The research process developed in that study is synthesized into the thesis. Community member discussions occurring throughout the research period inform both mapping and audits, and provide a ground-truthed assessment of the food environment.

4.2 Scope and Limitations

The focus of the research is the residents of Holyoke, Massachusetts with particular emphasis placed on the City’s Latino population who face disproportionate adversity in overcoming multiple structural barriers including the provision of food (See chapter 3).

The Holyoke Market Area includes all retail stores in Holyoke where the primary product is food as well as other stores used regularly outside city boundaries. The 2008 survey administered by the Holyoke Food and Fitness Policy Council indicates that Holyoke residents use several additional supermarket beyond city boundaries as their primary source of food. Forty-six of the stores are within Holyoke, 3 in Chicopee, 2 in South Hadley, and one in West Springfield.

While a holistic food environment assessment typically involves all sources of food available, the scope of this research is limited to retail enterprises where prepared foods and/or groceries are a primary product. Therefore restaurants or other “eat-out” establishments, emergency food supply locations, school cafeterias, farmers markets, and urban agriculture are not included in the definition of “food retail store”. The study implicitly assumes retail food store costs fall between the more expensive option of “dining out” and the free emergency food sources, but I acknowledge that this is true only when evaluating cost in economical terms, not necessarily in costs of time or effort. I
therefore assume that the majority of food is still purchased from food stores, and despite the increase in “eating-out” and food bank usage, the food stores remain an important component of the urban food system that deserves attention from urban planners.

4.3 Local Retail Food Resource Mapping

The Retail Food Source Mapping component informs the spatial distribution of stores in the study area. Identifying all food sources and depicting their distribution is the baseline for interpreting the local food environment. Further, it provides an understanding of the spatial constructs of the Local Food Environment as it applies to conditions of race, place, health and accessibility to amenities. It also offers insights into potential underserved neighborhoods.

A combination of strategies were used to accumulate the food retail inventory of the Holyoke Market Area. The primary strategy used 2006 Economic Census records to identify food retail establishments under the North American Industrial Classification System (NAICS). Codes for supermarkets, convenience stores, fruit and vegetable stands, and meat markets constituted food establishments. The listing was found to be flawed for multiple reasons including inconsistent classification under NAICS, and improper store names. Nonetheless, the listing proves useful for beginning to locate the address of establishment sites. The next step synthesizes the NAICS address list with a Google Maps (2009) address search to search local businesses. This also allowed a level of verification of establishments on the NAICS list, and the inclusion of unlisted stores. Between June of 2009 and January of 2010 I verified all stores in the field via a windshield survey. Stores were re-classified, included, removed, or renamed as necessary. The locations of stores were then mapped into a Geographic Information System (GIS) using ArcView
9.2. Final store classification was established only after synthesizing all other components of the Food Environment Assessment.

4.4 Retail Food Availability Audits

A retail store food audit provides the basis for comparative analysis among the stores. The audit assesses the availability and prices of foods within stores and within neighborhoods. Since the food store mapping indicates WHERE food can be obtained in the local food environment, the retail store audit informs WHAT foods are available within those stores. The availability of food is a relative term, dependent on a number of factors including personal preference, economic allowance, and transportation limitations. Therefore, I use the term “available” to include not only the presence of food items, but also the price and quality of those items.

The survey was not intended to be exhaustive, but rather a general indicator of the cost, quality, and variety of foods in a given store. Although not a market-basket study per se, most of the 26 foods are components of USDA’s Thrifty Food Plan Market Basket. Market basket studies have been commonly used in food environment research to assess food security (Block and Kouba 2005, Freedman 2009). When used with spatial mapping, they are an effective measure of the local food environment (Short et al. 2007).

My survey instrument, developed by the Holyoke Food and Fitness Policy Council, consists of store and food-related measures such as store type, price, availability and variety, quality, organic produce, store characteristics (e.g., cleanliness), and demographic information. The source population of the audits included all food retail stores in the Holyoke Market Area.
The food store audits were conducted during two periods between Fall 2008 and Winter 2010. The first 23 audits were conducted by the Holyoke Food and Fitness Policy Council (HFFPC) in the Fall of 2008. Holyoke Community College student researchers, under the guidance of Laura Pillsbury, HFFPC research director and thesis committee member, used a standardized survey developed by the HFFPC. The data gathered for each store included: store name, address, hours of operation, acceptance of food stamps and WIC, the approximate size of the store, and date visited. Using a list of 26 food items, it was noted whether the store had each item, and if so, the most cost-efficient item’s price, unit size, and brand. The types of food examined included fruits, vegetables, dairy products, juices, meats, and breads. Permission to participate was given by all store keepers. Four stores refuse participation.

Of the 19 stores that agreed to participate, 13 carried some type of fresh produce. The stores were spread out across Holyoke and varied from large chain supermarkets to small neighborhood bodegas. The prices of fresh produce at the various stores varied dramatically, with a distinct correlation between the size of the business and the affordability of the produce, specifically in that the larger chain supermarkets were able to sell a wider variety of fresh produce, more cheaply (Ramsey 2009). I found the results to warrant further research and expand the audits to all food stores in the city.

I completed the second round of food store audits between September 2009 and January 2010 using the same HFFPC method. I received informal protocol training from HFFPC director, Laura Pillsbury. Stores not included in the previous audits were assessed, and some stores were re-audited. Data has been transcribed into a database for subsequent analysis. Stores participation remained voluntary.
There are limitations to the food store audits methodology that are worthy of mention at this point. The completed food audit data set is from two different time periods, and completed under two different research endeavors. The first round of survey data collected by Holyoke Community College students is assumed to be valid. Given time and resource restrictions, I was not able to revisit 15 of the 19 sites to verify that store offers the same products and prices. While having two data sources in effect diminishes the ability to present a single “snapshot” community food assessment, it however allows me to compare the two “snapshots” for patterns. For example, there is unpredictable week-to-week variability in the actual price of produce in Holyoke stores, to the extent that prices are often not labeled in smaller food stores. A lack of prices listed combined with a language barrier to many store owners lead to many unknown prices.

4.5 Community Interviews: Informal Focus Group and Interview Series

To identify the strategies that frame a provisioning trip made by Holyoke residents, an informal focus group component was undertaken. The purpose of this method is to illustrate participants’ provisioning, as conveyed through their own recounts of experience, travel, and constraints. To achieve this, participants respond to semi structured questions about their grocery shopping and transportation. In-depth personal discussion with such subjects offers perspective unavailable by observational and empirical methods. This qualitative method is particularly underutilized in the literature on community food security (Wrigley 2002, Freedman 2009).

Combining community discussions with the mapping inventory provides insight into where residents shop and their transportation mode. Combined with the food store audits, I gain an understanding of customers’ shopping preferences and dissuasions. In
addition, the informal atmosphere allows me to engage with a Latino population that is traditionally understudied in local food environment literature (Himmelgreen 2000).

In March of 2010 an informal focus group was conducted. Participants were recruited with assistance from the Holyoke Community Leaders Council that identified residents who would be interested in the voluntary one-time study. The targeted subjects were the primary household food purchasers, Holyoke residents, economically disadvantaged men and women of Latino and European ethnic background.

The focus group took place at the Holyoke Boys and Girls Club in downtown. The session lasted approximately 45 minutes. Lunch was provided by the HFFPC. Five community members participated: three women and two men. The women are primary household food purchasers. The men are young adults who lived with their parents. All of the participants received governmental subsidy for food. All but one are Latino/Latina. Most do not have access to a car.

<table>
<thead>
<tr>
<th>Table 4.2. Selected Demographic Composition of Resident Focus Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
</tr>
<tr>
<td>Neighborhood</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Age (estimate)</td>
</tr>
<tr>
<td>Ethnicity</td>
</tr>
<tr>
<td>Primary Household Food Purchaser?</td>
</tr>
<tr>
<td>Access to a car?</td>
</tr>
<tr>
<td>Use WIC or EBT</td>
</tr>
</tbody>
</table>

To balance the bias of the focus group population, a series of informal individual discussions were conducted with four middle-class European American Holyoke residents regarding their shopping habits and strategies. The discussions were held
between January and March 2010 and were targeted primarily to European American middle class residents. They were recruited from City Hall, their place of employment. Of the four interviewees, three are female, three are European American. All have a car, and none use food subsidies. They are all middle aged and all reside in wealthier neighborhoods of the city. One male was Latino.

Table 4.3. Selected Demographic Composition of Additional Interview Subjects

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Kathryn</th>
<th>Mary</th>
<th>Debra</th>
<th>Kevin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood</td>
<td>Oakdale</td>
<td>Homestead Ave.</td>
<td>Highland Park</td>
<td>Highland Park</td>
</tr>
<tr>
<td>Sex</td>
<td>female</td>
<td>female</td>
<td>female</td>
<td>male</td>
</tr>
<tr>
<td>Age</td>
<td>30s</td>
<td>50s</td>
<td>40s</td>
<td>30's</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>Latino</td>
</tr>
<tr>
<td>Primary Household Food Purchaser?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Access to a car?</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Use WIC or EBT</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

4.6 Summary of Research Approach

The methods of this food environment study were largely informed by the research itself. The further I immersed myself into the City of Holyoke and enhanced my knowledge of the local food environment, the more I could refine the methods to match the case-study site. Each of the three component methods, food store mapping, food store audits, and community discussions, interact dynamically to comprise the local food environment assessment. The result is a context-sensitive approach to researching and understanding the local food environment. The next chapter summarizes the categories of food stores that emerged from the methods described above. These categories of stores comprise the local food environment in Holyoke.
CHAPTER 5
CATEGORIZATION OF FOOD STORES IN THE HOLYOKE MARKET AREA

It is well known that there is a substantial diversity of food stores in urban areas, but how does one studying the local food environment make sense of this network of nourishment? I find the best way is to create a system of categorization. This study recognizes the various sizes, ownership structures, and specialties among grocers that are distributed throughout Holyoke.

The diversity in the urban food retail environment is understudied (Short 2008, Sharkey 2009). As noted in Chapter 3, a majority of studies have limited focus on the difference between supermarket and convenience stores, chain and non-chain stores, and produce versus non-produce stores. Derived from my analysis, I identify six distinct food store categories. They are supermarkets, discount grocers, urban full-service grocers, neighborhood stores, chain drug stores, and convenience stores. The six store types remain either a convenience-type or full service food store class (See figure 5.1). The six store categories are found to provide a more discerning comparison amongst the variety of store formats. Each of the store categories is contextually unique in their role in the Holyoke food environment. They are derived from the three method analysis described in the previous chapter.

Figure 5.1 summarizes the classification of store types and their relationship to each other, while Figure 5.2 depicts some of the selected characteristics that distinguish each store type. A discussion of each store category follows.
**Figure 5.1.** Component Categories of Stores in the Local Food Environment

**Figure 5.2.** Characteristics of Food Store by type

<table>
<thead>
<tr>
<th>Market area</th>
<th>Neighborhood Food Store</th>
<th>Convenience</th>
<th>Chain Drug Store*</th>
<th>Urban Full Service</th>
<th>Discount Grocer</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>produce</td>
<td>neighborhood</td>
<td>block</td>
<td>neighborhood(s)</td>
<td>Downtown neighborhoods</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Deli Dairy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>(Milk)</td>
<td></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Generic Products</td>
<td>no</td>
<td>none</td>
<td>yes</td>
<td>some</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>carts</td>
<td>none</td>
<td>none</td>
<td>yes</td>
<td>some</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>checkouts</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>two to three</td>
<td>five to ten</td>
<td>ten or more</td>
</tr>
<tr>
<td>Non-Food Services in store</td>
<td>household supplies</td>
<td>Alcohol, lottery</td>
<td>Pharmacy, Sundries</td>
<td>Cell Phone service, lottery</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Store size (sqft)</td>
<td>1,500-2,500</td>
<td>1,500-3,000</td>
<td>6,000</td>
<td>2,500-10,000</td>
<td>35,000-60,000</td>
<td>55,000 - 75,000</td>
</tr>
<tr>
<td>employees Parking Spaces</td>
<td>two to five</td>
<td>two to five</td>
<td>ten to twenty</td>
<td>five to ten</td>
<td>fifteen to fifty</td>
<td>thirty to one hundred</td>
</tr>
<tr>
<td>parking Spaces</td>
<td>on-street</td>
<td>on-street</td>
<td>10 to 50</td>
<td>10 to 50</td>
<td>50 to 200</td>
<td>50 to 200</td>
</tr>
</tbody>
</table>

*Only one chain drug store is included in the study*
5.2 Full Service Grocery Category

A full service grocery store can vary in size, format and context. The common characteristics of all full service grocery stores in Holyoke are: they offer at least 15 different types of produce, sell fresh meats, and offer a wide array of grocery items. They offer many fresh, healthy, low-fat, and low sodium food offerings that can support a healthy diet on a regular basis. Synthesizing store observations, audits, and interviews I identify three types of full service grocers operating in the Holyoke market area. They are urban full service, discount grocers, and supermarkets.

5.2.1 Supermarket Centers

Supermarkets have the largest building footprint. They support bulk purchases of food and are heavily dependent on automobile customers. The supermarket offers services in addition to food that include a pharmacy, a bank, a florist, and a place to rent movies. They have the largest selection of produce. Three supermarkets were studied in the research: Stop and Shop (Route 5), Stop and Shop (Lincoln St.), and Big Y (South Hadley).

Figure 5.3 Stop and Shop Supermarket. Holyoke, MA

Photo: Derek Matayas (2009)
5.2.3 Discount Grocers

Discount grocers have a similar or slightly smaller building footprint than the supermarket. On average they offer lower prices and have more of a ‘warehouse’ feel than other large markets. Like the supermarket, discount grocers are heavily dependent on bulk purchases from automobile customers and the customer base includes the entire Holyoke market area. The discount grocer does not offer ancillary services like the supermarket center. Products are sold out of crates or stacked- a visually distinguishing feature from all other stores. The check-out lines at Price, the local discount grocer, are often long, especially at the beginning of the month when EBT cards are charged. Customers tend to buy food from these stores in large quantity.

Figures 5.4 and 5.5 Price Rite, Discount Grocer. Chicopee, MA

Photos: Derek Matayas (2009)
5.2.4 Urban Full Service Markets

Urban full service markets have the smallest footprint, are in mixed-use urban downtown neighborhoods where the Latino population is concentrated. These stores are not primarily automobile customer dependent. Their market area is the entire downtown of Holyoke, although it is most common for neighborhood downtown residents to utilize that store. These stores offer a produce section and a butchery. In these stores, there are lots of Hispanic foods: large bags of rice, a wide array of canned beans, an aisle of spices used in Latino cuisine. There are two high profile urban markets downtown: Plaza Latina and C-Town. Plaza Latina, locally known as Cuba supermarket is located on High Street, the main thoroughfare of downtown. Urban full-service markets are not necessarily independent. C-Town, located in South Holyoke is an urban format chain store located in inner city neighborhoods throughout the east coast. Its offerings are virtually the same as Cuba, but includes generic items produced by the C-Town Chain.

Figure 5.6 Plaza Latina/Cuba, Urban Full Service Market. Holyoke, MA

Photo: Walter Ramsey (2009)
5.3 Convenience Store Category

Convenience stores are typically smaller in footprint and more numerous than full service grocery stores. While they do provide some groceries, the primary purpose of these stores is not for weekly shopping needs. They primarily sell ready-made, fast, boxed, canned, and other types of food products, but fresh and healthy food is not the primary line of business. This is not inherently bad, but if it were the primary source for acquiring food, local diets and public health would likely suffer. Food offered at these stores are usually high in salt, fat, and sugar and have very limited, if any nutritional value. They tend to be on highly travelled corridors and are often on street corners.

5.3.1 Chain Drug Stores

Chain drug stores received the least attention in this study. The key identifier of a chain drug store is that it has a pharmacy and sundries. Food is not primary product sold at these stores, but nonetheless they offer a variety of food products comparable to a convenience store.

5.3.2 Convenience Stores

Convenience stores are chain or independent markets. They are small format stores that do not offer produce, have some non-perishable food products, and milk, bread, and eggs. These primary profits for these stores are found in non-food products such as cigarettes, lottery tickets, and alcohol.
5.3.3 Neighborhood Food Stores

Neighborhood food stores are independently owned, small format stores ranging from 1,500-2,500 square feet. A Neighborhood food store is typically the same format and size as a convenience store, but offers a wider selection of products, namely a selection of produce and household items. In their store names, these stores are referred to as bodegas, delis, or Spanish-American grocery stores. Stores like this are found most frequently plentiful in downtown neighborhoods and Latino communities. They play important social and economic roles in both new and established immigrant communities; for new immigrants they often serve as a gateway to U.S. communities.

**Figure 5.7.** Bodega 24, Neighborhood Food Store. Holyoke, MA

![Bodega 24, Neighborhood Food Store. Holyoke, MA](image)

Photo: Walter Ramsey (2009)

5.4 Summary of Store Classifications

The rationale for the categorization of retail food stores in the Holyoke area into two classes and six categories is based on a context sensitive approach to the study of the food environment. In general, the stores were categorized using resident interviews, my firsthand account, and store audits.
The influence of convenience against full service grocery stores on diet and health are well explored in the literature, but through on-the-ground research I identified a particular need to parse out the distinctions among the two classes. Given the socio-spatial constructs identified in the research, each of these store types serves unique functions to be explored further. The store classifications serve as a useful tool to identify patterns in the food environment.
CHAPTER 6

PATTERNS IN HOLYOKE’S RETAIL FOOD ENVIRONMENT

This chapter interprets the data gathered from the food store mapping and food store audits. It measures selected aspects of the local food environment that influence consumer purchasing by using both spatial store audit data. The chapter assesses the distribution of food stores, as well as the availability, cost, and quality of produce and groceries within the stores. The third section compares food inventory data against intersections of ethnicity and class in the city.

6.1 Distribution of Food Stores in the Holyoke Market Area

There are 49 food retail stores in the Holyoke Market Area. Thirty-six of the stores are convenience-type stores (73%) and 13 (27%) are full service grocery stores. Thirty-nine percent of all food stores are neighborhood food stores. They outnumber convenience stores, which comprise 31% of all stores. Five of the seven supermarkets and one of the discount grocers are outside Holyoke city boundaries. The Store categories of Supermarket and Discount Grocer include stores 3 miles outside of city boundaries because residents reported shopping at those stores (Ramsey 2009). Therefore, within Holyoke boundaries are two supermarkets and one discount grocer. All four urban full service markets are located in the downtown neighborhoods.
The distribution of stores is clustered around the densely populated downtown area of Holyoke. In comparison to the downtown area, west of the I-91 corridor is very low density residential. Most Supermarkets and Discount grocers are located outside of downtown and on highly travelled corridors. The exception is the discount grocer Save-A-Lot and the supermarket Stop & Shop (North) both which are within ¼ mile of downtown, and therefore are walking distance. There are two Stop & Shop Supermarkets in the City of Holyoke, only 2.5 miles apart. Stop & Shop’s regional competitor, Big Y, has two location in South Hadley and one in Chicopee, all within 3 miles of the city.

The food environment of the urban core neighborhoods is distinctly different from that of the more suburban-oriented neighborhoods in the city. The smaller average store size and higher aggregation of stores reflects a low percentage of vehicles and is an indicator of low mobility. Most of the food stores are clustered in the 5 neighborhoods comprising the downtown target area. The study identifies 24 food stores within the downtown area, comprising nearly half of the 40 total food stores in the city. These stores include convenience stores, neighborhood food stores, and urban full service markets and do not include discount grocers and supermarkets.
Table 6.1 Distribution of Market Type in Urban Core Neighborhoods

<table>
<thead>
<tr>
<th>Convenience</th>
<th>Full Service Grocery</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

Figure 6.2 presents the frequency of store type in these neighborhoods. Holyoke’s Downtown neighborhoods have more neighborhood stores than all other types of food stores. These are also known as bodegas or Spanish-American grocery stores. They sell at least three varieties of produce, but used alone are not typically sufficient for all grocery needs, and therefore function as a convenience type-store. When grouping convenience and full service store types, there is approximately one full service grocery store for every five convenience stores in the downtown neighborhoods. The four urban full service markets however do function as a primary food source for residents.

The three largest retail stores in the city are supermarkets Stop & Shop (Lincoln St.), Stop & Shop (Route 5), and discount grocer Save-A-Lot. These three stores are effectively situated on a 100-200 foot ridge that creates a spatial barrier between the flat, low-lying downtown and the “highlands” area of town. This ridge is a noted obstacle for pedestrians and has greatly influenced traffic patterns connecting downtown to the upper neighborhoods.
Figure 6.2 Locations of Food Stores in the Holyoke Market Area
Table 6.2 Presence of food stores in selected Holyoke areas

<table>
<thead>
<tr>
<th></th>
<th>Holyoke city</th>
<th>urban core only</th>
<th>Non-urban core</th>
</tr>
</thead>
<tbody>
<tr>
<td>population</td>
<td>39,838</td>
<td>13,513</td>
<td>26,325</td>
</tr>
<tr>
<td>food stores</td>
<td>40</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>full service stores</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>convenience stores</td>
<td>33</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>person to food store ratio</td>
<td>1:996</td>
<td>1:563</td>
<td>1:1645</td>
</tr>
<tr>
<td>full service to convenience ratio</td>
<td>1:4.7</td>
<td>1:5.0</td>
<td>1:4.3</td>
</tr>
<tr>
<td>person to convenience store ratio</td>
<td>1:1207</td>
<td>1:676</td>
<td>1:2025</td>
</tr>
<tr>
<td>person to full service ratio</td>
<td>1:5691</td>
<td>1:3378</td>
<td>1:8775</td>
</tr>
</tbody>
</table>

The distribution of food stores as function of population is presented Figure 6. There are more convenience class stores concentrated urban core compared to the city and non-urban areas, while full service stores locate in both urban and non-urban areas. The effect is that there is one convenience store for every 676 people in the urban core, compared to one for every 2,025 people residing in non urban core neighborhoods.

6.2 Availability, Cost, and Quality of Produce and Non-Produce Grocery Products

In addition to examining the types of food stores located in Holyoke, this study take into consideration the availability, cost, and quality of grocery products for purchase. This portion of the analyses includes the 32 food stores in which an interior audit was permitted. The 32 include 5 supermarkets, 2 large variety shops, 15 neighborhood food stores, 13 convenience stores, and one chain drug store. Four store managers refused to have their stores participate and 4 stores were not approached. The focus is on produce items. Figure 6.5 summarizes the participating stores by store category.

Table 6.3 Summary of stores per store type
<table>
<thead>
<tr>
<th>Neighborhood Food Store</th>
<th>Convenience</th>
<th>Drug Store</th>
<th>Urban full Service</th>
<th>Discount Grocer</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alimonte</td>
<td>Archie's Mini Mart</td>
<td>Walgreens</td>
<td>C-Town</td>
<td>Price Rite</td>
<td>Big Y (South Hadley)</td>
</tr>
<tr>
<td>Appleton Market</td>
<td>C-Mart</td>
<td></td>
<td>Flats Market</td>
<td>Save-A-Lot</td>
<td>Stop &amp; Shop (Lincoln)</td>
</tr>
<tr>
<td>Bodega 24</td>
<td>DB Mart</td>
<td>Holyoke Mini</td>
<td></td>
<td>Osqui Market</td>
<td>Stop &amp; Shop (rt 5)</td>
</tr>
<tr>
<td>Corner Delight</td>
<td>Mart</td>
<td></td>
<td></td>
<td>Plaza Latina</td>
<td></td>
</tr>
<tr>
<td>Dwight Market</td>
<td>Noni</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evelyn's Market</td>
<td>Polish Deli</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Deli</td>
<td>Quick Stop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendly Variety</td>
<td>R+R Mini Mart</td>
<td>Sam's Food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>La Favorita Mini</td>
<td>Stores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manny's Market</td>
<td>Seven-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melo Deli-Grocery</td>
<td>Twin Food Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pats Deli</td>
<td>Villa Rosa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Springdale Grocery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| n=13                        | n=12             | n=1                  | n=4                | n=2               | n=3                         |

### 6.2.1 Availability of Staple Food Items

The study assesses the availability of 26 certain staple food items, including produce (fresh fruit/vegetables), dairy, proteins, and other grocery items. Dairy items such as milk and eggs were the most prevalent among stores. As were non-perishable grocery items. Fresh produce and meat products were less common, occurring in 60% of food stores. However, most of the surveys were completed in the fall and winter, when produce is not in season.

All Full Service Grocery stores had a minimum 23 of 26 food items surveyed in the audit, and of course the selection of items expands beyond the food audit items. Neighborhood Food Stores and Convenience stores offer significantly fewer items.
6.2.2 Availability of Produce Items

Fresh fruits and vegetables are most abundant in Full Service Grocery Stores (Supermarkets, Discount Grocers, and Urban Markets). Neighborhood Food Stores have a limited array of produce, and most convenience stores do not carry produce. Full Service Grocers have the widest varieties of produce, especially Supermarkets. All the supermarkets in Holyoke are part of a regional chain and therefore offer a standardized level of service. They are the only stores that provide organic food and a natural food sections. Discount Grocer Price Rite has a selection of produce that rivals the supermarkets. One of the main advertising points of Price Rite is its “Produce Depot”. Price Rite has the largest variety of non-Euro centric produce, including yucca, prickly pear, star fruit, quinces, bulk thyme, lila yutica, malanga and batata. Save-A-Lot has a fairly large selection of hot pepper varieties (5), mangos, and other foods marketed to the
local Puerto Rican clientele. The urban markets had less availability of produce, but still offered at least four varieties of peppers and all of the staple produce items including bananas, lettuce, tomatoes, etc. Save-A-Lot has less variety than Price Rite and the supermarkets.

Twelve (35%) of the stores in the survey do not carry fruit. These are primarily convenience stores. Two neighborhood food stores did not fresh fruit at the time of the survey. The most common fresh fruits for sale in the food stores are bananas and plantains (59% each), followed by apples and oranges (46% each). Slightly less common are limes and pears (43% and 31% respectively). See “Summary table of food items available in Holyoke Stores” in the appendix #2.

Fresh vegetables were found less often than fresh fruits. Twenty-four percent of stores did not carry any fresh vegetables. Only one convenience store carried vegetables. All neighborhood food stores carry a variety of vegetable. The most common vegetable, onions, is sold in 66% of all stores. Carrots were identified in only 26% of stores. Neighborhood food store owners said that they sell more produce in the summer when vegetables are in season.

6.2.3 Availability of Non-Produce Items

The most common non-produce items overall are canned beans, soda, eggs, milk, peanut butter, canned tuna and pasta (in at least 90% of food stores). Neighborhood food stores and convenience stores are depended on perishable items like milk and eggs. A neighborhood store owner in the Highlands stated that “without milk and eggs, there is no business”. The rest of those items have an extended shelf-life. Some of least common items of the food surveyed are fresh ground beef, fresh chicken, which are perishable and
require considerable energy to provide, and corn tortilla and dried lentil, which a relatively specialized items. Ubiquitous beverages were one gallon jugs of “juice drink” and soda. Slightly less common was the healthier option of 100% juice, offered in 84% of stores.

6.2.4 Monetary Cost

The price of food is an important issue in deciding where one shops for food in Holyoke. In a 2007 survey of 1206 Holyoke residents, 32% of respondents cited the cost of food as the primary priority, outweighing priorities of quality, health, quantity, or brand (Ramsey 2009).

When comparing cost, I selected staple food items that were comparable across all store types. These were not all of the food store items on the survey, but the 21 of 26 items that had complete and appropriate data for the comparison. (9 produce items and 12 non-produce). Generic items, or cheapest product available was used in this study. Table 6.8 compares the average price of a product offered by store type against the average price of that product across all stores in the Holyoke market area. Stores are compared against each other because since it is a fundamental assumption that the typical customer in Holyoke will use one or more of these stores.
Table 6.4 Average Price of Selected Food Items by Store Type

<table>
<thead>
<tr>
<th>Produce</th>
<th>Average Price in Holyoke Market Area (Avg)</th>
<th>Supermarket</th>
<th>Discount Grocers</th>
<th>Urban Market</th>
<th>Neighborhood Food Store</th>
<th>Convenience Store</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples lb</td>
<td>1.46</td>
<td>1.46</td>
<td>1.44</td>
<td>1.24</td>
<td>1.60</td>
<td>x</td>
</tr>
<tr>
<td>Bananas lb</td>
<td>0.99</td>
<td>0.74</td>
<td>0.83</td>
<td>0.99</td>
<td>1.29</td>
<td>0.89</td>
</tr>
<tr>
<td>Oranges lb</td>
<td>0.92</td>
<td>0.95</td>
<td>0.76</td>
<td>0.83</td>
<td>1.03</td>
<td>x</td>
</tr>
<tr>
<td>potato/sweet potato lb</td>
<td>1.33</td>
<td>0.99</td>
<td>1.19</td>
<td>0.79</td>
<td>1.61</td>
<td>x</td>
</tr>
<tr>
<td>Tomatoes lb</td>
<td>2.02</td>
<td>1.96</td>
<td>3.15</td>
<td>1.24</td>
<td>2.42</td>
<td>x</td>
</tr>
<tr>
<td>Carrots lb</td>
<td>1.70</td>
<td>1.82</td>
<td>2.09</td>
<td>1.07</td>
<td>1.79</td>
<td>x</td>
</tr>
<tr>
<td>Onions lb</td>
<td>1.27</td>
<td>1.31</td>
<td>0.78</td>
<td>1.31</td>
<td>1.33</td>
<td>x</td>
</tr>
<tr>
<td>Limes each</td>
<td>0.57</td>
<td>0.62</td>
<td>0.55</td>
<td>0.90</td>
<td>0.51</td>
<td>x</td>
</tr>
<tr>
<td>Lettuce (iceburg) bunch</td>
<td>1.66</td>
<td>1.82</td>
<td>1.60</td>
<td>1.34</td>
<td>1.74</td>
<td>x</td>
</tr>
<tr>
<td>Groceries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skim/fat free milk gal</td>
<td>3.84</td>
<td>3.99</td>
<td>3.14</td>
<td>3.29</td>
<td>3.99</td>
<td>4.06</td>
</tr>
<tr>
<td>1% milk gal</td>
<td>3.73</td>
<td>3.99</td>
<td>3.14</td>
<td>3.52</td>
<td>3.71</td>
<td>3.88</td>
</tr>
<tr>
<td>2% milk gal</td>
<td>3.80</td>
<td>4.19</td>
<td>3.14</td>
<td>3.52</td>
<td>3.64</td>
<td>4.09</td>
</tr>
<tr>
<td>whole milk gal</td>
<td>3.83</td>
<td>3.99</td>
<td>3.14</td>
<td>3.52</td>
<td>3.71</td>
<td>4.15</td>
</tr>
<tr>
<td>cheddar cheese 1 lb</td>
<td>4.78</td>
<td>4.74</td>
<td>3.97</td>
<td>5.99</td>
<td>4.73</td>
<td>4.78</td>
</tr>
<tr>
<td>chicken lb</td>
<td>2.10</td>
<td>2.26</td>
<td>1.57</td>
<td>1.89</td>
<td>1.74</td>
<td>2.99</td>
</tr>
<tr>
<td>eggs dozen</td>
<td>2.14</td>
<td>2.46</td>
<td>1.84</td>
<td>1.59</td>
<td>2.07</td>
<td>2.39</td>
</tr>
<tr>
<td>peanut butter 8 oz</td>
<td>2.48</td>
<td>2.19</td>
<td>1.72</td>
<td>2.30</td>
<td>2.19</td>
<td>3.22</td>
</tr>
<tr>
<td>whole wheat bread loaf</td>
<td>2.09</td>
<td>2.46</td>
<td>2.14</td>
<td>2.38</td>
<td>1.56</td>
<td>2.11</td>
</tr>
<tr>
<td>pasta box</td>
<td>1.61</td>
<td>0.92</td>
<td>1.49</td>
<td>1.12</td>
<td>1.66</td>
<td>2.06</td>
</tr>
<tr>
<td>beans can</td>
<td>1.34</td>
<td>1.27</td>
<td>0.99</td>
<td>1.39</td>
<td>1.21</td>
<td>1.50</td>
</tr>
<tr>
<td>dried lentils lb</td>
<td>1.20</td>
<td>0.85</td>
<td>1.00</td>
<td>1.36</td>
<td>0.99</td>
<td>1.39</td>
</tr>
<tr>
<td>All</td>
<td>44.83</td>
<td>44.95</td>
<td>39.65</td>
<td>41.57</td>
<td>44.53</td>
<td></td>
</tr>
<tr>
<td>Produce</td>
<td>11.91</td>
<td>11.66</td>
<td>12.37</td>
<td>9.71</td>
<td>13.33</td>
<td></td>
</tr>
<tr>
<td>Groceries</td>
<td>32.92</td>
<td>33.29</td>
<td>27.28</td>
<td>31.87</td>
<td>31.20</td>
<td>36.62</td>
</tr>
</tbody>
</table>

x= unavailable or no data above market area average

The food prices for staple groceries in the Holyoke market area ranging from most affordable to least affordable are discount grocers, urban full-service grocers, neighborhood stores, supermarkets, and lastly by convenience stores. As presented in
Figure 6.8, supermarkets have the most prices of products above the average for the Holyoke market area - exclusive of convenience stores. On average Discount Grocers offered the cheapest products followed by urban full service markets. Convenience stores are the most expensive to shop at for grocery items. Twelve of the 15 items present in the stores are above the citywide average for that product. If a customer spends $36.62 on grocery items at a convenience store, she could buy those comparable items at a discount grocer for $27.28, nearly 25% less.

**Figure 6.4** Average price of basket of produce and non-produce food items

The discount grocers offer the cheapest prices. Counter to my expectations, the supermarkets are more expensive than either Urban Markets and Neighborhood Food Stores. The price of a given product at supermarket was higher than the Holyoke Market area average price in 14 out of 26 products. The range of produce prices among store types less significant. The price ranged from $9.71 in urban markets to $13.33 in neighborhood stores.
Price Rite offers the least expensive produce, followed by Save-A-Lot. These are the two Discount Grocers whose business model is based on buying in bulk to cheapest possible product- both generic and name brands. The two urban markets offered mid-range prices. They prices of produce in the urban markets needs to remain low in order to be purchased by urban neighborhood consumers. This is a positive indicator that urban markets are competitive with Supermarkets and Discount Grocers. One can infer from this that the downtown population is relatively mobile in terms of food purchase. While the neighborhood food stores were the most expensive places to purchase produce, there was not much variation among the store types when comparing the market basket price of produce.

6.2.5 Quality (Fresh Produce)

While the variance in the price of produce is nominal, there are wide inconsistencies of produce quality and selection within the Holyoke Market Area. Quality rating is determined by combining the total of two scaled questions: 1) Produce is appealing 2) Produce is over-ripe or bruised. Each statement received a score ranging from one (strongly agree) to 5 (strongly disagree). A combined score of two constituted excellent quality. A selection score was given on a scale from 1 (very limited= 1-3 varieties), 2 (moderate= 4 to 10), to 3 (wide selection 10 or more). Seen in appendix 1 “Matrix depicting quality of produce in Holyoke Stores”.

All four supermarkets have excellent produce quality and a wide selection. The only stores offering year-round organic produce are the four supermarkets. They are also the only stores to promote local produce. In contrast, the discount grocers do not offer local or organic produce. They do, however, provide consistent good quality and a wide
selection. The quality and selection were less consistent in the urban markets. C-Town was rated as poor quality, Cuba and Osqui were rated neutral, and the Flats has good quality. Osqui only has a moderate selection of produce. Poorer quality foods were identified consistently among neighborhood food stores. Over half (54%) of neighborhood food stores rated as having poor quality produce, three with quality, and three neutral. The range of produce in these stores ranged from limited to moderate.

The focus group that I conducted confirms that the produce in neighborhood food stores and urban full service is lower quality than in supermarkets and discount grocers. They do not expect to ever find overripe or wilted produce in the supermarkets, and only occasionally in the discount grocers. However, they expect and anticipate smaller stores to be inconsistent in the supply of produce.

Table 6.5 Quality and Selection Index Results Aggregated by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>excellent</th>
<th>good</th>
<th>neutral</th>
<th>poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Core</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Outside Core</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Holyoke City</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>
When evaluating the urban core neighborhoods of Holyoke for produce quality and selection, we find an aggregation of stores poor and neutral quality of produce, as seen in figure 6.9. The map shows that all of the stores rated with a neutral quality of produce are found in the urban core, as well as 75% of all stores found to offer a poor selection. None of the stores supplying excellent quality produce are within the urban core. I do generalize in this finding. However, quality and selection may not always correlate. For instance, good quality and limited selection is very different than large selection and poor quality.
6.3 Ethnicity and the Food Environment

The Latino population in Holyoke is highly concentrated in the urban core neighborhoods. Figure 6.13 depicts Latino dominated census tracts from the 2000 Census. The Census blocks containing 50% or more Latino population account for all four of the urban full service food stores, 14/19 neighborhood food stores, and 11/15 convenience stores, and none of the discount grocers or supermarkets. Note: This includes all stores bordering the census block. These figures indicate that some Convenience, Neighborhood Food Store and Urban Full Service target their service to the Latino population.
6.4 Income and the Food Environment

There is an inverse relationship between the median household income of a census tract and the aggregate total of food stores. The neighborhoods with highest median income have the fewest amount of food stores, whereas the neighborhoods with low median income have more. This is an indicator that wealthier residents are more
likely to live in single use residential districts and therefore tend to drive outside the neighborhood to purchase food.

**Figure 6.7 Median Household Income and Food Store distribution**

*Demographic data: US Census 2000*
CHAPTER 7:
SOCIO-SPATIAL CONSTRUCTS IDENTIFIED

Food choices and healthful eating are influenced by the shopping opportunities that are available (potential access) and the shopping opportunities that are utilized (realized access). The accessibility of grocery retail services includes not only the physical access to store and food availability, but also how people behave in food retail environments as a result of the potential access. The crux of this thesis advances research on the latter. This chapter synthesizes patterns in the data with the community interviews to establish four key findings in Holyoke’s local food environment: the role of race, the spatial mismatch of preference and convenience, mobility limitations, and the role of small urban food stores.

7.1 Welcomeness: A Raced and Classed Food Environment

The local food environment of Holyoke is intimately tied to the city’s economic history and its inherent ethnic-based spatial constructs. Food store mapping, audits and participant interview data reveal that access to healthful foods is associated with intersections of space, race, and class. While all the stores are open to the public at large, ethnicity strongly influences where one chooses to shop for food. This carries notable implications: it is a structural reinforcement to ongoing ethnic segregation and contributes to the disparate health issues facing Holyoke Latinos.

The raced food environment was a highlight of the focus group discussion. It was discussed frankly in particular by Latino participants. Two Latina women, Rosa and Merilyn from Jarvis Avenue who do not own cars, were asked if they ever shop at Pat’s
Deli, the closest store to their public housing complex. Pat’s Deli, in the Irish-American dominated neighborhood of Oakdale, offers fresh deli meats and a moderate selection of produce. The Latina women perceive this store to be for “Caucasians”. “If we walk in there, the only thing we would hear is the click-click [of guns]” (paraphrased by author). This implies a hostile cultural divide among Holyoke Latinos and European-American persons. Further, Rosa stated, “They would tell us to go shop at our bodegas… There is nothing in there for us.” Instead, when shopping close to their residence, Rosa and Merilyn choose Friendly Variety. They feel welcome at this Hispanic-friendly store. These residents, although never having been in Pat’s Deli were correct in their perception that the store costs more than the stores they would normally shop at. But in this case, an ethnic barrier precluded the cost barrier. This is contrary to many studies presented in the literature review. This example indicates that one’s ethnicity possesses an underlying filter in choosing where one shops for food.

The cultural divide in the food system creates perceptual barriers for all residents. When asked if she ever purchases food downtown, Mary, a city employee and lifelong resident of European heritage, stated “There is nothing for me downtown anymore, except working here [at City Hall]” She is referring to the dramatic shift in downtown population from European-American to predominately Latino as described in Chapter 2. A result of the shift has been a change in the character of downtown neighborhoods adapting into a low-income, Latino enclave. Mary expressed a perception of “unwelcomeness” in food stores in the downtown area and feared for her safety. I can attest to similar feelings during the food store audits in many downtown food stores. It was common for store owners to mistake me, a European-American male, for a city
official or inspector on first impression. Even after declaring myself some store owners remained skeptical or refused participation. Clearly, the theme of *welcomeness* indicates underlying ethnic tension in the city’s food environment.

Rosa, a middle aged Latina participant in the focus group, theorizes that the local food environment is raced “because of stupidity on both sides.” There is much truth to her statement, but ignorance aside, there are functional reasons behind a raced food environment. Neighborhood food stores, and urban markets in particular, are more ethnically exclusive. Because their market area is small, they tend to cater to the demands of the neighborhood. When a neighborhood is ethnically or economically segregated, as many are in Holyoke, a food store serving that area will reinforce that segregation, as seen in the Pat’s Deli example. These stores become the backbone of the neighborhood, a place to reinforce culture and develop neighborhood attachment— for better or worse.

Archies Mini mart illustrates how a neighborhood food store becomes entrenched in the ethnic divide. Archies is a Neighborhood Food Store in the Flats neighborhood, one of only two food stores in the economically troubled and isolated neighborhood. A man and women, both Latino, were attending the store when I visited. Neither owned the store, but said they work there 56 hours a week. The woman has been in Holyoke for 30 years and this has been her job her whole life. She does not speak English, and sees no pressing reason to learn it. Like several other stores in the urban core, they declined to participate when asked in English, but became amiable when my partner spoke in Spanish. Not uncommonly, they expressed fear that I am a health code inspector or an authoritative figure from the government. When approaching small stores during the food
store assessment, owners of downtown stores were much more receptive to my research when I was accompanied by a Spanish-speaking volunteer.

Language is indeed both an indicator and contributor to the cultural divide of the food system. In the Holyoke food environment, I found stores ranging from 100% English signage and language spoken, to 100% Spanish. Most stores had some degree in between. As indicated previously, the smaller the food store, the more likely it is to market exclusively to local clientele. The larger markets, in particular Stop & Shop and Price Rite, label all signage in both English and Spanish.

Supermarkets and discount grocers attract a more ethnically and economically diverse population. There is a reciprocal benefit to attracting a larger clientele enjoying economies of scale. Their customer base extends beyond the certain neighborhood in which they are located, and therefore supermarkets and discount grocers were found to be less discriminatory in customer base in general. But this is not necessarily cause and effect. The supermarkets in the Holyoke Market Area are perceived to be economically classed. Both Stop & Shop supermarkets in Holyoke were (appropriately) perceived to provide the highest quality foods by the low-income Holyoke in the focus group. But these stores were not frequented because of a perceived price barrier. Their use of Stop & Shop was limited to food items considered a luxury. The luxury foods described included a pork shoulder for a holiday meal or a child’s favorite snack for his birthday. The underlying theme in the focus groups is that Stop & Shop, possessing a large share of the full service food stores in the local food environment, is not a primary food source for Holyoke’s low income population.
All of the white adult primary household food purchaser participants in the study preferred Big Y in South Hadley to both of the Stop and Shop supermarkets in Holyoke on account of perceived quality, selection, and price. But the measured results in this report find little disparities among the Big Y’s and Stop & Shop supermarkets. The Latino women I spoke with overwhelmingly preferred Price Rite in Chicopee to all other food store choices, on account of price, quality and selection. Upon further research, interesting spatial patterns emerged with regard to both the distribution of food stores and the paths people take to obtain food.

7.2 Spatial Mismatch: The Preferred Food Stores Are Not Where the People Are

The old adage “the grass is always greener on the other side of the fence” may have some truth behind it in the case of the Holyoke food environment. Synthesizing data, observations, and discussions from the study, it became evident that many residents leave Holyoke to shop for food, opting to cross the Connecticut River into neighboring Chicopee or South Hadley and to bypass the closest stores for a multitude of reasons. Clifton (2001) notes that access to the preferred store is not typically the closest one and the research in Holyoke further provides insight into the mechanisms behind the this phenomenon.

The least accessible market from urban Holyoke is the most preferred by low-income residents. Driving an extra mile or two to Big Y may not trouble the middle-income customer with an automobile, but the tradeoffs increase drastically for Holyoke’s economically vulnerable populations. The prevalence of smaller food vending markets in Holyoke’s urban core may contribute significantly to the local residents’ diet, but not entirely. Residents instead seek out larger grocery stores in the periphery of the city for
primary purchases. Price Rite, offering an optimal balance of quality and price for low-income residents is over two miles from Holyoke’s urban core. There is no safe or feasible pedestrian route, transit requires transfers from any point in Holyoke and takes at least 40 minutes.

Stop & Shop-Lincoln Street (supermarket) and Save-A-Lot (discount grocer) are located in the periphery of the urban core and incorporate pedestrianism into their site design and context. Both sites had positive street connectivity and the sidewalk system was complete. In addition to observing significant amounts of pedestrian customers at both stores, informal pedestrian footpaths found on both of these sites are indicators that the stores are used by local, pedestrian customers. These footpaths also suggest that site designers failed to fully account for such pedestrian use.

I have observed ‘borrowed’ carts from both Save-A-Lot and Stop & Shop (Lincoln Street) in the Downtown neighborhood of Lyman Terrace. This is evidence to a systemic disconnect between place of residence and where food is purchased. It is also proof that pedestrian customers bypass the closest full-service food stores (Cuba and C-Town) to access the larger supermarkets on the periphery of the city. It is not cost-effective for the supermarkets to have carts leave the premises, even though there is an apparent consumer need for such. Save-A-Lot and Stop & Shop North both attempt to keep the carts on premises through different methods. Stop & Shop North uses a mechanically controlled breaking system if the carts leave the property. Save-A-Lot uses a cart barricade system. Save-A-Lot, Cuba, and C-Town sells pedestrian grocery carts at the store for 20 dollars, a clear indicator of pedestrian customers in the urban core. Although not sold at Stop & Shop, I saw pedestrians using these personal carts.
Living in the urban core of Holyoke does not necessitate an automobile, as the city was originally designed to be pedestrian oriented. But for multiple structural reasons, residents are forced to travel outside the urban core for basic necessities including employment, education, and food. Based on holistic analysis it is evident that having access to an automobile is the most advantageous way to access food in Holyoke.

7.3 Personal Mobility: Real and Perceived Barriers

Personal mobility plays a significant role in one’s experience with the local food environment. Mobility, unlike ethnicity which is largely a perceived barrier to store access, is an absolute barrier that purports additional limitations to personal food shopping choices. The research supports that getting to the store is a significant challenge for some Holyoke residents. Interpreting the data and observations, it is clear that where one lives per se was not a determinate of where one shops. Interestingly, Holyoke Latinos access a wider variety of food stores (supermarkets, discount grocers, urban full service, and neighborhood food stores) when generally compared to Euro-American Holyoke residents who use supermarkets almost exclusively. I find that the places where one chooses to shop is significantly based on cultural welcomeness. Also influential is the degree to which carless Latino households were are able to make alternative travel arrangements to assist with food shopping at preferred food stores.

At least 25% of the working age population in Holyoke does not have access to an automobile (Census 2000). Holyoke residents without cars must depend on public transit, taxis, or informal social networks to travel to grocery stores if there are no stores in the immediate vicinity. This limits the frequency of their trips and thus their opportunities to purchase fresh produce and other nutritious perishable foods.
I suggest that increased mobility contributes to an increased awareness of food opportunities. Those having access to a car have a more substantial knowledge of the greater food environment and are less likely to use neighborhood food stores and urban markets, and are more likely to leave the city to seek out preferred stores. I use two cases from the focus group to illustrate how mobility and access to food is contingent upon the transportation means available.

7.3.1 Vehicle Ownership

Gina is a Latina mother of three teenage boys and a seven year old daughter. She and her family live in the Downtown neighborhood and she owns a working car. Her preferred food store is Price Rite, a Discount Grocer in Chicopee. Her auto-mobility allows her to shop at the store she prefers, bypassing all markets in the city.

Gina’s shopping habits are largely a result of the venue where she shops. She shops twice a month for most her family’s grocery needs. Each time she goes to the grocery store, she buys on average $400 worth of groceries. This amount of food fills two shopping carts full of food and overfills her trunk space. She brings her own boxes and bags to the store because Price Rite charges for bags. Discount grocers like Price Rite and Save-A-Lot offer economies of scale which equate to “the more you buy the more you save” approach employed by low-income household food purchasers like Gina. She shops on the first of the month, when WIC and EBT cards are charged.

Gina has a substantial spatial awareness of the food environment. When presented with a community food map, she could identify most of the places where food is available in the city, as well as other sources outside of the city. Gina has an automobile. This allows her the ability to expand the geography of her shopping to Price Rite in
Chicopee. She also shops at stores beyond the proximity threshold of this study. She found that food is cheapest at Walmart in West Springfield. She also shops at 90 Meats Outlet on Avocado Street in Springfield because it has the “best meat in the area”.

Even with the advantage of mobility, food security is a concern for Gina, especially at the end of the month when EBT funds are depleted. In emergency situations she uses store credit at Appleton Market (downtown neighborhood food store), and is financially inconvenienced by the high prices of milk at 7-11, located across the street.

### 7.3.2 Non-vehicle Ownership

Merilyn has the same size family, similar economic situation, age, and demographics as Gina. She lives in public housing in the Jarvis Avenue neighborhood and does not own a car. She is also the primary household food provider. Her preferred store is Price Rite, but she shops at Save-A-Lot because it is realistically accessible to her. She usually does not walk to the store, but her non-foot travel access is insecure. Getting to the store for Merilyn is a weighing process of her options. It is necessary for her to have this pallet of options because each is contingent on a number of factors.

Associated with each option is a weighing of cost, time, energy expended, and external influence such as weather or season.

1) Get a ride with a friend to Save-A-Lot
2) Hire a friend to take her to the store
3) Share a taxi ride with a friend
4) Take the bus (requires walking as well)
5) Walk there, take taxi back
6) Walk both directions
7.3.2.1 Ridesharing

Ridesharing is a common means to access food stores for residents without an automobile. Merilyn and many others utilize an informal network of friends and neighbors to share a ride with. This is the cheapest and most time/energy efficient option. But her neighbors too, are in a similar household situation. The space in the car is limited, especially when children are included. When Merilyn gets a ride to the Save-A-Lot, she feels the need to buy “as much as she can” because it is so difficult to get there. “When sharing a car with one to three other women, the car will fill up fast”.

7.3.2.2 Taxi

There are both formal and informal taxi services in Holyoke. She has the option to hire a driver that operates in her neighborhood. This is an informal business created by an entrepenuering gentleman with an automobile. “He knows we don’t have much money, so sometimes we pay him with fruits...he likes bananas”. The formal taxi services are difficult to obtain and are very expensive. For Merilyn, seven dollars each way is a formidable cost barrier. There are reports of “Hawkers” who offer rides home from the grocery store, but charge inordinately high rates.

7.3.2.3 Transit

Public transit is insufficient. Besides the obvious deficiencies of buses for transporting large, heavy bags of groceries, buses run infrequently, often at 45 to 60 minute intervals during the evenings and weekends when working families had the time to shop. Residents using bus transit can manage only limited quantities of groceries on their return trips, particularly when they are accompanied by young children, when transfers between bus lines are required, or when the walk to their residence from the bus
stop is long. In particular, the bus line Merilyn uses is infrequent and inconsistent. It is quicker for her to walk to the store than to take the bus.

7.3.2.4 Walking

There is ample evidence that many Holyoke residents access groceries by foot for a significant portion of the round trip. Merilyn prefers not to walk to the store, but often does. While there are health benefits associated with pedestrianism, there are significant non-monetary costs associated when a family’s food provisioning trip is on foot by necessity. It is a 20-minute walk to the store from Merilyn’s home. The path is steep, the sidewalks incomplete and she has to walk through the forest. She is limited to what she can carry home up the hill, and is forced to buy less heavy items. The effort required dissuades her from frequent trips and therefore she prefers foods with a longer shelf life to healthy produce. She notes that this is the only free way to get to the food store.

These anecdotes suggest that the food stores closest to home play a significant role in family food provision. The following section highlights the functional and social role of the smaller food vendors that abound in Holyoke.

7.4 Neighborhood Food and Urban Full Service stores in Holyoke: New Findings in Contribution to Community Food Security

The role of the small urban food stores in contribution to food security is little understood (Short 2009), and findings from this study expand the literature by further articulating their multiple roles in the community. Due to the socio-economic barriers, spatial disconnect from preferred food stores, and limitations to mobility, the role of local food stores in Holyoke is heightened. Having similar social and functional roles, I consider neighborhood food stores and urban full service markets together. They are not
evenly situated in all neighborhoods, appearing with more frequency in Latino-dominant neighborhoods and catering to that particular ethnic clientele.

First I will address some of the community food security limitations presented by vendors. The availability of produce is not secure in neighborhood food stores, unlike an urban full service store, where the availability is considerably more consistent in comparison. A Neighborhood food store such as Spuds in Oakdale only offers potatoes sometimes if they are in season, Springdale Spanish and American Grocery offers only wilted potatoes and overripe garlic (for all practical purposes price reduced to free), Melo’s Deli and Grocery offer pears because they struck a good deal with the vendor the prior week. Due to these variabilities, prices change day to day and are rarely marked. The following testimonies from neighborhood food store owners offer perspectives as to why produce is difficult to supply:

- "There is no money in fruits and veggies"- Evelyn’s Mini-Mart
- “Can’t buy in quantity like Stop & Shop”- Osqui Market
- "Fresh vegetables and fruits spoil too quick and people are not buying them either” - La Favorita Mini-Mart
- "The prices of produce change week to week based on the supply”- Melo’s Deli and Grocery
- "...not interested in buying fresh vegetables because they are not selling well and the products spoil. When products spoil they bring fruit flies to the store”- Bodega 24
- "(I) would love to have fresh products if they are a better price”- Spud’s
- “There is not much traffic looking for it [produce].”- Springdale Spanish and American Grocery
- “The owner used to buy fruit but nobody buys it here…If we buy [fruit], it would rot…if you want nutrients eat an apple pie”- Archie’s Mini Mart

There are two primary reasons why neighborhood food store owners do not offer produce. 1) They do not perceive customer demand and 2) they cannot negotiate an appropriate supply from wholesalers. Many stores attempt to sell produce but the
perishability of the food is a primary constraint. Produce is a significant challenge to sell for small independent stores. It involves difficult negotiations to ensure an adequate and affordable supply and stimulate demand from customers- all to squeeze a profit from foods with a low margin when sold on a small scale. Neighborhood food stores are incredibly responsive to perceived customers demands. But the perceived demands often favor unhealthy, harmful products. At the time of the store audit, Villa Rosa, a neighborhood food store in South Holyoke had been open three weeks. The shelves and wall space were 50% occupied. The store had 9 of the 26 items on the list, no fresh food or produce. As a new store owner, he claimed that he was getting a feel for customer demand. “Right now, if a customer demands a product, I will carry it. But they have to ask” (translated and paraphrased by author). He has space for produce if there is demand, but does not anticipate customers wanting it.

Indeed fresh produce is perceived as bad business for small stores because of its bulkiness, perishability, high maintenance costs, and low profit margin (Bolen and Hecht 2003). But some neighborhood food stores do in fact carry a steady supply of produce. They do so for a variety of reasons. For urban stores that do commit to the high investment of shelf space and maintenance time required to carry a wide variety of produce, such as those in the study, produce is a main attraction (rather than incidental), and maintaining consistently high quality is important for attracting customers. For the urban full service markets of Cuba Market/Plaza Latina, C-town and Flats Market, having produce is a customer draw and a backbone of the market. The provision of WIC is a major contributor to the store owner’s decision to carry produce. WIC holds store owners
to certain standards in the variety of healthy products offered. The stores that carry WIC enjoy a wider customer base that is encouraged to purchase healthy foods.

Indeed, some factors that allow small urban food stores to stay in business may compromise the goals of food security in a broader sense. Neighborhood food and urban full service stores in Holyoke generally offer less selection, lower quality, and less healthy food when compared to supermarkets. Yet, their prices are competitive with the larger markets and they are far more convenient for Holyoke’s urban areas. In addition, the urban food store can be an essential community entity. I find that small markets can and do increase food access in some neighborhoods. There are two ways that a neighborhood food store contributes to food security: 1) Community Capital and 2) as an Emergency food source.

7.4.1 Community Capital

The prevalence of neighborhood food stores in the urban core is a reflection of a dominant immigrant culture and large supply of cheap ground-level storefront shop space throughout the urban core of Holyoke. A viable neighborhood grocery store represents multiple community gains including food access, nutrition and fitness, reduced transportation, and crime reduction. Owning a store or working at one is an important source of employment for the immigrant population, and is a unique opportunity to contribute to local community development. Storeowners employ a variety of methods to keep their costs low and their food affordable. Like most small businesses, first and foremost is their own sweat equity and that of family members. The owner is a major source of labor at all the stores visited, with one store owner reporting that he routinely works fourteen-hour days to keep his store operating, and at least three of the stores
visited are primarily staffed by family members. Family labor (often unpaid) is a cost reduction tool that is available to small grocers but not generally available to supermarkets (Bolen and Hecht 2003).

Interviews with storeowners revealed an additional motive beyond gaining market share in hopes of future profitability. For neighborhood Food Stores like Alimonte, Melo’s Deli and Grocery and Evelyn’s Mini Mart, produce is used to attract customers, but little to no profit is made from the produce itself. A small sample of storeowners stock produce for ethical reasons—in effort to serve their communities. Stores such as the Flats Market carry bananas a means of community responsibility, knowing that that they are the only place to buy them in the neighborhood.

7.4.2 Emergency Food Source

There is a limited selection of emergency food sources available to Holyoke residents, especially to the low-income Latino population. Electronic-Balance Transfer (EBT) and Women-Infant and Children (WIC) food credits are distributed monthly and are typically expended before being recharged. If the primary household food purchaser prematurely expends his or her limited resources, they find themselves without the ability to purchase food. The Latina women food purchasers in the study strongly prefer not to use emergency meals or the food pantry because they perceive there are other citizens ‘worse off’ than themselves. But this is a problem they address on a monthly basis. The solution to this quandary comes from an unlikely source: neighborhood food stores. The women develop a relationship with their local neighborhood food store owner and receive emergency credit for food to feed their families.
Despite many stores posting “no hand-outs” (translation from Spanish), many stores do in fact offer store credit in emergency situations. This includes stores in and outside the urban core. Gina, who does not have a car, uses this method on a regular basis. She has a good relationship with her local neighborhood food store owner. This relationship is very important to her because this is the bottom line for her family’s food security. In referring to her use of emergency credit in the prior week, she stated “I can pay when I get the money.” This goes against the literature on food security. Neighborhood food stores offer the ability to guarantee food in a time of need, something that larger corporate markets cannot offer. However, she admits that items often used for emergency purchase are the cheapest and high in calories because she hopes to ‘stretch’ the food. But they also get milk, eggs, and flour. They rarely purchase fruits and vegetables in this situation.

The store owner from Springdale Spanish and American Grocery summarized the role of small food stores in her neighborhood: customers do not depend on her small variety store as a primary supply of food, rather as a supplementary source, for example, for sugar and milk. The owner explained that “customers appreciate the store for that convenience, because it is too hard to get to the supermarkets for single items”. Her best selling products are milk, sugar and rice. Her neighborhood of Springdale is among the most isolated from a full service grocer. Stop & Shop is ¼ mile away in linear distance, but a 200 foot ridge forms a formidable physical barrier offering no direct approach by foot or road. Her business attracts customers because many residents in Springdale do not have cars.
Because of the socio-economic barriers to store usage, a spatial disconnect from preferred food stores, and limitations to mobility, smaller local food stores play an important role in the provision of food for low-income, less mobile urban residents. While these food stores may not offer healthy foods at the quality of larger markets they do, indeed, contribute reciprocally to community capital and serve as an emergency food source in a community vulnerable to food insecurity.
CHAPTER 8:
SUMMARY AND POLICY IMPLICATIONS

The research started with a seemingly rudimentary question: Where is food available in the community and who is it available to? The provision of food is a concern traditionally overlooked in the planning discipline, but gaining rigor and is worthy of asking at this time. The answer, of course, is attempted in this thesis. But as all good research does, the question has lead me on an endless trail of questions. For the sake of brevity, I summarize the findings and discuss the policy implications here.

This study highlights food acquisition as a process influenced by social and a spatial constructs. The grounded mixed-method analysis of the retail food store landscape presents the dynamic nature of how a small socio-economically diverse city acquires food. With an urban planner’s lens, I depict how human-environment interaction influences the utilization of food stores in an urban environment, accounting for both real and perceived barriers/facilitators.

I began by analyzing the distribution of food stores and foods within the community. To accomplish this, I established a categorical framework for understanding the variety of store types in the Holyoke area. This framework permits a holistic understanding of the role of each store type in contribution to food security. Understanding the patterns and functions of each store type is fundamental for the subsequent development of food and neighborhood policy.

This study does not attempt to qualify the City of Holyoke, nor any areas within it a ‘food desert’. Indeed the variation of the urban food landscape is inherently linked to
the wide socio-economic disparities in the city, and the largest format food providers are located outside the urban core neighborhoods. But it is beyond the scope and intent of this study to make such a sweeping conclusion about the city’s food security.

This research responded to the methodological challenges that have been identified in studying access to food stores in urban areas. Straying from the empirical majority of urban food store research approaches, I have parsed out realized access to food from the more heavily studied potential access to food. Using a case-sensitive, holistic approach, the measurement of the food environment recognizes the variety of store formats and the purposes they serve for various customers.

Ultimately, the research advances the human environment aspect of the local food environment. I demonstrate that it is important to understand not only the distance that people must travel to the nearest store to make a purchase, but also how much diversity in stores they have in order to compare price, quality, and selection.

8.1 Implications for planning and policy

While the link between the food environment and health is only implied in this study, the case for social equity to access of food is strong. Access to a good variety of healthy foods, such as fruits and vegetables, can play a pivotal role in the nutritional health of Holyoke families. Many of these families live in socioeconomically-deprived neighborhoods; many are have a low household income, are unemployed, older, or lack access to a vehicle. The lack of public transportation or not being able to afford transportation further marginalizes a large population and limits their options for food resources.
Pothkuchi (2001) and Dunkely et al. (2003) state that traditionally, spatial planning may not have taken household characteristics sufficiently into account. I support that with regard to equitable access to food choices, sustainable neighborhood development, and support for food-related entrepreneurship, food retailing becomes a public issue.

Indeed it is difficult to initiate or maintain healthful eating habits without access to healthy foods. But in creating policy to improve food security, we must recognize that the secondary outcomes of increasing healthy food offerings are not guaranteed to include an increase in the intake of fruits & vegetables or other nutrient-rich foods. However, knowing more about the level of access to shopping opportunities for healthy foods is essential for combining environmental approaches with traditional health interventions to make it easier and more likely for individuals to make healthier food choices.

The study demonstrates that local food environments have many features that interrelate. This in of itself, implies that any particular intervention will impose both costs and benefits. It is not in the scope of this research to discuss solutions, but rather to inform them. The following research conclusions should be applied to inform food policy in Holyoke, and in urban areas in general.
8.1.1 Food Store Availability Does not Equate to Accessibility

There are both real and perceived barriers to the access of food. Cost, convenience, and quality are constantly weighed against each other by the customer mind in their choice to shop. These are examples of real barriers. A store can be too expensive, it can be too far away, or its low quality can dissuade a customer. Among low-income urban residents, the cost and convenience tend to weigh heavier in purchasing decisions because of economic limitations. Underlying these real barriers are perceived barriers such as covert ethnic segregation among smaller stores, stigma attached to a neighborhood or a prior dissuasive experience. In all, it is not prudent to assume that proximity of food store and neighborhood is an indicator of the use of that store. I use the case of Stop & Shop on Lincoln Street as an example. The supermarket is located on the edge of Holyoke’s Downtown neighborhood. With adequate pedestrian and transit connections to Downtown as well. Although it is convenient, the research shows that this Stop & Shop is not regularly used by the urban poor of Holyoke with its higher costs being a real barrier to use.

8.1.2 Food Access Patterns Should be Considered in the Location of Housing and Design of Neighborhoods

The case of Jarvis Heights Public Housing is a glaring example of planning that has directly resulted in a community at-risk for food insecurity. The housing is located in an automobile dependent portion of the city and is isolated from the social amenities and basic necessities enjoyed by the urban core neighborhoods. Many of the residents in this community do not own an automobile and the closest preferred store (Save-A-Lot) is a twenty-five minute walk, and the closest neighborhood food store is over ten minutes.
There is no direct or adequate pedestrian connection to the discount grocer. This isolated community requires improved access to foods. Focus group participants expressed a strong desire for a neighborhood food store in their Jarvis Avenue neighborhood. While the intent of planning public housing outside of the urban core may have been to establish mixed-income neighborhoods in a rigidly classed city, access to the most basic of human necessities was overlooked and further isolates, to the detriment of the welfare of the residents.

8.1.3 Food is a ‘Push’ Factor From Downtown

The urban core of Holyoke has been in economic despair since the mill closings in the 1950’s. While a significant population remains in this area, many of the most basic human amenities have retreated to the urban periphery (schools, employment centers, healthcare, and large format food stores). The combination of these factors require residents to leave the urban core, further contributing to the structural decline of the city. This study finds that smaller food stores in the urban core neighborhoods are not sufficient to support a lifestyle of healthy eating. Indeed, the lowest quality and selection of produce was found in the urban markets. But a well designed urban market can also be a bulwark against blight and a major employer in an urban neighborhood. Along with schools and churches, the food store has potential to be the backbone of public circulation that draws people into the heart of the site, creates new gathering places, and reconnects neighborhoods (Infill Philadelphia 2008). Two central goals of the urban planning profession are to promote walkable communities and equality in access services. Urban markets should support both of these community goals. Prudent policy should consider the customer “leakage” from the urban core area
8.1.4 Discount Grocers and Supermarkets are not Conducive to Pedestrianism

It is strongly noted in the literature that larger format stores do not locate in urban areas because of many real and perceived complications associated with the urban context. These stores require a large customer base, which requires a large store and ample parking, not readily available in urban areas. Larger format stores, especially discount grocers offer economies of scale which equate to “the more you buy the more you save” approach employed by low-income household food purchasers. This equates to less frequent trips with larger purchases, especially when accessing the store is a challenge. I find a link between a larger purchase size and the need for personal auto travel.

8.1.5 The Social Costs of Auto-Dependent Development in the Urban Environment Should be Considered

The provision of food and the role it plays in the lives of urban residents is overlooked in the planning field. When there is a significant spatial disconnect between the preferred food sources and the place where one resides, access to food becomes a challenge with associated monetary and non-monetary costs. As is the case of Price-Rite, the discount grocery store that appeals to Holyoke’s large low-income population, realistically it is only accessible by car. It takes significant time and several transfers by bus. The presence of Price Rite, a modest two miles from downtown, is affecting the urban fabric. Access to amenities such as food stores places pressure on low-income residents living in the urban core own automobiles. Many perceive the benefits of owning an automobile to out weight the otherwise limited mobility limits a person to the amenities available within the urban core.
8.1.6 Urban Food Stores Serve an Important Function in Neighborhood Stability; and A Diverse Mixture of Food Store Types in a Neighborhood is Beneficial

The prevalence of neighborhood food stores in the urban core is a reflection of a dominant immigrant culture and large supply of cheap ground-level storefront shop space throughout the urban core of Holyoke. A viable neighborhood grocery store can represent multiple community gains, including food access, nutrition and fitness, reduced transportation, and crime reduction. Owning a store, or working at one is an important source of employment for the immigrant population, and is a unique opportunity to contribute to local community development. Storeowners employ a variety of methods to keep their costs low and their food affordable. Because of the community connection, many stores offer emergency store credit, or even stock produce at a loss for the benefit of the community. But neighborhood food stores and urban grocers alone are not sufficient for a healthy and cost efficient diet, so it is necessary to have access to one or more large format food stores.

8.2 Conclusion

Indeed food is “a product and mirror of the organization of society” (Counihan 1999, p.6.) As true of society, the food environment exhibits divisions of race and class. Although the industrialized food system has obscured the human experience with the products we eat, the effects of such regarding public health and community development are only beginning to be understood in a planning and public health context. In this research I learned that we organize our communities and our lives around the provision of food. While food is just one of many structural factors that contribute to social inequities, it should be brought to the table, so to speak, in all policy decisions.
APPENDIX A
DEFINITIONS

*Food Desert*: a district of primarily low-income residents without access to grocery stores. They are often depicted as places where transportation constraints of carless residents combine with a dearth of supermarkets to force residents to pay inflated prices for inferior and unhealthy foods at small markets and convenience stores (Wrigley 2002).

*Food Insecurity*: “Limited or uncertain ability to acquire acceptable food in socially acceptable ways” (Nord et al 2008).

*Food security*: “access by all people at all times to enough food for an active, healthy life” (Nord et al 2008).

*Food system*: the multi-phased process of the development of food for consumption; including pre-production collection of inputs and raw materials, production techniques, and postproduction mechanisms of processing, packaging, distribution, marketing, consumption and waste management (UN Development Programme 1996).

*Local Food Environment*: The foods and food stores available (or not available) in a community

*Retail Food Landscape*: The diversity and distribution of food stores in a given area.
APPENDIX B

MATRIX DEPICTING QUALITY OF PRODUCE IN HOLYOKE STORE

<table>
<thead>
<tr>
<th>Store</th>
<th>Type of store</th>
<th>Produce is appealing</th>
<th>Produce is not over ripe or bruised</th>
<th>Combined score</th>
<th>Quality rating</th>
<th>Selection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appleton Market</td>
<td>N'hood Food</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>poor</td>
<td>2</td>
</tr>
<tr>
<td>Friendly Variety</td>
<td>N'hood Food</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>poor</td>
<td>2</td>
</tr>
<tr>
<td>Osqui</td>
<td>Urban Full Service</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>neutral</td>
<td>2</td>
</tr>
<tr>
<td>Big Y (Chicopee)</td>
<td>Supermarket</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>neutral</td>
<td>3</td>
</tr>
<tr>
<td>Big Y (S. Hadley)</td>
<td>Supermarket</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>neutral</td>
<td>3</td>
</tr>
<tr>
<td>Bodega 24</td>
<td>N'hood Food</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>poor</td>
<td>1</td>
</tr>
<tr>
<td>Corner Delight</td>
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<td>3</td>
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<td>6</td>
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</tr>
<tr>
<td>C-Town</td>
<td>Urban Full Service</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>poor</td>
<td>3</td>
</tr>
<tr>
<td>Cuba (Plaza Latina)</td>
<td>Urban Full Service</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>neutral</td>
<td>3</td>
</tr>
<tr>
<td>Dwight Market</td>
<td>N'hood Food</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>poor</td>
<td>2</td>
</tr>
<tr>
<td>Evelyn's Mini Mart</td>
<td>N'hood Food</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>poor</td>
<td>2</td>
</tr>
<tr>
<td>Family Deli</td>
<td>N'hood Food</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>poor</td>
<td>2</td>
</tr>
<tr>
<td>Flats Market</td>
<td>Urban Full Service</td>
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<td>2</td>
<td>4</td>
<td>good</td>
<td>3</td>
</tr>
<tr>
<td>La Favorita Mini</td>
<td>N'hood Food</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>neutral</td>
<td>2</td>
</tr>
<tr>
<td>Manny's Market</td>
<td>N'hood Food</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>good</td>
<td>2</td>
</tr>
<tr>
<td>Melo Deli-Grocery</td>
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<td>1</td>
<td>3</td>
<td>4</td>
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<td>2</td>
</tr>
<tr>
<td>Pats Deli</td>
<td>N'hood Food</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>good</td>
<td>2</td>
</tr>
<tr>
<td>Price Rite</td>
<td>Discount Grocer</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>3</td>
</tr>
<tr>
<td>Save-A-Lot</td>
<td>Grocer</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>good</td>
<td>3</td>
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<tr>
<td>Stop and Shop (Lincoln)</td>
<td>Supermarket</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>good</td>
<td>3</td>
</tr>
<tr>
<td>Stop and Shop (rt 5)</td>
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<td>1</td>
<td>2</td>
<td>good</td>
<td>3</td>
</tr>
<tr>
<td>Springdale Grocery</td>
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<td>5</td>
<td>10</td>
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<td>1</td>
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<tr>
<td>Archies Mart</td>
<td>N'hood Food</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>neutral</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX C

SUMMARY OF FOOD ITEMS AVAILABLE IN HOLYOKE STORES
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Cassidy, A. and Patterson, B. (2008). *The Planner’s guide to the urban food system.* University of Southern California: University of Southern California School of Policy, Planning, and Development Center for Sustainable Cities.


