

Lexington Community Food Assessment 2004-07

Research Report

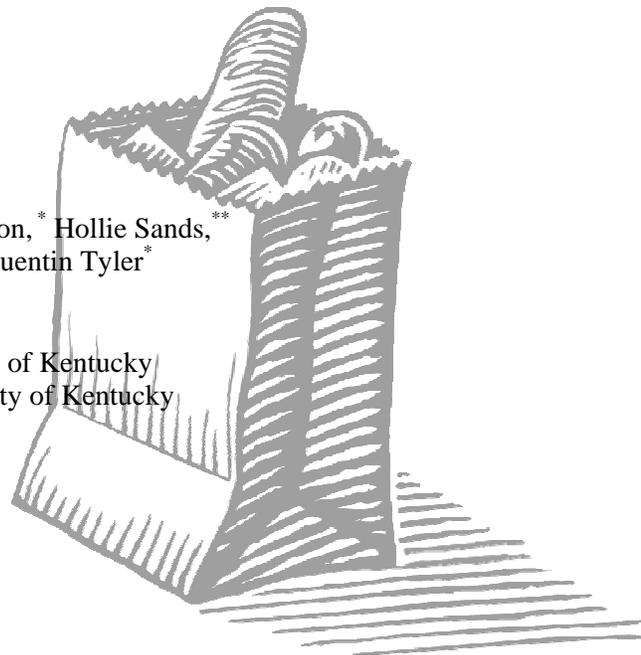
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LEXINGTON COMMUNITY FOOD ASSESSMENT, 2004-07. RESEARCH REPORT.

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ABSTRACT

Food access is often limited in low-income neighborhoods. This on-going project, initiated by Mooney in *SOC 350: Food Security* in the Fall semester of 2004, uses community food assessment as a tool to understand the constraints to food access faced by some Lexington neighborhoods. This report is largely based on findings from *Phase VI* of this project -- case studies of two areas within 40508-zip code region in Lexington with the highest rates of poverty. Lexington North consists of U.S. census tracts of 3 and 4 while Lexington South consists of U.S. census tracts of 9, 18, and 19. These studies were conducted by seven graduate students in Tanaka's *SOC 517: Rural Sociology* in the Fall semester of 2006. Three methods were used to collect data: (a) mapping of food establishments, (b) market basket survey, and (c) interviews. We found that in both areas food access is a challenge. Many stores we visited did not carry most of the market basket survey items, particularly fresh produce. The price disparities of the items available in the areas were relatively high, particularly in Lexington North. Six community leaders interviewed by the research team confirmed that the quality of food access in these case study areas is poor and that the lack of adequate transportation and a high level of poverty exacerbate residents' challenge for adequate access to quality food. We recommend that a more systematic study of food insecurity in Lexington be conducted to develop effective political actions at state and local levels through public and private funding. By sharing the result of this project, we hope that this report will help to build a concerted effort among community leaders, business leaders, scholars, activists, residents, and educators to tackle food insecurity in Lexington.

ACKNOWLEDGEMENT

This project received funding from the UK College of Agriculture Research Activity Award program. Chris Blackden, a graduate student in the Department of Geography at the University of Kentucky, provided assistance with GIS. We thank undergraduate students in *SOC 350: Food Security* (Fall 2004) and *HON 115: World Food Issues II* (Spring 2007) for collecting market survey data as part of their course assignments. We also thank the Community Farm Alliance, particularly Deborah Webb (Executive Director), for inspiring us to continue with this project for the last four years. Between the Spring of 2005 and the Spring of 2006, Jessica Miller contributed to the project as a CFA organizer with the Lexington chapter. We also thank Jim Embry of the Sustainable Communities Network for giving us an opportunity to make use of findings from this project. Views expressed here are those of the researchers alone.

BACKGROUND

Social inequalities are spatially expressed. As with housing, employment, transportation, social services, and education, access to food tends to be limited in neighborhoods with low socioeconomic indicators (Morland et al. 2002), among racial minorities (Zenk et al. 2005; Lewis et al., 2005), and among the elderly (Auchincloss 2003). Community food assessment is used as an instrument to understand the constraints of food access in certain neighborhoods and develop strategies to overcome them.

According to the Economic Census, in Lexington-Fayette County, there were 74 “grocery stores”¹ in 2002 down from 88 in 1997 (U.S. Census Bureau 1999, 2005). During that period, the population of the county increased by approximately 4%, from 260,512 in 2000 to 270,789 in 2006 (U.S. Census Bureau 2000, 2006). This translates to a significant increase in the number of population served by each grocery store, from 2,960 to 3,510 people.

The Lexington Community Food Assessment project is on-going project that was originated by Mooney in his special topics course, *SOC 350: Food Security* in the Fall of 2004. The project has gone through five phases (see **Table 1**). As an integrated research-teaching project, students from various levels have participated in the effort to collect data. In these four years, we have developed collaborative relationships with various community organizations as project partners, including the Community Farm Alliance (CFA, *Phases II* and *VI*) and the Sustainable Communities Network (*Phase VI*).

Table 1. Phases of the Lexington Community Food Assessment Project, 2004 – present.

Phase	Period	Main	Activities
I	Fall 2004	<i>SOC 350: Food Security</i> course taught by Mooney	Hand-mapping of food establishments; market basket survey
II	Spring 2005 – Spring 2006	CFA-Lexington Chapter	Development of a tool for community organizing
III	Summer 2006	College of Agriculture Research Activity Award, led by Tanaka	GIS mapping of food establishments and U.S. census data
IV	Fall 2006	<i>SOC 517: Rural Sociology</i> course taught by Tanaka	Case studies of two areas for mapping, market basket survey, and interviews
V	Spring 2007	HON 115: World Food Issues II course taught by Tanaka	Market basket survey of large grocery stores
VI	Spring 2008	USDA-Community Food System competitive grant project, led by the Community Action Council	Development of a community-driven project for community gardening

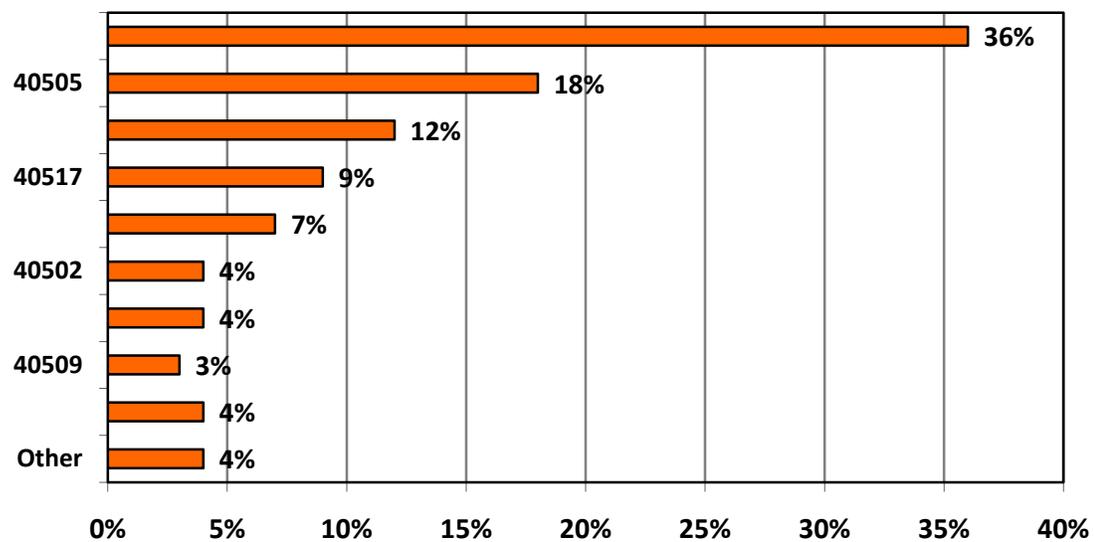
During the first phase, undergraduate students in *SOC 350* were divided into eight groups, each of which were assigned one of eight regions of Fayette County to identify and record food retail and dining establishments. The regions were constructed by use of primary arterial roads that emanate from the center of Lexington. This created eight wedge-shaped districts. This initial identification of food source establishments was done with a combination of the use of phone books, health department data, and

¹ The North American Industry Classification System (NAICS) includes “supermarkets and other grocery (except convenience)” (44511) and “convenience stores” (44512) in “grocery stores” (4451), but excludes “specialty food stores” (4452) and “beer, wine, and liquor stores” (4453).

simply driving or walking in these regions. These students also conducted a comparative market basket survey at 53 stores, including 22 grocery stores. (see **Appendix A**).

According to the 2000 U.S. Census, the region with the 40508-zip code has the highest percentage of households within Lexington who live below poverty (U.S. Census Bureau 2000). As shown in **Figure 1**, 36% of God's Pantry's clients in 2007 come from the 40508-zip code region (God's Pantry Food Bank 2007). During the summer of 2006 (*Phase III*), Tanaka obtained the list of active establishments inspected by the Fayette County Health Department. Among those establishments, food retailers, excluding eateries, are mapped using the Geographic Information System (GIS), food retailers. The spatial distribution of food retailers in Lexington were combined with basic demographic data from the 2000 U.S. Census.

Figure 1. Clients of God's Pantry Food Bank in Lexington, KY by Zip Codes, 2007.



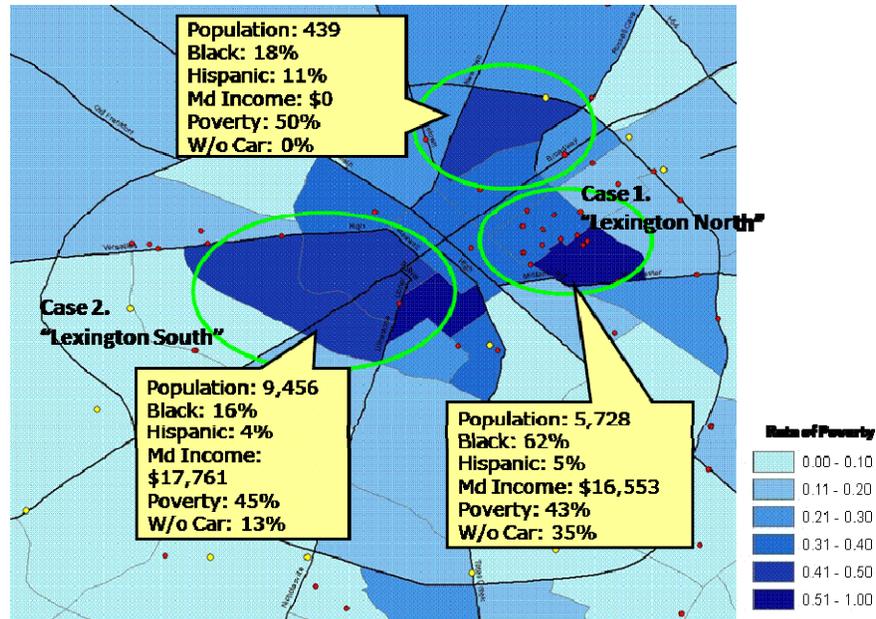
Source: God's Pantry Food Bank (2007).

The GIS mapping of food retail establishments and key demographic data from the 2000 U.S. Census helped us confirm that the distribution of food access in Lexington is strongly associated with rates of poverty and black population. No large-scale grocery store such as Kroger is located within the 40508 zip region. We identified three areas which had a rate of poverty higher than 40% as circled in **Figure 2**. However, one was clearly not a residential area with a population of 439 and a median income of \$0.

During *Phase IV*, seven graduate students in Tanaka's *SOC 517: Rural Sociology* were divided into two groups to conduct case studies of two areas, circled in **Figure 2**: (a) Lexington North and (b) Lexington South. These two case areas have the highest rates of poverty within the 40508 zip region. However, as discussed below, demographic data indicate that these areas are distinctively different. During *Phase V*, 14 undergraduate students in Tanaka's *HON 115: World Food Issues II – Daily Bread* carried out another set of the market basket survey among 22 large-scale grocery stores across Lexington. These data provided the base prices of key food items in Lexington to compare the market basket prices

in Lexington North and Lexington South. This report is largely based on findings from *Phase IV*, although key findings from other phases are incorporated.

Figure 2. Spatial Distribution of Poverty in Lexington, KY, 2000.



Source: U.S. Census Bureau (2000)

RESEARCH QUESTIONS

As part of the course project, students were asked to examine four research questions to understand food insecurity in Lexington:

- What is the quality of food access in each of the case study areas?
- What challenges do residents in the region face in accessing adequate quality food?
- How does the region's access to food relate to broader social problems of inequality in Lexington?
- What political actions seem to be appropriate to address the problem of food insecurity in Lexington?

To answer the above questions, seven students in *SOC 517* were divided into two groups. Each group was instructed to discuss and determine how they evaluate *quality* and *adequacy* of as well as *social inequality* in food access. They were also instructed to develop their own recommendations for political actions to be presented to the entire class.

Government agencies such as the U.S. Department of Agriculture (USDA) and Food and Drug Agency (FDA) regulate food that can be sold at retail establishments, by setting grades and standards for color, allowable amount of impurity, packaging, labeling, etc. However, criteria for food quality vary according to who uses what and for what purposes. In a study by Akobundu et al (2004), quality was

defined as the number of days a single person was able to meet the minimum food group recommendations set forth by the USDA Food Guide Pyramid as well as the nutrient density of foods. A study by Zenk et al (2005) indicated that quality was associated with dietary intake. Johnson et al (2004) referred to quality as one's access to fruits and vegetables for consumption, thus having an impact on health status and quality of life. It is evident that food quality is difficult to define.

METHODS

To answer the above questions, we employed three methods: mapping of food establishments, a market basket survey of retail food establishments, and interviews with community leaders about the quality of food in the case study areas.

1. Mapping of Food Establishments.

To map food establishments in the case study areas, each member meticulously traversed the area and the area's boundaries to visually locate food establishments. This helped familiarize project members with their assigned area. During this activity, a list of food establishments inspected by the Fayette County Health Department was referenced. Data collected during this process included the establishment's address, phone number, location, type of food provided and other unique characteristics. Each establishment was given an identification number and was plotted on a map so that it could be easily identified within the area.

Table 2. Items Used for the Market Basket Survey in Lexington, KY, 2004-07.

Product	Unit	Product	Unit
Produce		Dairy & Meat	
Apples	1 lb	Milk, 1 %	1 gallon
Lettuce	1 lb	Cheese, cheddar	1 lb
Potatoes	1 lb	Ground beef	1 lb
Tomatoes	1 lb	Chicken, fryer whole or cut-up	1 lb
Broccoli, frozen ¹	1 lb	Eggs, Grade A., large	1 dz
Broccoli, fresh ²	1 lb		
Dry			
Bread, whole wheat	2 lbs		
Spaghetti	1 lb box		

Note: 1. Frozen broccoli was used in the market basket survey in *HON 115* (Spring 2007). 2. Fresh broccoli was *not* used in the market basket survey in *SOC 350* (Fall 2004).

2. The Market Basket Survey.

A market basket survey was conducted at the food retail establishments to determine the availability and price of 13 common food items. We added fresh broccoli to the list of market basket items used in *SOC 350*. Team members were asked to purchase some items while recording the prices of the basket items. In some cases, team members needed to visit stores more than once so that they felt comfortable with checking the prices and that store owners would view them as residents in the area. Beside prices, each member took notes on observation he/she made about the establishment, including its exterior and interior appearances, clients, employees, and service. In *Phase V*, undergraduate students in *HON 115* conducted another round of the market basket survey among 22 large-scale grocery stores in Lexington,

including 12 Kroger stores, two Meijer stores, two Wal-Mart Superstores, three Save-A-Lot stores, Wild Oats Natural Marketplace, Good Foods Market & Café, and Slone's Signature Market (see **Appendix E** for their locations). The prices collected in **Phase V** were used to compare with those from stores in Lexington North and Lexington South. In all three phases, the market basket survey was conducted over the span of a week.

3. Interviews.

Semi-structured interviews were then conducted with a variety of community leaders to determine their thoughts and concerns surrounding access to food in their neighborhood. Interview questions aimed to let community leaders speak about their perspectives on food access issues in their area (see **Appendix D**). Each project member identified a variety of potential interview candidates, including leaders of neighborhood associations, government officials, church leaders, school principals, and employees of relevant state agencies. Initially, key food establishments in these areas were to be contacted for interviews. Because of the time constraint with the academic schedule, each member was able to complete only one interview, instead of two as originally planned. Because one student dropped out of the course in the middle of the semester, total of six interviews were completed. Each interview lasted approximately one hour in length.

4. Limitations

Several limitations of this study should be explicated. **First**, the data collection was largely done as course projects in three phases between 2004 and 2007. Thus, the research process was greatly constrained by the time frame of an academic semester. During **Phase VI**, by the time the project team received an authorization to carry out interviews by the UK Institutional Review Board (IRB), half of the semester was already gone. **Second**, it was very difficult to establish consistency in the market basket survey. The brand of certain items does affect prices. We could not specify the brands of non-produce items because, unlike large-scale grocery stores, most food establishments in these case areas had limited selection of a given item. To overcome these difficulties, during **Phase V**, undergraduate students in *HON 115* were instructed to check the price of the cheapest brand available at each grocery store. Despite the fact that most of the stores observed during this phase were either national or regional grocery chains, it was difficult to control consistency in the brands checked for prices. Moreover, the level of skills, knowledge, and experience in food shopping varies tremendously among students, e.g., a few students did not know what "fryer cut-up chicken" meant and some data do not appear to be per-unit prices. **Third**, we were unable to interview more diverse informants. Originally, we planned to interview at least two, possibly three, per team member, including business leaders, and school principals, neighborhood association leaders. Of six informants, only one lived in the area to which they provided service. **Fourth**, the lack of more systematic data from affluent zip codes for comparison purposes made it difficult to verify the relationship between the level of quality in food access and the level of socioeconomic resources in the community. Although the market basket price data from large-scale grocery stores partially address this limitation, further study is needed to map and observe food establishments across Lexington to examine how the quality of food access may vary among various neighborhoods. Despite these limitations, this project provides a story that needs to be told about these two areas in Lexington.

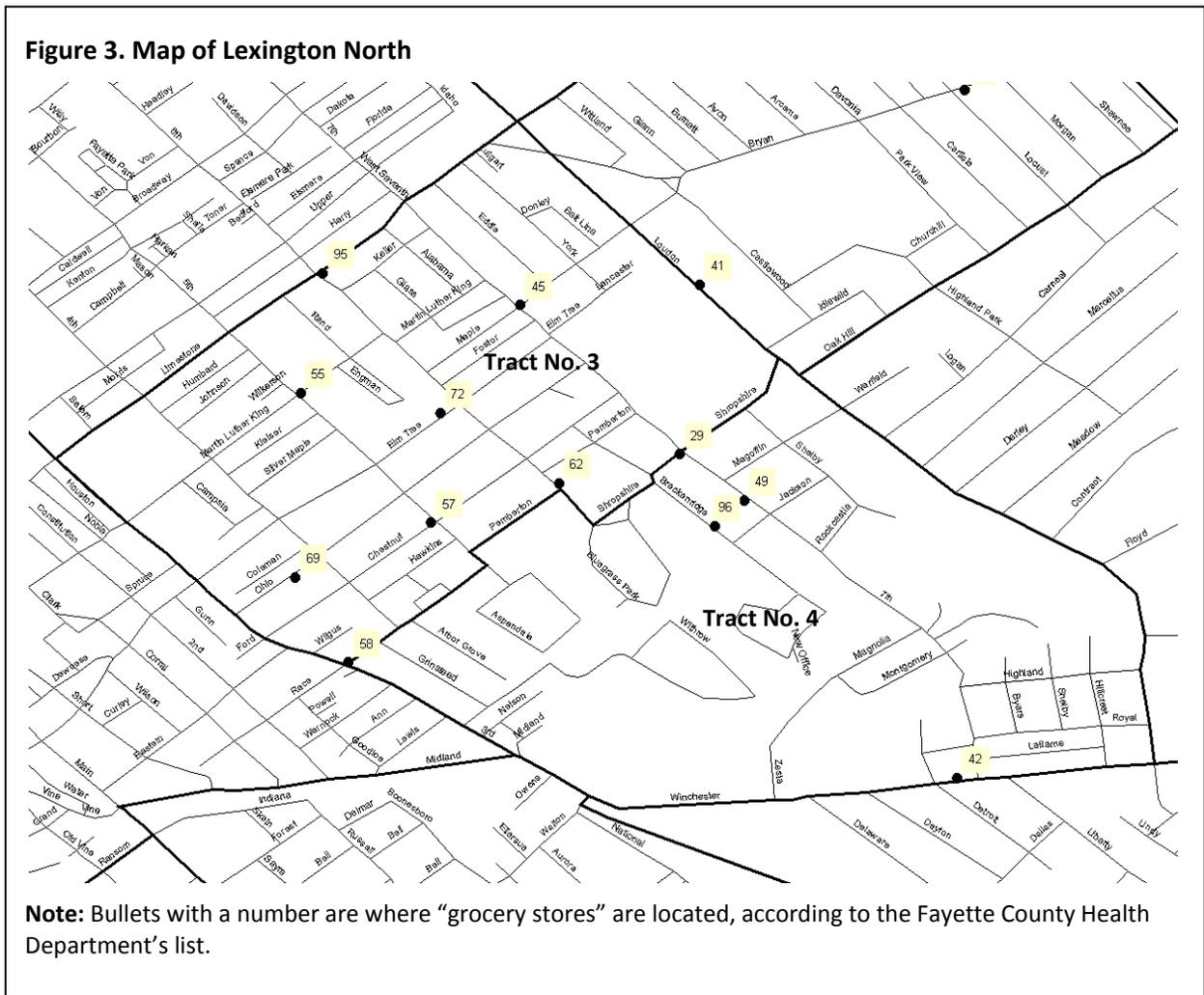
DEFINING THE CASE AREAS

The two areas used for this phase of the project are both located in the 40508 zip region. This region has the highest rates of households living in poverty. As key demographic characteristics of these areas in **Table 3** indicate, however, the two case study areas are distinctively different in terms of spatial characteristics, types of residents, available amenities, and neighborhood developments.

Table 3. Key Demographic Characteristics of the Case Study Areas in Lexington, KY, 2000.

	Lexington	North	South
Population	255,389	5,728	9,456
Black	13%	62%	17%
Hispanic	5%	5%	3%
Md-H Income	\$42,442	\$16,553	\$17,761
Poverty	15%	42%	44%
W/o Vehicles	7%	34%	13%

Source: U.S. Census Bureau (2000)



1. Lexington North

This area encompasses census tracts 3 and 4. Bordered by North Limestone, East Loudon, Winchester Road, and East 3rd Street, the population of this area is roughly 6,000 (see **Figure 3**). It can be best characterized by its proportionally high percentage of Blacks (62%), relatively low rate of vehicle ownership (65%), and widespread poverty. With the poverty rate at 43%, and the medium income slightly over \$16,500, this neighborhood is one of Lexington-Fayette’s most impoverished areas. According to the

list of Fayette Health Department, there are 10 “grocery stores” in the census tract 3 and three in the tract 4. As **Table 4** indicates, the intensity of poverty in the latter track appears to be higher than in the former.

Table 4. Comparison of Demographic Characteristics Between Two Census Tracts in Lexington North, 2000.

Lexington North ID	Population	Black %	Hispanic %	Median Income	Poverty %	Without Vehicle
Tract 3	3,345	64	6	19,355	34	28
Tract 4	2,383	59	4	13,750	52	42

Source: U.S. Census Bureau (2000)

2. Lexington South

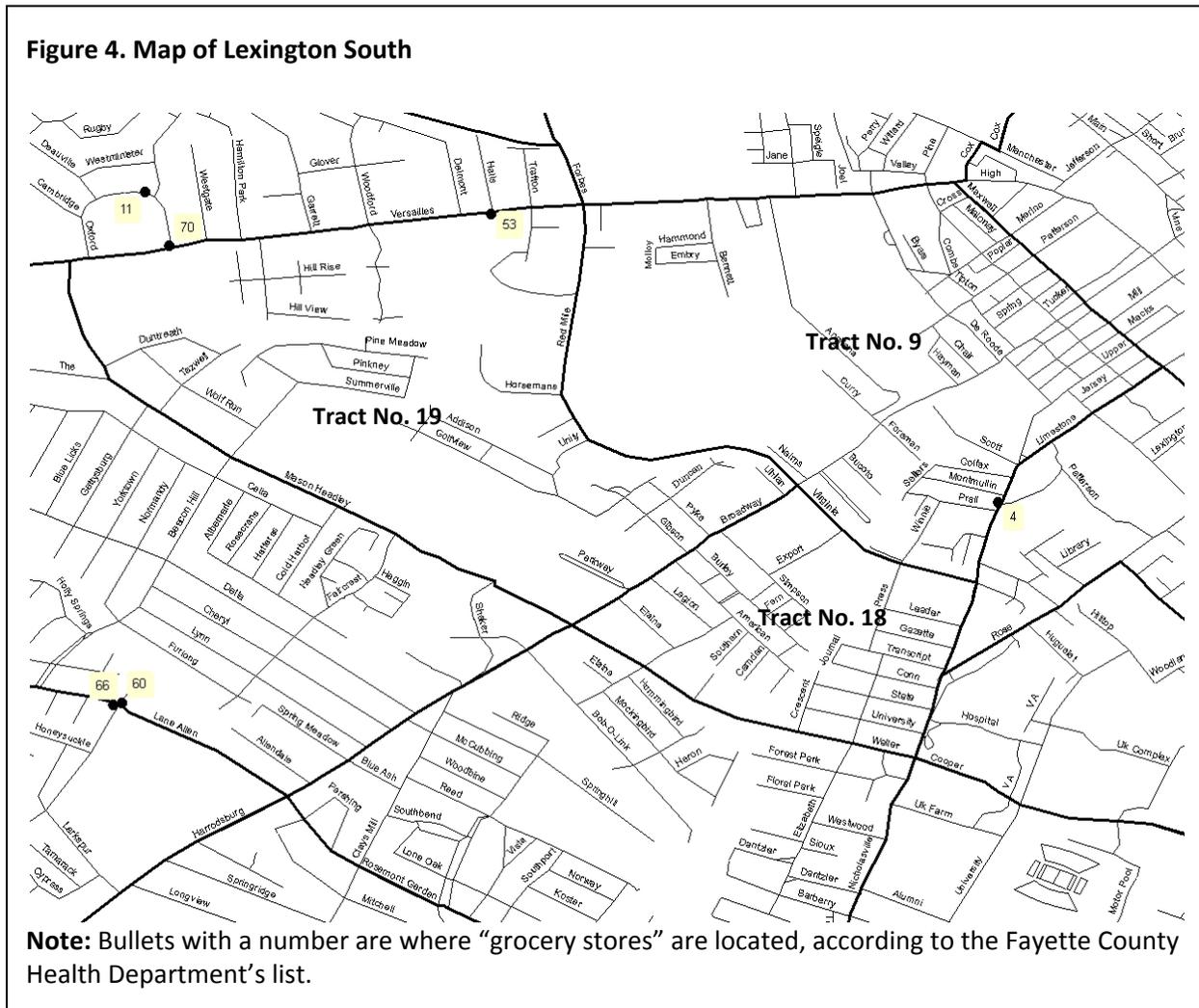
This area encompasses census tracts 9, 18 and 19 within the 40508-zip code region (see **Figure 4**). This area was selected because the average median income of the three census tracts ranked the second lowest (\$17,761) within Lexington. However, Lexington South is distinctively different from Lexington North. Although 45 percent of the 9,500 residents of this area live in poverty, only 13 percent of the households live without a car, which is relatively low compared with other areas with high poverty rates in Lexington. This area is unique in that it borders the University of Kentucky campus. It is likely that a large proportion of the residents in this area are students. This partially explains a relatively high level of residents with a vehicle. Moreover, the area is very diverse in the socioeconomic status of the population (see **Table 5**). Geographically, the area can be generally described as a pie shaped segment bordered by Mason Headley Road on its southern boundary, Versailles Road and West High Street on its western boundary and West Maxwell Street on its northernmost boundary. From West Maxwell, the eastern boundary runs south on South Limestone, west on Virginia Avenue and then south on South Broadway until Mason Headley Road is reached. Two very large recreational sites, the Picadome Public Golf Course and the Red Mile horse race track dominate the southernmost segments of this area.

Table 5. Comparison of Demographic Characteristics Between Two Census Tracts in Lexington South, 2000.

Lexington North ID	Population	Black %	Hispanic %	Median Income	Poverty %	Without Vehicle
Tract 9	2,475	22	3	\$17,111	47	13
Tract 18	2,715	6	2	\$15,445	45	13
Tract 19	4,266	20	4	\$20,727	42	12

Source: U.S. Census Bureau (2000)

Figure 4. Map of Lexington South



Note: Bullets with a number are where “grocery stores” are located, according to the Fayette County Health Department’s list.

FINDINGS

1. Community Food Mapping

A total of 90 food establishments were found in our case study areas. There were some discrepancies between the Fayette Health Department’s list and ours, largely because these establishments tend to change quickly. At the same time, these discrepancies seem to arise because the Health Department’s 12 classificatory codes² make little sense to ordinary citizens and consumers who need to purchase food. For example, Rite Aid stores and Blockbuster Video stores are listed as “Supermarket/Grocery.” Since we have not had a chance interview anyone from the Health Department, we cannot provide any explanation on these codes.

² These codes include (the code number in the prentices): (11) restaurant without alcohol, (12) restaurant with alcohol; (13) delicatessen; (54) retail food 10,000 sq. ft. or less; (55) retail food 10,000 sq. ft. or more; (61) supermarket/grocery; (62) prepackaging or slicing and packaging; (64) health food stores; (65) bakery; (71) meat markets, including poultry; (63) mobile retail market; and (74) ‘specialty item,’ bakeries and confectioneries.

This food mapping exercise suggests that the types and locations of food establishments are affected by and affect characteristics of the communities. Although the South area is larger than the North area, this area lacks a sense of residential community, concentrated with large apartment complexes, strip malls, hospitals, banks, restaurants, and other businesses. Consequently, stores in the North seem to serve residents of the area while those in the South are established to serve a transient population who drive to these stores from outside the area.

Table 6. Mapping of Food Establishments in Lexington North and Lexington South, October 2007.

	North	South
Grocery Stores	16	2
Convenient Stores ¹	4	13
Liquor Stores	3	3
Restaurants	15	33
Fast-food Restaurants	5	26
Others	4	13
TOTAL	47	90

Note: 1. Gas stations are included in this category.

Table 7. Stores Which Do Not Sell A Single Item in the Market Basket in Lexington North and Lexington South, October 2006.

Item	North (N=17)	South (N=18)
Whole Wheat Bread	3	7
1% Milk	1	4
Grade A Large Eggs	6	11
Apples	16	17
Tomatoes	14	18
Spaghetti	8	11
Lettuce	17	18
Potatoes	10	18
Broccoli (Fresh)	16	18
Broccoli (Frozen)	17	18
Cheddar Cheese	9	15
Ground Beef	15	18
Fryer Cut-up Chicken	14	18

In Lexington South, many of restaurants and fast-food restaurants, and convenient stores are located on S. Broadway Rd. and Versailles Rd. Two “grocery stores” are small with an extremely limited selection of food; ordinary residents would not likely recognize them as “grocery stores.” Many food establishments in the South area are likely accessible only by customers with a vehicle. Compared to the South area, the North area appears to be served well by 16 grocery stores. As **Figure 3** illustrate, many of

these stores are located within a walking distance. However, these stores are small corner stores with limited selection of food as discussed in the next section.

2. Market Basket Survey

Between the two teams, we visited 55 stores to check the price of 13 items. Except bread and milk, most stores did not carry any of the market basket items (see **Table 7**). When they carried these items, they tended to be sold at prices that were significantly above those of the national average as shown in **Tables 9** and **10**. Moreover, there are relatively large price discrepancies in some items.

The data collected during *Phase V* are presented as base-line prices. As expected, the prices at two health-oriented grocery stores, Wild Oats Natural Marketplace and Good Foods Market & Café, are consistently higher than other national, regional, or local grocery chain stores. **Table 8** presents two separate mean prices, one with these two specialty stores and the other without.

Table 8. Mean Prices of the Market Basket Survey Items at Large-Scale Grocery Stores in Lexington, March 2007.

	Minimum	Maximum	Mean among All Stores ¹	Mean among Chains ²
Whole Wheat Bread	\$0.53	\$3.99	\$1.62	\$1.38
1% Milk	\$0.89	\$3.26	\$2.15	\$2.21
Grade A Large Eggs	\$0.88	\$2.59	\$1.41	\$1.33
Apples	\$0.33	\$1.99	\$1.05	\$0.91
Tomatoes	\$0.99	\$2.49	\$1.49	\$1.41
Spaghetti	\$0.38	\$5.99	\$1.87	\$1.43
Lettuce	\$0.46	\$2.99	\$1.04	\$0.90
Potatoes	\$0.27	\$3.99	\$0.89	\$0.62
Broccoli (Fresh)	\$1.00	\$4.99	\$2.15	\$1.96
Cheddar Cheese	\$2.24	\$6.29	\$3.83	\$3.70
Ground Beef	\$0.99	\$4.49	\$2.62	\$2.49
Fryer Cut-up Chicken	\$0.89	\$5.39	\$1.79	\$0.89

Notes: 1. Includes the prices collected from all 22 stores; 2. Excludes those from Wild Oats Natural Marketplace and Good Foods Market & Café.

Lexington North: More market basket items were available in Lexington North than in the South. However, members of the North team's field notes consistently mentioned poor quality of these stores, in terms of selection of food, service, and physical appearance of the building (inside and outside). For example, at one store, business hours did not seem consistent with the display at the door. In some cases, jugs of milk sold at the store were already past the expiration date; cartons of eggs had no price tag or price board; vegetables and fruits looked weathered or wrinkled because of improper refrigeration or watering; bread was moldy and hard, etc.

Poor choices of vegetables, meat cuts, and seafood are very problematic in this area in which a large proportion of residents in Lexington North are elderly, socio-economically disadvantaged, and without a vehicle. No bus stop is close to many of the markets. Many stores have limited spaces for parking.

Physically, many of the food establishments in this area are not attractive. The outside appearance often showed that the buildings were not in good condition; poor sidewalks around them make these stores uninviting. The inside of many stores were equally problematic. The lighting seemed to be dark, making it very difficult for elderly customers to view what they are purchasing. The aisles were congested. Also, many fruits and vegetables were located on shelves that were either too high or too low. Many stores did not accept all forms of payment, making it difficult for consumers to pay for food.

Table 9. Market Basket Survey Results: Prices for Selected Items in Lexington North, October 2006.

	Apples	Potatoes	Tomatoes	Whole Wheat Bread	Milk	Eggs
Valid N	1	6	3	14	16	11
Missing N	16	11	14	3	1	6
Mean	\$0.99	\$0.71	\$1.54	\$1.64	\$3.67	\$1.66
Minimum	\$0.99	\$0.49	\$1.00	\$0.99	\$2.69	\$1.39
Maximum	\$0.99	\$1.00	\$1.87	\$2.49	\$4.19	\$2.19
Base-Price¹	\$0.91	\$0.62	\$1.41	\$1.38	\$2.21	\$1.33

Note: 1. The base-price comes from the mean of prices among 20 large-scale grocery stores in Lexington, excluding Wild Oats Natural Marketplace and Good Foods Market & Café.

As shown in **Table 9**, the prices in the market basket survey vary in price and appear to be greater than the prices of the supermarkets. Indeed, compared to the prices surveyed among large-scale grocery stores (e.g., Krogers) and supermarkets (e.g., Wal-Mart, Meijer) a few months later by undergraduate students in *HON115: World Food Issues II* (see **Appendix E** for the locations), the prices of market basket items in Lexington North were higher.

Lexington South: The Lexington South team was astonished by the lack of available market basket items in the area. Except for whole wheat bread and milk, the team members could not find any of the market basket items listed in their assignment (see **Table 7**). A vast majority of the food sold at the 18 stores under observation was snacks; none sold fresh produce. Moreover, several stores did not have whole wheat bread and 1% milk.

Table 10. Market Basket Survey Results: Prices for Selected Items in Lexington South, October 2006.

	Apples	Potatoes	Tomatoes	Whole Wheat Bread	Milk ²	Eggs
Valid N	0	0	0	11	14	6
Missing N	18	18	18	7	4	12
Mean				\$2.25	\$3.25	\$1.33
Minimum				\$1.59	\$2.69	\$1.19
Maximum				\$3.49	\$3.99	\$1.49
Base-Price¹	\$0.91	\$0.62	\$1.41	\$1.38	\$2.21	\$1.33

Note: 1. The base-price comes from the mean of prices among 20 large-scale grocery stores in Lexington, excluding Wild Oats Natural Marketplace and Good Foods Market & Café. 2. Out of 14, 13 stores did not have 1% milk, and thus substituted with 2% milk.

The prices of bread and milk had a relatively higher discrepancy than anticipated. Indeed, their prices were higher than those found in large-scale grocery stores and super markets in Lexington as surveyed in *HON 115* during the spring semester of 2007 (see **Table 10**).

Besides the poor selection of food, the Lexington South team members observed poor quality of interiors at some stores and the lack of side-walks which would allow those without a car to walk to the store. It was clear to them that residents in Lexington South were expected to shop for food outside the area. However, while driving through the area, the South team noticed that there were small enclaves of residential areas with single family homes tacked away from the main arteries.

3. Interviews

Interviews confirmed the lack of quality food access in the case study areas. Several findings emerged from the interviews.

First, most community leaders were aware that food access is a major problem in the case study areas. As one leader in Lexington North pointed out, few [residents and community leaders in the area] are unaware of the fact that the poor in Lexington North have little access to food, and that the food resources they can easily access tend to be lower in quality and more expensive than those available in more affluent neighborhoods. These informants believe that the lack of adequate public transportation in both case study areas exacerbates the problem. Income, age, race, and ethnicity appear to be factors that affect how food access is framed by our informants. Informants in Lexington North confirmed that the area was characterized with African-American, elderly, and/or poor residents. Informants in Lexington South also pointed out that elderly and young children with single-mothers were particularly vulnerable groups in this area. In both areas, a small, but rapidly growing number of immigrants (e.g., African refugees in Lexington North; Latinos in Lexington South) were recognized as a challenge as they experience difficulty in finding fresh food, especially food that was a staple in their diet in the country from which they immigrated.

Second, these informants pointed out that the invisibility of the poor in Lexington makes it very problematic to address food insecurity in certain communities. As one informant in Lexington South said, “We hide our poor very well in this community.” She went on to say, “You can travel Versailles or Harrodsburg Road every day, and if you aren’t observant, you won’t notice the large sections of low income housing found in this part of town.” Although community leaders and residents are aware, food insecurity in Lexington North is not something that ordinary Lexingtonians would recognize as an issue. Perhaps, the comment made by several undergraduate students in *SOC350* during *Phase I* illustrates this invisibility: “There are a plenty of places to buy food in the area. All people have to do is to hop in a car and drive to any one of them.”

Third, while there are programs available to increase food access (e.g., Salvation Army, Hope Center, churches, senior organizations), there tends to be a lack of coordination among community agencies. This limits the capacity of these programs to induce systematic changes needed in some communities in the case study areas. Informants also identified lack of funds to support adequate staff as a stumbling block for sustaining food access programs.

Fourth, most leaders did not purchase groceries in the case study areas in which their clients reside. They told us that they did not trust the quality of the products sold at these stores. For some informants, their strong distrust came from their knowledge about store owners and residents’ complaints against these stores. For others, they simply never had gone into these neighborhood stores. Of six informants, only one resided in the case study areas. Consequently, these leaders’ understanding about the

communities/neighborhoods they claim to serve largely came as part of their professional experience, rather than from their everyday, deeply personal experience.

Finally, all informants recommended that a large-scale grocery store be built and that food education be increased to alleviate food insecurity in the case study areas. Education programs may include instruction in gardening, cooking, basic nutrition, and sanitation.

DISCUSSION & CONCLUSION

From the data described above we firmly conclude that food access in these impoverished areas of Lexington, Kentucky is not adequate. The project team agreed that “quality food” is generally measured by freshness, variety, cost efficiency, and nutritional value. The results of this study support that there is not adequate access to quality food in the two case study areas.

The residents in these areas face many barriers to access a wide selection food of high quality at reasonable prices. In addition to the absence of a large supermarket in both areas, barriers include inadequate public and private transportation, high costs at neighborhood convenience stores, and low-levels of food education among residents.

From these case studies, we observe that the underlying theme of poverty drives food inequality and other neighborhood inequalities. Race and ethnicity seems to be also a significant factor in access to food. A growing number of immigrant populations, e.g., refugees from Africa in Lexington North area, Latino immigrants in Lexington South, also create tensions within each neighborhood in these areas. Children are particularly vulnerable. In the state where 49% of all children utilize free or reduced-rate school lunches, poverty and food insecurity must be treated as an issue of high priority (God’s Pantry 2007).

The project team recommends that a more systematic study of food insecurity in Lexington be conducted to develop effective political action at state and local levels through public and private funding. In particular, we need the assistance of city planners, realtors, builders, and geographers to understand housing markets in Lexington. This will allow us to identify other low-income neighborhoods to be included in the case study and compare the relationship between the affluence of residential neighborhoods and the quality of food access. More interviews are needed with community leaders, business leaders, elementary school principals, and social workers who provide service in low-income areas, but also with residents, particularly at-risk groups (excluding children) and UK students.

The project team hopes a large-scale grocery store to be built in the area which no national or regional chain grocer currently provides serves (see **Appendix F**)³. Below we list a few, more or less obvious, ideas for political actions to be considered in the future:

- **Transportation.** The re-routing or increased runs of LexTran seems an obvious recommendation, but would be costly. Government or community organizers could develop and educate the public about an increased rideshare program focused on grocery stores. Lexington could develop a program to give baskets with wheels to elderly area residents, which would make the trip from the bus stop to their home possible when hauling a load of groceries.

³ In late 2007, a new Kroger store was opened in the location where a Winn-Dixie (and later E.W. James) used to be located on Leestown Road in the Meadowthorpe neighborhood area. However, this location is still outside the 40508 zip code region.

- **Infrastructure.** There are dozens of small infrastructure solutions that could be implemented to improve access to food establishments in these areas. Such city/county-codes concerning handicap access and maintenance of sidewalks need to be enforced more rigorously. Another simple solution would be increased sidewalks, a move that would directly benefit those who walk to buy food.
- **Business Incentives.** There also seems to be a great need to incentivize other forms of food establishments to develop in, or locate to, low-income neighborhoods. Private industry or non-profit groups could receive financial inducements in the forms of tax breaks, investment of capital or investment of knowledge that would induce them to develop new structures to provide quality food. This seems to have the best long-term hope for the inequalities of food access, and it is a solution around which there is some interest on the part of community leaders.
- **Community Garden Programs.** Within the last year, new community garden programs began in Lexington, including The Rock/La Roca (1015 N. Limestone), Nelson Avenue Garden (318 Nelson Avenue), West End Community Empowerment Project (498 Georgetown St.), and Third Street Stuff (252 N. Limestone). These programs could be expanded to meet food access needs of diverse residents in the 40508-zip code region. Moreover, community garden programs can be linked with education programs in the areas of leadership development, nutrition and health education, science and math education, and civic engagement.
- **Farm to School Program.** A collaborative project is needed between the Lexington-Fayette County Public School System, area farmers, and community organizations to explore ways to develop a farm-to-school program. This may take various forms, including but not limited to, institutional buying of fresh fruits and vegetables for the school salad bar, school gardening teams with local farmers as “coaches,” a gardening and nutrition class for parents sponsored by the PTA, and guest lecture series by farmers in science classrooms. A stronger linkage between the school system and local farmers will likely help to improve the quality of food that school-age children consume at school, increase both students’ and parents’ awareness of the importance of nutrition, and eventually facilitate an understanding of food as something important in building a stronger community.
- **Improved Access to the existing Farmers’ Markets.** Between April and November, the Lexington Farmers Market operates four days a week at three locations in Lexington, including two located within the 40508-zip code region. In collaboration with area churches, community organizations, social service agencies, and the University of Kentucky (UK), the Lexington-Fayette Urban County Government can develop shuttle service between certain neighborhoods and these markets. UK already offers shuttle service from the campus to the market on Tuesdays and Thursdays. This service can be made available to non-UK members.

This study was conducted in the spirit of the UK’s renewed commitment to address what President Todd has called the Kentucky ‘uglies’. As an instructional device that brings students into knowing as well as serving the community, we feel it has been highly successful. By sharing the results of this project with community leaders, we hope that a concerted effort will be made by community leaders, business leaders, scholars, activists, residents, and educators to tackle food insecurity problems in Lexington. In the current phase (*Phase VI*), the project has moved on to work with a group of community organizations for the development of grant proposals to fund community gardening projects in Lexington North. We believe that these projects will blossom into the creation of the Lexington Food Policy Council, and then eventually into a Food Policy Council of Kentucky.

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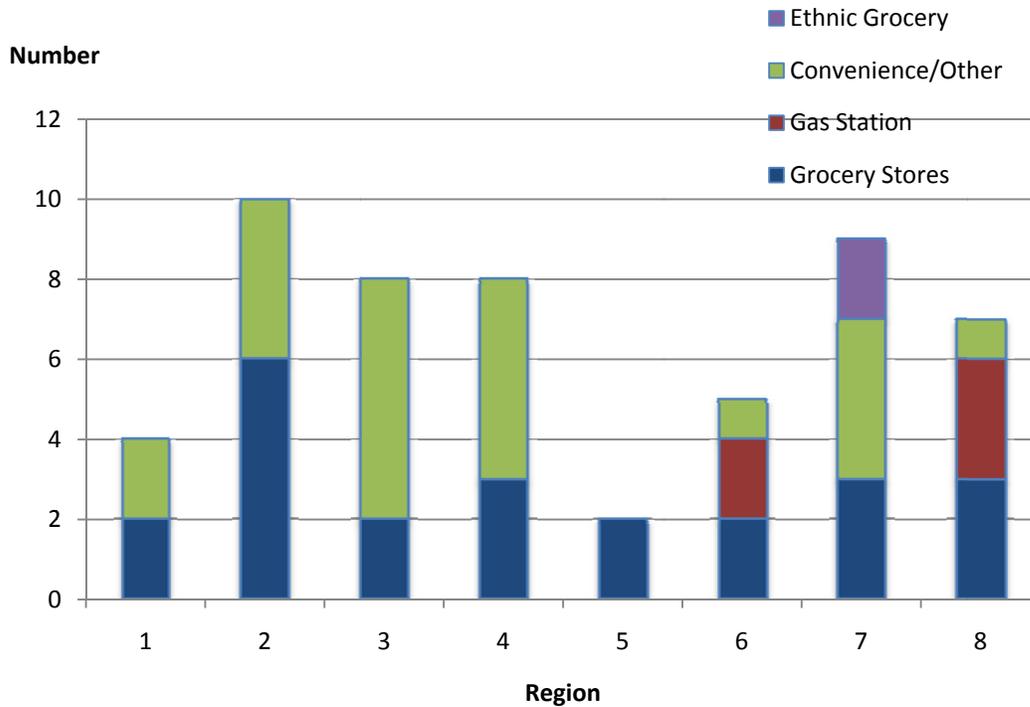
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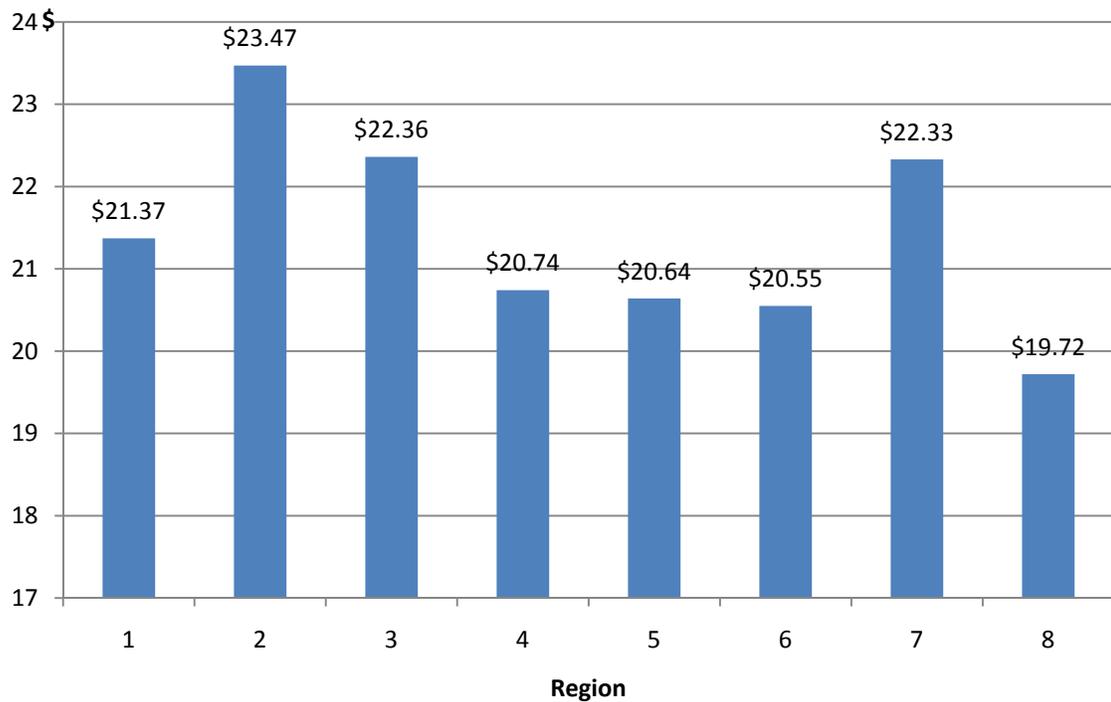
APPENDIX A. KEY FINDINGS FROM PHASE I

Lexington Areas Used in SOC 350, Fall 2004.

Area No.	Name	Main Arteries	Area No.	Name	Main Arteries
1	Southeastern	Tates Creek	5	North	Winburn, N. Broadway
2	Eastern	Richmond, Park Hill	6	Northwest	Leestown, Versailles
3	Northeastern	Hamburg, Woodhill	7	West	Harrodsburg, Alexandria
4	East Downtown	Winchester, Loudon	8	Southwest	Nicholasville, Virginia

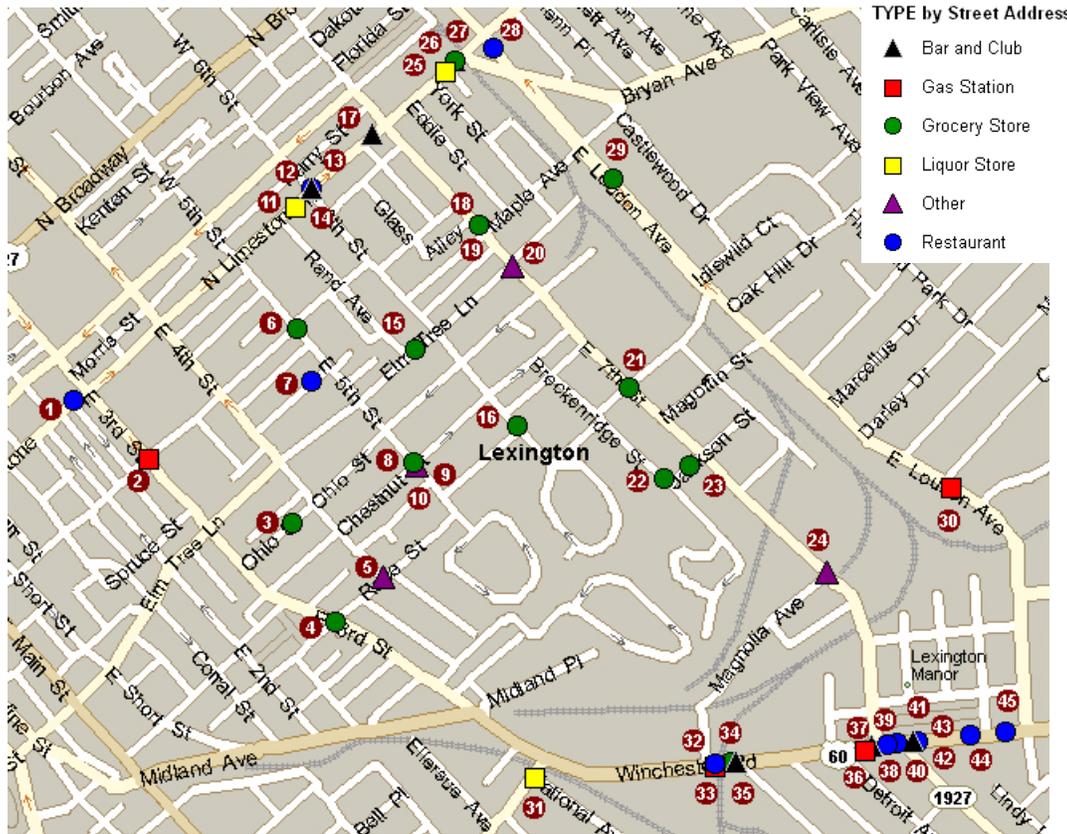
Number of Food Retailers Used for the Market Basket Survey in Lexington, by Area, Fall 2004.



Average Market Basket Price in Lexington, by Area, Fall 2004.**Prices for Selected Item in Lexington, Fall 2004 (N=53).**

	Apples	Lettuce	Potatoes	Tomatoes	Milk	Eggs
Valid N	25	25	25	24	46	35
Missing N	28	28	28	29	7	18
Mean	\$1.22	\$0.66	\$1.76	\$1.30	\$2.90	\$1.11
Minimum	\$0.45	\$0.59	\$0.18	\$0.89	\$1.88	\$0.59
Maximum	\$2.89	\$2.69	\$1.29	\$2.99	\$4.39	\$2.29

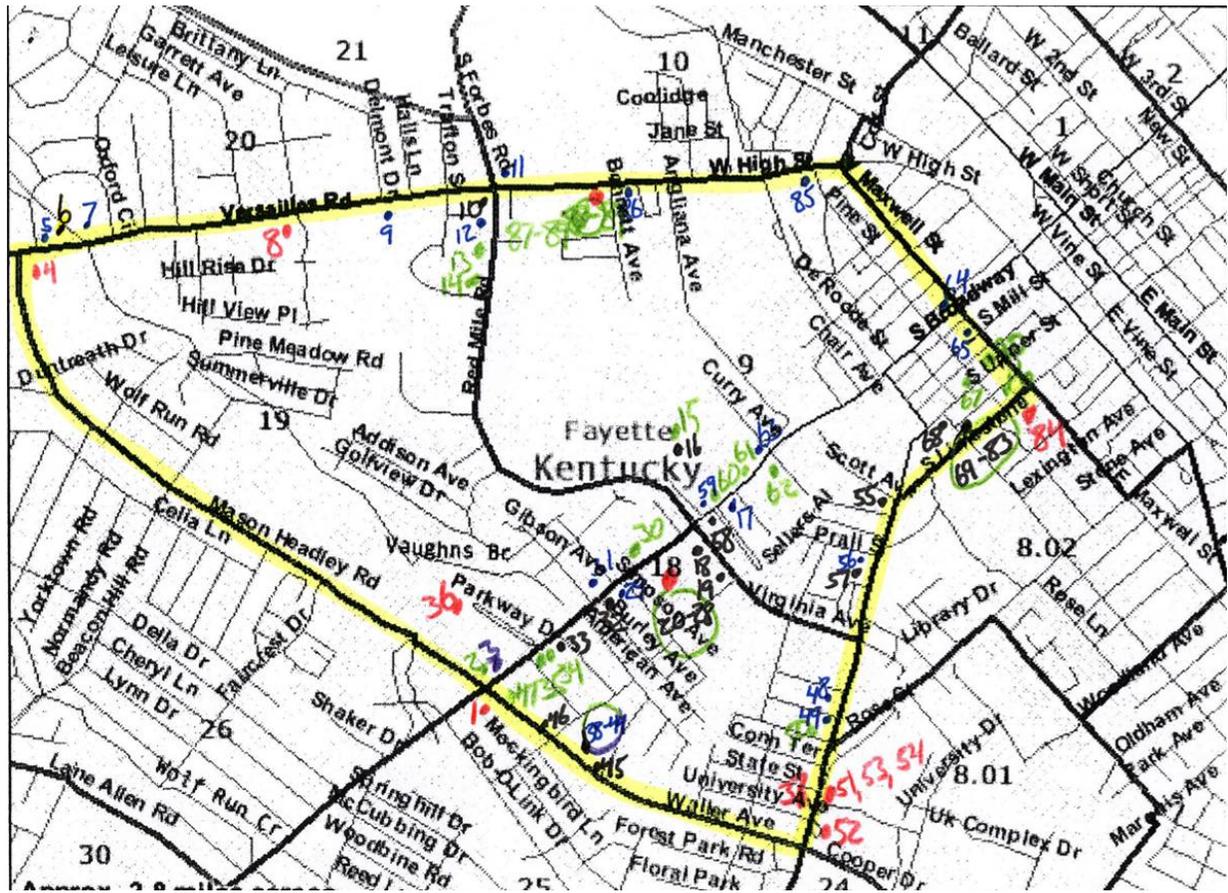
APPENDIX B. FOOD ESTABLISHMENTS IN LEXINGTON NORTH



Map Locations

1	Atomic Cafe	265 North Limestone	24	South Van Events Catering	753 E. 7th St.
2	Marathon Food Mart	300 North MLKing Blvd	25	Fresh Liquors Inc	760 North Limestone
3	S-N-T Market	368 Ohio St	26	Inter-Cambio Express	780 North Limestone
4	Pak'N Save	503 East 3rd St	27	La Centroamericana	780 North Limestone
5	Family Dollar Store #5187	401 Race St	28	My Mom's II	113 East Loudon
6	Our Market	201 East 5th St	29	Lisa's Grocery & Deli	299 East Loudon Ave
7	Tootie's Soul Food	476 Silver Maple Way	30	Citgo	705 E Loudon Ave.
8	M & M Grocery	398 East 5th St	31	Sportsman Drivein Liquor	701 National Ave
9	Chestnut Street Bar And Grill	401 East 5th St	32	McDonald's	768 Winchester Rd
10	Catholic Action Center	400 East 5th St	33	BP	768 Winchester Rd.
11	Lime House Liquors Inc	575 North Limestone	34	King Cobras Nite Club	783 Winchester Rd
12	Al's Bar	601 North Limestone	35	Butternut Baker Outlet	780 Winchester Rd.
13	Red Buffalo	600 North Limestone	36	Speedway	900 Winchester Rd
14	Progress Food Mart	600 North Limestone	37	The Do Drop IN	907 Winchester Rd
15	F & D Market	573 Elm Tree Lane	38	Fusion Cafe Vietnamese Cuisine	919 Winchester Rd.
16	Griffith's Market	427 E. 6th st	39	San Panchos Taqueria	919 Winchester Rd.
17	Backspin Sports Bar	672 North Limestone	40	Charlie's Fresh Seafood Market	928 Winchester Rd
18	Neighborhood Grocery	215 East 7th St	41	JayNays	941 Winchester Rd
19	Restaurante Y Taqueria	215 East 7th St	42	Anything Goes Sports Club	940 Winchester Rd
20	East 7th Street Center	240 East 7th St	43	Great China	944 Winchester Rd.
21	Subcity Market	500 East 7th St	44	Paradise City	987 Winchester Rd
22	East End Market	561 Breckenridge St	45	KFC	1015 Winchester Rd
23	Billy's 7th Market	656 Jackson St.			

APPENDIX C. FOOD ESTABLISHMENTS IN LEXINGTON SOUTH



ID Code	Store/Restaurant Name	Street Address	ID Code	Store/Restaurant Name	Street Address			
1	O	St. Joseph's Hospital	1	Joseph's Dr	16	R-f	Red Mile Concessions	1200 Red Mile Rd
2	R	Kilbern's at the Campbell House	1375 Harrodsburg Rd	17	C	Shell Food Mart	900 S Broadway	
3	C	Rite Aid Drug Store	1335 S Broadway	18	R-f	Sonic Dr-in	1026 S Broadway	
4	O	Cardinal Hill Rehabilitation Hospital	2050 Versailles Rd	19	R-f	Dairy Queen	350 Virginia Av	
5	L	Discount Liquor and Wine Party Shop	1907 Versailles Rd	20	R	Thai Orchid Café	1020 S Broadway	
6	R-f	Dairy Queen	2003 Versailles Rd	21	R	Saddle Ridge	1000 S Broadway	
7	C	Marathon Food Mart	2000 Versailles Rd	22	R	Jalepenos	1030 S Broadway	
8	O	Chocolate Strawberries	1604 Versailles Rd	23	R-f	Popeye's Chicken and Biscuits	1064 S Broadway	
9	G	Foodland Market and Check Cashing	1416 Versailles Rd	24	R	Buffalo Wild Wing Grill and Bar	1080 S Broadway	
10	R-f	Lee's Famous Recipe Chicken	1318 Versailles Rd	25	R-f	Penn Station	1080 S Broadway	
11	C	Thornton's Convenient Store Gas Station	1311 Versailles Rd	26	R-f	Atlanta Bread Company	1088 S Broadway	
12	C	Chevron Food Mart	641 Red Mile Rd	27	R-f	Gumbo Yaya	1080 S Broadway	
13	R	Ryan's Steakhouse	701 Red Mile Rd	28	O	Cookies By Design	1080 S Broadway	
14	R	Don Carlos	721 Red Mile Rd	29	C	Marathon Food Mart	1100 S Broadway	
15	R	Red Mile Club House	1200 Red Mile Rd	30	R	Seki Japanese Restaurant	1093 S Broadway	

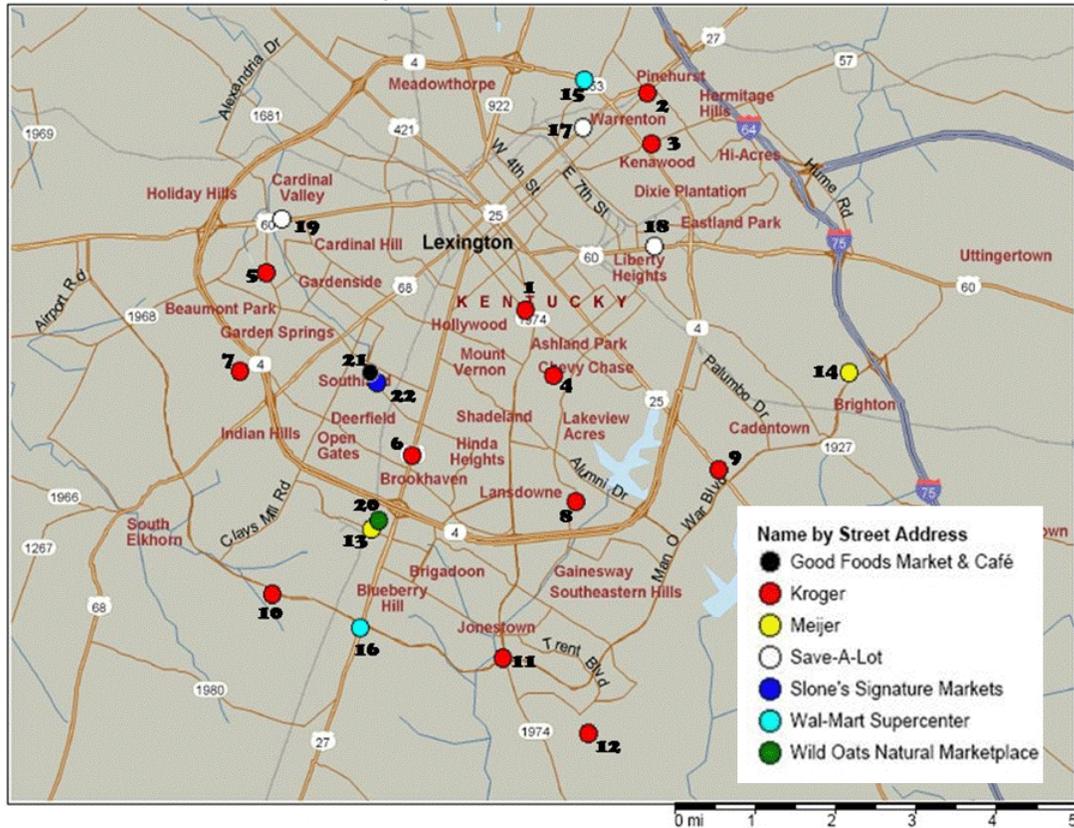
ID Code	Store/Restaurant Name	Street Address	ID Code	Store/Restaurant Name	Street Address		
31	C	Thornton's Convenient Store Gas Station	1201 S Broadway	61	R	Old Heidelberg	855 S Broadway
32	R-f	Rally's Burgers	1214 S Broadway	62	R	Blue Line Diner	350 Foreman Av
33	R-f	Arby's	1228 S Broadway	63	C	Speedway	803 S Broadway
34	R	Logan's Rdhouse Restaurant	1224 S Broadway	64	L	Wildcat Liquor	401 S Broadway
35	R	Panda Buffet	1308 S Broadway	65	R	Dudley's	380 S Mill
36	O	Picadome Golf Course	469 Parkway Dr	66	R	Joe Bologna's	120 West Maxwell
37	O	Lexington Complementary & Integrative Therapies	1105 S Limestone St	67	R	Mellow Mushroom Pizza	503 S Upper
38	R-f	Sir Pizza	393 Waller Av	68	R-f	Fazoli's	130 Winslow St
39	L	S&J Discount Tobacco and Mart	393 Waller Av	69	R-f	Pazzini's Gelatos	108 Winslow St
40	R-f	Wing Zone	393 Waller Av	70	R	Tolly Ho	395 S Limestone
41	O	Family Dollar Store	393 Waller Av	71	R	Pazzo's	385 S Limestone
42	R	Great Wall Chinese Restaurant	393 Waller Av	72	R-f	Jimmy John's	385 S Limestone
43	R	El Campero	393 Waller Av	73	R	Kitty O'Shea's	381 S Limestone
44	R	Campus Pub	393 Waller Av	74	R	Han Woo Korean Restaurant	371 S Limestone
45	R-f	Backyard Burgers	397 Waller Av	75	R-f	McDonald's	357 S Limestone
46	R-f	Subway	409 Waller Av	76	R-f	Chipotle	345 S Limestone
47	R	Golden Dragon	537 Waller Av #A	77	R	Kashmir	341 S Limestone
48	C	Speedway	819 S Limestone St	78	R	Two Keys Tavern	333 S Limestone
49	C	Shell Food Mart	905 S Limestone St	79	R-f	Subway	325 S Limestone
50	R	Mai Thai	921 S Limestone St	80	R	Banana Leaf S Indian Food	319 S Limestone
51	O	UK Chandler Medical Center Cafeteria and Coffee Shop	800 Rose St	81	R	Paddock Bar and Patio	319 S Limestone
52	O	UK Agricultural Science Center North		82	R-f	Pita Pit	315 S Limestone
53	O	UK Chandler Medical Center Starbucks	800 Rose St	83	R	Huddle House	303 S Limestone
54	O	UK Chandler Medical Center Deli	800 Rose St	84	O	Samaritan Hospital	310 S Limestone
55	R-f	Arby's #1339	507 S Limestone	85	C	Stop N' Shop	930 West High
56	G	Phillip's Market and Deli	553 S Limestone	86	C	Marathon Food Mart	1150 Versailles Rd
57	R-f	Pizza Hut	545 S Limestone	87	R-f	Subway	1202 Versailles Rd
58	R-f	Starbuck's	900 S Broadway	88	O	JJ Johnson Sisters	1244 Versailles Rd
59	C	Citgo Food Mart	867 S Broadway	89	R	Royal Fasica Ethiopian Cuisine	1226 Versailles Rd
60	R	Waffle House	859 S Broadway	90	R	Fauntleroy's Café	640 West Maxwell

Notes: R = Restaurants; R-f = Fast Food Restaurants; G = Grocery Stores; L = Liquor Stores; C = Convenience Stores & Gas Stations; O = Others (e.g., Drug Stores)

APPENDIX D. INTERVIEW GUIDES FOR COMMUNITY LEADERS

1. Please tell us about your organization – its history, mission(s), organizational structure, funding sources, clients, services, etc.
2. Please tell us about the neighborhood(s) to which you provide services. What is unique about the neighborhood(s) and residents?
3. This study is interested in issues surrounding community access to food. What do you see as challenges that residents in the neighborhood(s) face in accessing adequate quality food?
4. What kind of services, if any, has your organization offered to address these challenges?
 - What are the key achievements your organization has made in these services?
 - What are the major difficulties your organization has faced in carrying out these services?
5. What resources does your organization need to effectively address the challenges of food access that residents in the neighborhood(s) face?
6. What initiatives, either in existence or currently under development by other organizations, address these challenges?
7. What role does your organization play in these initiatives?
8. What resources and services do you think that residents in the neighborhood(s) need to overcome the challenges of food access?

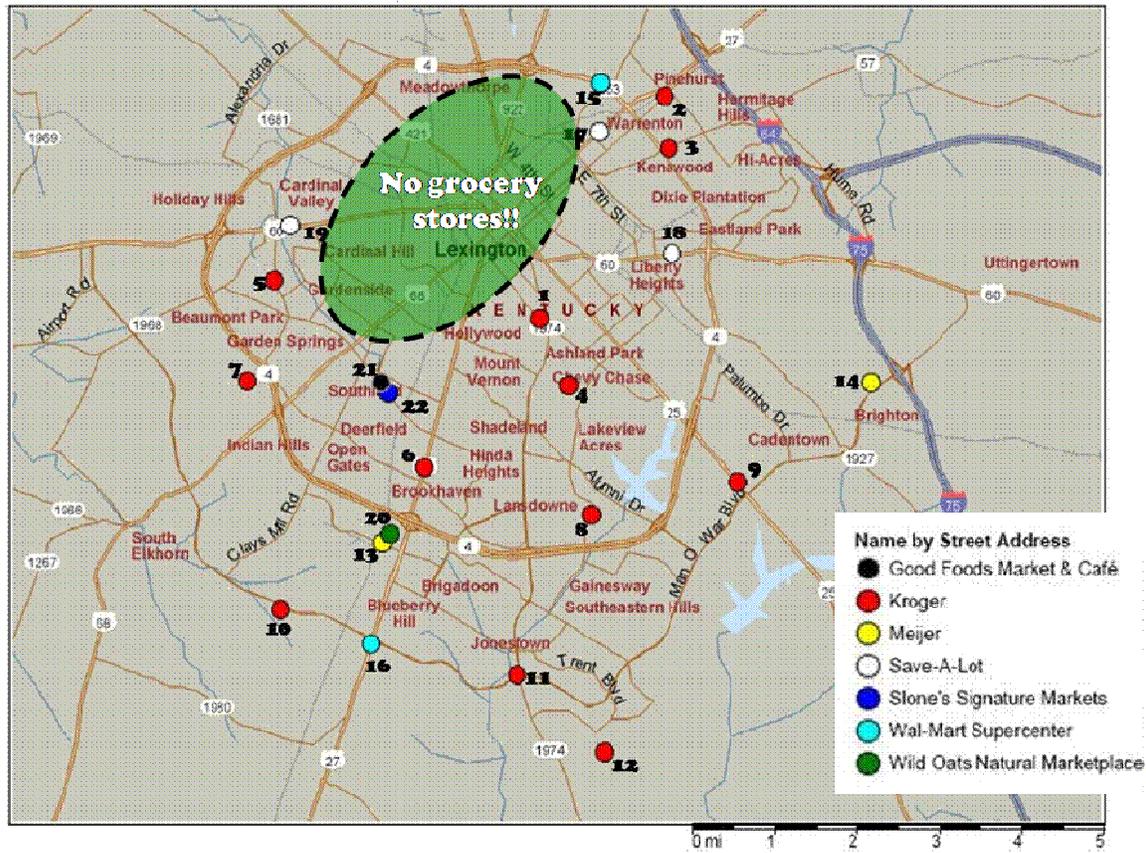
APPENDIX E. MARKET BASKET SURVEY RESULTS DURING PHASE V



Market Basket Prices in Lexington, KY, from Low to High, March 2007.

Map No.	Store Name	Price	Map No.	Store Name	Price
11	Kroger	\$16.78	14	Meijer	\$20.95
2	Kroger	\$17.06	13	Meijer	\$21.04
16	Wal-Mart Supercenter	\$17.29	7	Kroger	\$21.28
17	Save-A-Lot	\$17.39	5	Kroger	\$21.82
12	Kroger	\$17.87	9	Kroger	\$23.11
19	Save-A-Lot	\$17.87	8	Kroger	\$23.29
3	Kroger	\$18.50	10	Kroger	\$23.47
6	Kroger	\$18.66	1	Kroger	\$23.57
18	Save-A-Lot	\$18.66	22	Slone's	\$24.44
15	Wal-Mart Supercenter	\$19.35	20	Wild Oats	\$35.98
4	Kroger	\$20.38	21	Good Foods	\$39.21

APPENDIX F. FOOD DESERT IN LEXINGTON



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