Spring 5-1-2010

Accessibility in the Syracuse Food Desert

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A Capstone Project Submitted in Partial Fulfillment of the Requirements of the Renée Crown University Honors Program at Syracuse University

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May 2010

Honors Capstone Project in Geography

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Abstract:

Food insecurity is uncertain access to nutritious food. It is a social justice issue influenced by geographic and demographic factors. Low-income and minority individuals are more prone to be affected by food insecurity. One way is that they may live in food deserts, places where there is limited access to nutritious food sources. It is unjust for anyone to have inadequate access to nutritious food. This study investigated this premise in Syracuse, New York. The selected study area was composed of zip codes 13205, 13207, 13202 and 13210. The food sources for these regions were identified through the database *Reference USA*. Field work included canvassing each store and conducting a survey of sixty-two basic food items. This assessed quality and selection. The transportation used was also observed. The data gathered was employed in producing various maps through ArcGIS.

The results of the survey revealed that the food sources of the selected study area are convenience stores with insufficient selection. Few carried fresh produce and meat. The average availability of the survey items was 45%. They are located in residential neighborhoods which favored walking as the major transportation. In contrast, large chain grocers with adequate selection are located on the periphery of Syracuse in more affluent, white neighborhoods. Thus, there is unequal access to nutritious food sources. This study supports the need for a more centrally located, sufficient grocery.

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Acknowledgements

My thesis was created with the opportunity provided by the Renée Crown University Honors Program. I would like to thank my advisor Dr. Tom Perreault for helping me all the way from idea to finished product. Thank you to Dr. Anne Mosher for all her warm encouragement and enthusiasm. The maps produced here would not have been possible without the assistance of Maria Josefson and Jonnell Allen. Henry Jankiewicz spruced up my writing immensely. The emotional support of my friends Meg Grube, Morgan Leykam, and especially Jose Martinez is invaluable to me. Lastly, thank you Grandma, Mom, Dad, and Lisa for always being there for me.

Chapter 1: Introduction

The daily task of eating is a regular, predictable event for many people. For others, however, it is not so easy. Food is a necessity and hunger occurs all over the world, and this is a circumstance no one should have to endure. It is a social justice issue. Within this, certain groups of individuals like minorities, the elderly and others who are financially disadvantaged, are more likely to be affected by hunger. Food, though, is a basic right, with no exceptions. It is unjust for people to have *inadequate access to nutritious food*, the definition food insecurity. This paper looks at food insecurity in the city of Syracuse, NY.

Hunger in Syracuse is not a matter of people going without food for weeks. The typical images of hunger – people made of skin and bones in Africa – don't apply. In fact, in America, hunger and obesity are often linked. Residents of Syracuse who are hungry often have a place to call home. The problem lies in the fact that "there may be nothing in the cupboards or the fridge, no cash for a restaurant meal, no way to get to fresh groceries or pay for them, and little energy left to meet even the most basic nutritional needs" (Shires, 2007).[1] Hunger is born out of poverty but is also strongly influenced by food source accessibility, mobility, and nutrition. Being able to easily access food is just as important as being able to afford it. After all, it does not do much good to have the money for food without having any food to buy. Food insecurity pertains to "uncertain

[1] Shires, A.S. (2007, Spring). Geography of Hunger. Retrieved November 14, 2009, from Syracuse University Magazine website. http://sumagazine.syr.edu/spring07/features/feature2/index.html

access to adequate food.[2]" This calls into question the locations of food sources and their proximity to residents. Additionally, residents must have sufficient transportation in order to visit the sources. Hunger is a case of social justice because those who are disadvantaged unequally struggle with the basic need of food. Those with little money cannot always afford food, and many with little money are represent minority populations.

The city of Syracuse has grown to be characterized by neighborhoods with distinct attributes. The Southside (mainly Brighton) is a low-income minority neighborhood. Low-income, minority individuals are more prone to suffer from social and environmental injustices. Are communities in Syracuse able to easily access nutritious food? This study investigates hunger in Syracuse, by asking three questions:

(1) What and where are the food sources available?

(2) How do these sources vary in terms of quality and selection?

(3) What mode of transportation is used to visit such sources, and why?

The areas of study are the Southside of Syracuse and its surrounding areas: zip codes 13205, 13207, 13202 and 13210. Figure 1 displays the region of interest. Zip code 13244, the specific Syracuse University zip code, is included within 13210.

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[2] USDA Economic Research Service. *Briefing Room: Food Security in the United States [online]*. (December 16, 2009.) Retrieved from http://www.ers.usda.gov/Briefing/FoodSecurity

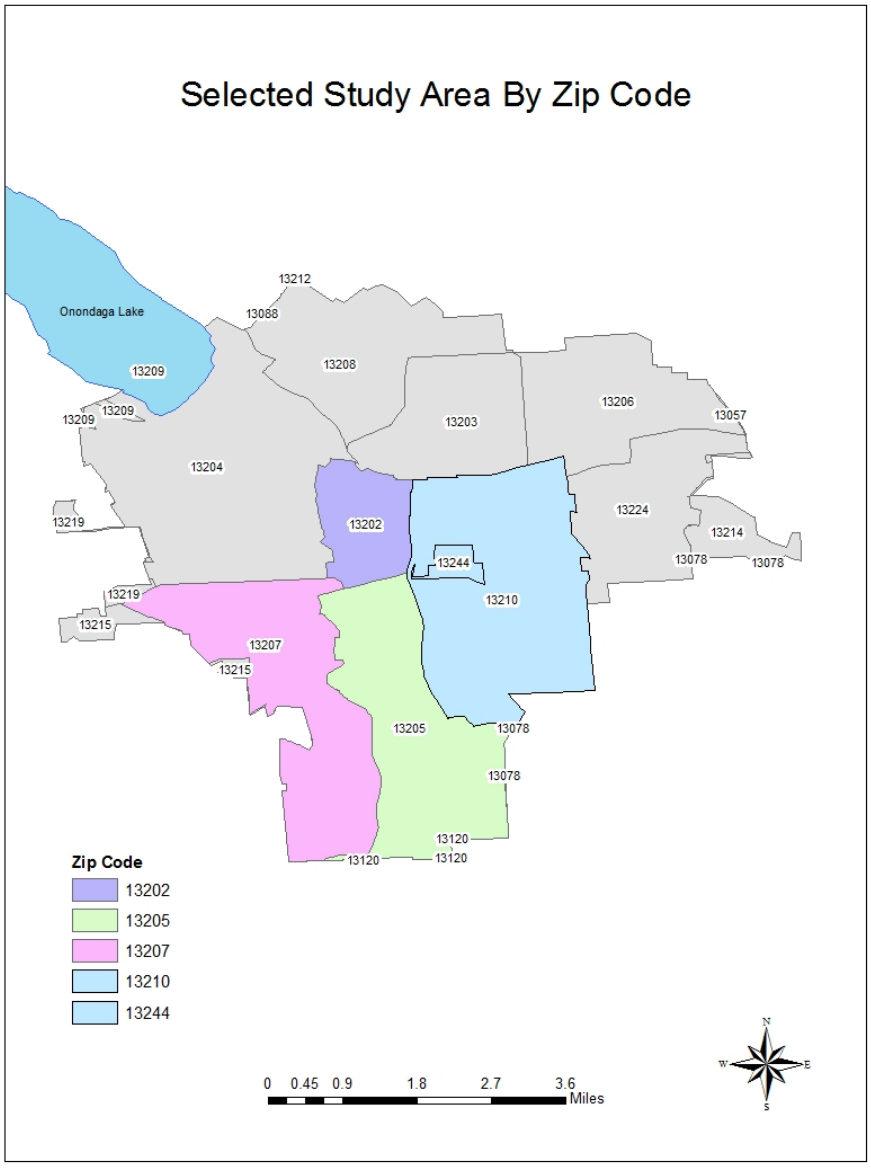

Figure 1: Map of selected zip codes for study. Source: Author

These questions are important because in order to access food, one must have food sources available to them in the first place. That is, their presence alone is crucial. Being able to physically get to food sources is just as crucial. Modes of transportation must be appropriate and effective in the use of grocery stores. On top of successfully having food sources available and efficient transportation, the food must also be nutritious. Not all grocers may provide the adequate food

necessary in a healthy lifestyle. As will soon be discussed, hunger and obesity coexist. It is possible for an obese person to be a victim of hunger on some level. This study aims to assess the hunger situation of the selected area in terms of accessibility and nutrition.

1.1 **Methodology**

The selected study area was chosen for a few reasons. First, the Southside, zip code 13205, was the primary focus because of its demographic characteristics. Being of lower income and greatly African American, it provided a basis for concern regarding hunger. In other words, the more well-off neighborhoods are not expected to have great difficulty in accessing adequate food sources. Thus, the Southside was the first area analyzed. Additionally, the surrounding areas of the Southside were included. The reasoning for this was that if the Southside community did not have suitable food sources, those surrounding areas (shortest distance away) would be closest and hence the next most accessible. The selected study area was comprised zip codes 13205 (the Southside), 13202 (Downtown), 13207 (Strathmore and the West Valley), and 13210 (the University area).

The next step was identifying what food sources existed within the selected area. *Food sources* refers to venues which characterize themselves as a provider of groceries. *Reference USA* was employed in order to identify the food sources of the select zip code regions. This is a database which contains a detailed listing of over 20 million businesses, with the ability to search by company name, type of business, location, business size and more. After comparison searching, the terms “grocers wholesale,” “grocers retail,” and “convenience stores”

encompassed all desirable food sources. The requirements for selection were that they be identified as a grocery and not a specialty store (such as ethnic foods, seafood or gas station). This was due to the survey used to gauge the quality and selection of the food stores. The survey was comprised 62 basic food items. Specialty venues and gas station are intended to be frequented for specific goods and services, not everyday shopping. *Reference USA* provided additional information about each food source, such as the number of employees, sales volume, square footage and type of venue (branch or single location).

Twenty seven total food sources were selected, each of which was personally canvassed for direct observation and surveying. About thirty minutes was spent in each store, depending on factors like store selection, size, and potential conversations. Multiple attempts were made to visit stores which were not open. The method of assessing the quality and selection was checking for the presence of the 62 basic food items. These items were inspired by a similar study conducted by Daniel Block (2007).[3] In this investigation, 102 items were chosen based upon a *USDA handbook* list compiled from the USDA's Thrifty Food Plan recipes. These are simple foods that are commonly used. Also, because these foods were identified as part of complete meals, fundamental food groups were integrated. The items were categorized as well: fresh fruit, fresh vegetables, canned fruit, canned vegetables, frozen fruits and vegetables, fresh breads, cereals, and other grain products, dry breads cereals, and other grain products, fresh dairy products, dairy products, fresh meat and meat alternatives, frozen and

[3] Block, D. & Kouba, J. (2007). A comparison of the availability and affordability of a market basket in two communities in the Chicago area. *Public Health Nutrition*, 9:837-845.

canned meat and meat alternatives, fats and oils, baby products, and sugars and sweets. The 102 basic items were scaled down to 62 by condensing many items under broader terms. For example, instead of looking for garbanzo beans, kidney beans, and baked beans, the presence of canned and dry beans of any kind was noted. The same concept was important for recognizing fresh fruits and vegetables. Seeking out specific types of items was not as important as general categories, especially when observing convenience stores. Having the availability of produce was key; having the option of an apple versus an orange was not.

I also noted the parking selection, since it indicated the transportation used to visit the store, as well as its popularity. Stores like Wegmans have massive parking lots because they attract a people from a far range. Parking size diminishes with smaller stores in residential areas.

The survey data was then compiled and input into the program ArcGIS. This involved inputting data like store addresses, the survey results, and demographic information about Syracuse. This information built attribute tables to correspond to the maps. Each aspect correlated to a "layer." Multiple layers were built upon each other to produce a map displaying the chosen information. Many map combinations demonstrate the various important relationships of study. In addition, ArcGIS conducts many analysis functions, such as distance and nearest location, which are especially critical to this investigation about accessibility.

Chapter 2: Introduction to Hunger in America

Hunger exists on various spatial scales and degrees. Hunger itself is defined as "the physical and mental condition that results from not eating enough food due to insufficient economic, social and community resources."[4] Developing countries are the typical icon. On the news, on billboards, on the charity jars at the end of check-out lines, these inform the public about starving people in places like Ethiopia. What is experienced in places like Ethiopia, however, is chronic hunger, where people are starving to death. This is the most extreme level.

Yet hunger is experienced everywhere, even in the most developed countries of all, including the United States. In America, hunger is referred to as *food insecurity*. The general term *food insecurity* means "the lack of nutritionally adequate, safe, and culturally acceptable food, available through non-emergency sources at all times."[5] At the other end of the spectrum, food security is when enough food is accessible at all times, for an active, healthy life.[5] Quite recently, in 2008, 39.8 million Americans (13.2% of our population) lived in poverty. In the same year, 85% of U.S. households were food secure throughout the entire year, and 14.6% of households were food insecure at least some time during that year, up from 11.1 percent in 2007. This is the highest recorded rate of food insecurity since 1995, when the first national food security survey was conducted. The number of individuals with low food security has more than doubled since 2000.

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[4] Syracuse Community Geography. (2004). Syracuse Hunger Project. Retrieved from http://www.communitygeography.org/index.php/projects/syracusehungerprojecthttp://www.communitygeography.org/index.php/projects/syracusehungerproject

[5] USDA Economic Research Service. *Briefing Room: Food Security in the United States [online].* (December 16, 2009.) Retrieved from http://www.ers.usda.gov/Briefing/FoodSecurity.

Clearly, hunger here is very different from that in developing countries, but is nonetheless present. In the U.S., there are four ranges in a continuum devised by the United States Department of Agriculture:

(1) High food security: households had no problems, or anxiety about, consistently accessing adequate food.

(2) Marginal food security: households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and quantity of their food intake were not substantially reduced.

(3) Low food security: households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted.

(4) Very low food security: at times during the year, eating patterns of one or more household members were disrupted and food intake reduced because the household lacked money and other resources for food.

Hunger is more than just not consuming food. These descriptions target accessing sufficient quantities of adequate food. *Adequate* refers to quality and variety. This study focuses on accessibility and nutrition.

2.1 Accessibility and Food Deserts

The accessibility to food is a critical aspect of hunger. Having a reliable, well-stocked, economically sound grocery store within a reasonable distance from home is ideal. While such stores exist, their proximity to certain communities may cause them to be less accessible. Grocers run on a narrow profit margin. A response is to locationally gravitate to areas with greater purchasing power. That

being said, urban residential property markets and the economic geography of retail grocery set up food desert. In such places, residents have limited access to supermarkets and supercenter stores. The term was originally used in Europe to describe places with few food retailers. The concept has been applied in the US as well, in regard to inner city areas. A study in 2003, conducted by the Research Innovation and Development Grants in Economics (RIDGE), investigated food deserts in America.[6] It found telling characteristics of food desert communities and something about the consumption of fruits and vegetables. More small grocery stores and convenience stores were found in food desert counties versus non-food desert counties. These small venues often sell lower quality goods, at higher prices than supermarkets. Consequently, food desert residents sometimes travel great distances, quite inconveniently, in order to access foods of greater quality, selection and affordability. Food desert areas also contain populations with low incomes, less education, and high rates of unemployment. The Behavioral Risk Factor Surveillance System estimated outcomes from living in a food desert. It was found that people there are 23.4% less likely to consume five or more servings of fruits and vegetables than people living in a non-food desert. The factors of age, race, gender, and education were controlled for in this estimation. In addition, the positive effect of education about consuming such produce is weaker as well.

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[6] Blanchard, T.C. & Lyson, T.A. (2003). Retail Concentration, "Food Deserts," and Food-Disadvantaged Communities. Available at: http://www.ers.usda.gov/bRIEFING/FOODNUTRITIONASSISTANCE/Funding/RIDGEprojectSummary.asp?Summary_ID=53

Food deserts are clearly problematic. It is no surprise that hunger goes hand in hand with economically disadvantaged people. Limited access to grocery stores yield diets which depend on narrow selection and quality. However, seeking out greater selection and quality is not always as affordable. Fresh produce and meat may be sacrificed for alternatives like canned, frozen, and packaged foods. Nonetheless, price is not the only factor. The lack of proximity to large grocery stores is a huge barrier. Traveling a certain distance may be a burden in itself. Transportation of some sort must be available. This could range from a privately owned car, to public transportation, to carpooling, walking, and biking. People with tight finances may not necessarily own a car. However, even with car usage, there are the costs of gas and time. Convenience stores are convenient for a reason; many are in residential neighborhoods for the purpose of being within walking distance. Walking and biking become very constraining when desired food sources are far. Plus, factors like weather, age, and health provide further limitations. Another option is public transportation, if available. Public transportation like buses come with drawbacks. First, there must be accessible bus stops in order to travel to and from points of residence and venue. In addition, one must pay a fee, know the schedule, and spend time waiting and riding. Plus, a bus may not be conducive to handling several bags of groceries. All these factors inhibit access to nutritious food sources.

2.2 Dietary Strategies and Obesity

Diets suffer as a result of barriers impeding access to a variety of foods. The RIDGE study also noted how residents of food deserts experience a greater

risk of poor dietary intake. Major health problems like heart disease, stroke, certain forms of cancer, and pregnancy complications are linked to a lack of fruit and vegetable consumption. Many health problems are also associated with America's "hidden crisis": obesity. Hunger and obesity may sound like a paradox, though the two are married together in America. In fact, obesity is an epidemic. Overweight individuals may still be prone to food insecurity because of poor diets.

In general, obesity results when energy intake exceeds energy expenditure. A chain occurs when there is little money to purchase nutritious foods so that cheaper, high fat foods and consumed instead in conjunction with overeating. The end result is weight gain. When there is a lack of adequate food resources, people employ certain coping strategies[7] which can result in weight gain. Three strategies are: the need to maximize caloric intake, the trade-off between food quantity and quality, overeating when food is available. These in turn cause physiological changes.

Obesity results because maximizing calories is the economically based solution to feeding a family with limited money: strategy 1. When money is tight, it makes sense to stretch one's dollar as far as possible. In terms of food, this translates into purchasing food which fills you up at a low cost. Thus, decisions are made to maximize the number of calories. This occurs when resources like money or food stamps are not available, preventing the ability to choose a healthier balance of nutritious foods. Low cost, high caloric foods are typically

[7] Center on Hunger and Poverty & Food Research and Action Center. The Paradox of Hunger and Obesity in America. Publication. Retrieved from http://www.frac.org/pdf/hungerandobesity.pdf

processed foods with extra fat and sugar. Such a diet affects the overall energy density and leads to weight gain and obesity.

The second strategy, trade-offs, shows how low cost diets satisfy hunger but forgoes nutrition. In order to eat enough within a budget, a trade off is made between food quantity and quality. Food quality is sacrificed before quantity of intake. Consequently, people may be getting enough food to not feel hungry, though they may be poorly nourished. In sum, they cannot afford a consistently adequate diet to promote health and avert obesity. Just

A third strategy occurs from overeating. Another strategy to fend off hunger is to take advantage of food when it is abundant. There may be times of "ups" and "downs" in food availability, and hence in consumption, which results in overeating. Obesity is an adaptive response to these periods. Effects like these can come about when money or food stamps are more plentiful at certain points. For example, when food stamps run out toward the end of a month, in which case food may follow suit. When resources are restored, and food is available, then people eat more than they normally would. Extra caloric consumption adds up to weight gain.

All three of these adaptive characteristics contribute to physiological changes. The human body functions to maintain and sustain itself. From an evolutionary perspective, very high caloric foods are sought. Our brains are programmed to savor fats and sweets. Eating these diets and enduring periods of inadequate consumption trigger physiological changes to conserve energy. The body will compensate for periods of food shortages by becoming more efficient at

storing calories as fat. Furthermore, obesity leads to health problems, especially heart disease, diabetes, and cancer. It may sound ironic that hunger and obesity are linked, but it is a reality. Food choices are made based on what one can afford.

2.3 Social Justice Factors of Hunger

While everyone must eat to live, some of us start with an underlying risk of food insecurity. Certain individuals and groups of people are more prone to it. The USDA recognizes that food insecurity rates are substantially higher than the national average for single parents with children, Black and Hispanic households, and households with incomes below the poverty line. In general, age, race, and income are key indicators.

The elderly population is at risk of experiencing hunger. Between the years 2000 and 2010, over 5 million seniors (11.4% of all seniors) experienced some form of food insecurity.[8] Studies have found that "the concept of food insecurity in elderly persons may include altered food use (i.e., inability to use food) due to functional impairments and health problems, as well as inadequate availability, affordability, and accessibility of food."[9] Distinct nutritional and health characteristics come with age. Being older compromises available resources. Over time, the human body encounters limitations, people no longer can work, and money may not be steady. Mobility is a major issue. Diminishing physical capabilities compromise the ability to walk, drive, and simply get around in general. Accessing a grocery store becomes increasingly more difficult in terms

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[8] Understanding senior hunger. Retrieved January 11, 2010, from Meals on Wheels Association of America. Website: http://www.mowaa.org/Page.aspx?pid=281

[9] Frongillo, E.A. Jr. & Lee, J.S. (2001). Factors Associated With Food Insecurity Among U.S. Elderly Persons: Importance of Functional Impairments. *Journal of Gerontology: SOCIAL SCIENCES,* 56B: S94-S99.

of transportation. Using public transportation is not very convenient at any age, much less in the elderly. Moreover, preparing of complete, balanced meals becomes physically more difficult and less a priority, even though it is even more important to do so in cases of deteriorating health. Also, many seniors must rely upon medications, which can be a financial strain for individuals who are retired and do not have a steady income, or depend upon government checks. Within the senior community, the same economic and sociodemographic factors which affect any age group apply: seniors who are low-income, African American, and Hispanic are more likely to experience food insecurity than other seniors.

Black and Hispanic households experience food insecurity at far higher rates than the national average. Correspondingly, in 2008, the poverty rate for African Americans was 24.7%, 23.2% for Hispanics, and 8.6% for non-Hispanic whites.[10] Minorities have been disadvantaged through the course of time, and such a predisposition currently affects the lifestyles of many minority individuals. A link exists between race and income which then inextricably entails food security. There is a strong correlation between race and spatial segregation as well. These groups get relegated to certain areas due to lesser purchasing power and retailers may leave and food deserts emerge.

The USDA has found that "over the past decade, the prevalence rate of food insecurity has generally tracked the poverty rate. Both fell in the late 1990s, increased beginning with the recession in 2001, and leveled off or declined slightly after 2004."[10] This demonstrates that hunger is very much a social justice

[10] Hunger in the U.S.. Retrieved November 20, 2009, from Food Research and Action Center website:http://www.frac.org/html/hunger_in_the_us/hunger_index.html

issue. It has historically been the poor and minority populations which struggle to retain basic needs for a fruitful life. Syracuse serves as an example of this. Certain areas are predominantly white and non-white and of differing incomes. This study uses the impoverished minority neighborhoods as a case study for hunger.

2.4 Syracuse, New York

The city of Syracuse is very socially divided due to historical patterns of home ownership.[11] Syracuse's social landscape may be traced back to the height of the Great Depression. During this time lending institutions were rightfully reluctant to offer housing loans, since few could afford mortgage terms. In 1934, President Roosevelt created the Federal Housing Administration, which aimed to encourage the building of new homes and, as a result, establish thousands of jobs for the unemployed. More generous mortgage terms enticed prospective home owners. The problem was that such terms were not available for all properties. Banks required guidelines in order to ensure that a loan was safe. The Home Owner's Loan Corporation (HOLC) was created for that purpose. Starting in 1936, a massive inventory was conducted by the agency to evaluate all national residences. HOLC employed typical standards like evaluating decay or neglect. These were signs of a declining neighborhood. In addition to physical problems, surveyors also looked at signs of minorities. At the times this included blacks, Jews, and foreign born whites among others. A minority-occupied home brought down the value of mortgage insurance.

[11] The Home Owner's Loan Corporation. Retrieved December 16, 2009, from Syracuse Then and Now website: http://syracusethenandnow.org/Redlining/HOLC_Maps.htm

The HOLC data were used to produce highly confidential maps. Only federal officials and senior bank personnel were allowed to see them, let alone be aware of their existence. The maps displayed areas in terms of letter grades: A-D. Figure 2 shows the redline map of Syracuse from 1937. Of course, an "A" indicated "first grade." These areas were green on the maps. They were the prime real estate, christened with the government's blessing. Such places were usually new or recently built neighborhoods with few, if any, minorities. Lenders were advised to offer the maximum amount available for "A" areas. On the Syracuse map, "A" neighborhoods were all distant from downtown and in areas which had been farm land. Green areas were Bradford Hills, Berkeley Park, Sedgewick Farms, Strathmore and Dewitt. Figure 2 illustrates how the upper-grade regions lay on the outskirts of the city.

A rung down on the ladder were "B" neighborhoods: second grade. These were colored blue and had fewer desirable qualities. Lenders were encouraged to make loans around 10%-15% below the maximum amount. Next were "C" or "third grade" regions, colored yellow. These were older neighborhoods, with out-of-date housing styles and expired contracts. The social landscape was also considered "lower grade." Third-grade areas were in the central part of the city, or in neighborhoods which had originally been separate towns and villages, like Mattydale and Nedrow. Last was "D" – fourth grade. These were considered the least desirable, places that were struggling to survive. Assigning the lowest grade to them guaranteed little chance of recognition. These areas were characterized by "undesirable population or an infiltration of it." Mortgage lenders commonly

refused to make any loans for these properties. These areas were a red flag, and fittingly colored red, like a big warning. Thus, the term *redlining* came about. Places in Syracuse which were redlined were the oldest and closest to downtown. Some were adjacent to factories or ran along the railroad, and some were just ethnically diverse. It is easy to decipher from the following 1937 map (Figure 2) that, in general, the highest grades were near Syracuse's boundaries and decreased towards the center.

In addition, during the 1960's urban renewal, the center of Syracuse (mainly red areas) were cleared out to make way for new public institutions, business and/or public housing. Much of the displaced population moved out to yellow zones. At the same time, thanks to the auto and interstate, those who could afford to leave the yellow and blue zones left for where the grass was "greener." This was the beginning of the social landscape patterns apparent today. Many forms of retail also vacated downtown. In terms of grocery retail, it has shifted from neighborhoods to high volume markets.

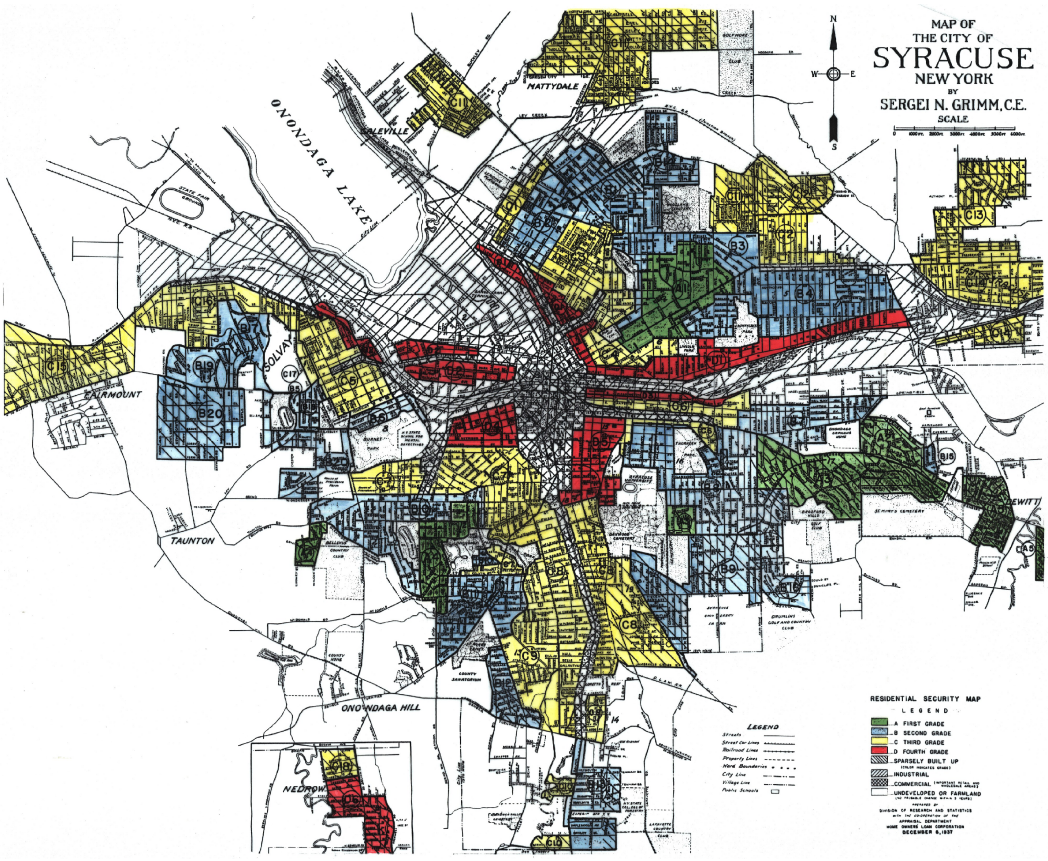

Figure 2: 1937 Redline map. Source: Syracuse Then and Now. Website.

It was assumed that the presence of minorities in a neighborhood brought property values down and that everyone would suffer. This belief was reinforced by mapping and lending practices. Over the years, however, things have changed. Redlining is illegal and many of Syracuse's "A" areas have dropped down a grade or two. However, the racist foundation had been laid and a divided city grew from it. Figure 3 shows that the majority of the Southside is still African American, along with areas around it, including the center of the city. Figure 4 in addition shows Hispanic populations to be in the center and towards the West Side.

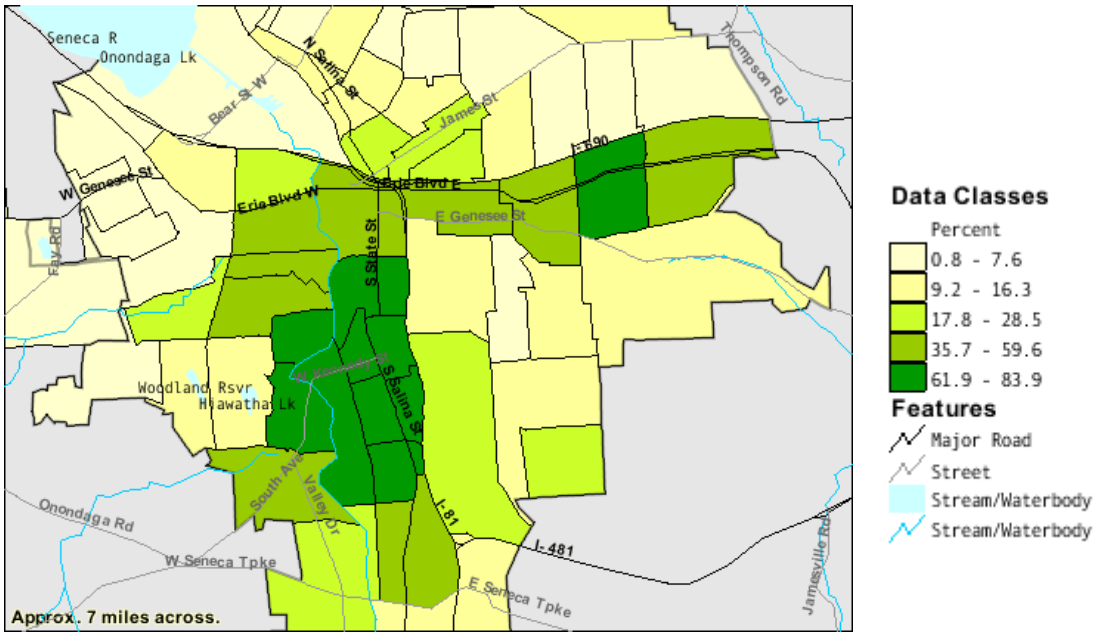

Figure 3: Percent of Persons Who Are Black or African American Alone: 2000. Source: US Census Bureau.

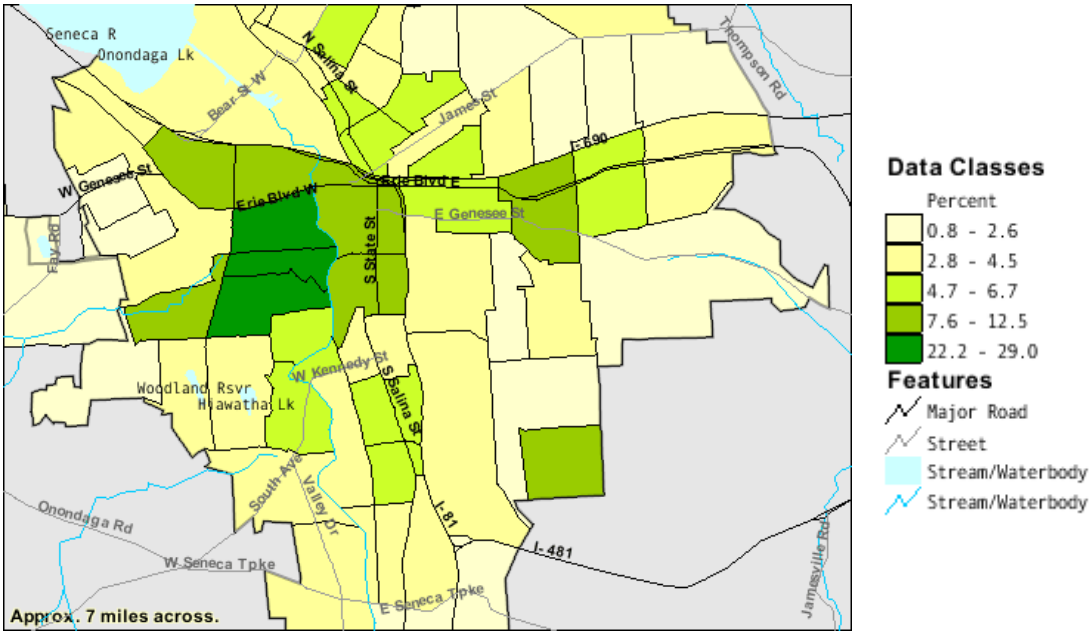

Figure 4: Percent of Persons Who Are Hispanic or Latino (of any race): 2000. Source: US Census Bureau

These census maps are much more recent, yet show a similar pattern.

Neighborhoods which are red and yellow on the redline map indicate black and

Hispanic populations. These areas correspond to the lower grades in the redlining map. Since the inferior properties were cheaper, those who could not afford more did not have much choice as to where to settle. Similarly, the same areas house those with lower income which is apparent today. Figure 5 further illustrates where person below the poverty line reside. Research conducted by the Syracuse Hunger Project about income is found in Figure 6. Again, both maps support the fact that the more affluent communities are on the outskirts of Syracuse.

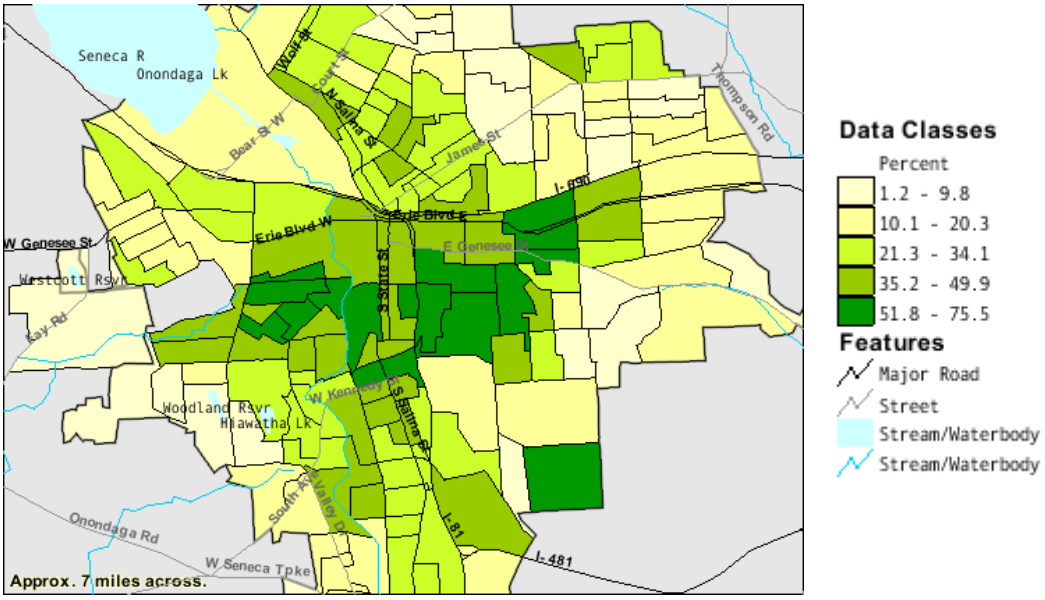

Figure 5: Percent of Persons Below the Poverty Level in 1999: 2000. Source: US Census Bureau

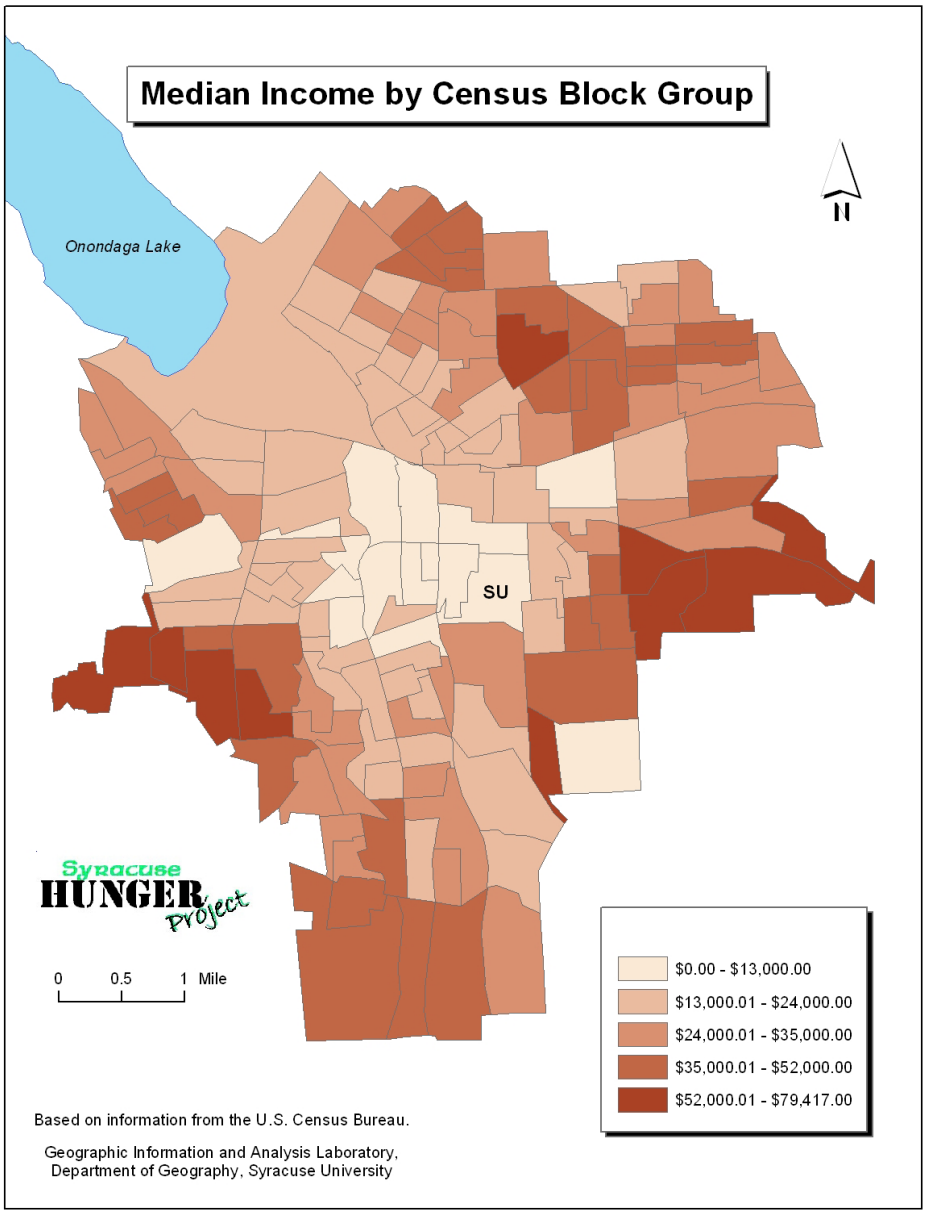

Figure 6: Syracuse income ranges by block group. Source: Syracuse Hunger Project

These census maps display the economic landscape of Syracuse. The same radiating pattern is apparent; income increases from the center out towards the city boundaries. It is easy to see that there are poor minority neighborhoods generally downtown, on the Southside, Westside, and Near Eastside. The various neighborhoods of Syracuse can be seen in Figure 7. Given how food insecurity is

linked to income and race, the Southside and its surrounding areas were investigated to see if they follow suit.

Figure 7: Syracuse Neighborhoods. Source: Syracuse Neighbor Network

Chapter 3: Location Variation

The overall findings of this study do indeed reveal a food desert paralleling demographic inequalities. All the food sources in the selected zip codes were corner stores, convenience stores, and bodegas: generally the same sort of venue. Even before I canvassed and surveyed the venues, *Reference USA* foretold what these stores are like (see Table 1). The number of employees ranged from only 1 to 5. The annual location sales were under 1 million dollars, with the exception of three, which were under 4 million. The range in sales was $224,000 - $3,411,000 per year. All but one venue were single locations. The outlier was listed as a branch, though observation would prove otherwise. The name of this store is Stop and Shop, which is in fact a chain supermarket. This particular store, however, was not one of the branches: it just had the same name as the chain. The last indicator used was square footage. Every store was under 40,000 square feet (40,000 and up are typically chain grocery stores such as Wegmans). Only two were in the 10,000 to 39,999 range. All the rest (25 stores) were in the 0 – 2,499 range.

Table 1: Attributes from Reference USA for convenience stores in each selected zip code.

Attributes of the Selected Area Food Sources					
Name	Zip Code	Locational Employees	Annual Sales Volume	Type	Square Footage
Golden Gate Market	13205	3	$3,411,000	Single	10,000 - 39,999
Midland Discount Market		3	$3,411,000	Single	10,000 - 39,999
Deb's Convenience Mart		1 to 4	$500,000 - 1 million	Single	0 - 2,499
Expressway Mkt		3	$741,000	Single	0 - 2,499

Middle East Mkt	13205	3	$741,000	Single	0 - 2,499
Corner Convenience		1	$224,000	Single	0 - 2,499
Food king		1	$224,000	Single	0 - 2,499
Los Amigos		2	$448,000	Single	0 - 2,499
South Mini Mart LLC		1 to 4	$896,000	Single	0 - 2,499
Stop and Save Mkt		2	$494,000	Single	0 - 2,499
Maloney's Suprette	13207	1 to 4	$988,000	Single	0 - 2,499
Stop and Shop Grocery		3	$741,000	Branch ?	0 - 2,499
Beverage Barron Market		1	$224,000	Single	0 - 2,499
Valley Suprette		1 to 4	$896,000	Single	0 - 2,499
Moses Express Market		1 to 4	$896,000	Single	0 - 2,499
Upstate Convenient		2	$448,000	Single	0 - 2,499
C L Evers Grocery	13202	4	$988,000	Single	0 - 2,499
Eddie's Market		3	$741,000	Single	0 - 2,499
Jimmy's Super Saver Inc		2	$494,000	Single	0 - 2,499
Mando's Convenience		1 to 4	$896,000	Single	0 - 2,499
Midway Express		4	$896,000	Single	0 - 2,499
Abdo Grocery	13210	1 to 4	$988,000	Single	0 - 2,499
Lancaster Market		5	$1,235,000	Single	0 - 2,499
NMS Market		3	$741,000	Single	0 - 2,499
Student's Choice Market		2	$494,000	Single	0 - 2,499
Graby's Mini Mart		2	$448,000	Single	0 - 2,499
News Stand		1	$224,000	Single	0 - 2,499

As seen just from these numbers, the food sources of the Southside and its surrounding areas are not large, leading grocers. Such characteristics tell much about a place without one's even seeing it. The number of employees at any location can be counted on one hand. A small store can be managed with less help, which in turn cuts down on wages. Similarly, all these descriptors would lead one to believe that the selection and availability of foods would also be

limited. Large chain grocers are huge, with hundreds of employees, making profits. Figures 8 and 9 show what a couple of the stores looked like from the outside. More people flock to chains because they carry basically everything. Convenience stores carry the basic supplies.

Figure 8: Photograph of Jimmy's Super Saver.

Figure 9: Photograph of Eddie's Market.

Large grocery stores were also considered. These were chains: Wegmans, P & C, Price Chopper, Aldi, and Sam's Club. Table 2 displays the same attributes for this group of stores. One additional venue, Green Hills Farm Stand, was considered a large grocery because it matched the chains in terms of the *Reference USA* data and was observed to be comparable to a chain grocery. Green Hills carried every survey item and much more. The selection and venue were akin to the previously listed grocers.

Table 2: Attributes from *Reference USA* for large grocery stores for all of Syracuse.

Attributes of Syracuse Large Grocers				
Name	Locational Employees	Annual Sales Volume	Type	Square Footage
Aldi	5 to 9	$1,235,000	Branch	0 - 2,499
P & C Food & Pharmacy	110	$27,170,000	Branch	40,000+
P & C Food & Pharmacy	80	$19,760,000	Branch	2,500 - 9,999
Price Chopper	200	$49,400,000	Branch	40,000+
Wegmans	487	$89,121,000	Branch	40,000+
Wegmans	200	$49,400,000	Branch	40,000+
Sam's Club	120	$19,440,000	Branch	40,000+
Green Hills Farm Stand	220	$54,340,000	Single loc	40,000+
P & C Food & Pharmacy	150	$37,050,000	Branch	40,000+

Unsurprisingly, the *Reference USA* data on the large grocery stores were at the other end of the spectrum: much higher numbers all around. Only Aldi appeared as an in-between, mid-range store. Aldi is a chain, but sells discounted foods in its own brands. The stores are smaller as well. They were in the 0 – 2,499 square footage range. Aldi seems to be in the middle: better than a convenience store, but not as extensive as other chains. The Syracuse location has 5 to 9 employees and makes $1,235,000 in sales. The rest of the large grocery stores are larger than this. Price Chopper, P & C, Sam's Club and Green Hills Farm Stand are on the next tier up. These stores employed 80 to 220 people, depending on the location. The sales range from $19,440,000 to $54,340,000. The majority of these stores are 40,000+ square feet. Atop the grocer status pyramid is Wegmans. One Syracuse Wegmans branch topped all stores by having up to 487 employees and

grossing $89,121,000 annually. The other branch in Syracuse has 200 employees and grosses $49,400,000. Clearly, there is a significant difference between the large grocers and the food sources from the Southside areas. It is plain to see that there is a spectrum. At one end are small corner stores. At the other is the Fortune 500 Company, Wegmans. The quality and selection of food across the spectrum is graduated, as well.

The Measurement of quality and selection in this study is not quantitative. It simply tested for the presence of particular food items which are considered "basic." That is, products that are commonly used, represent each food group, and should not be hard to access. Field work included surveying sixty-two food items. Items ranged from broad to specific in qualifications. Most were specific: oatmeal, sugar, butter, baking soda, peanut butter. These items are pretty straight forward. Any type or brand within a group counted, for example, smooth versus chunky peanut butter. Some other items were specified further into sub groups: fresh chicken, frozen chicken, white bread, wheat bread, dry beans, and canned beans. In this case, more certain types were assessed, but also any kind of each (like black beans or kidney beans for example) qualified. Also, there were items that were very broad and generalized, where many different foods would count. This mainly pertains to fruits and vegetables because testing for certain types would not gauge the availability of having fresh produce; it would test for having only specific ones – which is not the point. Therefore, the presence of any fresh fruit or vegetable was significant. Nevertheless, selection is influence by how

many kinds are available. For that reason, the number of different fresh fruits and vegetables present was noted.

Although all 27 food sources of the selected study area were essentially convenience stores, a few stood out with wider selections, but all fell short of any chain or large grocery store. Table 3 shows the percentage of survey items that was available for each food source. The average percentage of items from the survey available was 45%. There was quite a broad range in availability, though: 3% - 79%. Such a range shows that some convenience stores are much better suited for grocery shopping than others. Personal canvassing observations support this claim. For instance, one of the stores that carried only 3% of the items surveyed for was very small in size and mainly sold cigarettes, beer, and chips – none of which were on the list. The store with 79% of the items surveyed, Jimmy's Super Saver, was about twice the size of most other stores and had a handful of aisles, as displayed in Figure 10. It was definitely more purposed as a grocery. It had a freezer for frozen foods, a small section of seasonal fruits and vegetables, and even a deli with specialty foods like smoked ham hocks. The deli is seen in Figure 11. The intent of each store makes an immense difference as to their consumers and supply.

Table 3: Percentage of available survey items at each food source from most to least. Items with multiple qualifying products like fresh fruit counted as one item and fulfilled that category.

Percentage of Survey Items Available	
Name	Percent Available
Jimmy's Super Saver	79%
Maloney's Suprette	66%
Middle East Market	66%
Deb's Convenience Mart	65%
Eddie's Market	65%
NMS Market	65%
Graby's Mini Mart	61%
Upstate Convenient	59%
Midland Discount Market	56%
South Mini Mart LLC	55%
Midway Express	52%
Stop and Save Market	50%
Stop and Shop Grocery	49%
Abdo Grocery	48%
Food King	48%
Lancaster Market	48%
Moses Express Market	48%
Beverage Barron Market	44%
Golden Gate Market	44%
Valley Suprette	41%
Expressway Market	39%
Los Amigos	32%
C L Evers Grocery	31%
News Stand	23%
Corner Convenience	21%
Mando's Convenience	3%
Student's Choice Market	3%
Average	45%

Figure 10: Photograph of the inside of Jimmy's Super Saver.

Figure 11: Photograph of the specialty and luncheon meats of Jimmy's Super Saver deli.

In general, most food stores covered certain items very well. Nearly every store carried spaghetti sauce, dry breakfast cereals, rice, sugar, milk, vegetable oil and juice. Foods that were not found anywhere were bagels, French/Italian bread, soy milk, any kind of fresh meat, veggie burgers, and tofu.

Table 4: Presence of each survey item in stores from most common to least.

Ranked Presence of Survey Food Items		
Survey Food Item	# Stores Carried In (out of 27)	Percent Presence in Stores
Spaghetti Sauce	24	88.9
Cereal	24	88.9
Rice	24	88.9
Sugar	24	88.9
Milk	24	88.9
Vegetable Oil	24	88.9
Juice	24	88.9
Can Vegetable	23	85.2
Flour	23	85.2
Eggs	23	85.2
Spices	23	85.2
White Bread	22	81.5
Ketchup	21	77.8
Can Beans	20	74.1
Corn Meal	20	74.1
Lunch Meat	20	74.1
Tuna, Canned	20	74.1
Grits	19	70.4
Cheese	19	70.4
Mayo	19	70.4
Can Fruit	18	66.7
Evaporated Milk	18	66.7
Butter	18	66.7
Peanut Butter	16	59.3
Jelly	16	59.3
Pancake Syrup	16	59.3
Fudgesicles	15	55.6
Oatmeal	14	51.9
Baking Soda	14	51.9
Chocolate Drink Mix	14	51.9
Elbows	13	48.1
Lemon Juice	13	48.1

Wheat Bread	12	44.4
Baking Powder	10	37.0
Dry Beans	9	33.3
Popcorn	9	33.3
Baby Food	9	33.3
Olive Oil	8	29.6
Gelatin	8	29.6
Fries	7	25.9
Hamburger Buns	7	25.9
Hot Dog Buns	7	25.9
Chicken, Frozen	7	25.9
Fresh Fruit	6	22.2
Fresh Vegetable	6	22.2
Frozen Vegetable	6	22.2
Fish, Frozen	3	11.1
Vanilla	3	11.1
Yogurt	2	7.4
Bouillon	2	7.4
Bagels	1	3.7
Cottage Cheese	1	3.7
Fresh Meat	0	0.0
French/Italian Bread	0	0.0
Soy Milk	0	0.0
Ground Beef, Fresh	0	0.0
Chicken, Fresh	0	0.0
Ground Turkey, Fresh	0	0.0
Ground Pork, Fresh	0	0.0
Veggie Burgers	0	0.0
Tofu	0	0.0

While these items are not extremely exotic or unusual, they are not exactly on the everyday shopping list. Some, like soy milk and tofu, are substitutes. Conversely, some can be easily substituted. For example, almost every store sold white bread, but not bagels. White bread is more universal and can be more versatile. Plus, a loaf of white bread is cheaper and stretches farther than a sleeve of bagels. Fresh meat could not be found for many reasons. Meat is very different from dry goods. It must be kept refrigerated which increases energy costs, and only lasts for so long. Plus, as many store owners said, they ran a convenience

store. Most stores had the usual milk, eggs, bread, sugar, flour, cereal, etc.; these are considered essentials. Such items are found in convenience stores; one would be able to go down the street to a corner store and pick these up. Many items are dry goods that have a long shelf life. Cans found on shelves did have dust on them, but were still good. There must be enough of a market for fresh meat to sell quickly enough to be replenished and make a profit. Because fresh food in general is more expensive than frozen or canned food, there may not be that much consumer demand. Meat can also be too costly for people on tight budgets.

The closest item to fresh meat that was available was lunch meat. That and canned tuna were the most common meats found, even though these aren't used in the same manner as fresh meats. A few stores sold frozen chicken or fish. These categories included any kind of fish or chicken, so there was some variation. The expectation was frozen chicken portions like breasts, drumsticks and thighs. However, much of what made up "frozen chicken" were chicken wing pieces or boxed fried chicken. Such foods are a source of protein, certainly, but are limited in selection and nutrition. The survey did not list extravagant, more costly meats, either. The fact that ground beef, fresh chicken, frozen chicken, ground turkey, and ground pork were the primary meats while only chicken wings and fried chicken were available, speaks to the quality and selection of the food sources.

A lack of fresh meat was observed to be coupled with a lack of fresh produce. Only four stores carried both fresh fruits and vegetables: Midland Discount Market, Deb's Convenience Mart, Middle East Market, and Jimmy's Super Saver. Only two carried fresh fruit (Stop and Shop Grocery and C L Evers

Grocery) and a different two stores (Maloney's Suprette and Upstate Convenient) carried fresh vegetables. The locations of these stores with fresh produce are displayed in Figure 12.

That means that about 22% of all the food sources in the selected study area carry fresh produce. However, just because it is available does not mean that there is a sufficient selection. The greatest selection was at Deb's Convenience Mart, which carried 7 types of vegetable and 9 types of fruit. In second place was Jimmy's Super Saver, with five kinds of each. Figure 10 includes the produce section of this store in the lower left hand corner where bananas and apples are visible. The least selection was one kind of fruit and vegetable each at Middle East Market. These numbers certainly aren't impressive. Wegmans has produce sections bigger than these convenience stores themselves. Still, anything is better than nothing, given that 21 stores (~78%) had no produce at all. Canned and frozen vegetables, while substitutes, are not nutritionally equal, though they can sit on shelves for a while and sell for less than a dollar.

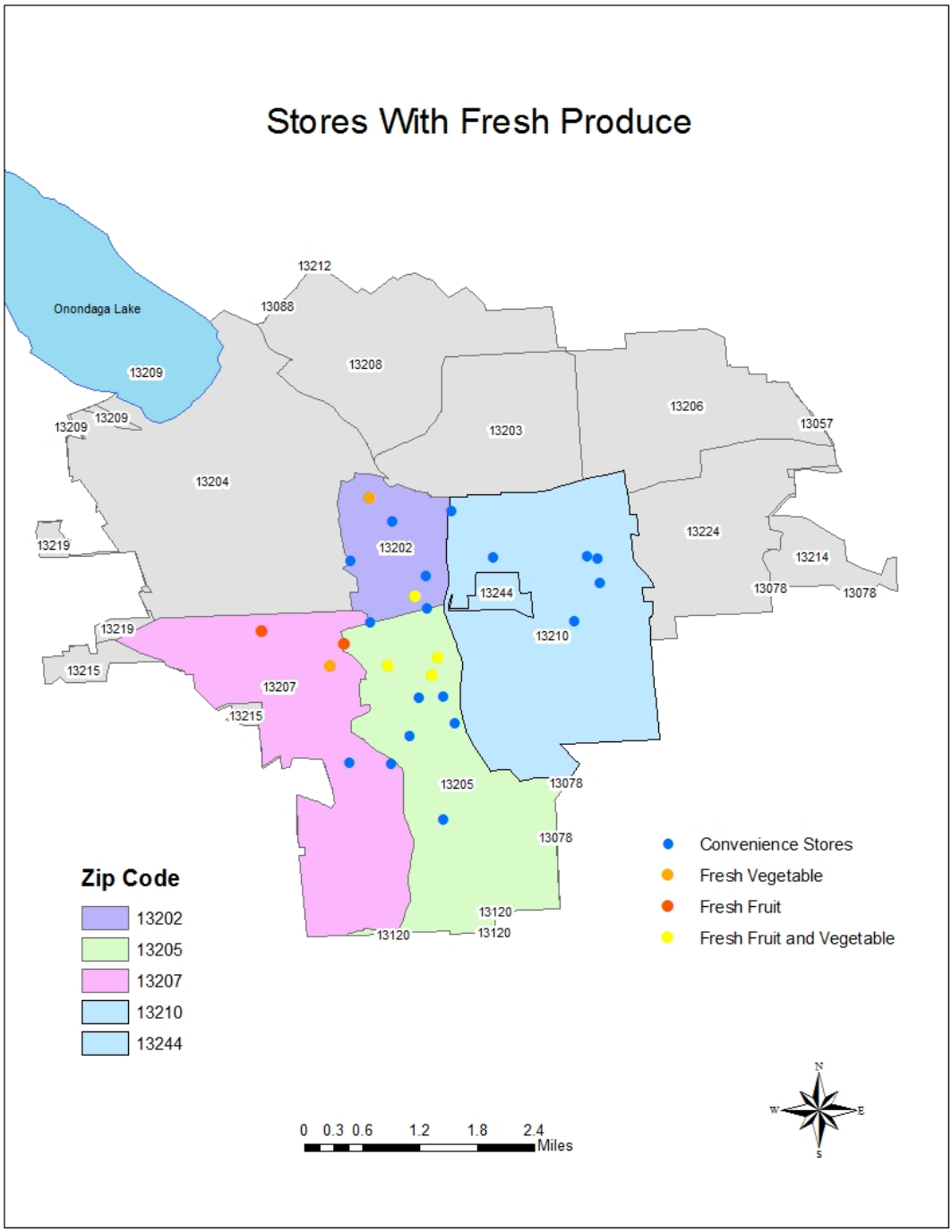

Figure 12: Map of food sources of the selected study area with those carrying fresh produce indicated.

The fresh produce found at the food sources was consistent. Table 5 shows potatoes, onions, and lettuce to be the most prevalent vegetables found. Lemons,

bananas, apples, oranges, and tomatoes were the most frequent fruits. All these are quite common. Apples and oranges are the standard fruits. Lettuce, tomatoes, potatoes and onions are basics. It makes sense that a convenience store would carry typical produce (if any). The fall season was also an influence. Yams and butternut squash made an appearance. These items, along with potatoes, onions, cabbage and garlic have longer vitality; they won't rot so quickly. This is important for these small stores. Some items like lettuce and bananas are more perishable, but are also very basic and simple to use. Thus, while these foods have lower life spans, they may be more predominantly consumed and sell more quickly. Those with longer shelf lives like potatoes, squash and onions have more of a process to preparing them, but keep for a while. Therefore, the overall patterns of available produce are ones which are basic, seasonal, and/or long lasting.

It should be noted that a single store provided much of the variety in produce. The leading source, Deb's Convenience Mart, carried 7 types of fruit and 9 types of vegetable. Because there are only 9 types of fruit and 9 types of vegetables, this shows that essentially one store out of 27 carries a significant amount of produce. Deb's was not the leading carrier of all survey items, although it was one of the higher-end convenience markets (65% available). Jimmy's Super Saver had 79% of all survey items and did carry produce, but with a bit less of a selection: 5 kinds of fruit and vegetable, each. Both stores stood out, not just because they sold fresh produce, but also because they were more established. It

is clear that they are intended to serve as groceries, in addition to being convenience stores.

Table 5: Number of each kind of produce found from all food source surveys.

Prevalence of Produce By Item			
Vegetables	Number of Occurrences	Fruits	Number of Occurrences
Potato	4	Lemon	4
Onion	4	Banana	2
Lettuce	3	Apple	2
Cabbage	2	Orange	2
Yam	1	Tomato	2
Butternut Squash	1	Lime	1
Cucumber	1	Kiwi	1
Green Pepper	1	Pear	1
Garlic	1	Grapes	1

Field observation clearly distinguished venues with higher food objectives from others. For example, both Deb's and Jimmy's not only carried fresh produce, but were larger, had parking lots, and scored higher in overall survey percent availability. Both also sold more than just food. Household items like cleaning supplies, hair care products, and some clothing were available. One also had a deli and specialty prepared foods. While other stores also carried these items, their selection was not as extensive.

Many stores did have “amenities” such as a deli or some prepared hot foods. Out of the 27 store canvassed, 13 had one or the other, or both. Delis were very common – offering sandwiches but also meats and cheeses. Hot foods were typically pizza, wings, fried foods, and some ethnic items like Jamaican beef patties and empanadas. As mentioned before, Jimmy’s also offered specialty meats like sausages and ham hocks. In these cases, these amenities serve a few purposes. One, of course, is that they bring in additional income. Likewise, an additional audience is attracted. Not only were adults observed buying sandwiches from the delis, but many teenagers would hang out and buy slices of pizza. In this way, these little shops became a bit more like a scaled down version of large grocery stores that offer these services. Chain grocers offer more than just food; they have pharmaceuticals, books and magazines, take-out items, sundries and photography services, for examples. These amenities contribute to the store’s profits. Having extra amenities adds to a small store’s pull factors and appeal. Also, having delis and hot foods does give a sense of freshness. The delis in most cases offered the freshest food in the store because they require fresh meats, cheese, lettuce, tomato, bread, and more. Hot foods must be prepared and cooked. These items definitely cannot sit on a shelf and wait to be consumed.

The presence of amenities is also somewhat linked to stores with better selections. Each store which had some amenity carried over 41% of the survey items. However, not every store with over 41% had an amenity. It may be speculated that delis and hot foods may be found in stores which are more established as groceries, not just places for beer, chips and Lotto tickets.

In this comparison, one particular store must be explained; C L Evers Grocery stands apart from the rest. It is identified as a market, though it is more accurately an upscale deli and bistro. It has some groceries (31%) on shelves, but they are more decorative and atmospheric than to be sold. It did not have cramped aisles, but rather tables and chairs in open spaces. Hence, this store was a deli with a handful of groceries, rather than a grocery store with a deli.

It is clear from the observations and data gathered that the food sources available to the selected study area leave much to be desired. The stores operate on such a small scale that they are useful for convenience, but not a weekly shopping trip. In general, they carry basic food items and, occasionally, some fresh goods. The quality and selection are incomparable to grocery giants like Wegmans, or even the smaller Aldi. The communities which frequent these stores will not go hungry, but they must complement their diets with additional vitamins and minerals from elsewhere. That is, these stores do not have a selection of nutritious foods sufficient to sustain a complete diet.

Chapter 4: Transportation and Mobility

In addition to surveying stores for food items, I assessed the transportation situation. This included noting what kind of parking is available, and how much, and seeing how people visited the store. Stores which draw people from farther distances typically have large parking lots. Conversely, smaller stores do not need as much space for parking. I found this to be the case in Syracuse.

Instead of being found in shopping plazas, these stores were in close proximity to residential neighborhoods. The predominant mode of transportation used was walking. Teenagers were observed walking to these stores to buy food and bring it home, only a few minutes away. Due to the presence of delis and hot foods, many people walked to these stores for a snack or to grab a sandwich on the run.

Not every food source had a parking lot, and the ones that did were modest. Parking areas were categorized as: street, small, and mid-sized. Many parking lots did not have actual painted lines for spaces, so it was not easy to translate the size into number of spaces. Distinguishing parking lot sizes like small and mid-sized came from seeing the typical sizes and comparing them to known grocery store lots like Wegmans, which has what would be considered a large parking lot. None of the food sources canvassed had anywhere near that size. Therefore, the largest category was mid-sized and could hold approximately 20 cars. Those considered small typically had a strip just outside the store for fewer than 10 cars, although there was much variation in the small-sized spaces.

The majority of stores, 16 out of 27 (59%), had street parking. Next, 8 stores had small lots (30%), and only 3 (11%) had mid-sized lots.

The overall trend is that there is minimal need for parking for those venues (thus, the majority having no parking lot at all). People mainly walk to them and do not linger very long. Large stores need parking lots to accommodate all the shoppers and the time they spend inside.

The demographics of the areas also influence transportation. Lower income individuals may not own a car. The selected areas are not affluent and are predominantly African American. Figure 13 shows the areas with the most car ownership. This map was created with data from the Syracuse Hunger Project. The neighborhoods on the city's outskirts definitely have more car owners. This is not surprising, since the suburbs are located away from downtown. Downtown is a small area in the center of Syracuse, with more businesses than residents; this explains the concentration of yellow. Car ownership increases with distance from downtown: the same pattern of increasing affluence seen in the census maps in Chapter 2. Hence, it makes sense that the areas with fewer cars, lower income, and minorities would require walking.

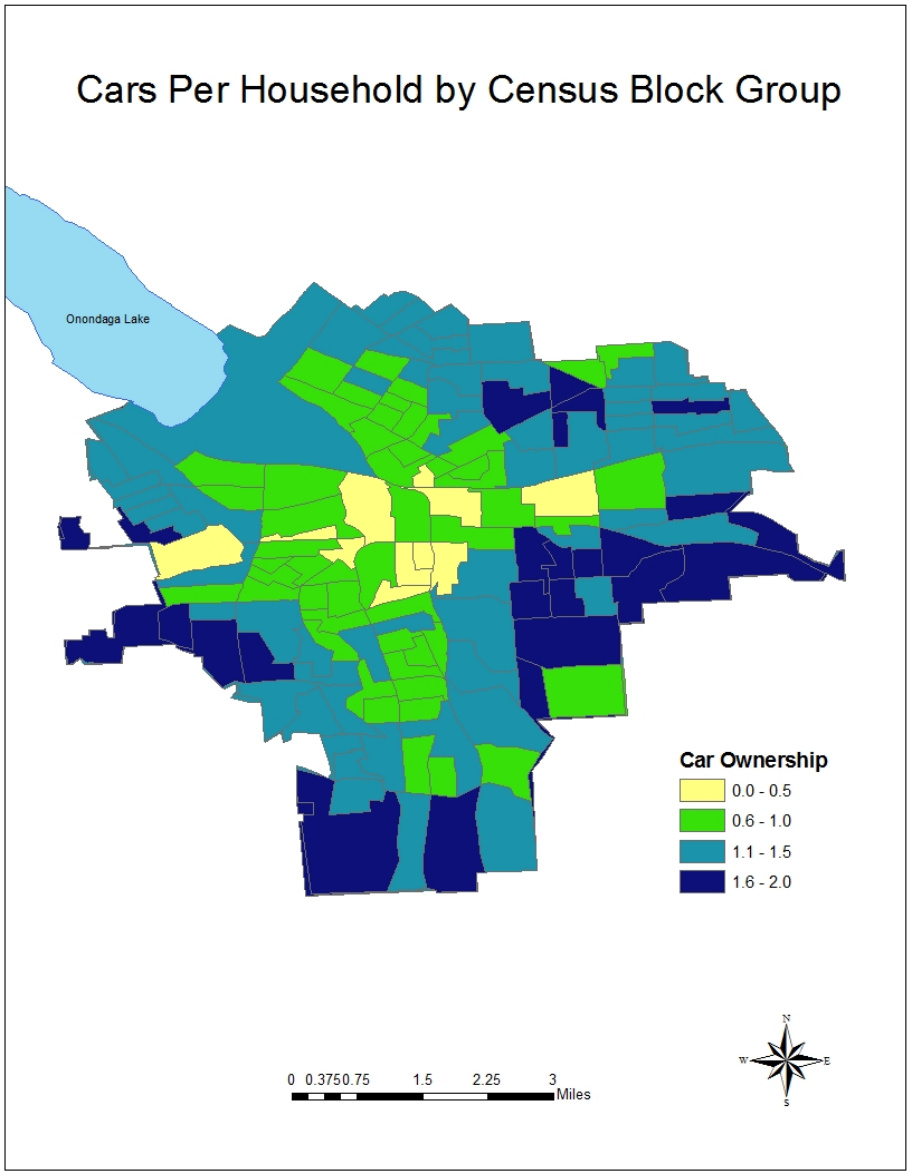

Figure 13: Car ownership in Syracuse. Source: Author

Correspondingly, no one was observed to use public transportation to get to these stores, though they are located on bus routes. It seems that there are enough of them evenly scattered so that residents are in close proximity to at least one, to be able to walk. Because taking a bus requires time, money, and organization, the trip would have to be worth going the extra mile. Public transportation would be useful to non-car-owners who desire accessing stores that

are far away. If one makes the effort to go to a store at a greater distance, it must be for a reason. Many Syracuse residents travel to the DeWitt Wegmans for the variety and selection, even if it's not as close as some other available food sources. This has everything to do with accessibility in a food desert.

In sum, communities in central Syracuse have inadequate grocery stores; accessing grocery stores with sufficient nutritious food then requires additional resources and effort.

Chapter 5: Accessibility

The conditions of the food desert described in the previous chapters certainly characterize the situation, yet mapping out where the food sources are located provides a clear visual complement to the data.

Figure 14 displays the convenience food sources of the selected study area as represented by blue dots. They are evenly dispersed amongst the zip code regions without clumping. In general, though, most of the food sources are concentrated towards the center of the city in downtown and on Brighton in the Southside (just south of downtown, not fully extending to the southern border; refer to the neighborhood map in chapter 1). The areas of the zip code regions which are closest to the city boundary are emptier. Many are found on the long strip of South Salina Street which runs through downtown and the Southside. Figure 14 depicts the convenience stores scattered throughout the selected area; however, there are no large grocery stores. Figure 15 adds the locations of these larger sources.

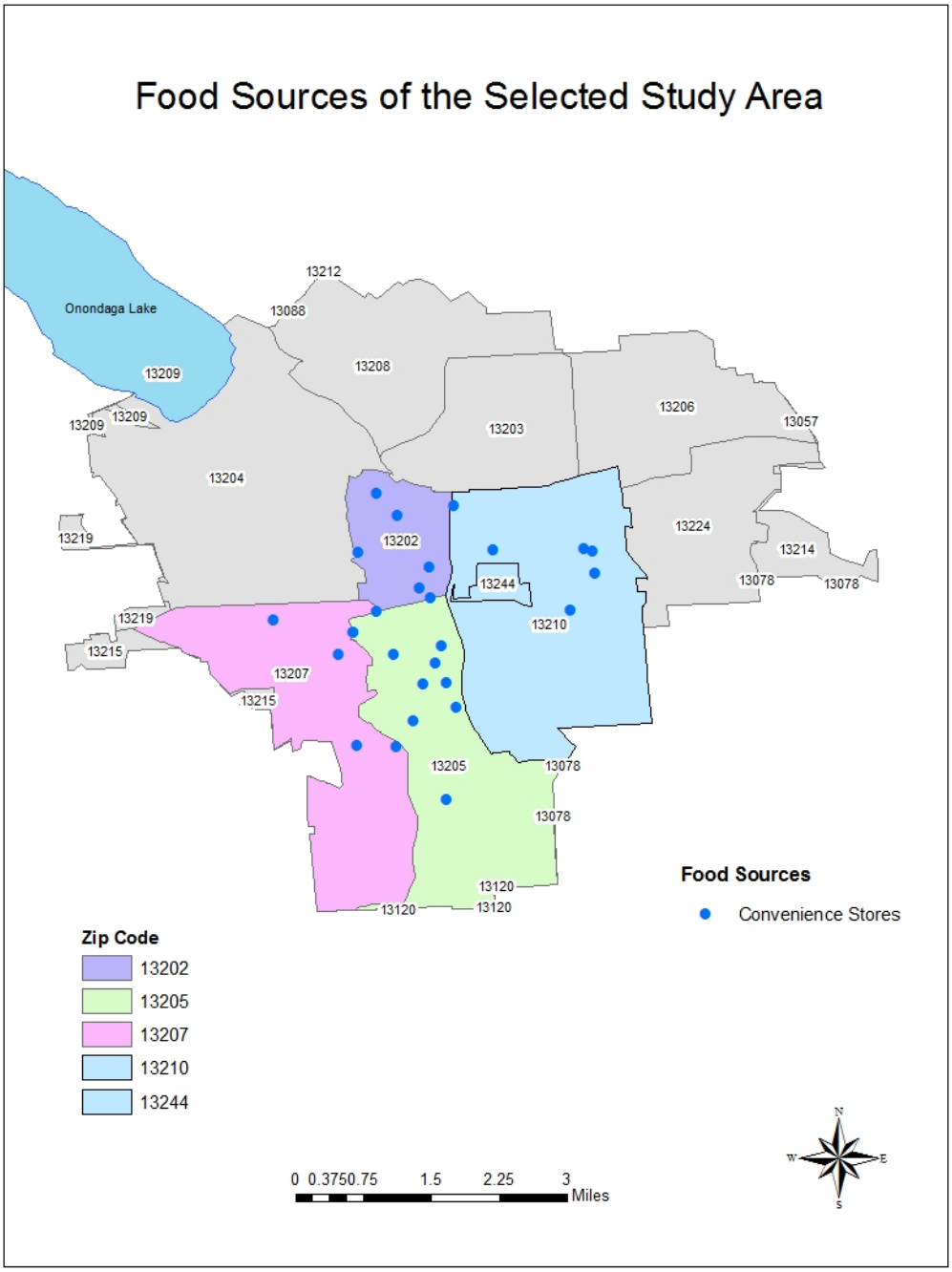

Figure 14: Convenience store locations of the study area. Source: Author

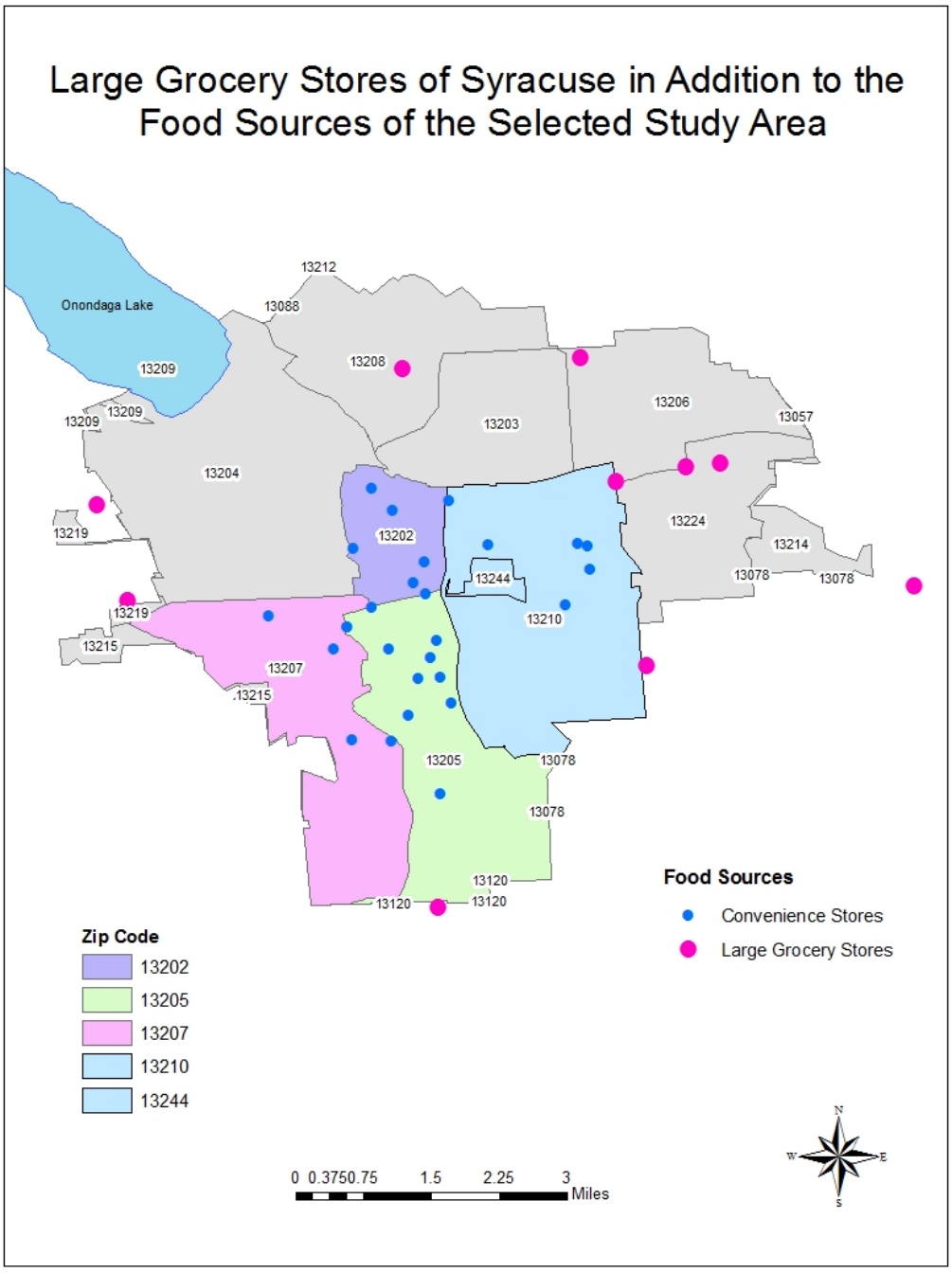

Figure 15: Large grocery stores of Syracuse and the study area's food sources. Source: Author

In figure 15, the bigger picture comes into view. The large grocery stores, mainly chains, are located along the city boundaries. Most of them are on the "top" and "sides" of the city. Only one, Green Hills Farm Stand, lies completely

south. Notably, this is the only non-chain large grocery store. That means it is no coincidence that chains are in more affluent areas like the North and East sides, where there is enough business to profit. Unsurprisingly, there was a stark difference in the people who shopped at the convenience stores versus the large stores. Mainly African Americans were observed at the smaller stores. Middle-aged adults and teenagers were very common customers. On the other hand, the large stores were populated with predominantly white shoppers of all ages. It is not uncommon to see moms with children sitting in the cart, the elderly, and everyone in between. Even Green Hills Farm stand, the stores closest to the Southside, followed suit.

The contrasting pattern at the center and periphery of Syracuse is not new. This is the same trend seen in the earlier figures concerning race, income, and housing values. It is clear just by looking at Figure 15 that residents living in the center and southern regions of the city are not as close to the larger grocery stores. Thus, the smaller convenience stores are accessible, the chain stores are less so. Figure 16 further supports this claim with some distance analyses.

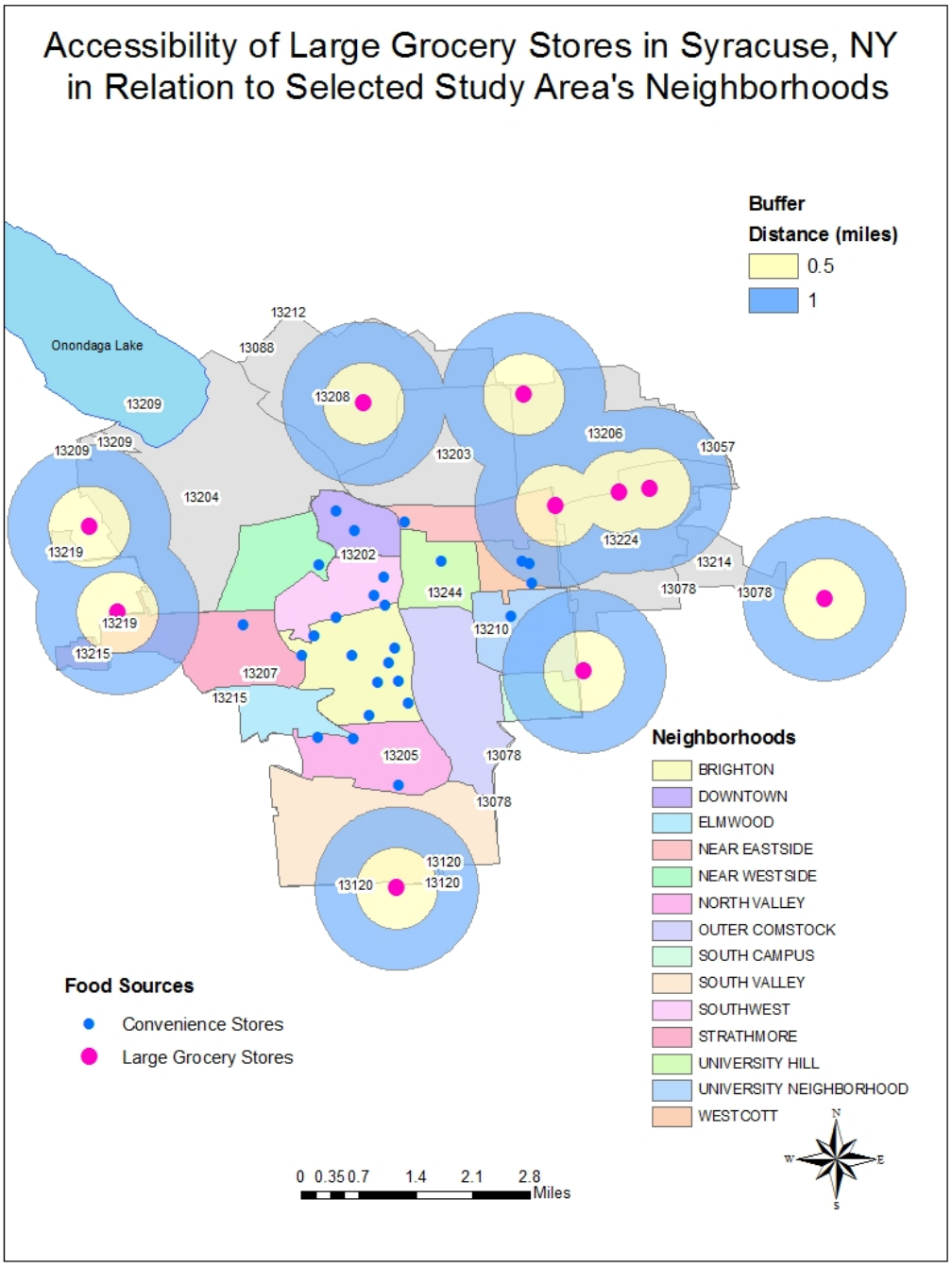

Figure 16: One-mile buffer around large grocery stores in Syracuse. The selected study area is divided into neighborhoods. Source: Author

The buffers seen in figure 16 show areas within one mile of each large grocery store. This addition makes it clear that the residents in the study area must travel the farthest to access these stores as compared to the rest of the city. The

large stores are not within walking distance, and as we have seen, cars and public transportation are problematic.

Figure 17 shows the map used to further evaluate the distances between the neighborhoods and the large grocery stores. Each zip code was divided into its census block groups, outlined in purple. The center of each block group was assigned with a centroid. The centroids are shown in various colors depending on what zip code they belong to. The distance from each centroid to each of the large grocers was calculated. The smaller scale is important because it breaks down the larger area of zip codes into more precise, and realistic, measurements. People live all over a zip code, so there will be varying distances to large stores within each zip code.

Distances were calculated between each centroid and each large grocery store. The shortest distance indicated the closest grocer. For each zip code the shortest distances were averaged, yielding the average distance from that zip code to the closest adequate food source. Table 6 shows the findings by zip code. In addition, the average of all distances (each centroid to each store) are included. Unsurprisingly, these numbers are larger. There appears to be a relationship between the two categories, though. The average shortest distance is generally half the averaged distance to all of the stores. In fact, the combined averages (see Table 6) are a perfect 2:1 ratio.

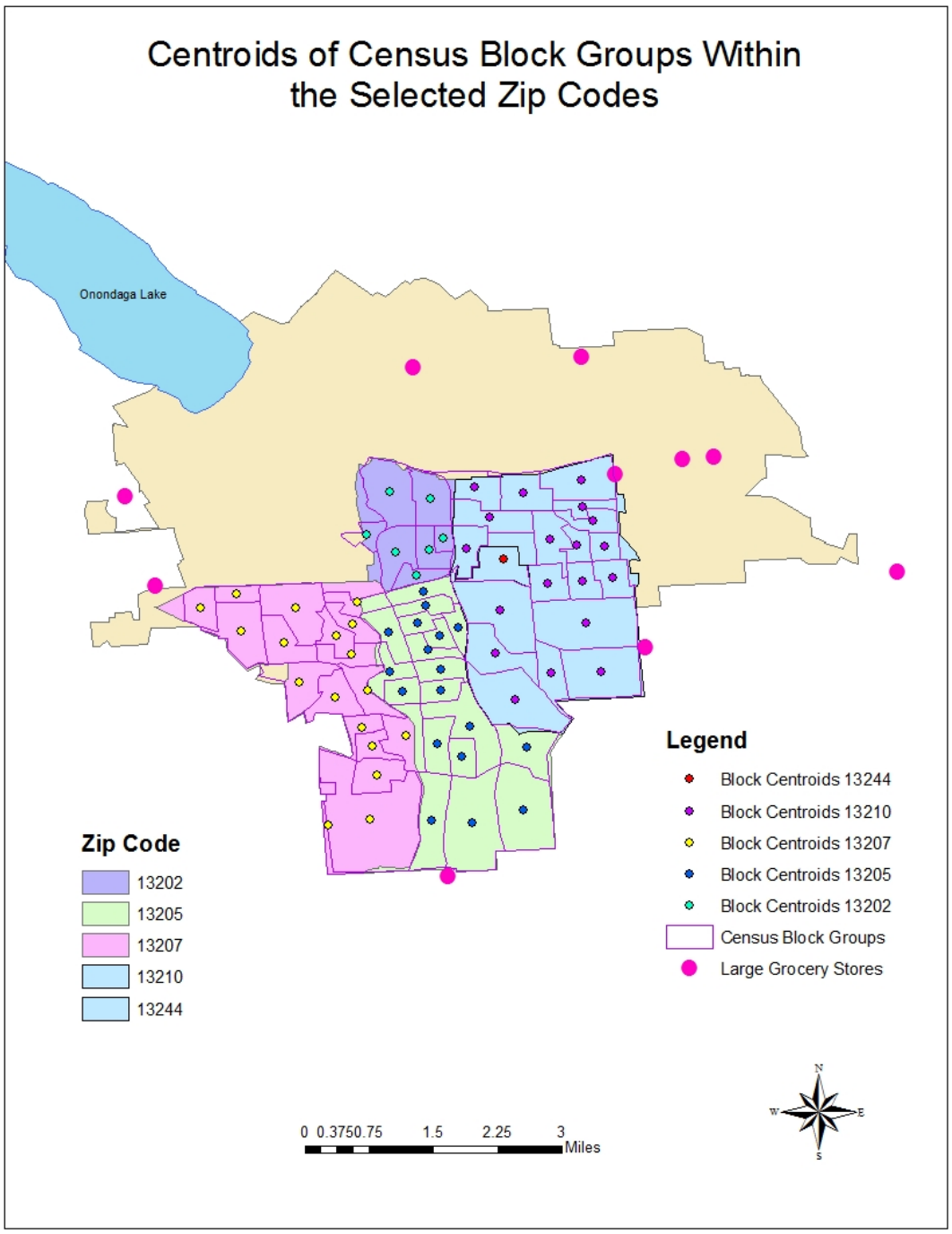

Figure 17: Centroids of the selected area's census block groups used for distance analysis. Source: Author

Table 6: Average distances of each zip code to large grocery stores, based on the centroids from Figure 17.

Average Distances From Selected Zip Codes to Large Grocery stores		
Zip Code	Average Distance to Closest Large Grocery	Average Shortest Distance to any Large Grocery
13205	1.75	3.30
13207	1.45	3.55
13202	1.79	2.71
13210	0.92	2.59
13244	1.38	2.53
Combined Averages	1.46	2.94

The Syracuse food desert is apparent. The food sources which provide abundant, and nutritious, options are located in affluent areas located along the city border. The central and southern areas are farthest away. Food security for these communities is compromised by the inferior food sources that are the most available to them, and also the insufficient means required to access those sources.

Chapter 6: Conclusions

The demographics of the Southside play a huge role in the ability to access food. Being of lower income and primarily African American characterizes communities which are at risk of being food insecure. Syracuse residents in the selected study area are not starving, but they simply do not have adequate access to nutritious food sources. This study investigated the food sources of four zip codes and all of them are insufficient. These are convenience stores are almost all with different varieties of foods. All pale in comparison to the larger stores; that is, larger chains like Wegmans.

The smaller corner stores are easily accessible, but do not offer much of a selection of foods. Part of defining hunger is that people have nutritious food, not just any food. Thus, traveling to a larger store in order to purchase fresh produce, fresh meat, and many other goods is essential, though more of a burden. One may not easily walk over a mile to grocery shop. It is clear to see that the large grocery stores are found close to the Syracuse boundary. The selected study area is centrally located and also reaches down to the Southside. Therefore, residents have to travel farther in order to access the better stores.

Grocery shopping boils down to accessing food. The task of accessing food should be a task which every one of us can complete independently and without hardship. While Syracuse is not a starving city, hunger as a social justice issue is clearly illustrated by the unequal accessibility to sufficient food sources. Those who literally have to go the extra mile to obtain good food selection are those in low-income, minority neighborhoods.

Zip code 13210, the University area, may be the only exception to these patterns. It is a special community because of the presence of Syracuse University and its 14,000 students. For this reason, the food situation may be analyzed through a different lens. Dining halls feed many of the residents of 13210. Much of the space is devoted to the campus, campus housing, apartments, and other infrastructure, like Crouse Hospital. Many students frequent the P & C on Nottingham Road (the pink dot on the lower right of 13210 in the maps), and the stores on East Genesee (represented by the row of three pink dots on the left) or they venture out to the Wegmans in Dewitt (outside Syracuse). However, many students have cars allowing access. Carpooling is also common among house mates. Still, driving to the Wegmans on East Genesee can be a twenty minute drive. From experience, students will still make the trip because of its popularity, but groan at its inconvenient location.

The maps display the need for a centrally located grocery store. Ironically, though, one very recently existed. There was a P & C on the Southside, which closed in February of 2009. In fact, the whole company is going out of business and the one on Nottingham Road, shown on the maps as the pink dot in the lower right of 13210, is in the process of being bought out at present. Notably, however, the one on Salina has no interested buyers. When open, it provided the usual selection and quality of a typical chain grocer. It was also located proximal to the areas of Syracuse which are lower income and minority populations. Many residents depended on this food source. Not only was it a higher end store with abundant varieties of sustenance, including fresh produce and meats, but it was

easily accessible to residents of the Southside. Having an adequate grocery store close enough to walk or is a short drive makes life much easier.

The South Salina P & C was not advantageously located for large grocery companies. There is little purchasing power due to the demographics, which does not bode well regarding profits. Shop lifting is another problem in this area; stores must have the proper insurance. Plus, there must be ample space for massive parking lots and the store itself. Certain areas simply do not cater to the ideals for large grocery companies. Unfortunately, these are often the areas which need them most.

In a phone interview, local Southside activist Aggie Lane emphasized the need for a grocery store on the Southside. Lane resides there even though she does not fit the racial and economic profile. A retired engineer, she is constantly involved in solving the many problems of the neighborhood.

Lane provided a much fuller perspective on how residents shop for groceries. She said that many walked to a neighborhood grocery called Nojaim's in zip code 13204 (on the Near West Side), which sells fresh produce. Also, residents venture to farther-flung stores like Wal-Mart and Wegmans for "deals" and a wider variety of foods. While not everyone owns a car, most people know someone to get a ride with. She pointed out that the choices and prices have to be worth it for shoppers to use a car. Those without access to a car must depend on what is accessible to them like convenience stores, family dollar stores and drug stores. Stores with hot prepared foods and fast food places like KFC and Burger King are also common options. Lane noted that these are threatening, because our

culture has formed a palate accustomed to fattening, salty, and sweet foods which are made cheaply. These were precisely the food sources most easily accessed in the study area.

More research, however, could be done into the study area residents. Much of this investigation involved surveying the locations and qualities of food sources. A much-needed complement would be surveying the communities about their food needs and access. Maps may visually show us the food landscape, but hearing words spoken by those who live within that landscape delves a level deeper. In my field work, I did not interact with the public. I would be interested in asking the locals about their food choices and why they make them. What are their shopping patterns? What are they eating for dinner each night? The personal side of the community must be added to the physical surveying and map-making.

In addition, only a specific area of Syracuse was explored. This study focused on areas known for their shortcomings. A related, though somewhat converse, study for comparison and completeness purposes would be to carry out the same procedures in the more affluent, white neighborhoods along Syracuse's boundaries. Expanding to include the entire city's food sources would be much more comprehensive. Incorporating the whole city would be the best way to see the entire food landscape.

Food deserts are problems all over the world and need to be addressed on every scale. It is of the utmost importance that people be food secure. Food is essential to a fruitful and healthy life. It is not right when access to this basic need is unequal and uneasily obtained. Not only must food be available, but nutritious

food. As this study has shown, chips and soda is not reasonable for these four zip code areas. While sufficient large stores are located along Syracuse's borders, they are simply not as easily accessible for the communities within the center of the city, which are areas of lower income and minority populations. This study supports opening a new, more centrally located grocery store of the "chain" quality.

While there are programs on both state and local levels (like the soup kitchens and food stamps) to alleviate hunger, they are futile if there is no decent place to use them. Crucial support is needed from the city government. Stephanie Miner must make it a high priority to provide tax breaks and incentives to get a grocery company to locate where it is needed most: in the heart of the city. Food security may be applied to other high priority issues for Syracuse like "Say Yes to Education." Improving achievement in schools is highly affected by children eating properly. The lack of action on the state level has only fueled the role of Nation Food Policy programs like Meals on Wheels and Food Banks to ease the expanse of hunger.

In terms of Syracuse, adding an adequate store to the mix will more evenly distribute the proximities of people to a close grocery store. My research will be passed on to the Syracuse Hunger Project. I hope my thesis will contribute towards bettering those neighborhoods which lack resources they desperately need. There are already efforts working to solve the social justice issue of hunger in Syracuse; let us all help those seeds grow, so everyone may feed on the good food we all deserve.

Capstone Summary

My thesis is about hunger, or food insecurity, in Syracuse as related to accessibility of food sources. Food insecurity is defined by the United States Department of Agriculture as "the lack of nutritionally adequate, safe, and culturally acceptable food, available through non-emergency sources at all times." Conversely, food security is being able to access enough food at all times for an active, healthy life. While Syracuse is not a starving city, food insecurity exists on many levels. My thesis investigates how accessible food is to certain parts of the city. Accessibility calls into question the proximity of food sources to communities, the quality of such food sources and the resources available to access those available food sources (transportation and mobility).

Every person deserves to be food secure. It is a basic right each and every one of us holds. In that regard, hunger is a social justice issue; meaning certain groups of individuals like minorities and the financially disadvantaged are more likely to be affected by hunger. Yet it is unjust for anyone not to have adequate access to nutritious food. This idea is applied to my thesis.

The Southside of Syracuse is known as a low-income, primarily African American neighborhood. Because low-income, minority individuals are more prone to suffer from social and environmental injustices, I chose to focus on the Southside and its surrounding areas. In fact, there is a general pattern concerning demographics in Syracuse. From the center out to the border of the city, income increases and minority representation decreases. My selected study area targeted

the center and southern regions. In order to assess food accessibility, three questions were addressed:

(1) What and where are the food sources available?

(2) How do these sources vary in terms of quality and selection?

(3) What mode of transportation is used to visit such sources and why?

More specifically, the selected study area was composed of the Southside, zip code 13205, and the surrounding zip code areas of 13202 (Downtown), 13207 and 13210 (University area). I used the database *Reference USA* to provide a listing of the grocery stores located in each zip code. *Reference USA* contains a detailed listing of over 20 million businesses with the ability to search by company name, type of business, location, business size and more. I searched the terms 'grocers wholesale,' 'grocers retail,' and 'convenience stores.' I then eliminated some results, mainly gas stations and specialty food stores, because I wanted to focus on grocery stores specifically. The venues I removed may have been categorized under the search terms, but I consider them to be purposed other than as a grocery. This was critical because of the surveying I conducted which looked at typical food items. I would not be fair to analyze a seafood store and gas station in the same regard as convenience stores. The database provided valuable information about each venue, like square footage, annual sales volume, number of employees, and location type (branch or single). This information supplied a good sense of these stores: small, independently owned stores with low volumes sales and few employees. Essentially, every food source in the selected study area was a convenience store, corner store, or bodega.

I then visited each store and conducted a survey of the food selection. My survey list was inspired by a similar study which chose items based upon a USDA handbook list built from the USDA's Thrifty Food Plan recipes. My survey was composed of 62 basic food items which incorporated all food groups, are commonly used, and commonly available. The items were categorized as: fresh fruit, fresh vegetables, canned fruit, canned vegetables, frozen fruits and vegetables, fresh breads, cereals, and other grain products, dry bread cereals, and other grain products, fresh dairy products, dairy products, fresh meat and meat alternatives, frozen and canned meat and meat alternatives, fats and oils, baby products, and sugars and sweets. I noted whether or not the items were present in each store.

For some analysis I used the program ArcGIS to make various maps to express key points in my findings. This involved inputting data like store addresses, the survey results, and demographic information about Syracuse. Each aspect correlates to a 'layer.' Multiple layers are built upon each other to produce a map displaying the chosen information. Many map combinations demonstrate the various important relationships from my study. Additionally, ArcGIS conducts many analysis functions such as distance and nearest location which are especially critical to this investigation about accessibility.

These small stores were very limited in their selection of food, especially regarding fresh produce and meat. The percentage of survey items ranged from 3% - 79%, and the average was 45%. No items were carried in all stores, but spaghetti sauce, cereal, rice, sugar, milk, vegetable oil and juice had the highest

percent of presence in stores (88.9%) Some other items (fresh meat, French or Italian bread, soy milk, veggie burgers and tofu) were not found anywhere at all. As for produce, only four stores carried both fresh fruits and vegetables. Two carried fresh fruit and another two carried fresh vegetables. Although these stores did sell fresh produce, the selection was not sufficient. The greatest selection was a store with 7 types of vegetables and 9 types of fruit. These stores carry basic items with long shelf lives. They are not acceptable for the weekly shopping trip seeking a greater variety of food including fresh products.

The shoppers at these convenience stores mainly employed walking as transportation. The stores themselves had small parking lots, if any at all. In general, people walked a short distance to access the stores.

The locations of large grocery stores, mainly chains, were also analyzed for comparison. These stores are located outside the study area, along the city boundaries in more affluent, white neighborhoods. Vehicular transportation must be used in order to access these venues: thus, the large parking lots. My selected study area is the farthest distance away to any large grocery store. This means that residents must have the resources like a car or money for a bus to literally go the extra mile in order to access stores with sufficient food selections. Thus, there is a Syracuse food desert in the areas which are demographically low-income, minority neighborhoods. This clearly exemplifies hunger as a social justice issue.

I conclude that the food sources within the selected study area may be accessible to that region, but are not nutritionally adequate. Having access to nutritious food is a critical aspect of food security. The larger stores with wider,

sufficient selections, however, are not as accessible. My study reflects the need for a centrally located grocery that will provide adequate selection and nutrition. This would help break down the Syracuse food desert.

Not only pertaining to Syracuse, but hunger on all levels is a serious issue because food is a basic right to fuel healthy lives. All of us deserve to have access to nutritious food. It is simply unjust that those who are disadvantaged in some way may unequally be able to be food secure. My thesis will hopefully contribute towards improving those deprived neighborhoods with the resources they need.