Healthy Food Access and Policy:

A Study of Urban and Rural Food Environments in Riley County, Kansas

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Master of Regional and Community Planning

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HEALTHY FOOD ACCESS AND POLICY:

A Study of Rural and Urban Food Environments
in Riley County, Kansas

by

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A Report

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Abstract

Accessing healthy food can be a challenge for people living in both rural and urban environments. A broad range of factors influences one's food security, including the accessibility and affordability of food retailers, travel time to shopping, availability of healthy foods, and food prices. The connections between planning and food systems have begun to emerge and be examined but planners face many barriers when tackling food system issues that range from turf problems, a lack of knowledge that any problem exists, to a lack of funds.

The study purposes were to 1) identify areas with low access to healthy food sources; 2) discover barriers and perceptions of healthy food accessibility among community members; and 3) explore current planning policies and practices for increasing healthy food accessibility.

The study area of this case is Riley County, Kansas, which has lower food accessibility especially to health foods in low income areas located in urban neighborhoods, even though rural areas are further away from a healthy food store. The research has the potential to inform the local food system framework and provide guidance for local policy makers and stakeholder groups. Surveys were collected from 150 households in order to identify challenges and barriers respondents face when obtaining healthy food. Food prices and low income were the largest barriers survey respondents faced when obtaining healthy food. Interviews conducted among 6 individuals from planning offices, market, and community stakeholder groups and both urban and rural issues were discussed. Currently, there is understanding of the importance of healthy food but little action that follows. There are opportunities for planners and policy makers to get involved with planning for the local food system. Partnerships must be established to share resources and technical skills among stakeholders in order to plan for healthy community food systems.

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Acknowledgments

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Chapter 1

Introduction

Introduction

Background

Efforts have been made from a national scale to improve American's diets and increase health and longevity through healthy eating. This agenda assumes that everyone has equal access to healthy food. Studies show that some people, especially those living with low-income, may face more difficulties accessing healthy and affordable food (Lin, 2014). Researchers from a variety of backgrounds including public health, human geography, and planning, struggle to find the extent of the problem and the relationships between food access, diet, and health. Healthy food accessibility and its policy are important for both urban and rural environments because food systems contribute to the public, social, ecological, and economic vitality of the community. Considering a broad range of factors influencing one's food security, including the accessibility and affordability of food retailers, travel time to shop for food, availability of healthy foods, and food prices, this study focuses on inequalities of healthy food accessibility between urban and rural communities.

Definitions

A food system refers to a cyclical process, including food production, distribution, consumption, and waste. When adding the word community to the term food system, there is an emphasis on strengthening existing relationships among the components of the food system by integrating environmental, economic, social, and nutritional health in a particular place. This study of healthy food accessibility focuses on the distribution and consumption sectors of the community food system.

In this study, the term healthy food means fresh whole food such as fruits and vegetables and other nutritious food that is recommended for a balanced diet. Limited access to supermarkets, grocery stores, or other sources of healthy and affordable food make it harder for some Americans to eat a healthy diet. Most food accessibility measures and definitions take into account at least some of the following indicators of access, accessibility to sources of healthy food, as measured by distance to a store or by the number of stores in an area; individual-level resources that may affect accessibility, such as household income or vehicle availability; and neighborhood-level indicators of resources, such as the average income of the neighborhood and the availability of public transportation (Ver Ploeg, 2009). All of these factors were taken into account when designing and developing this study.

The ability to access healthy food influences one's food insecurity. Food insecurity refers to the United States Department of Agriculture's (USDA) measures of lack of access to enough food for an active, healthy life for all household members and limited or uncertain availability of nutritionally adequate foods. Food insecure households are not necessarily food insecure all the time. Food insecurity may reflect a household's need to make trade-offs between important basic needs, such as housing, medical bills, and purchasing nutritionally adequate foods.

When researching healthy food accessibility, a food desert is another term often used, which is an underserved area with low access to a grocery store or other markets providing healthy food. Food deserts are defined by the USDA as urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. Instead of supermarkets and grocery stores, these communities may have no food stores or are served only by fast food restaurants and convenience stores that offer few healthy, affordable food options. The USDA's Economic Research Service estimates that 23.5 million people live in food deserts. More than half of those people are low-income. To further refine the number of people who may be affected by food deserts, a ten mile distance is used to consider food access in rural areas. 2.3 million people live in low-income rural areas that are more than ten miles from a supermarket (Ver Ploeg, 2009). USDA is at the forefront of identifying food deserts and working to eliminate them.

Research Inquiry

Inequalities of healthy food accessibility between rural and urban communities is the main focus of the research inquiry. One county was chosen as the bounds of the study in order to be able to examine the healthy food environment from different perspectives. The majority of previous studies focused on one method, using either quantitative data or qualitative data. Due to the focused nature of this research, multiple questions were asked and multiple methods were used to acquire a deeper understanding of healthy food access in urban and rural environments.

According to Feeding America's Map the Meal Gap study, Riley County, the study area, is the second most food insecure county in Kansas with approximately 13,240 people or 18.4% food insecure people (Gundersen et al, 2012). Asking questions that would tell where the lack of healthy food access is, who is affected by low healthy food accessibility, and how planners and policy makers can promote healthy food access in Riley County became important after discovering the county is one of the most food insecure counties in Kansas. Riley County is growing and has the opportunity to make changes or initiate programs to increase food accessibility, thus increasing food security for the residents of the county.

Thus, in this study, the following research questions and sub-questions are formulated and pursued:

1. Where are food deserts located in Riley County?

    Do rural residents have less access to food stores providing healthy food than urban residents living in Riley County?

2. Why do people have difficulties accessing healthy food?

    What are the barriers and opportunities for accessing healthy food in both urban and rural communities of Riley County?

3. How can people have better access to healthy food?

    How can current planning and policy methods improve healthy food access for all residents in Riley County?

Study Area

Riley County is located at the northeast part of the state of Kansas and was established in 1855, shown in Figure 1 on the next page. According to the latest 2014 U.S. Census projections, there are 75,394 people living in the county. The population has increased 4,279 people (6%) since 2010. The county is divided into 14 townships including five incorporated cities (Figure 2) with just over 609 square miles. The county seat and urban area is the City of Manhattan, which is located in the southeastern edge and has a population of 52,645. As the population reached over 50,000 in 2010 the city has increased public transportation initiatives which continue to grow every year. Kansas State University is located in Manhattan and a strong driving force for population growth for the city. Another source of added population is an army base called Fort Riley which is partially located in the southwestern portion of the county. The north half of Riley County is comprised of three smaller rural communities. These smaller towns have a combined population of about 1,500 people. For the purpose of this study, Manhattan is considered the one and only urban area in the county. The rest of the county is the rural area, including the smaller communities. These communities are Leonardville, Riley, Randolph, and Ogden.

Rural and urban food environments differ greatly in Riley County. Manhattan is the only city that has full-service grocery stores. Most smaller communities in the county have a convenience store as the only food retailer. This can be a problem for low-income and elderly populations living in rural areas that do not have the means to drive the long distance to get to a grocery store. Additionally, there are people living in Manhattan that also struggle to access healthy food despite the variety of food stores and services.

Figure 1. Location of Riley County

State of Kansas with Riley County highlighted

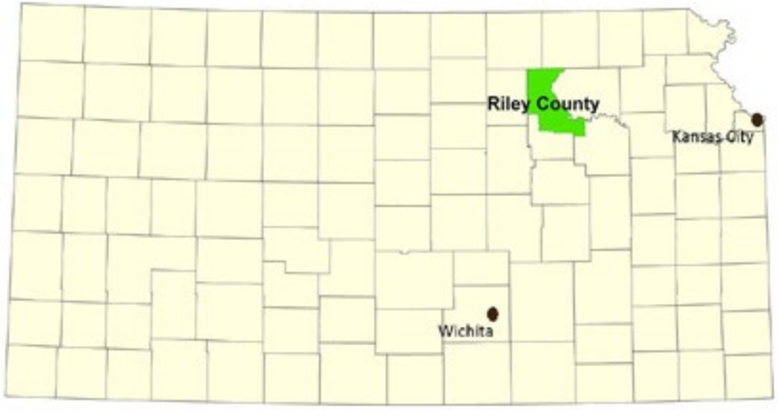


Figure 2. Riley County Incorporated Areas

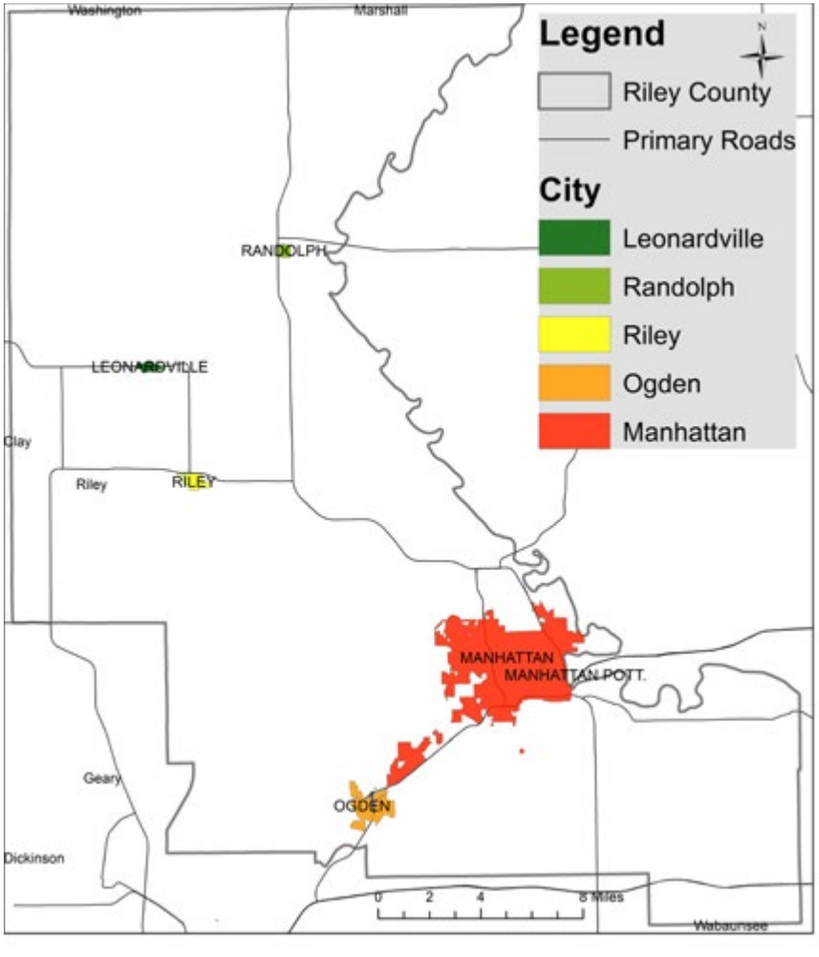
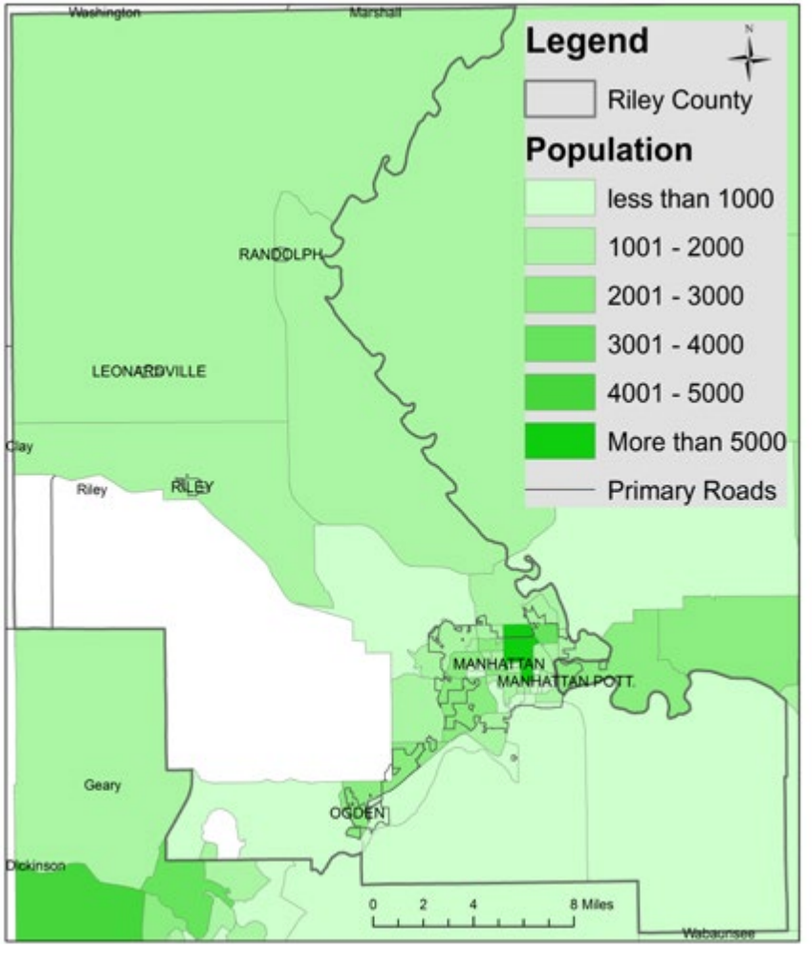


Figure 3. Riley County Population



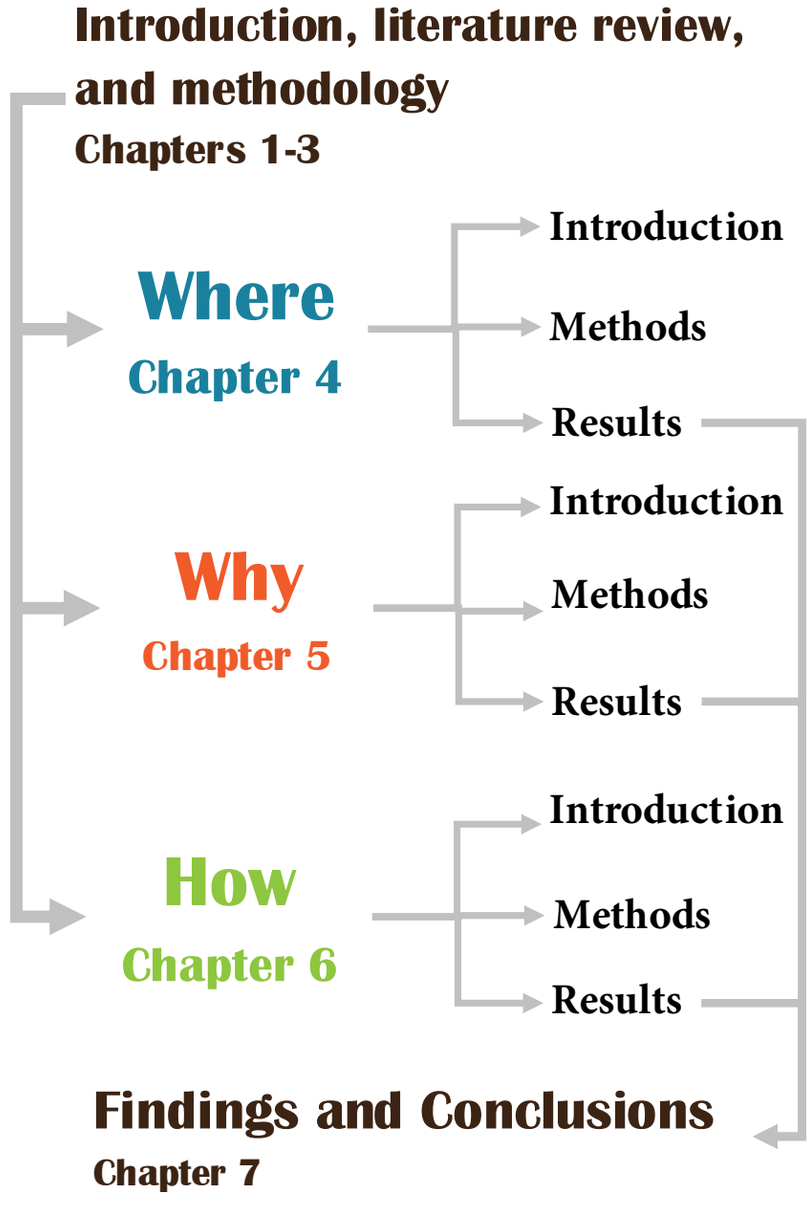
Objectives

The guiding force of this project was to discover information and make connections that is beneficial to the groups and organizations in Riley County that are working to increase healthy food accessibility. The study objectives guided the research framework. This study of healthy food access and policy aimed to 1) Assess proximity of food store locations to areas of residences in Riley County and identify food deserts or areas of low accessibility; 2) discover barriers and perceptions of healthy food accessibility; and 3) review current policies and identify best practices and recommend next steps and actions. To explore healthy food access in Riley County, the study flow in Figure 4 describes a framework for this project. The following chapters 4 through 6, describes detailed steps of how each semi-independent studies were conducted based on each chapter's methods. Each study has standalone results in its own chapter. The final chapter outlines the major findings and makes connections between each method.

Food For Thought: Food Systems in Urban Planning

The planning profession focuses on being comprehensive and connects many systems such as land use, housing, transportation, the environment, and the economy. Comprehensiveness refers to the inclusive consideration of all the stakeholders to make plans for the future. In this sense, comprehensiveness refers to a set of particular features, functional elements, geographic boundaries, or other material aspects of a settlement as well as how well each stakeholder understands the validity of a plan's claims from the viewpoint of the others (Hoch, 2007). Despite the intersection with several areas in planning, food systems and healthy food accessibility issues have been relatively absent from planning practice and literature (Pothukuchi and Kaufman, 2000). As food systems contribute to the public, social, ecological, and economic health of communities, healthy food accessibility and its policy are important for both urban and rural communities (American Planning Association, 2014). A broad range of factors influences one's food accessibility, including the proximity and affordability of food retailers, travel time to shop for food, availability of healthy foods, and food prices.

Figure 4. Study Flow
A simplified structure of study contents.



It was found that planners face many barriers when tackling healthy food access issues that range from turf problems, a lack of perception that any problem exists, to a lack of funds (Clancy, 2004). Planners can play a role in creating sustainable food systems in communities through policy, economic strategies, and promoting healthy lifestyles (Campbell , 2004). The momentum is gaining on this topic of food accessibility and cities are working to improve their food systems across the country in both rural and urban environments. Planners can compile data, analyze connections, and assess the effects of their decisions on components of the food system (Clancy, 2004). Planners can also provide assistance in conducting a Community Food Assessment. Assessments like these can better inform overall master planning, for example, identifying land for food-related activities such as urban gardens and farmers markets. Activities such as these can go far to help improve the health and welfare of communities.

Chapter 2

Literature Review

Literature Review

Introduction

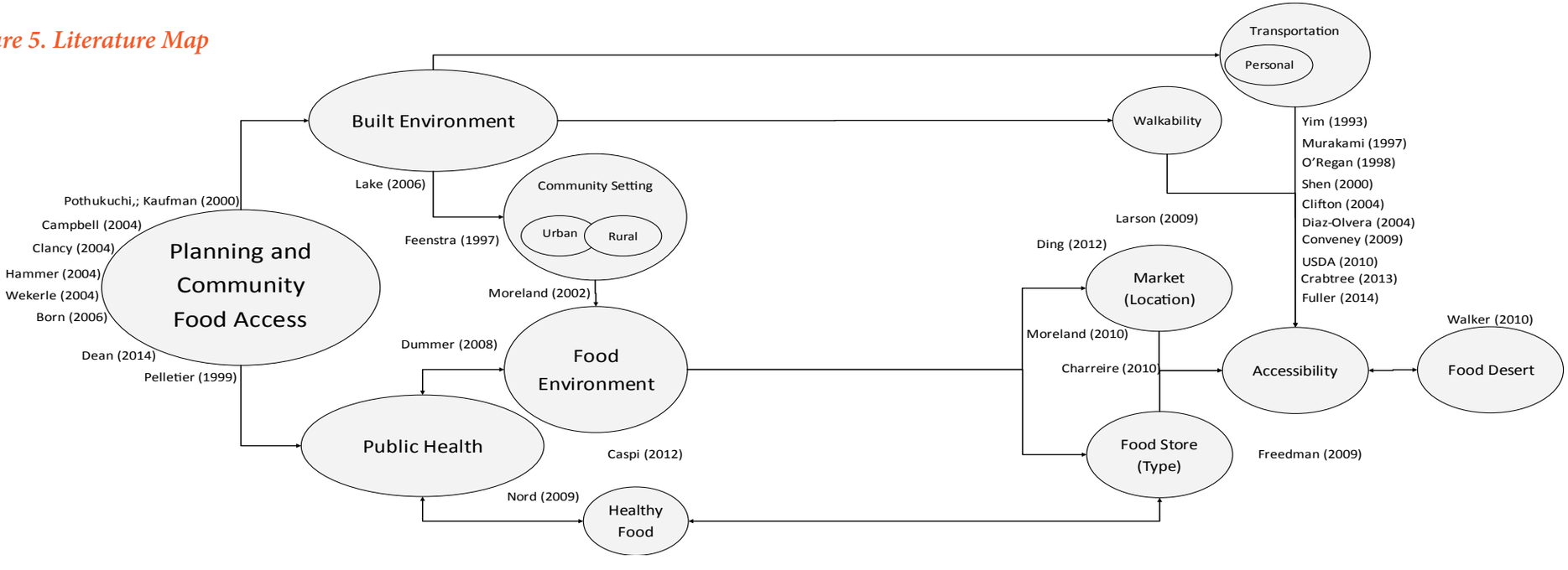
This chapter is an analysis of research involving food access, as it relates to public health, with an emphasis on food stores in both urban and rural settings. The studies of food environments are complex and deal with many factors contributing to food accessibility. This study is an attempt to gather relevant research, data sources, and methods used to measure food accessibility. The literature map shows a comprehensive view of the concepts and topics of thirty articles from 1993 to 2013 gathered from planning research, geography, and medical research journals (Figure 5).

As the review developed, the issue of community food security as it informs planning, the built environment, and public health stood out as a motivation of food accessibility research. The following section is a synthesis of what is meant by and defining the food environment, food access, and measuring food access based on the literature found.

Food Environment: Urban and Rural

Urban environments, particularly the built environment dictates where food retail is located and how people are able to locate and purchase food. The decline of the central-city is a reason why urban neighborhoods have low quality food environments (Campbell, 2004). Conventional neighborhood supermarkets have been relocated to the outer edge of the city to accommodate more affluent households. Especially, low-income neighborhoods suffer from this phenomenon. Many low-income residents without dependable vehicles, must either travel to other neighborhoods in order to access grocery stores, or they must rely on the much more plentiful and dispersed convenience stores. The fresh produce sold at these stores are limited and of poor quality at a higher price (Campbell, 2004). Low-income, urban dwellers find themselves with limited healthful food options and an increased risk of health problems in result of poor diet. Although the degree of this problem varies from city to city and household to household, it is widely accepted that the health and eating habits of Americans have been in decline and the food environment in which one in immersed in is a contributing factor of healthy food access.

Figure 5. Literature Map



Food access can be a challenge in both urban and rural areas. Many of the 60 million residents of rural American struggle to get high quality groceries close to home (Bitto, 2003, Procter, 2011). The elderly and poor, who make up high proportions of rural communities, are particularly affected by these expanding "food deserts" (Bitto et al., 2003; Whitacre et al., 2009). Rural communities are sustained, in part by local grocery stores, where many needs of the community can be met. Not only is meeting nutritional needs an important role of the grocery store, but also igniting economic vitality and creating a space for civil discourse added benefits (Procter, 2013). It has been observed that most local grocery stores are closing their doors due to larger big box retailers locating in more urban or regional shopping areas. In many rural communities, convenience stores, gas stations, or dollar stores become the only retail food outlet, supplying high priced, nutritionally diminished foods (Bitler and Haider, 2009; Karpyn et al., 2009; Ford, 2009; Morris et al., 1992; Morton and Blanchard, 2007; Ver Ploeg, 2009). This holds true in Riley County because there are four smaller, rural communities in the county with only one convenience store in three of the four towns. All the other types of food stores, including supermarkets, grocery stores, specialty food stores, and farmers markets, are all located in Manhattan.

Food Store Type

Food store types are separated by size and what variety of foods are offered. Several studies have identified which store type is generally regarded as offering healthy and inexpensive food, such as supermarkets and grocery stores. The North American Industry Classification System (NAICS) defines these stores as retail food stores that offer a variety of fresh produce and meats, and processed and packaged foods on shelves or in coolers and freezers. The NAICS, which is used by federal statistical agencies to collect, analyze, and publish statistical data related to the nation's economy. Grocery stores and supermarkets are seen as one of the best ways to access healthy food, versus convenience stores, fast-food, and full-service restaurants that sell prepared, high-calorie food at higher prices (Larson 2009). Riley County has all food store types mentioned within its borders. However, all the supermarkets, grocery stores, farmer's markets and specialty food stores are located in Manhattan, the urban area. The convenience stores are more dispersed throughout rural and urban areas in Riley County.

Healthy Food Accessibility and Food Deserts

The number of people struggling to access healthy food is increasing. When a person struggles to meet their daily nutritional needs, they are considered to be food insecure. Food security is based on people's ability to access healthy food. Those with low-income may face greater barriers in accessing healthy and affordable food, which may negatively affect diet and food security (Coleman-Jensen and Nord, 2013).There is a vast range of components and factors that go into determining food accessibility. Not just the presence or lack of healthy food stores, but also the options to access them such as, money, time, physical ability, and transportation, influences a person's ability to make healthy food choices (Eckert, 2011). Identifying geographical areas where there is low food accessibility, often referred to as a "food desert", and attempting to understand the causes, is an emerging role for planners.

The term "food desert" was first used in the early 1990's by a Scotland resident (Cummins, 2002). Since then, the definition of food deserts has evolved and defined differently by researchers and governmental agencies. A food desert is a term used to describe an area that does not have adequate access to food outlets within a community. The residents of a food desert community have a higher risk of being food insecure. Long walking or driving distance to food stores from a residence in a community is an indicator of a food desert. Generally, a food desert is regarded not as a complete absence of food stores, but rather an area with limited access to affordable and nutritious food in a lower income area. Affordability refers to food prices and people's perceptions of worth relative to the cost (Caspi, 2012). The word affordable is related to personal income and is also an important factor to take into consideration when evaluating an areas access to adequate food stores. One way to evaluate the wealth of an area is to assess poverty level or find a community's socioeconomic status for example, median income.

Food Environment and Public Health

Whether people are at home, work, or out running errands, food retail and food advertisements are all around them. People tend to make choices about their food consumption, as indicated before, based on what is readily available to them on a regular basis. The food environment has been categorized differently by different researchers. One way a popular study characterized the food environment was: school food environments, worksite food environments, home food environments, and community and consumer nutrition environments (Glanz, 2009). Similarly, in another study, four different types of food environments were identified, including food store environment, restaurant food environment, school food environment, and worksite food environments, and used accessibility, availability, affordability and quality as major measurements of the food environment (McKinnon, 2009). The focus of this study is community and consumer food environments in Riley County. The community food environment is defined by the number, type, location, and accessibility of food outlets such as grocery stores, convenience stores, fast-food restaurants, and full-service restaurants (Glanz, 2009). For this study fast fast-food restaurants and full-service restaurants were omitted because it focused on food people buy to take home with them and prepare and eat on a regular basis not what people eat on occasion at restaurants.

The characteristics of a community that were considered as factors influencing food accessibility and food security in the literature were, socioeconomics, population, transportation and walkability. The setting of a community and its food environment is another view on food accessibility research. The community food environment is made up of the different types of food outlets and location of those outlet points. Accessibility to healthy food can be determined by the community food environment. It is generally accepted that minority or low income neighborhoods correlate to a food environment that is lacking in healthy food options or has lower accessibility to healthy food (Glanz, 2009; Larson, 2009; Freedman, 2009; Walker, 2010; Caspi, 2012). Researchers aim to study the food environment to determine accessibility and examine disparities and variations across the food landscape.

The research finds that one's physical environment has an effect on consumer behavior (Moreland, 2002). People make food intake choices everyday based on many factors, such as culture, but the biggest factor is mainly what is readily available to them and what they are used to seeing around them. Consumer choices about food spending and diet are likely to be influenced by the accessibility and affordability of food retailers, travel time to shopping, availability of healthy foods, and food prices. Neighborhoods with better access to supermarkets and other retail that provides healthy food have healthier eating habits (Larson, 2009). People with a low income, that do not have access to dependable transportation and do not live close to a supermarket or grocery store, find themselves getting food from sources that are closest to them. These stores are often times convenience or fast food outlets. Another way people cope with a lack of healthy food accessibility is limiting their meals, which has also led to decreased overall health. Attention to food and nutrition environments has been growing in public health studies (Glanz, 2009).The majority of the literature on food access is motivated by decreasing the obesity rate and increasing health outcomes in both adults and children.

Measuring Food Access: Towards a Methodology

The dimension of accessibility may be more inherently geographic, as it refers to the location of the food supply and ease of getting to that location, making travel time or distance key measures of accessibility (Caspi, 2012). The use of Geographic Information System (GIS) technology has been increasing in popularity during the past twenty years. The methods of measuring food access commonly use food store density. Many studies look at the distance, from a neighborhood, to adequate food stores as a way to measure adequate food accessibility. Thresholds for distance to measure in urban and rural areas have been identified by USDA and have been tested by several researchers. For rural areas, the measure of ten miles seems to be undisputed as there does not seem to be any other distance of measure found in the recent literature. Research indicates that "severe" food deserts, counties in which residents must drive 10 miles to the nearest supermarket, are still apparent throughout the western portion of the Great Plains states (Morton and Blanchard, 2007). However, for urban areas the distance used

to measure varies from a quarter-mile to half-mile, some studies using one-third mile as a measure (Eckert, 2011). The decision to use a certain distance buffer depends on the density of the area, the general walkability, and driving habits of the residents. This research project used the ten mile driving distance for rural areas in Riley County and for Manhattan radius of one mile, one-half, and one-quarter of a mile was considered. The majority of residents in both urban and rural areas of Riley County use a vehicle as their primary mode of transportation. Further research was required to obtain data on personal vehicle ownership and commuting times and trips to work which can be obtained from the U.S. Census.

The study of food accessibility and its effects is a fairly recent area of research, but there is enough history of established methods and data sources. Outlined by Glanz (2009), there are three main sources of data that was used in his research at a macro level that come from governmental sources, industry data, and other research. There are many governmental groups and departments that survey and monitor the food environment, the largest being the United States Department of Agriculture. USDA is a highly credible source of data with a long history of monitoring food systems.

A respondent-based method this study used is a community food survey. Studies using a combination of GIS and survey measures are generally uncommon according to previous research (Caspi, 2012). A vast majority of studies, which solely relied on GIS-based methods, outnumber ones that used interview or questionnaire measures (McKinnon, 2009). The aim of this project is to gain a general understanding of spatial relationships, along with consumer habits and barriers, that influence healthy food accessibility.

Summary

Through the literature review, certain aspects of food accessibility were identified, explored, and defined for the purpose of this research project. It is apparent one cannot cover a topic as wide as food accessibility in a short amount of time. However, by focusing on one area such as Riley County and studying the consumer food environment, one can begin to understand the ways in which healthy food accessibility can be promoted and increased by identifying food deserts, uncovering public opinion, and recommending policy. The literature has helped identify and define the food environment and healthy food accessibility. It also helped determine different ways to measure food accessibility, which informed the methodology for this project. Finally, the literature review made connections between the research topic and planning as a profession. There are many ways planners can influence the food environment and increase healthy food access for promoting public health.

Chapter 3

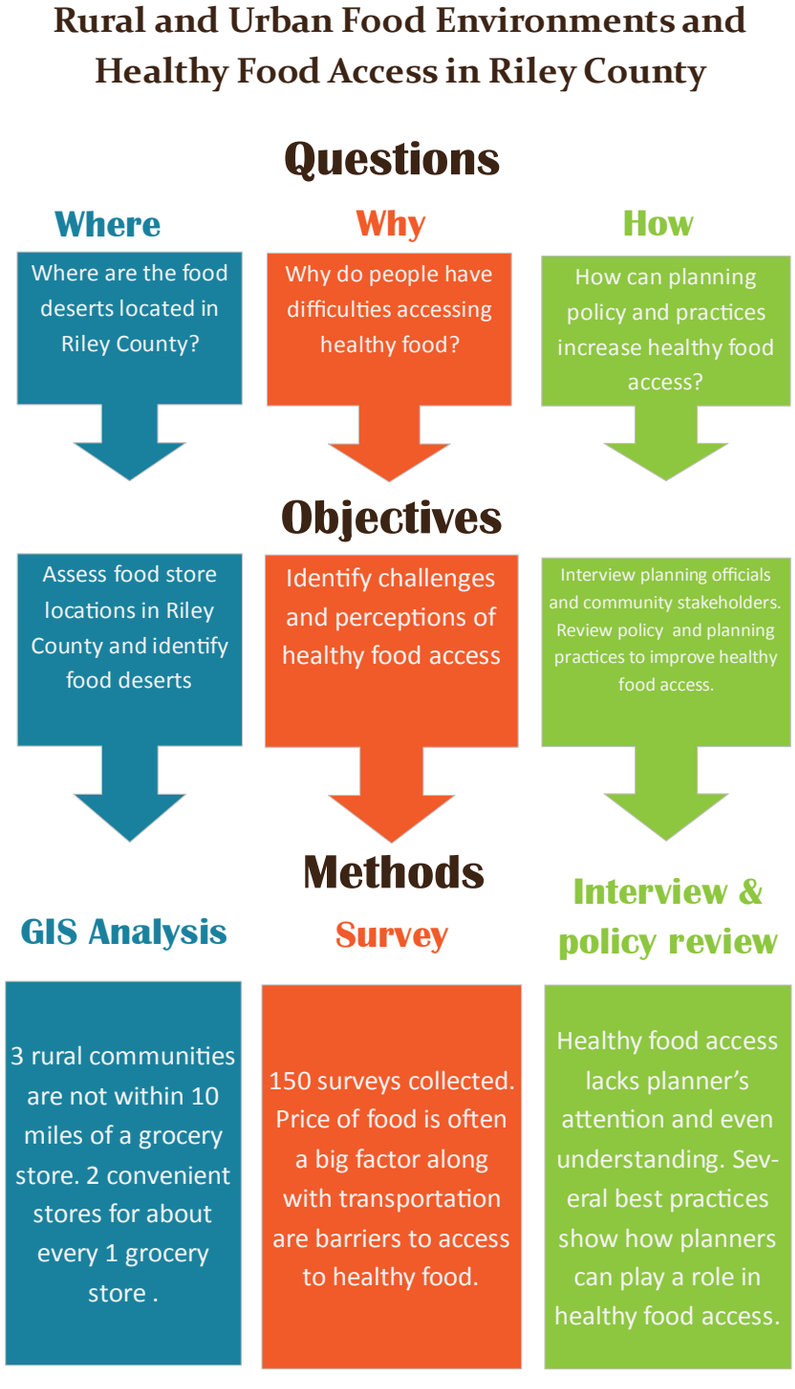
Study Design and Methodology

Methodology and Study Design

Methodology

Food environment research using high quality measures are valuable to better understand the role of the built environment and policies in dictating behavior and discovering opportunities, for interventions, to improve the food environment (Glanz, 2009). To explore healthy food access in Riley County, three semi-independent studies were conducted using mixed method approach. Methods used were, GIS-based geospatial analysis, a community food survey, and policy evaluation and interviews. Figure 6 shows the three questions of this project, the process in which they were answered, and the initial findings to conclude the project. Geospatial analysis was used to analyze the locations of food stores inducing grocery and convenience stores to determine areas of low food access, also known as food deserts. Surveys were distributed with the help of several social service organizations serving the county. After the responses from the survey were coded, information was entered in GIS data format and analyzed geospatially. Interviews were conducted with several community stakeholders and planning professionals. In order to recommend policies and practices that improve food accessibility for Riley County and beyond, a comprehensive review of current policies and practices was undertaken. This took place throughout the project by reviewing literature, planning documents and regulations of planning for food security and policies, to be able to recommend policy and planning practices for Riley County.

Figure 6. Methodology
Questions, objectives, and findings.

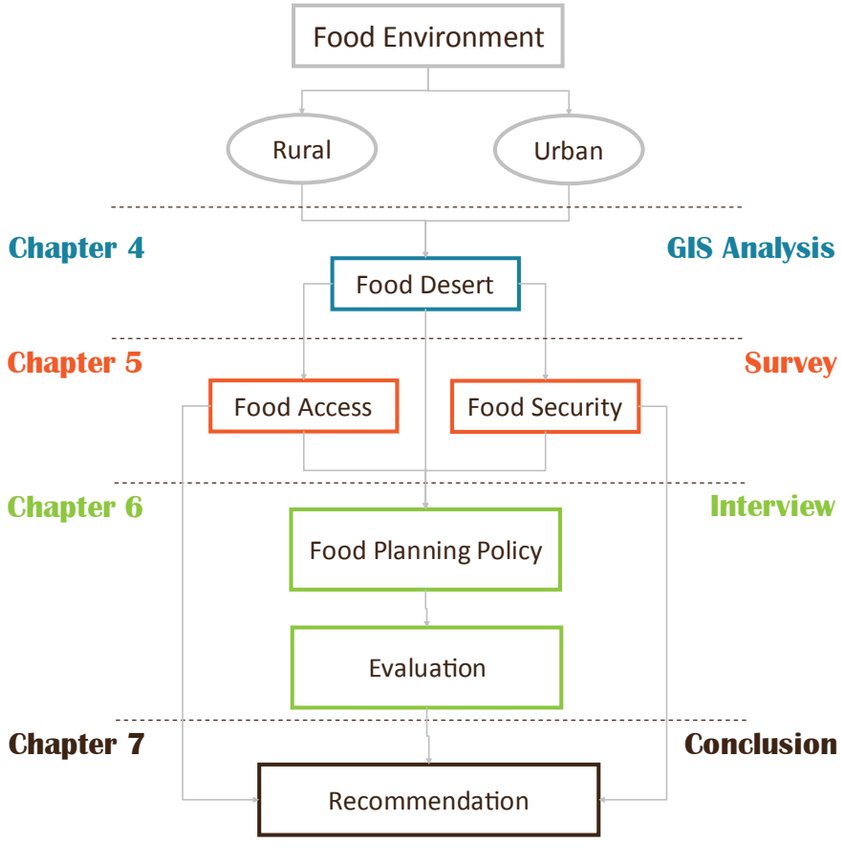


Study Design

The design of this study employs three separate methods to explore the rural and urban food environments in Riley County. Three studies were employed in order to gain a more holistic perspective of healthy food accessibility in the county. This study gathered information about the food environment in Riley County on three dimensions; spatial, behavioral and policy-related dimensions, which are related to each other. Planning, in general, considers not only the physical and built environment, but also the community that is effected before policy decisions are made. This is the same way this study made policy recommendations. First, the physical environment was analyzed, then the community's perspective was collected, and finally the views of several community stakeholders helped to evaluate Riley County's healthy food environment and develop conclusions.

In chapter 4-6, different concepts are focused on. Food deserts were explored using GIS in Chapter 4. In Chapter 5, food access and food security were topics that guided the rural and urban community food survey. Interviews were conducted to evaluate food policy and planning for the food environment in Chapter 6. Through chapters 4 to 6, the semi-independent studies contributed to the final conclusions and recommendations for increasing healthy food accessibility in Riley County (see Figure 7).

Figure 7: Study Design



Chapter 4

Where *are the food deserts in Riley County?*

Where

Research Question 1

Do rural residents have less access to food stores providing healthy food than urban residents living in Riley County?

Introduction

This study was conducted in order to investigate the healthy food environment, specifically food store accessibility, in Riley County, Kansas. When the locations of healthy food stores are compared to the population or poverty rate in certain areas, disparities may be found and conclusions can be drawn about the community or neighborhood's ability to access healthy food. Identifying locations that are further away from a food store, than what is acceptable, is one way of mapping food deserts and locating areas of less or greater healthy food accessibility. In this case, rural and urban food environments in Riley County are examined.

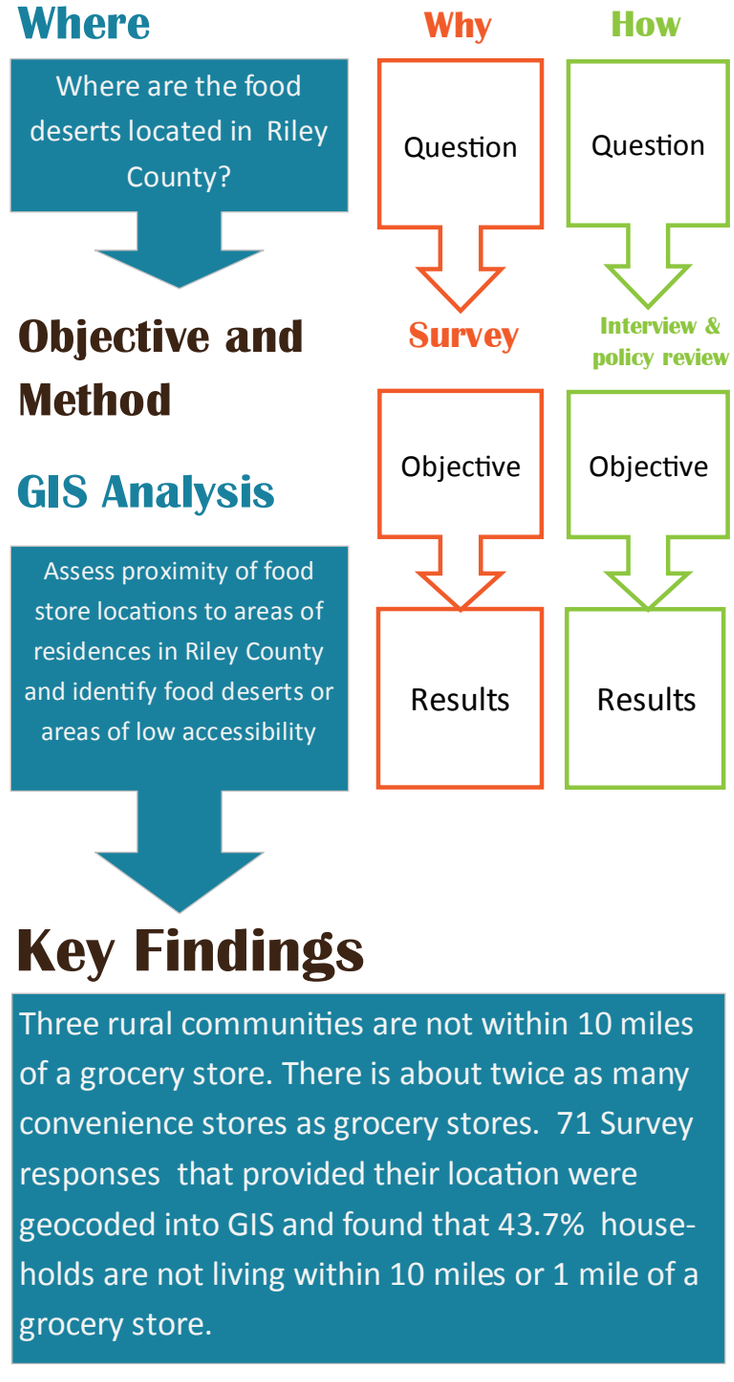
Objective 1

This study aims to assess the proximity of healthy food store locations and residential areas in Riley County and identify food deserts or areas of low accessibility.

Method

To answer the first question, a series of geospatial analyses were conducted to identify food deserts. GIS is a very widely used computer program to help show disparities in food environments. Researchers use GIS, in the simplest form, to visualize food access by utilizing the buffer tool to create a zone around a food source (Eckert, 2011). First, the food store locations were collected through Reference USA and Google Maps™. Then, the addresses of the food stores were geocoded in GIS, which created the food store location points. Using the GIS buffer tool and Network Analysis tool, a service area of food stores were measured and compared. After the survey responses were collected, responses were also analyzed geospatially

Figure 8. Study Process and Key Findings (Chapter 4)
Questions, objectives, and findings.



through GIS. This process helped make connections between the healthy food environment and individual's ability to access it.

Data

The first step was to create a base map of Riley County, including streets and block group level census data. The Riley County GIS Department provided the GIS files for the base data and address points. Next, ReferenceUSA and Google map data were utilized to locate addresses of food stores. ReferenceUSA is the leading provider in business and consumer research, allowing the search by industry codes. North American Industry Classification System (NAICS) codes were used to search for grocery and convenience stores in Riley County. The list that was provided by ReferenceUSA included the company name, complete address, employee size, and sales volume. The food store addresses were extracted from the address point layer in GIS making a layer of all food stores in Riley County and a layer of convenience stores.

Food Desert Measures

Food deserts are defined by the USDA as urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food. A threshold distance of ten miles was used to identify food deserts in rural areas and distances of one mile, for urban neighborhoods in Manhattan, were used to locate urban food deserts. A rural community or neighborhood in Riley County that is not within ten miles of a healthy food source and a neighborhood in Manhattan that is not within one mile of a healthy food source is considered to be a food desert in this study. A list of tasks to complete the analysis is in Appendix A.

GIS Analysis: Airline Buffer and Network Buffer

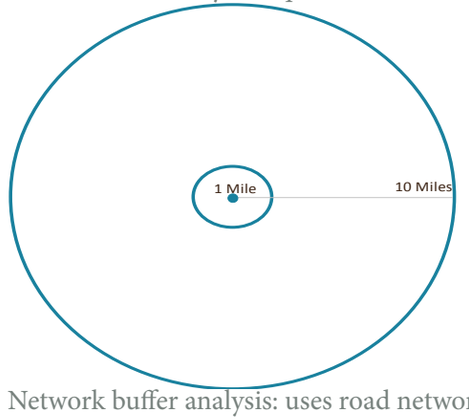
Two different methods were used and compared in this study to visualize the food environment in Riley County. Examples are shown in Figure 9. The simplest way to measure a distance buffer from a food store is to use the GIS buffer tool and input the distance that was used. This is called an airline buffer. The second analysis was made by creating a data set using road data and food store points. This is referred to as the network buffer analysis. A Network Buffer is defined as being based on the accessibility of food outlet by the mode of transportation used and the type of destination (Charreire, 2010). A network analysis was performed using the street network and food store addresses in GIS. This method using the road network shows the actual distance from the store, traveling by vehicle or walking along the road, is less area than what the buffer tool indicates.

Home-to-Store Network Distance Measures

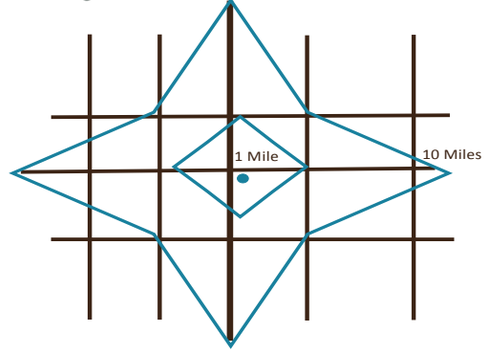
This community food survey for this study asked intentional questions to be able to analyze the responses spatially. The survey asked for the respondent to provide the nearest street intersection to their home. These locations were then geocoded into the maps made in GIS. Other questions asked were used to analyze and compare the shortest distance to a food store from the home and what food store the respondent actually prefers. Other demographic information like income was also compared to census information.

Figure 9. Airline Buffer vs. Network Buffer Analysis

Airline buffer analysis: equal distance from the point.



Network buffer analysis: uses road network to determine driving or walking distance.



Food Store Location and Type

In this study, the food store types that were considered are grocery stores, supermarket, fruit and vegetable market, and convenience food stores. The definitions of each are shown in Table 1. Convenience stores are not considered a healthy food store, like the other food stores listed, because they typically do not provide fresh produce and other healthy foods at an affordable price. Figure 10 shows the locations of the food stores in Riley County.

Results and Findings

There are four grocery stores, two supermarkets, two fruit and vegetable markets, and fifteen convenience stores in the urban part of Riley County, shown in Figure 10. There are only three convenience stores in the rural part of Riley County (Figure 11). At times, many rural residents may be forced to rely on convenience stores to obtain food. In the urban area of Riley County (Manhattan), there are twice as many convenience stores as there are other healthy food stores. In rural communities and some neighborhoods, in particular the northern portion of Manhattan, is dominated by convenience stores. This may lead to unhealthy eating choices or one to be over-burdened by the high cost of groceries obtained from a convenience store. If that is the only option one has in their neighborhood or they are limited by physical or financial ability to travel to and shop at a grocery store, one would face more difficulties accessing healthy food.

Table 1. Food Store Types

Food store type and NAICS definition

Store Type	Definition
Grocery Stores	Establishments primarily engaged in retailing a general line of food products
Supermarket and other Grocery Stores	Establishments generally known as supermarkets and grocery stores primarily engaged in retailing a general line of food, such as canned and frozen foods; fresh fruits and vegetables; and fresh and prepared meats, fish, and poultry
Convenience Food Stores	Establishments known as convenience stores or food marts primarily engaged in retailing a limited line of goods that generally includes milk, bread, soda, and snacks
Fruit and Vegetable Markets (farmers Market in permanent structures)	Establishments engaged in retailing fresh fruits and vegetables

Figure 10. Food Store Location

Categorized by type

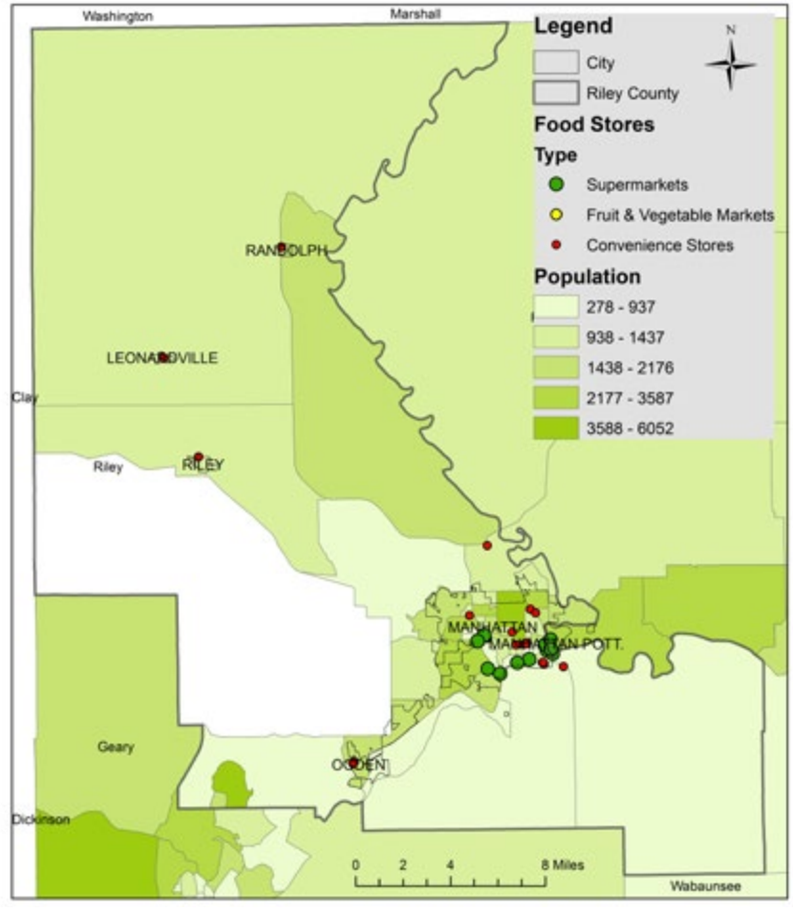
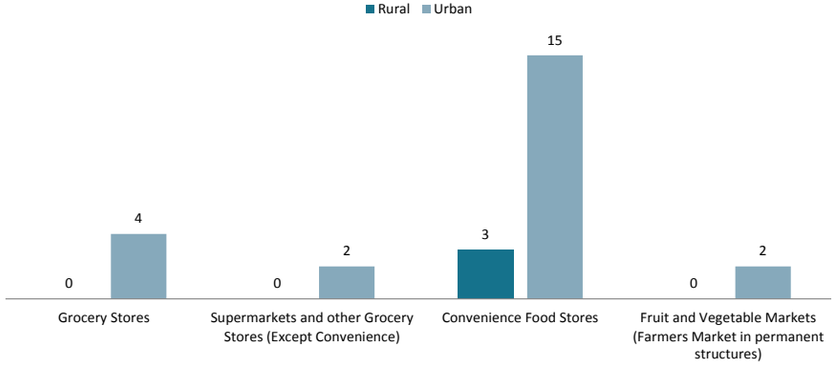


Figure 11. Rural vs Urban Food Store Count

Food store count by type, rural compared urban



GIS Results

The USDA's definition of food deserts describes a distance buffer to measure or identify and area that has low access to healthy food. Of the two methods utilized in this study, the network analysis is the most advanced method to use. The network buffer uses the road network to show the actual distance away from a food store by car or walking along the street. Both the airline buffer (Figure 12) and network buffer (Figure 13) results show three out of the four smaller communities in Riley County are not within ten miles driving distance of a grocery store. The airline buffer analysis shows a service area of food stores about double the size of the network analysis. Table 2 shows the percentage of Riley County that is considered a rural and urban food desert based on the two different analyses. The airline buffer analysis shows less food desert area because the buffer of the service area of the food store it calculates is about twice the area as the network method calculations. The network buffer gives a more accurate picture of food desert measures because it considers the road network as a factor not just distance out from the point in all directions.

Overall, in this study, there were not strong correlations between the exact neighborhood one lives in and healthy food accessibility. In this case, the geographic scale in which healthy food accessibility differed the most was at the county level and urban and rural environments, rather than neighborhood environments. This indicates that the strongest factors that determine healthy food accessibility may not be solely geographic. The survey method in the next chapter proved to give a clearer picture.

Table 2. Food Desert Area

Food desert area compared and total rural and urban population

	Airline Buffer	Network Buffer	Total Population (2010)
Rural (using 10 mile buffer)	36%	75%	22,749
Urban (using 1 mile buffer)	32%	64%	52,645

*Percent of land that is considered a food desert in Riley County

Figure 12. Airline Buffer Analysis

Healthy food stores

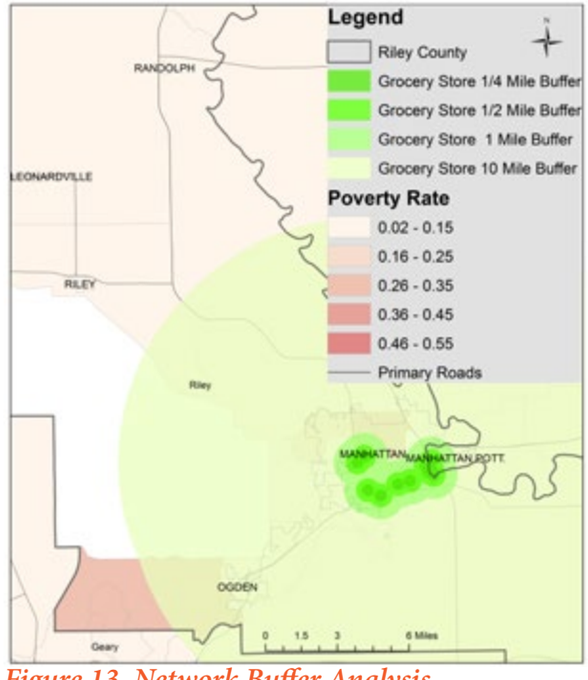
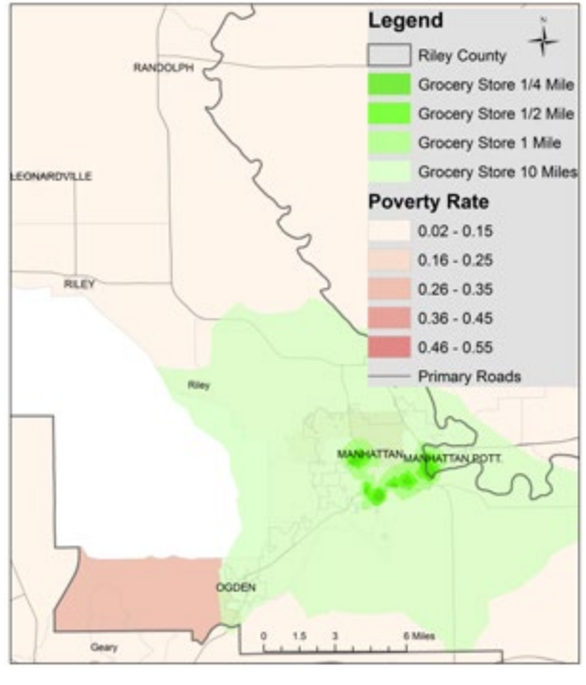


Figure 13. Network Buffer Analysis

Healthy food stores



Chapter 5

Why *do people have difficulties accessing healthy food in rural and urban areas?*

Why

Research Question 2

What are the barriers and opportunities for accessing healthy food in rural and urban food environments in Riley County?

Introduction

Surveys were employed in this study to further understand the differences of rural and urban food environments in Riley County. The second study provided a more in-depth understanding of reasons why people may face challenges in accessing healthy food. The survey also provided another way of comparing urban and rural food environments by asking a variety of questions. This chapter further explains the development, distribution process of the rural and urban community food survey, and what was found as a result.

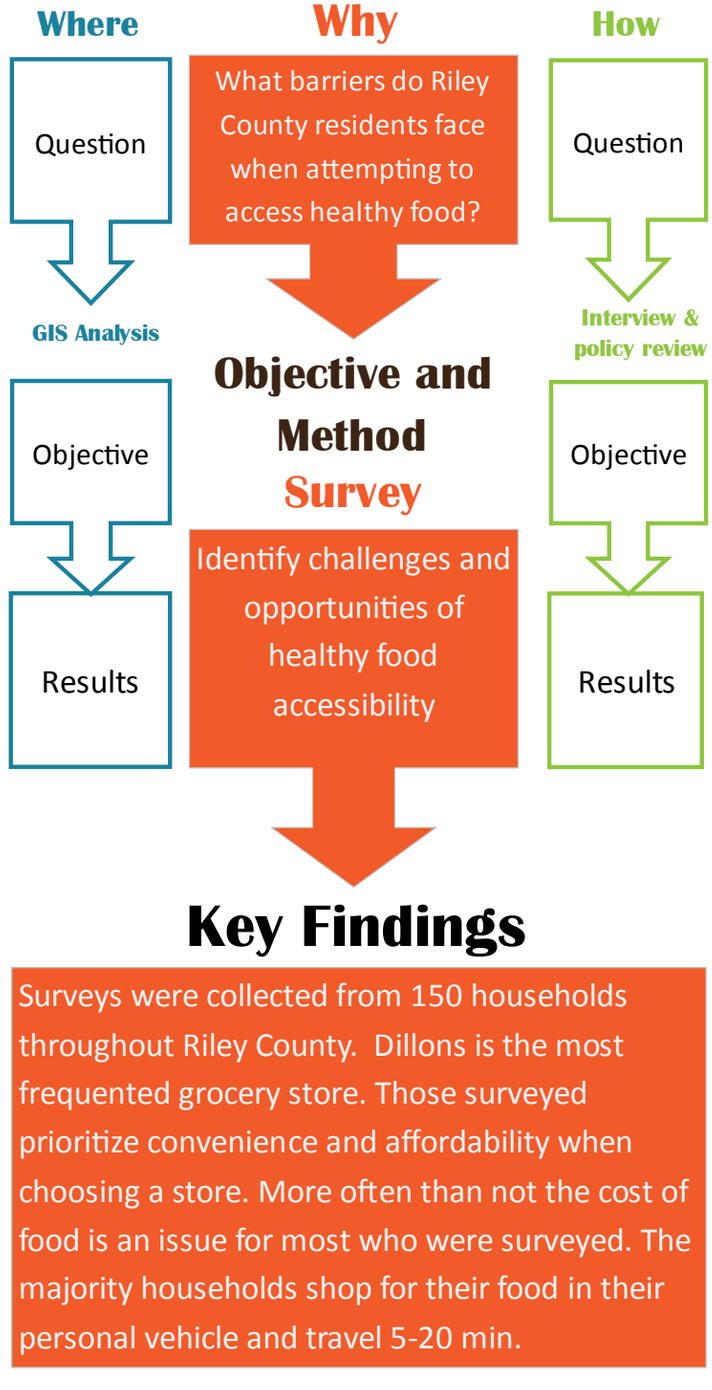
Objective 2

This study identified challenges and opportunities of healthy food accessibility through surveying rural and urban residents of Riley County.

Method

The second question of this study was answered through a community-based survey. This survey identified survey participants' behavior, perception, and socioeconomic status related to healthy food access. This survey method involves human subjects and was approved by Kansas State University Institutional Review Board (IRB). The surveys used for this study and the IRB exemption letter is in Appendix B. Due to limitations such time constraints, this study used a non-probability convenience sampling.

Figure 14. Study Process and Key Findings (Chapter 5)
Questions, objectives, and findings.



Survey Design

The survey aimed to collect information from residents of Riley County that are more likely to be food insecure, such as low-income, elderly, and rural residents. The survey that was used in this project comes from three main sources and was adapted to meet the research outcomes and goals. The first source that was used was from a Kansas State University professor of Sociology (Ford, P.B. 2009). The second survey used was a Neighborhood Food Access Survey from Healthy Kids, Healthy Communities. The survey was developed to better understand neighborhood resident's food options and choices, as well as their beliefs about neighborhood food needs. Both studies ask questions about household food security and questions were used from the USDA Household food security survey tool which is widely used as a standard for food security research. The survey that was developed for this study, include questions that are meant to gain information that would be useful to policy makers.

The survey questionnaire consists of four sections. Section one of the survey was concerned with respondent's access to food. The survey asks questions about shopping habits and abilities like where they get their food, how often they replenish their food supply, and how they get to the food source. The second section gathered information about food security and diet. This section asked about barriers of the respondent's ability to access food. This was important because this study was not just access to food, but focuses on access to healthy food as an important factor in overall public health. A question about how often they replenish their supply of fruits, vegetables, meat and beans, grains, and milk was included. The question that measured food security used household food security measures by the USDA, which asked if they have skipped meals or ran out of food before they got money to buy more food. The final section gathered general demographic information of the respondent. This section covers what city the resident lives in, age, household size, income, and if they participate in any governmental food subsidy programs. The last part of the survey was open ended questions and opinion questions about the respondent's perceived overall neighborhood food environment.

The questions of this survey were designed to be easily measured. The majority of the information gathered was more concrete such as asking the which grocery store they shop at the most, and what form of transportation they primarily use to shop for groceries, and what food they buy. Other questions of this survey asked the respondent to recall information from their memory and disclosing their perceptions and feelings. The responses were coded and checked for outliers and missing information. Some respondents might not disclose sensitive or personal information like where they live which results in the survey being unusable for geospatial analysis.

Survey Targets

Residents, living in Riley County, that might be food insecure were the targeted population. This included low-income urban residents, the elderly, or people with disabilities, or rural residents. The survey was geared toward the head of the household because they are the most likely to be the one that does the grocery shopping or has knowledge about the household's food shopping habits and income. Limiting the survey to head of households means one survey per family unit, decreasing the chances of survey duplication. The survey was distributed through a few different outlets including, the Everybody Counts event with a Harvester's food distribution, senior center and community meals, and high trafficked areas in rural communities such as the library and city

Table 3. Survey Responses by Location

City/Place	Number of responses	Percent
Total Rural	59	42%
Leonardville	5	4%
Ogden	3	2%
Randolph	10	7%
Riley	28	20%
Non-City*	13	9%
Total Urban (Manhattan)	80	58%
Total**	**139**	

*Place within Riley County but not in any incorporated city

**Survey responses not included reported that they live outside Riley County or did not disclose where they live.

hall office. The survey was also distributed electronically by email and relevant Facebook pages. The survey was live from February 2nd to March 6th, 2015. In total 150 surveys were received. The table below shows a breakdown of the amount of surveys received from each community.

Results and Findings

Demographics

Surveys were collected from 150 households. Figure 15 shows the majority of those surveyed were 41 years and older. There was a higher percentage of 18-25 year olds that live in Manhattan than any other rural area. Manhattan has a higher population of 18-25 year olds than one might expect for a town its size due to Kansas State University. On the other hand, there were more 65 year olds and older from Manhattan than rural areas as well. The senior center in Manhattan was where some of the surveys were distributed, which explains the high percentage.

In Figure 16, 39% of urban respondents reported an income of $15,000 or less per year, yet 42% of rural respondents have an income of $50,000 or more. This indicates that accessibility to healthy food may not be an issue for those rural respondents with a higher income due to their ability to own a car and travel longer distances to obtain food. It was found that the majority of rural respondents work in Manhattan, which opens up the opportunity to shop for food in Manhattan on a daily basis.

Most people that were surveyed are not using government assistance to help increase healthy food accessibility (Figure 17) however, more urban residents are utilizing government assistance programs than rural residents. This reinforces the data gathered about income, but it also shows that not all the survey participants that qualify are using government assistance programs.

Figure 15. Age

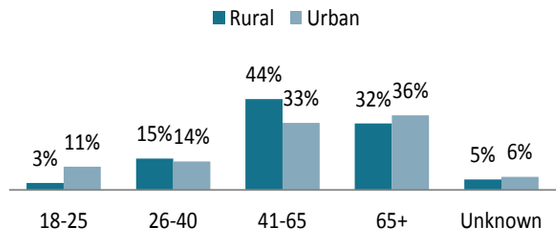


Figure 16. Income

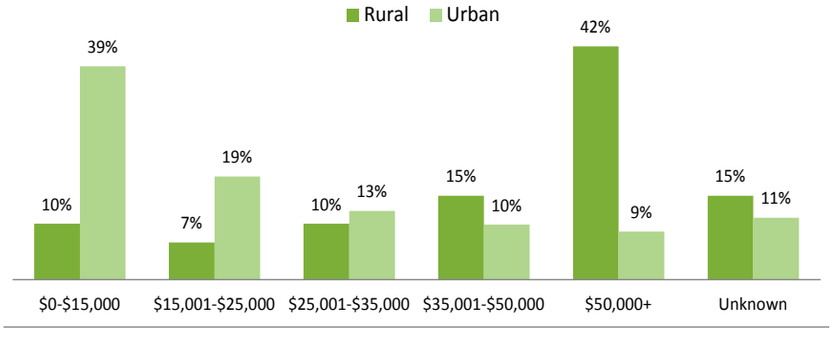
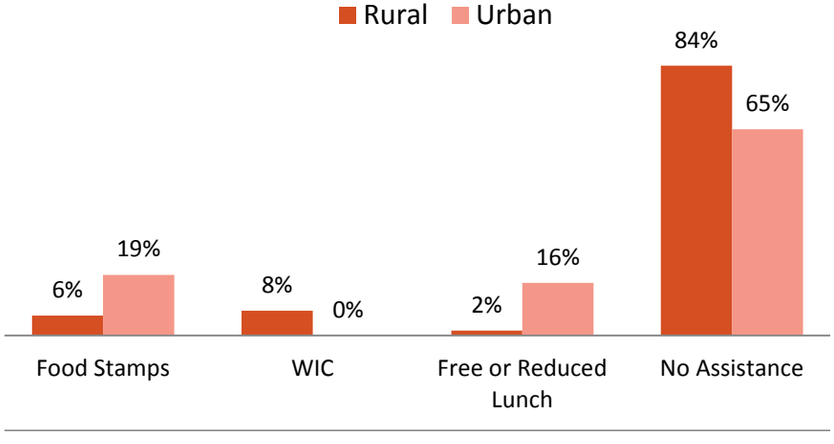


Figure 17. Government Food Assistance
Governmental assistance program participation



Food Security and Access

Most survey participants have not struggled with food security in the past 12 months as indicated in Figure 18 and 19. For rural residents, food security does not seem to be an acute problem. However, a significant amount of both urban and rural residents claimed that food didn't last or they cannot afford to eat healthy meals "Sometimes". With urban and rural combined twelve households stated that they often cannot afford to eat balanced meals, whereas thirty-five said this is sometimes true for them. Fourteen households surveyed said they often run out of food before they can afford to buy more and this happens sometimes for thirty-one households. About 55% of urban residents are either sometimes or often food insecure.

For both rural and urban survey participants, the cost of food was the biggest issue faced when obtaining healthy food (Figure 20). For rural residents, regardless of income or food security, there were more issues reported as a whole from "Rarely" to "Always" than urban residents. Distance to the food store was more of an issue for rural residents than urban, as well as time for shopping. These two issues go hand in hand when you have to take the time to travel further to obtain healthy food. Interestingly, there were more issues affecting food accessibility "Always" for urban residents than rural residents. Even though more issues were reported by rural residents the severity of which they were affected was not as apparent.

Figure 18. Food Security 1: Affordability of Food Purchasing

Rural vs. Urban

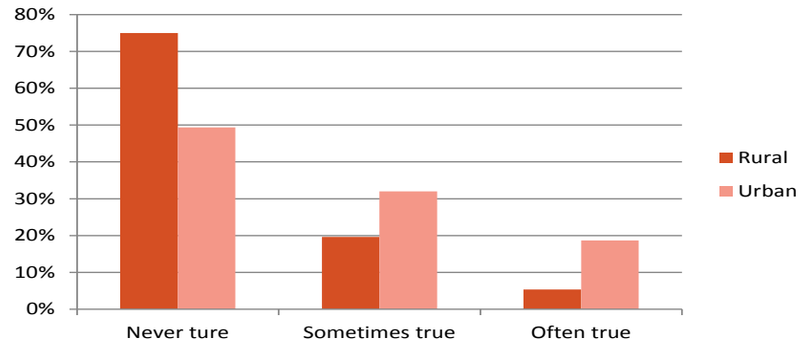


Figure 19. Food Security 2: Affordability of Eating Balanced Meals

Rural vs. Urban

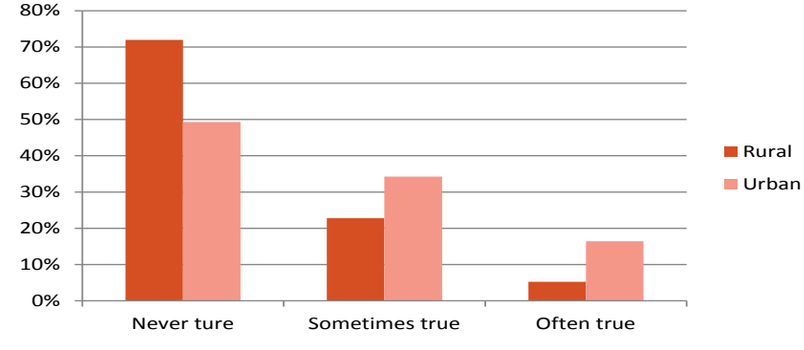
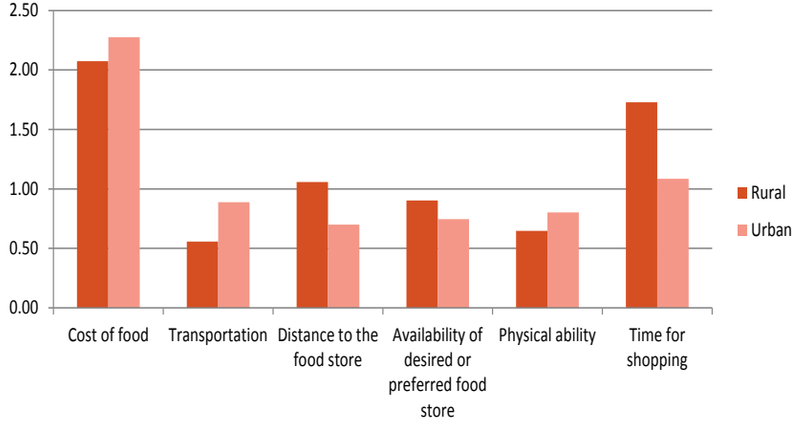


Figure 20. Issues Affecting Food Access

Rural vs. Urban (5 point Likert scale, 0=Never - 4=Always)



Transportation

Obviously, the closer one lives to a food store, the less time it takes to get there. Still, the survey asked all participants to report how long it takes them to get to the food store they prefer to shop at. Not surprisingly, in Figure 21, urban residents travel between 0-10 minutes to get to a food store whereas rural residents travel 20 minutes or more. The majority of rural residents travel between 20-30 minutes. This means most rural residents in Riley County are staying in the county and driving to Manhattan to obtain healthy food. The ways in which people are traveling to get their food varies more among urban residents. Most of both rural and urban residents utilize a personal vehicle wither on their own or carpooling to obtain food (Figure 22). Urban residents live closer to food stores, so they have a broader set of options. Walking and biking is utilized by some urban residents. Public transportation is less utilized than walking or biking, which was an unexpected result.

General Observations

Those surveyed prioritize convenience and affordability when choosing a store to purchase food. When asked the alternative places people obtain their food, about the same percent of households go to farmers markets as fast food restaurants. Another finding is that the next most utilized alternative food source is a senior meal site and a home garden. It also appears that there is an interest and value in locally and home grown produce.

From the survey, more urban residents struggle to access healthy food than rural, even though urban dwellers live closer to food stores. This says that proximity to food stores is not what affects food security most. According to the results from the survey, the number one barrier to healthy food access is food prices and income.

Figure 21. Travel Time

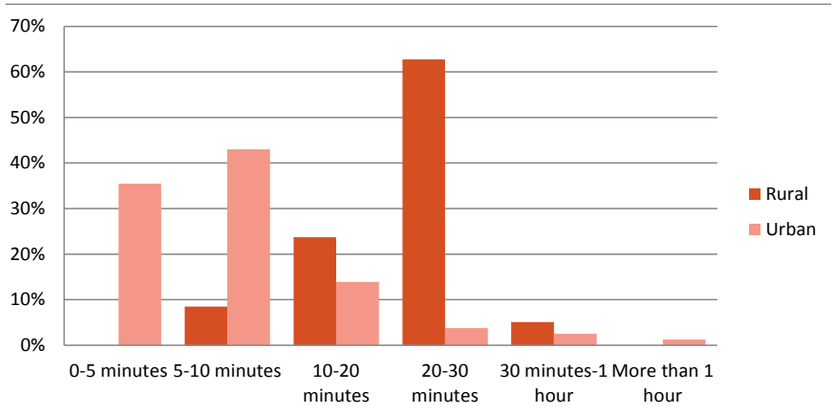
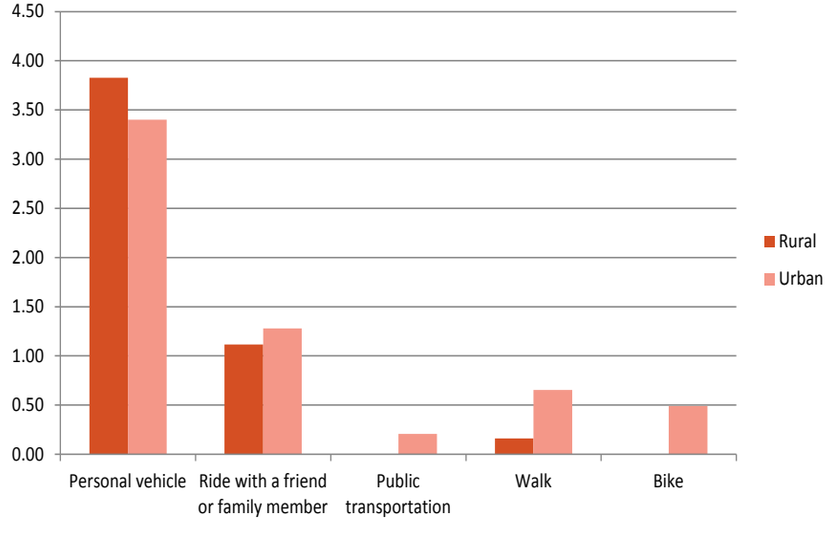


Figure22. Travel Modes to Food Stores

Rural vs. Urban (5 point Likert scale, 0=Never - 4=Always)



Survey Respondent Distribution

Out of all the survey responses, seventy-one survey response disclosed their approximate home locations. Figure 23 shows the location distribution in relation to population. According to the survey responses, of the seventy-one households that disclosed their home locations, ten are not living within ten miles of a grocery store (Figure 24). In Manhattan, the urban area, twenty-one households are not living within one mile of a grocery store. Only three respondents are found within a quarter mile of a grocery store. This is to be somewhat expected due to current zoning standards in which land uses are separated. This trend is changing however with newer mixed-use developments. People desire to be closer to where they work, shop, and spend time. When comparing travel time reported in the survey the responses remain consistent with the actual distance in which they live from a grocery store. There are exceptions of a few outliers, for example, a respondent reported that it takes them 30 minutes to an hour to get to their preferred grocery store when they actually live within a fourth of a mile from a grocery store. An explanation for this could be that the grocery store they prefer to shop at is not the one they live closest to. This is how the market is involved with determining one's food choice based on consumer preferences.

Figure 23. Survey Respondents' Locations (with population)
Locations with Population

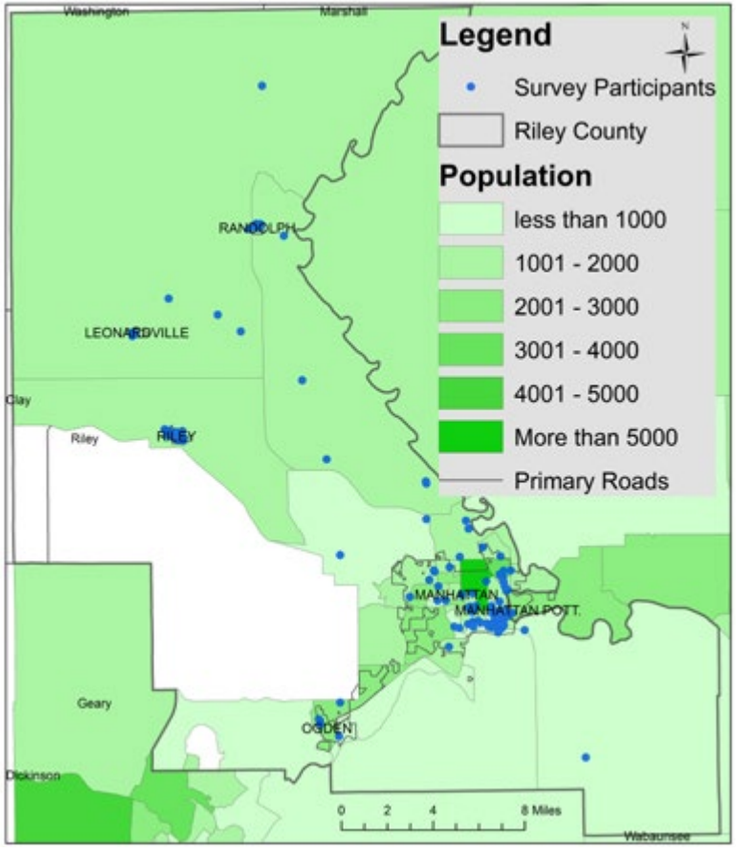
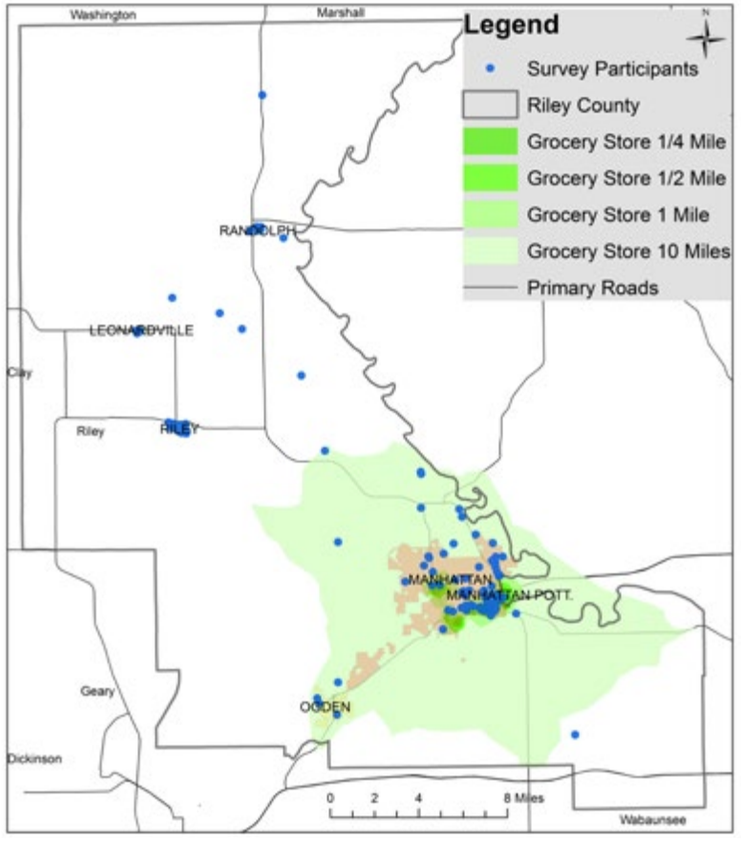


Figure 24. Survey Respondents' Locations (with network buffers)
Locations with Network buffer



Chapter 6

How *can planning and policy increase healthy food access for rural and urban communities?*

How

Research Question 3

How can current planning and policy methods and practices improve healthy food access for all residents in rural and urban communities ?

Introduction

The final semi-independent study focuses on gathering information from rural and urban community stakeholders, planners and policy makers, which are needed in order to make recommendations. Interviews were chosen to gather a variety of viewpoints of challenges and opportunities both rural and urban communities face when planning for their food systems and overall community food accessibility. This chapter provides an overview and key findings from the interviews and policy recommendations for increased healthy food access.

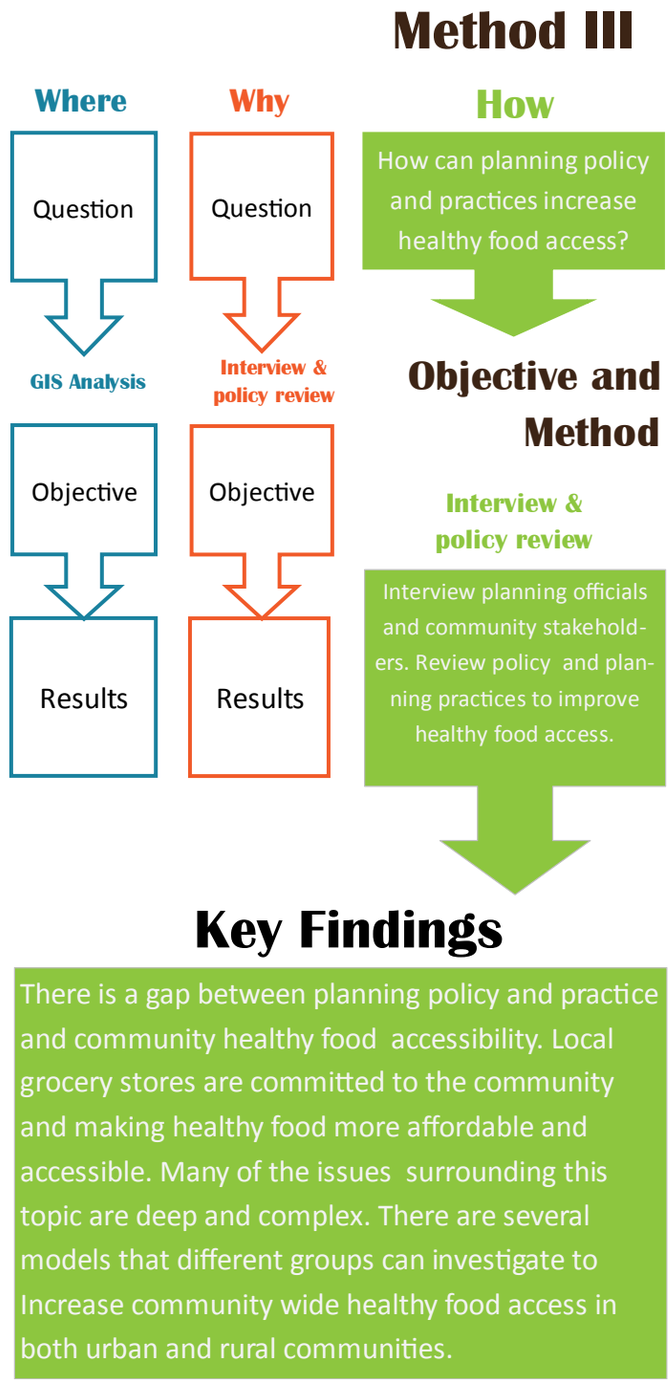
Objective 3

This study is an attempt to identify and recommend ways in which planners, policy makers, and stakeholders can work together to increase healthy food accessibility for rural and urban communities.

Method

Interviews were employed as a method of gathering a sample of information of local knowledge. In order to recommend policies and practices that improve food accessibility for Riley County and beyond, a comprehensive review of current policies and practices were undertaken. This took place throughout the project through a literature review of planning documents and regulations. The information found from the policy and document review were used to address some of the concerns brought up in the interviews as well as investigate best practices that were also suggested by some of the interviewees.

Figure 25. Study Process and Key Findings (Chapter 6)
Questions, objectives, and findings.



Interviews

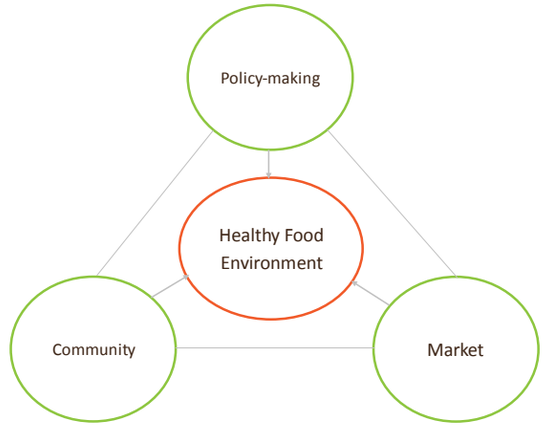
For this study, there were three different groups interviewed, shown in Figure 26. One being policy making, which included planning professionals in Riley County. The second interview group was the market group, which are grocery store managers. The people that manage the private sector of the grocery or food retail were able to provide insights, especially for questions about rural areas, which are difficult environments to keep a grocery store open and running. The third group was community stakeholders. The community stakeholders are people that live and work in both rural and urban areas of Riley County and have valuable information that inform policy makers. The complete list of interview questions and interview narratives can be found in Appendix C.

First, emails were sent out with a debriefing statement and the questions, in advanced, to the directors of the planning department in Riley County and City of Manhattan and the regional planner at the Flint Hills Regional Council. From those interviews, recommendations for other community stakeholders were given. Additional interviews with the manager of Ray's Apple Market and assistant manager of Peoples Grocery were conducted. Other stakeholder interviews consisted of an invested resident from Leonardville and a Manhattan pastor, who is actively involved in coordinating community meals and other services for the community.

Interview Results

It is clear there is a disconnect between planning practice and food systems in Riley County. However, this is not uncommon for this region of the United States. The policy interviews indicate that the planners in the county believe that healthy food access is a vital part of the community, but there is little planning activity that goes on with the food system. All of the planners agreed food accessibility is very important to all sectors and recognized the growing concern of healthy food accessibility. Some also said the department would support healthy food access efforts in any way that they

Figure 26. Interview Groups
Questions, objectives, and findings.



could. On the other hand, there was hesitation when the topic of spending local government funds to support healthy food access initiatives came up. Generally, there is very little if any, integration of food-related issues into the community planning process. Perhaps this is simply due to lack of knowledge of the magnitude of the problem and contributing factors of food insecurity in the county.

Momentum is building with an interest in food systems from a variety of groups in both the private and public sector. From the market group of interviews, it was apparent that the private sector is coming up with creative ways to bring healthy food and education to underserved communities. Examples are, grocery delivery by Ray's Apple Market and free cooking classes by People's Grocery. People without access to transportation or the ability to drive can have their groceries delivered to them, however, this is only within Manhattan city limits. This still leaves the rural portion of Riley County underserved, but as the surveys indicated, the need seems to be greater in Manhattan, so perhaps it is a good place to start. People's Grocery free cooking classes encourage healthy eating. People tend to be weary of buying fresh produce if they are inexperienced in cooking or preparing certain foods. As a result, fresh food goes bad before it is used. Cooking classes educate shoppers about healthy eating and cooking; in turn this increases overall health and reduces food waste.

According to the study's survey (Appendix B), there is a need for affordable food options and at times emergency food provisions for families. The pastor from the community interview group, is heavily involved in coordinating community meals. These are free meals every evening of the week open to the community. These meals foster a sense of community for anyone wanting to participate. There is a place in every community for food banks/pantries, however there also needs to be other options for people that are struggling to provide healthy food for their families, but still may not qualify for traditional food assistance. Organizations such as Harvesters recognizes this problem by traveling around communities and giving away food to people "no questions asked" at a specific drop off site. There needs to be more grassroots programs that focus on providing healthy food to people in need, whether it is a one time situation, or on a regular basis. The resident that was interviewed from Leonardville is grounded in the fact that there may never be a full service grocery store in her small town. On the other hand, there is motivation to get the community involved in programs such as a community garden or farmers market. Agendas such as the ones mentioned, invites people to literally take healthy food access into their own hands.

Policy Reviews

Food policy and plans were reviewed through Growing Food Connection's policy database. Growing Food Connections is an organization that coordinates and integrates research, education, and planning policy activities to build a stronger community food system from the ground up. For the policy and document review portion, a dozen documents were found and sorted through. Several categories emerged from these documents, including planning and land use, rules, regulations and incentives, and food policy councils. These categories were used to frame information and compare between documents.

A study about food systems and planning conducted a survey asking planners about their involvement in planning for community food systems and reasons for a lack of involvement. Some of the responses were similar to the responses that were

received in this study from planning offices in Riley County. Turf, money, market, and geographical perceptions and issues can hold planners back from getting involved in food system issues. Much like the findings from the previous study, the results from the interviews in this study revealed that the planners in both county and city government knew very little about the issues involving the food system, specifically security and access issues. However, they all agreed that food is important for everyone and the topic deserved attention. Some seemed more willing to spend public funds and time planning for community's food system than others. As questions about food systems planning comes up, planners may be wondering what can or should they be doing to improve healthy food access for their community.

The American Planning Association has set forth food systems planning goals and activities that planners can and should be a part of. The APA defines community food systems planning as the collaborative planning process of developing and implementing local and regional land-use, economic development, public health, transportation, and environmental programs and policies. These activities include: 1) preserving existing and supporting new opportunities for local and regional urban and rural agriculture; 2) promoting sustainable agriculture and food production practices; 3) supporting local and regional food value chains and related infrastructure involved in the processing, packaging, and distribution of food; 4) facilitating community food security, or equitable physical and economic access to safe, nutritious, culturally appropriate, and sustainably grown food at all times across a community; 5) supporting and promoting good nutrition and health; and 6) facilitating the reduction of solid food-related waste and develop or manage a reuse, recovery, recycling, and disposal system for food waste and related packaging.

This may seem like a tall order for a typical planning office. Planners can take small steps towards planning for the food system on a regular basis. Below is a synthesis of topics found in the review of documents that was conducted throughout this project, which includes activities that planners already do and how they can incorporate food system considerations into the planning process.

Comprehensive Planning

Communities can use general plans to establish priorities that promote access to healthy foods and better community health. For example, general plans can emphasize the importance of healthy food retail and require mixed-use development, including grocery stores in all neighborhoods. Planners facilitate these location choices by including food retail in community master plans and similar development agendas. Discussions in comprehensive plans can take place by encouraging healthy food providers, such as grocery stores, farmers markets, and community food gardens, to locate in proximity to residential uses and transit facilities. Planners can include food advocates in input processes and organize food advocates to participate in informing local officials about food system issues, goals, and identify locations for food system activities. These activities can be integrated into both county and city plans. The county plans would consider both the rural and urban food environment.

Food Policy Councils

Food policy councils can be one effective way for communities to make policy changes related to healthy food access. These organized bodies can be located in city, county, or state government, at universities, or run through a non-profit organization. Food policy councils are designed to bring together interested people from diverse backgrounds to shape regional and local food systems. This form of planning for food systems relieves the planning department of primary responsibility of planning for the food environment. It allows interested and invested parties to be involved. However, planners should be aware of groups such as these and have a partnership built into the organization to assist with decision making and offering technical assistance.

Kansas currently has three active food policy councils; in Kansas City, Douglas County, Wyandotte County, and South Hutchinson-Reno County. Table 4 describes each council in more detail.

Zoning, Land Use, and Incentives

Rural and urban local government regulations play a significant role in facilitating or hindering a healthy food system through permitting or, licensing, monitoring, or otherwise regulating food-related activities in a community. Cities can use bonds, grants, and other incentives to assist food retailers of many sizes with start-up costs, in order to encourage them to locate in or near large housing developments or in rural areas. On the other hand, these rules and regulations could ensure that unhealthy food options are limited in areas that may have an over-saturated market. Cities also use regulatory incentives to encourage retail stores to carry healthy foods.

Table 4. Kansas Food Policy Councils

Information obtained from John Hopkins Bloomberg School of Public Health, Center for a Livable Future

Council Name	Governance	Top Priorities
Douglas County Food Policy Council	Government-appointed advisory body	Urban Agriculture (Gardening, land Use, Zoning), Healthy Food Access (SNAP Incentives, Healthy Vending, Nutrition),Food Hub
Greater Kansas City Food Policy Coalition	Independent Grassroots Coalition	Urban Agriculture (Gardening, land Use, Zoning), Purchasing (Farm-to-school, Farm-to-Institution, Cottage Food Industry),Healthy Food Access (SNAP Incentives, Healthy Vending, Nutrition),Food Hub
Nutrition Action Team, Healthy Communities Wyandotte	Independent Grassroots Coalition	Urban Agriculture (Gardening, land Use, Zoning), Education, Anti-Hunger, Networking
South Hutchinson-Reno County Food Policy Council	Government-appointed advisory body	Urban Agriculture (Gardening, land Use, Zoning), Healthy Food Access (SNAP Incentives, Healthy Vending, Nutrition), Networking

New food retail development is a time-intensive and expensive process. Grocery or supermarket attraction can be a costly endeavor. Economic development departments can conduct independent market analyses that offer developers a full picture of the neighborhood demand and assist in identifying and assembling appropriate sites. Cities can speed up grocery store development by simplifying applications and permitting procedures and support developers by helping them navigate the permitting process quickly. Promoting agricultural support businesses such as processing, packaging, farmers markets, and produce stands through regulations, permitting and assistance with market development increases healthy food access. Many cities permit the sale of produce grown in home gardens, community gardens, and farms within residential and other zoning districts. For example, Kansas City, Missouri's zoning code allows the on-site sale of food and/or horticultural produce grown in residential zoning districts. Sale is allowed either by-right or with a special use permit depending on whether the food production occurs on a home garden, community garden, or community supported agriculture farm.

Results and Findings

In the case of Riley County, there are disconnects between food system planning in the county and city planning departments. This is a recognized phenomenon around the country, according to planning research literature. However, there are planning departments that are considering food systems in everyday planning decisions more than others. The question is what makes certain planning departments compelled to make food systems planning a part of what they do. Is it geographic locations? Is it department size or population size? Should all planning departments think about food systems as something they do or should food systems planning be the responsibility of another organization? Some would argue that it would be wise for planners to think about food systems in some aspect as they plan for the future. Perhaps the issues of food accessibility in Riley County is not as severe as other locations, but as planners look into the future and plan ahead shouldn't they be thinking about the food system just as much as they consider other factors? As public transportation expands in Riley County and as more homes are built, thinking about food systems can take place in a variety of ways. Planners need to be aware of everything from farmland preservation, to fostering entrepreneurship with local grocery stores and community gardens and making sure that all people have adequate access to healthy food just like clean air and water. This is important because if planners cannot or will not get involved in these issues at the very least they should prevent the decisions they make from negatively affecting the community's food system. This would include zoning grocery stores out of neighborhoods or making in extremely difficult for gardens to be located on vacant and unused property.

Chapter 7

Conclusion

Conclusion and Discussion

Conclusion

This study suggests that GIS-based network analysis can be an effective way to assess food accessibility and identify food deserts. This method gave a more accurate account of service area reach of grocery stores by using the street network. Among four rural towns in Riley County, three towns are identified as food deserts because they are not located within ten miles from a grocery store. 60% of the urban area in Manhattan is not within one mile distance, a tolerable walking distance, from grocery stores. Population and poverty data from U.S. census provides socio-demographical backgrounds of the food environment of the area. A place that is not within a mile of a grocery store, but has less poverty and higher incomes are more likely to be food secure than an area that has a high poverty rate and the same distance from a grocery store. Still, there is not enough information to rely on the geospatial analysis alone. There needs to be more information gathered to fully understand the food environment and healthy food accessibility.

Healthy food accessibility surveys provided information about grocery shopping abilities and issues people face while obtaining food. The cost of food is a major concern for Riley County, which is a common trend around the country as well. When choosing a food store, location and affordability were the two main factors when people make a choice about where to shop for groceries. People look for the most convenient location if the prices of the food are affordable to them. Generally, people in Riley County can obtain food through a variety of sources, as long as it is affordable, because it is generally accessible. A weakness that was recognized by the survey respondents is the lack of smaller grocery stores within neighborhoods. It was apparent that smaller grocery stores incorporated within the residential land uses would be preferred over large supermarkets that can only be accessed by car. Another significant opportunity for Riley County is the growing interest in farmers markets and food gardening. If there were more classes on gardening, healthy cooking, and more community gardens there would be interested in supporting these initiatives based on survey responses.

Perhaps not surprising, was the fact that local planners have very little knowledge of the magnitude of the problem and contributing factors of healthy food accessibility in the county. Clearly there is a gap between Riley County's food environment and planning activities and initiatives. The interview results showed that not only planning, but also the market itself, could improve healthy food access in both rural and urban environments.

Limitations

There were some limitations that constrained this study. Of course time and money are common resources that are limited, other factors contributed to the limitations of this study as well. GIS data was collected from different sources. There were some data that was either not available or does not exist. Riley County, the study area, has a large student population that does not represent a typical U.S. county. Having a large college student population brings the median household income down lower than it otherwise would be and also decreases the median age. This was taken into account when reviewing the study results.

Purposeful sampling was the type of non-probability sample used for this study. The limitations of this was there was not a representative sample of Riley County as a whole. Rather, the sample was obtained mostly from a targeted population and this limited the survey results to only people who participated in the Everybody Counts event. This study utilized groups and organizations to assist in distributing the survey throughout Riley County. Distributing a survey in a rural area proved to be challenging and resulted in a smaller sample size than what was desired. A second round of surveys had to be released, at the last minute, because there were not enough survey participants from rural areas in Riley County. Facebook was utilized as an effort to receive additional survey participants. The most successful way this study retrieved survey input was asking people in person, having them fill out the survey, and hand it back immediately. This method is time consuming and requires a large gathering of people that might be willing to take the survey.

Policy Implication and Recommendations

This study has the potential to start a conversation among several groups in organizations interested in healthy food access. Planners may be able to utilize some or all of the planning recommendations to improve healthy food access. This study also communicates the importance of both rural and urban healthy food access. Rural and urban areas face different challenges. The public sector, private market, and community stakeholders should all be included in the conversation of healthy food access. All these groups should be considering healthy food access in both rural and urban areas as well. A regional focused community food assessment would help the consideration of both rural and urban food environments.

There are several courses of action that could take place to increase healthy food access in Riley County. First, planners should think about healthy food access in comprehensive plans. Also, promoting and attracting grocery stores to locate in underserved neighborhoods through economic development incentives and grants are ways to increase healthy food access. Partnerships could be the most important piece of this healthy food access puzzle. Planners can provide certain expertise and resources that other groups may not have. Finding common goals and working together as a community is a good start to improving healthy food access.

A larger move for the stakeholder of healthy food access in Riley County would be supporting a Food Policy Council. These types of organizations are becoming more common in both urban and rural areas. These interest groups are usually regionally focused and inclusive of smaller communities. There are four food policy councils in Kansas. The majority being on the northeast part of the state, but none includes Riley County in their boundaries. Riley County is missing out on the opportunity to collaborate with these councils. As conversation of the local food system and healthy food access continues to be a concern in the community, relationships between groups and partnerships forms naturally. Riley County has untapped resources when it comes to being able to start a food policy council such as the Kansas State University, the Riley County Health Department, and Flint Hills Regional Council. These organizations and others could provide infrastructure and the knowledge base needed for such organizations because they all have common interests within the groups. Several departments within Kansas State University are dedicated to increasing healthy food access and security. The Riley County Health Department has expressed interest in this initiative and is already working towards similar goals as they promote overall community health and strive to meet the needs of the undersrved. The Flint Hills Regional Council promotes a regional focus and initiative to assist smaller communities and increase prosperity in this area. Partnerships must be forged and an organization of people must be established, with the planning department's support, to more successfully address healthy food accessibility in rural and urban environments in Riley County.

Future Study

This study provides basic information for Riley County to assess their food environment. Further study is suggested to expand on the findings and data gathering. A regional context would be useful to fully understand food accessibility and food networks. It is unrealistic to expect people to obtain food only in Riley County, considering the fact that people from other counties come to Manhattan to access healthy food. Also, expanding the scope of the focus to not just food retail stores, but also restaurants and institutional food providers, such as Kansas State University, would be helpful in getting a fuller picture of the state of the food environment.

Further outreach to different social service organizations and planning staff would be needed to identify more connections between planning and healthy food access and create partnerships. An educational component would also be beneficial to areas such as Riley County to understand planning and policy involving food systems. A food policy council would be an organization that could facilitate these activities along with local planners.

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Appendix A

GIS Anlaysis Tasks and Maps

Tasks

Below are steps that were conducted to complete the geospatial analysis section of the methodology.

1. Collect food store addresses
2. Gather county data from Riley County
3. Join address points with food store addresses
4. Make base map with county, roads, and city boundaries
5. Use buffer tool to visualize distances from food stores (Figure B.1)
    a. 10 miles, 1 mile, ½ mile, ¼ mile
6. Conduct Service Area Network Analysis in Arc Catalog
    a. Create a Geo Database
        i. Create new feature set
        ii. Import road line file and food store point file
        iii. Create new Network Data Set
    b. Run the network
        i. Creates a Junction point layer
7. In Arc GIS Use Network Analyst tool (Figure B.2)
    a. New Service Area
        i. Facilities will show food store points
    b. Solve will create the buffer areas
    c. To change distance and run tool again
        i. Service Areas
            1. Properties
                a. Analysis Settings
                    i. Impendence (Length)

Figure B.1: Buffer tool

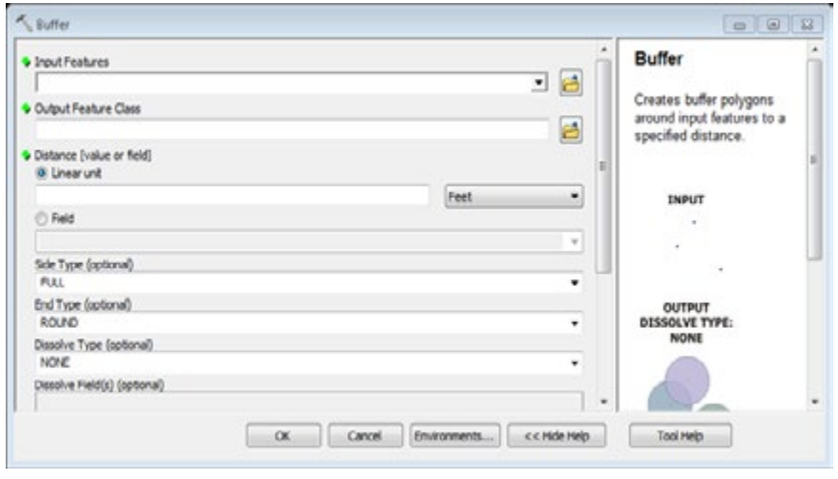


Figure B.2: Network Analyst Tool

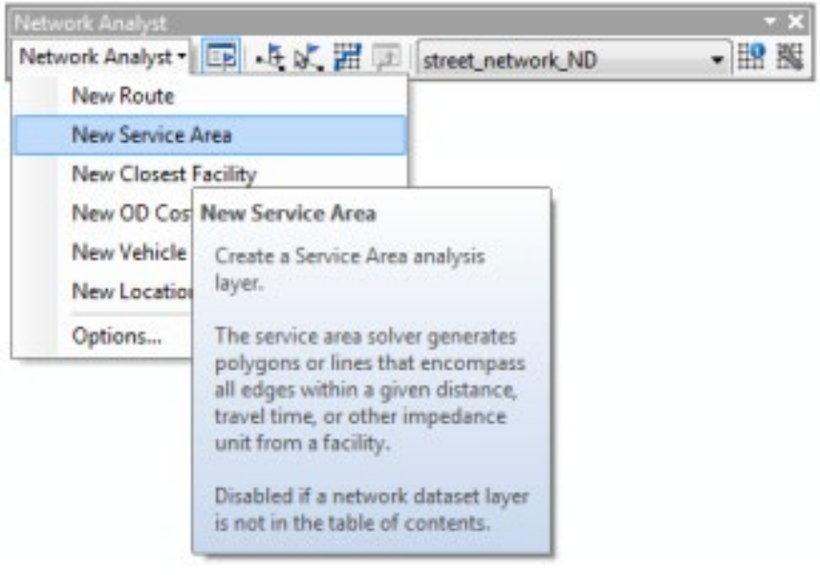


Figure B.3: Network Method, City of Manhattan
Grocery stores and convenience stores combined with population

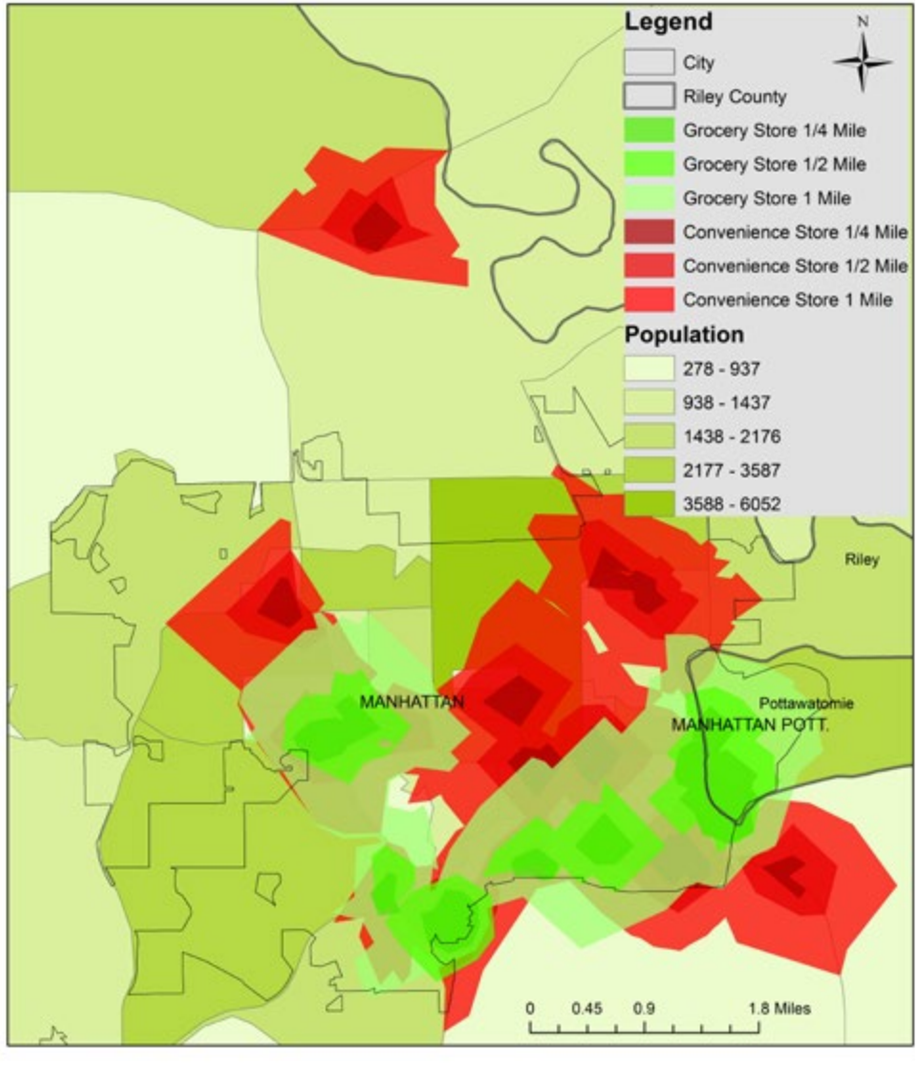


Figure B.4: Network Method, City of Manhattan
Grocery stores and convenience stores combined with poverty rate

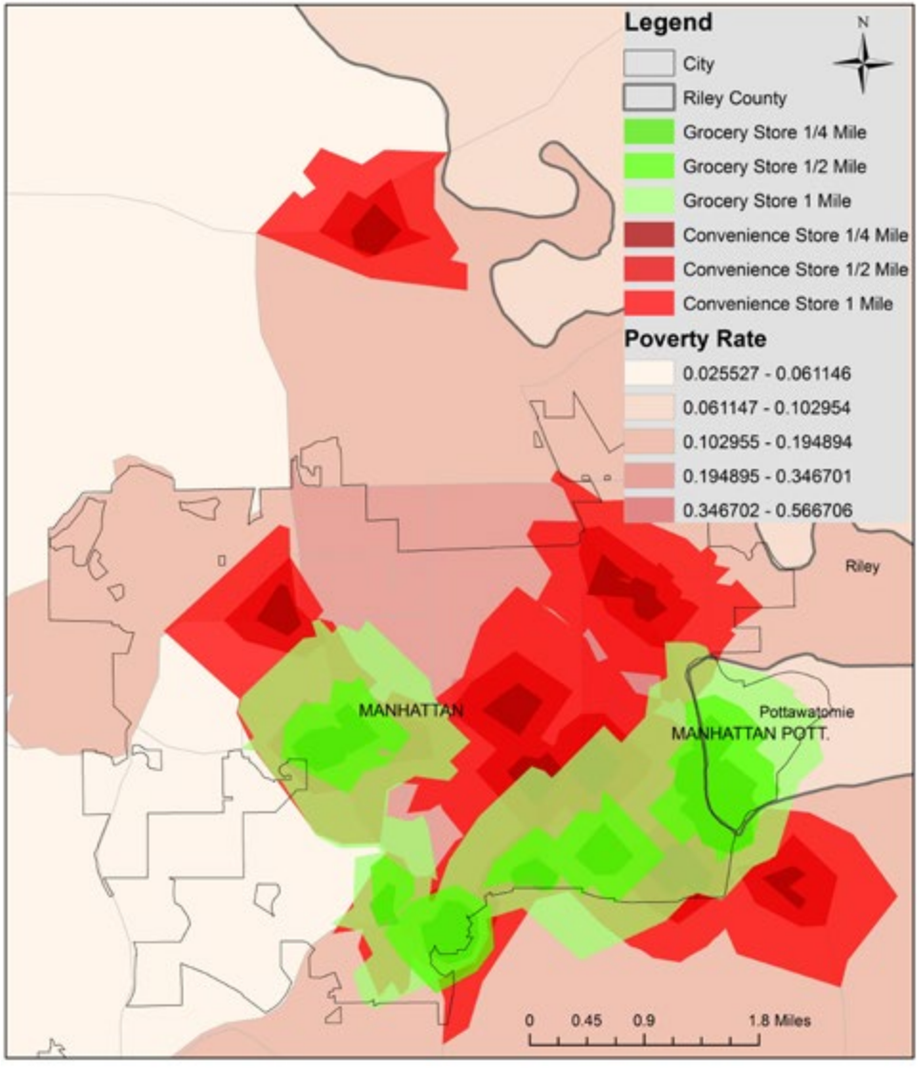


Figure B.5: Network Method, City of Manhattan
Grocery stores with population

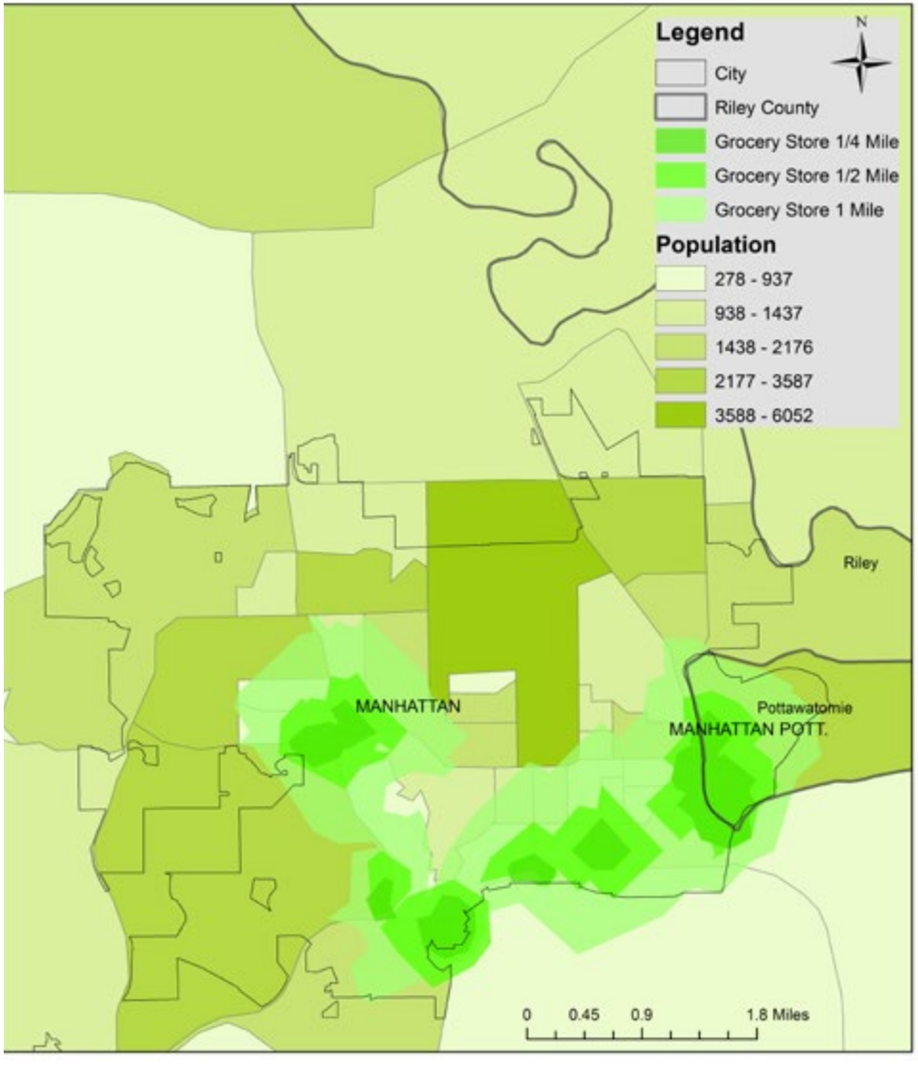


Figure B.6: Network Method, City of Manhattan
Grocery stores with poverty rate

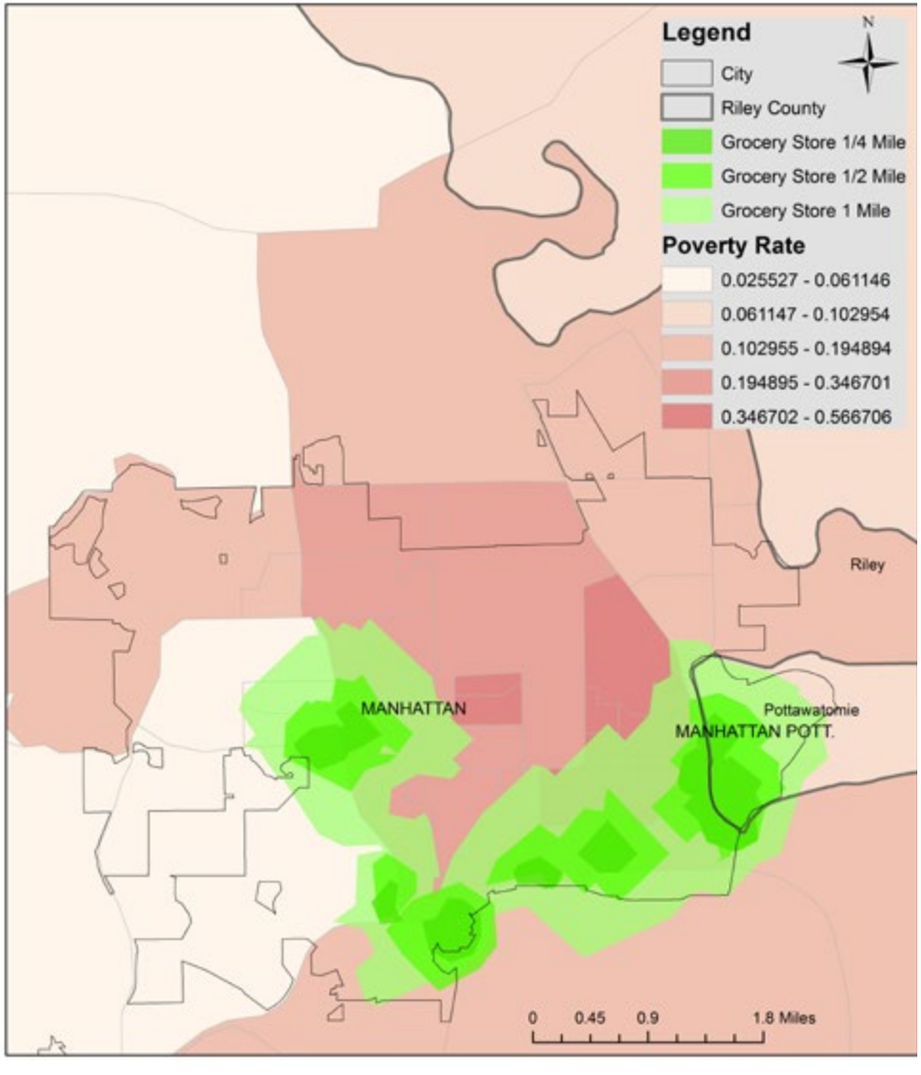


Figure B.7: Survey response locations, City of Manhattan
Locations with population

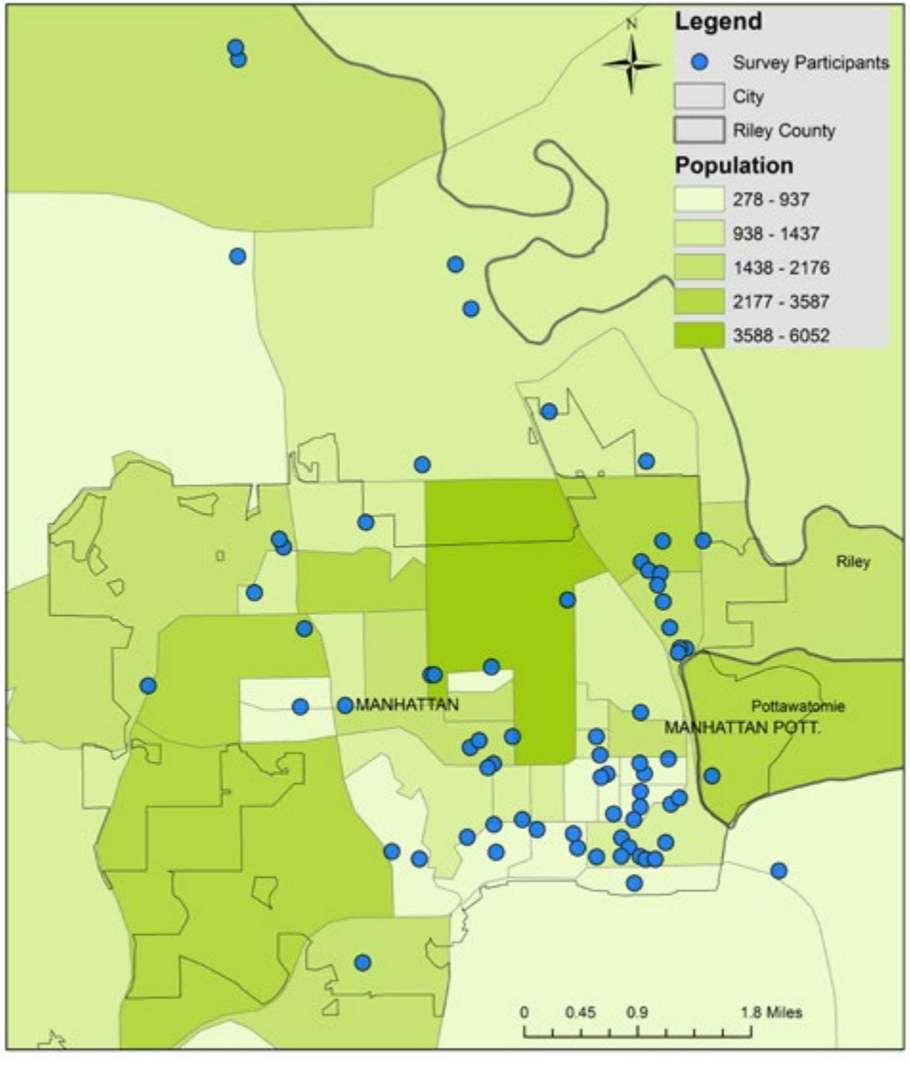
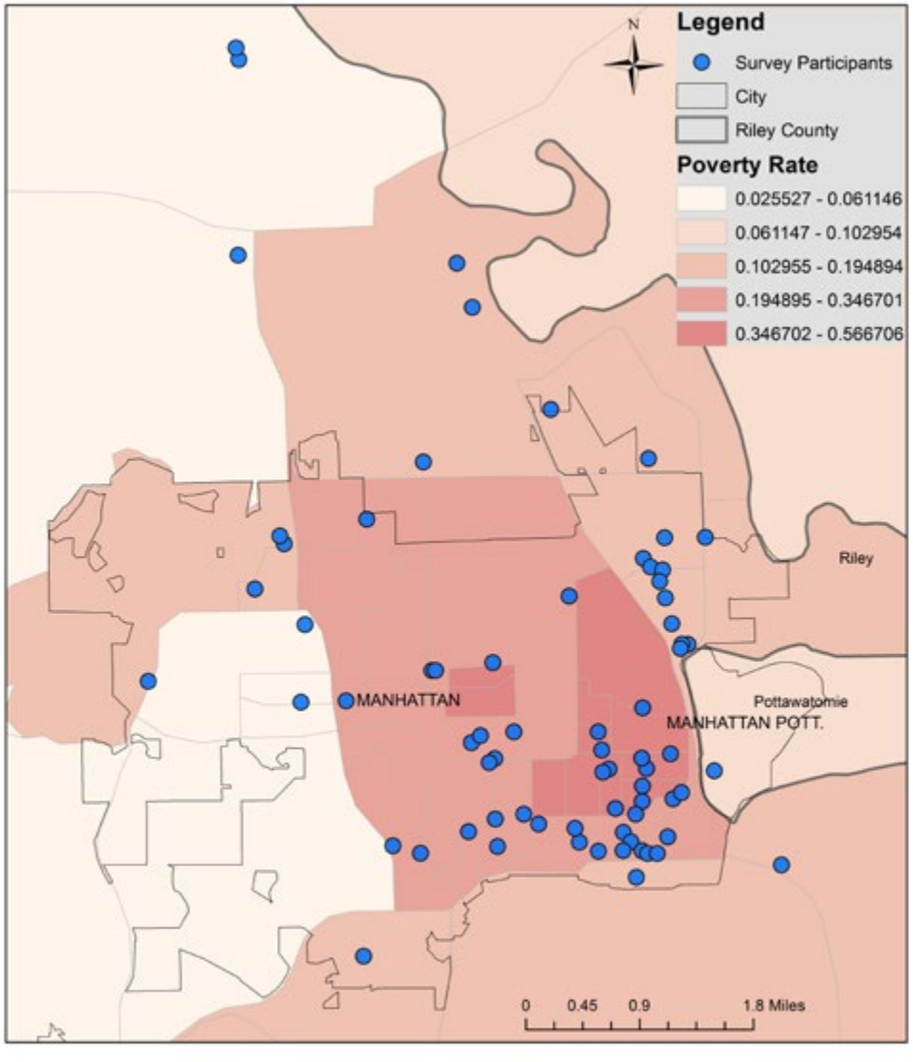


Figure B.8: Survey response locations, City of Manhattan
Locations with poverty rate



Appendix B

Survey

Kansas State University

Debriefing Statement

The study will be conducted by Alexsis Stensland, a Master's degree candidate in Regional and Community Planning at Kansas State University. Participation is voluntary and your identity will remain confidential. You may skip specific questions if you feel uncomfortable responding. Please direct concerns to alexsis14@k-state.edu. Thank you for your participation!

Study Objective

The purpose of the research is to identify issues related to healthy food accessibility that need to be addressed among Riley County communities. This study will engage surveys and interviews with community stakeholders, residents, and planning professionals within the county. An analysis of policies and programs around the country will then be conducted to identify best practices that may have implications in Riley County. The research will inform the local food system framework to provide guidance for policy makers in the communities. Overall, the goal of the study is to identify locations with the least amount of healthy food access and the need based on barriers identified, and determine the appropriate regulations to increase healthy food access.

Risks Anticipated

There is minimal risk involved in this study. Participation in the survey or interviews is voluntary and your identity will remain confidential. You may also skip questions if you feel uncomfortable responding.

Benefits Anticipated

The results of the study have the opportunity to inform food access policy and practices to increase healthy food accessibility in Riley County.

Study Conclusion

The results of the study will be shared with stakeholder groups in Riley County as well as city and county officials. The findings may also be shared via poster or oral presentation at the Kansas State University Research Symposium in the Spring Semester 2015.

Kansas State University
Community Food Accessibility Survey

This survey is conducted on behalf of Alexsis Stensland, a Master's degree candidate in Regional and Community Planning at Kansas State University. Your participation will help identify barriers related to healthy food access and security to help better understand the food environment in Riley County.

Participation in this survey is voluntary and your identity will remain confidential. You may skip specific questions if you feel uncomfortable responding. Please direct any concerns to alexsis14@ksu.edu. Thank you for your participation!

Section 1: Community Food Access

Q1.1 How often do you do you utilize these types of food outlets to purchase or obtain food for your household?

	Never	Rarely	Sometimes	Often	Always
Grocery store chain (Dillon's, HyVee, Walmart)	❍	❍	❍	❍	❍
Small neighborhood store or local Grocery Store (Ray's Applemarket)	❍	❍	❍	❍	❍
Convenience store (Short Stop, Dara's, Quick Shop)	❍	❍	❍	❍	❍
Warehouse store (Sam's, Costco)	❍	❍	❍	❍	❍
Restaurant	❍	❍	❍	❍	❍
Food co-op store (People's Grocery)	❍	❍	❍	❍	❍
Food bank/pantry (Flint Hills Breadbasket, Local church)	❍	❍	❍	❍	❍
Direct from farm (CSA)	❍	❍	❍	❍	❍
Farmers market (Seasonal, Eastside/Westside Market)	❍	❍	❍	❍	❍
Local or home garden	❍	❍	❍	❍	❍

Q1.2 Please list the three places where you purchased the majority of your food in the last month?

Food Store 1_____
Food Store 2_____
Food Store 3_____

Q1.3 What is the primary reason that you shop at your top three food stores?

	Food Store 1:	Food Store 2:	Food Store 3:
Location (convenience)	❍	❍	❍
Food quality	❍	❍	❍
Product selection	❍	❍	❍
Prices (affordability)	❍	❍	❍

Q1.4 Besides grocery stores, where else do you obtain food? (Mark all that apply)

- ❑ Farmers market
- ❑ Home garden
- ❑ Community garden
- ❑ School cafeteria
- ❑ Food bank/pantry
- ❑ Senior meal site
- ❑ Fast food
- ❑ Church/community organization
- ❑ Home-delivered meals
- ❑ Others _____

Q1.5 How often do you go to the store to purchase food?

- ❍ Every day
- ❍ 2 times a week
- ❍ Once a week
- ❍ Twice a month
- ❍ Once a Month
- ❍ Hardly ever

Q1.6 How do you get to the store where you purchase your food?

	Never	Rarely	Sometimes	Often	Always
Personal vehicle	❍	❍	❍	❍	❍
Ride with a friend or family member	❍	❍	❍	❍	❍
Public transportation	❍	❍	❍	❍	❍
Walk	❍	❍	❍	❍	❍
Bike	❍	❍	❍	❍	❍
Other	❍	❍	❍	❍	❍

Q1.7 How long does it take you to get to your preferred grocery store (one-way)?

- ❍ 0-5 minutes
- ❍ 5-10 minutes
- ❍ 10-20 minutes
- ❍ 20-30 minutes
- ❍ 30 minutes -1 hour
- ❍ More than 1 hour

Section 2: Food Security

Q2.1 These next statements are about the food eaten in your household in the last 12 months; and the affordability of the food you need.

	Never true	Sometimes true	Often true
"The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?	❍	❍	❍
"(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?	❍	❍	❍

Q2.2 How often did you purchase foods in each category in a typical month?

	Never	Once	2-3 Times	Once a Week	2-3 Times a Week	Daily
Grains	❍	❍	❍	❍	❍	❍
Vegetables	❍	❍	❍	❍	❍	❍
Fruits	❍	❍	❍	❍	❍	❍
Milk	❍	❍	❍	❍	❍	❍
Meat and Beans	❍	❍	❍	❍	❍	❍

Q2.3 In the last 12 months were any of the following issues you faced when shopping for food?

	Never	Rarely	Sometimes	Often	Always
Cost of food	❍	❍	❍	❍	❍
Transportation	❍	❍	❍	❍	❍
Distance to the food store	❍	❍	❍	❍	❍
Availability of desired or preferred food store	❍	❍	❍	❍	❍
Physical ability	❍	❍	❍	❍	❍
Time for shopping	❍	❍	❍	❍	❍

Section 3: Demographic Information

Q3.1 In what city or area do you live?

- ❍ Manhattan
- ❍ Ogden
- ❍ Riley
- ❍ Leonardville
- ❍ Randolph
- ❍ Rural Area
- ❍ Other _____

Q3.2 Name the streets that intersect nearest to your home.

_____ (Street/Road/Avenue)

_____ (Street/Road/Avenue)

We ask this question to be able to geographically process your responses while respecting your privacy. Thank you for your cooperation!

Q3.3 In what city or area do work/go to school most often?

- ❍ Manhattan
- ❍ Ogden
- ❍ Riley
- ❍ Leonardville
- ❍ Randolph
- ❍ Rural area
- ❍ Does not apply
- ❍ Other _____

Q3.4 What is your age?

- ❍ 18-25
- ❍ 26-40
- ❍ 41-65
- ❍ 65+

Q3.5 What is your occupation or trade?

Q3.6 Including yourself, how many people are in your household?

- ❍ 1-2
- ❍ 3-4
- ❍ 5-6
- ❍ 7-8
- ❍ more than 8

Q3.7 What is your average annual household income?

- ❍ $0-$15,000
- ❍ $15,001-$25,000
- ❍ $25,001-$35,000
- ❍ $35,001-$50,000
- ❍ $50,000+

Q3.8 Do you utilize any of the following food assistance programs? (Check all that apply)

- ❑ Food stamps
- ❑ WIC
- ❑ Free or reduced lunch

Q3.9 Please give us your impression of your neighborhood's present food need situation. How are you involved?

Q3.10 Do you have any additional comments?

KANSAS STATE UNIVERSITY University Research Compliance Office

TO: Hyung Jin Kim
LARCP
208 Seaton

Proposal Number: 7511

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

DATE: 01/15/2015

RE: Proposal Entitled, "Healthy Food Accessibility and Policy: A Study of Urban and Rural Food Environments in Riley County, Kansas"

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

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, 45 CFR §46.101, paragraph b, category: 2, subsection: ii.

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

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

203 Fairchild Hall, Lower Mezzanine, Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278 | http://www.ksu.edu/research/compliance

Appendix C

Interviews

Policy Interview

City Official Interview Questions

COMMUNITY HEALTHY FOOD ACCESS AND SECURITY POLICIES AND PRACTICES

The interviews will be conducted by Alexsis Stensland, a Master's degree candidate in Regional and Community Planning at Kansas State University. Your participation will help identify issues related to healthy food access policies and community food security in Riley County, Kansas.

Participation in this interview is voluntary and your identity will remain confidential. You may skip specific questions if you feel uncomfortable responding. Please direct concerns to alexsis14@k-state.edu. Thank you for your participation!

Name_____ Title/Position_____

Organization_____

Date Completed_____

Introduction

1. Tell me about yourself.

   Probe:

   a) How long have you been in the city/county government?

   b) How long have you been in your current position?

About Healthy Food Access

2. Do you think that food is accessible, available, and affordable in the community?

   Probe:

   a) Explain how it is or is not.

   b) Are there differences among different groups in the community?

3. How important do you believe healthy food access is to the public in the community?

   Probe:

   a) What are the interests of your constituents related to healthy food access?

   b) Is interest increasing or decreasing?

   c) What does the public want in healthy food access policy?

4. Are there certain neighborhoods or geographic areas that have unmet needs related to healthy food access?

5. Are there any transportation policies that affect food access?

6. Are alternative food sources easily accessible and used in the community?

   Probe:

   a) What are they?

   b) Who organizes them?

7. Are you aware of current programs or policy related to healthy food access in the community?

   Yes ( ) No ( )

   If yes: What programs are available in your community and have they been effective?

8. Do you know of any specific "champion" or "champions" for healthy food access policy in the community?

   Probe:

   a) Who do they represent?

   b) What is their interest in supporting healthy food access policies?

9. Do you believe this administration/board/office works with other agencies and organizations in the community to support healthy food access? Why or why not?

10. What do you believe are the barriers to enacting policies and creating community supports related to healthy food access?

11. Are there funds available in the community to support healthy food access policy actions?

12. Do you think local government funds <u>should</u> be spent to support healthy food access policy actions?

13. Is there anything else about policies that can improve healthy food access in the community that you would like to share?

Other Questions

14. Are there any local ordinances or other policies that affect food production, distribution, and consumption? (e.g., zoning rules that affect supermarket development, food purchasing regulations for local schools or institutions, policies on the use of city-owned land for community gardens)

15. Are there any farmland preservation efforts?

16. Is there an integration of food-related issues into the community planning process?

Do you have any other comments that you would like to add?

THANK YOU for taking the time to participate in this interview.

Stakeholder Interview

Community Stakeholder Interview Questions

COMMUNITY HEALTHY FOOD ACCESS AND SECURITY POLICIES AND PRACTICES

The interviews will be conducted by Alexsis Stensland, a Master's degree candidate in Regional and Community Planning at Kansas State University. Your participation will help identify issues related to healthy food access policies and community food security in Riley County, Kansas.

Participation in this interview is voluntary and your identity will remain confidential. You may skip specific questions if you feel uncomfortable responding. Please direct concerns to alexsis14@k-state.edu. Thank you for your participation!

Name_____Title/Position_____

Organization_____

Date Completed_____

Introduction

1. Tell me about yourself.
    a) How are you involved in food system issues in your community?
    b) How long have you been involved?

About Healthy Food Access

2. Do you think that food is accessible, available, and affordable in the community?
    a) Explain how it is or is not.
    b) Are there differences among different groups in the community?
3. Are alternative food sources easily accessible and used in the community?
    a) What are they?
    b) Who organizes them?

4. Are you aware of current programs or policy related to healthy food access that could be beneficial in your community?

    Yes ( ) No ( )

    If yes: What programs are available in your community and have they been effective?

5. What do you believe are the barriers in generating funding and/or governmental support related to healthy food access?
6. Are there funds that you know of available in the community to support healthy food access policy actions or activities?

Questions about Food Security

7. Do you think that many households in the community have a problem with food security?

    Probe: How would you characterize the extent of the problem?

8. What do you think are the biggest problems related to food security at the community level?
    a) Why do you think these exist?
    b) What resources are in place to avoid these problems?
9. What else could be done to improve the community's problems with food insecurity?

    Probe: Who are the key players?

10. Are there local funding sources for community food security-related activities?

Do you have any other comments that you would like to add?

THANK YOU for taking the time to participate in this interview.

Interview Narratives

Riley County Planning Director

Monty Wedel has been the Director of Riley County Planning and Development for 30 years. The director agreed food accessibility is very important to all sectors and recognized the growing concern. He realizes that low income and the homeless have the greatest unmet need in Riley County. However, he stated that the county has many options of grocery stores, farmer's markets, community gardens and food panties for lower income residents. He also said that the department would support healthy food access efforts in any way they could. On the other hand, he is not in favor of spending local government funds to support healthy food access initiatives and also stated there was very little, if any integration of food-related issues into the community planning process.

Manhattan Director of Community Development

Karen Davis has been the Director of Community Development for 19 years and working for the City of Manhattan for 36 years. In her view food is accessible, available, and affordable in the community through private, public, and non-profit sources. Manhattan is not large enough to have problems with neighborhoods accessing healthy foods in her view. She recognizes that transportation has been an issue in the past however the services provided by the ATA bus had partially addressed food accessibility issues. Another group that was identified addressing food accessibility is the Flint Wellness Coalition managed by the Riley County Health Department and Riley County extension who have received grants from the Kansas Health Foundation. Karen said that the planning office works with other agencies to promote healthy eating. She said some of the barriers to enacting policies and creating community supports related to healthy food access are the beliefs that healthy food is too expensive or that the community is not interested. Still, she says local funds should be spent to support healthy food access policy actions.

Flint Hills Regional Council Regional Planner

Jeff Adams has been the regional planner for the Flint Hills Regional Council for four years. Jeff has lived in several parts of the country and has experienced a variety of food environments and mindsets towards healthy food. In his view food is accessible in Riley County and the region as a whole if you have a vehicle. Jeff believes rural areas have most difficulty accessing healthy food. Transportation is also a huge issue and a growing concern with an ageing population. He has also observed that healthy food is more expensive in this region compared to other regions. Jeff used to do some of his grocery shopping in the Ray's Apple Market in the east side of town because it was within walking distance from his house. Since the store closed he now has to drive to the nearest store. The cost of living index is relatively low in Kansas which is an advantage but it is difficult to recruit whole foods and other healthy based market businesses. When asked how important healthy food access is to the public in the community Jeff responded that it is important to him personally but is not sure if it is a priority to the community as a whole compared to the other places he has worked such as Idaho and Georgia. He described the issue as a knowledge problem. The community is not aware of what's happening in other areas and is more market and bottom line driven rather than policy driven. He does recognize there is some momentum starting with healthy food. The Manhattan farmers market is a good thing that is happening along with the discussions revolving around a food policy that has been started.

Ray's Apple Market Manager

The Ray's Apple Market Manager, Jeremy has been in food retail for a total of seven years. He has been the manager at Ray's for 2 years. Ray's Apple Market (Ray's) is a locally owned regional grocery store having locations in six cities including Manhattan. There used to be two stores in Manhattan, one on the east side on Levenworth and 6th street and another larger store located on the west side of Manhattan on Anderson and Seth Child Rd. The locations of grocery stores rely heavily on demographics and planned growth. Jeremy gave the example of Hyvee locating where they did between Tuttle Creek Blvd and Blumont. Hyvee's location is ideal he said. This was one of the contributing factors in the Ray's store closing of the east Ray's store. Originally Ray's located on the east side on Levenworth because there was not a grocery store nearby. The store was much needed and welcomed by the neighborhood which is also a lower income

neighborhood. After Hyvee was built nearby, on a road that had much more traffic, Ray's Apple Market started to lose business and had to close its doors. Many residents, as indicated on the Community Food Survey live nearby and wish there were another grocery store in that location. Jeremy acknowledged that the grocery store closing effected residents in that area and he admitted that healthy food access is a concern for Ray's. That is why Ray's is about to launch a grocery delivery service serving the city of Manhattan. There is a flat fee of $5 and a minimum order of $30. When asked if the service will be cost effective he responded and said that is not the goal. The goal is to make food more accessible to the elderly or people without transportation or capabilities to travel to a store and do their own shopping.

The interview then shifted to discuss the lack of grocery stores in rural areas and smaller communities. Jeremy explained that big food vendors and distributors are making it harder for grocery stores to make a profit on the food they sell. Especially if a grocery store must order in smaller quantities like small stores in rural communities would. The good news is that Jeremy thought that grocery stores are as big as they will get. He is seeing a trend where grocery stores are actually getting smaller to be able to fit into neighborhoods. For example, Walmart has been building smaller stores called Neighborhood Market and Walmart Express. In fact, they have recently built a Walmart Express in Burlington, KS which has a population of about 2,600 people. A Walmart Express offers full grocery departments, including fresh produce, meats and dairy, and an assortment of other merchandise, including health and beauty products, housewares and baby essentials. Burlington is the county seat of Coffey County and the store will serve approximately 8,500 residents of the county. Another idea that Jeremy brought up was that some grocery stores will have satellite locations in smaller communities where residents can get basic groceries on a regular basis or pick up their grocery orders from the larger stores certain days of the week. This is something that Ray's might be interested in in the future but not pursuing anything yet.

People's Grocery Assistant Manager

Lynn is the Assistant Manager of People's Grocery and has been interested in food cooperatives for about 2 years. People's Grocery is a member owned grocery and health food store with around 800 active owners. The store focuses on buying local and helps foster a sense of community. The store also provides free cooking classes that are becoming popular. There might be a need to additional promotion. She thinks local and healthy food is becoming more accessible, available and affordable in the community, especially for people with moderate income and above in the community but in general it is not everywhere in Kansas. She acknowledges that people with lower income have problems accessing healthy food. People's Grocery has made a commitment to getting set up to accept food assistance cards and she sees them being used daily. Being a small store and not having as much buying power is another reason why they simply cannot lower prices and become more affordable to more people and keep the doors open at the same time. Education is part of the reason why it seems that Kansas in general is lagging behind in the health food market. She suggests that the organization of a food hub could be beneficial to this region. She has also been involved and is aware of some of the programs that the Kansas Rural Center provides.

United Methodist Church Associate Pastor

Patrick McLaughlin is the associate pastor at the First United Methodist Church and has been interested in food system and food security issues for a large part of his life. Patrick is very involved in the community and working towards increasing healthy food access. The church in general historically has been about the hungry and poor. Food is a common need for all people. In his view food is a small part of poverty but through providing healthy food, other conversations can be generated around the table. He has seen food being a gateway for people to come together and make connections. Patrick responds that food is accessible, available, and affordable in the community with caution. In Manhattan there are a variety of resources for people that are hungry but Patrick suggests that it should be about dignity and creating options that are desirable in addition to emergency situation providers. It is Patrick's opinion that public transportation in currently insufficient but in Kansas the majority of people own cars. There is a higher cost of living in Manhattan and the services provided should serve a higher population above the poverty rate.

In Atlanta, GA where Patrick lived prior to moving to Manhattan, there is a food cooperative called Georgia Avenue Co-Op which is similar to Harvesters but food is distributed 6 times per week by a delivery truck. There are different groups that are members that receive the food. These groups take turns unloading the truck and dividing the food evenly among themselves. There is an annual membership and people can pay extra for additional items like produce. Each time there is a meeting about evaluating what went well and what did not go well and can be improved. The program is based on an adaptive leadership structure. Patrick says it is about putting agency back in the hands of those in need.

Leonardville Resident

Chandra Ruthstrom has always been active in her community of Leonardville. She has been the president of the Pride group for the last six years. She described the lack of food access in her small community. Although there is a popular restaurant and a convenient store there is not a grocery store for people to buy affordable groceries on a regular basis. The residents of Leonardville have to drive over 20 minutes one way to do their grocery shopping. Even though a lot of people that live in Leonarville work in Manhattan there are some elderly and other residents that stay in the town which can become difficult to access healthy and affordable food. Although there has been a grocery store in the community in the past Chandra says that it would be very difficult and time consuming to try to keep a grocery store open in the small town. There is not much interest or support to reopen the grocery store. However, she suggests it would be great to get a farmer's market going or a community garden.