



# **A Food Access Assessment**

## **Mapping food access in the City of Roanoke**

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Mapping food access in the City of Roanoke

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## Executive Summary

This document has been developed with the support of the Roanoke Valley-Alleghany Regional Commission as part of the on-going FY2015 Work Program item “Regional Food System Plan.” Aiming to provide an evaluation of food access issues in the City of Roanoke, this document uses information from the USDA’s *Food Access Research Atlas* and data from the U.S. Census Bureau, RVARC, and local organizations to create a series of maps, tables, and figures which explore issues of geographic, informational, economic, and social barriers to accessing fresh, healthy, and nutritious food.

This assessment is designed to be used as both a framework for future assessments seeking to incorporate USDA *Food Access Research Atlas* data and a starting point for a broader food system assessment and plan in the Roanoke Valley – Alleghany Region. Other examples of food system plans have been referenced within the work to act as guides, and suggestions for next steps in food system planning on the part of local and regional government bodies are made throughout. The major conclusions of this document in regards to addressing food access issues in the City of Roanoke include:

- The importance of expanding geographical access through increased food access locations;
- The necessity of considering vulnerable populations in evaluations of other physical access concerns such as access to transport and issues of disability, which include unique issues facing both the very young and the very old;
- The potential uses of existing infrastructure elements such as parks and schools to address food access concerns;
- The integral role of transportation in physical access and the unique distribution of transportation concerns within the city;
- The role of economic status in determining food access and driving market locations;

- The necessity of considering the demographic makeup of given areas to determine ways to reach out to communities, including racial and ethnic minorities, and improve informational access to food; and
- The need for a comprehensive food system assessment to provide a baseline for coordinated local or regional government policy.

This work was made possible in part by the ideas imparted in the Local Foods Stakeholder Committee meetings organized by RVARC. It is hoped by the author that future studies will incorporate not only the conclusions of this work concerning low access communities within the city, but also studies done by other stakeholders from that group, including Carilion Clinic and the Catawba Sustainability Center.

## Introduction

In the summer of 2014, upon entering the fiscal year of 2015, the Roanoke Valley-Alleghany Regional Commission (RVARC) found itself tasked with a unique project. This item within the *FY2015 Work Program* was entitled “Regional Food System Plan,” and was described as follows:

Staff will develop a plan to promote economic development, healthy living, environment and natural resources stewardship within the region. Staff will work with our member governments to promote regional agribusiness/agritourism initiatives, sites, and activities.

Because the Commission was only given 50 work hours to complete this plan, members determined that those hours would need to be supplemented in some way. The origins of this document lie in the need for research which could be folded into a food plan for the region, as well as research interests of the author in completing her graduate studies at Virginia Tech.

The American Planning Association (APA) report *A Planners Guide to Community and Regional Food Planning* describes food planning as “concerned with improving a community’s food system.” (Raja, Born, and Russel 3) Elements of this improvement are detailed in the Work Program text, and can be economic, environmental, and health related. The food system is defined by the APA as “the chain of activities and processes related to the production, processing, distribution, disposal, and eating of food.” (Raja, Born, and Russel 3) The role of planners in shaping a healthy, equitable food system which promotes economic and environmental vitality for a community is not without historical precedent. Raja et al. note that the food system is inherently intertwined with many more traditional areas of planning, including the major concern of transportation, central to the Regional Commission’s work. (2) In a separate document entitled *Policy Guide on Community and Regional Food Planning*, the APA lists the following major reasons to engage in food system planning:

- Recognition that food system activities take up a significant amount of urban and regional land
- Awareness that planners can play a role to help reduce the rising incidence of hunger on the one hand, and obesity on the other
- Understanding that the food system represents an important part of community and regional economies
- Awareness that the food Americans eat takes a considerable amount of fossil fuel energy to produce, process, transport, and dispose of
- Understanding that farmland in metropolitan areas, and therefore the capacity to produce food for local and regional markets, is being lost at a strong pace
- Understanding that pollution of ground and surface water, caused by the overuse of chemical fertilizers and pesticides in agriculture adversely affects drinking water supplies
- Awareness that access to healthy foods in low-income areas is an increasing problem for which urban agriculture can offer an important solution
- Recognition that many benefits emerge from stronger community and regional food systems (1-2)

While this list is by no means comprehensive, it provides an important context for food assessments. The term food assessment will be discussed further in later sections. It is sufficient to say that one cannot plan for the future without knowing one's assets. This is especially necessary in the evaluation of the complex and indispensable elements of the food system.

The primary concern of this document is the question of individual access to food within the City of Roanoke. Low food access is defined by the USDA as “[L]imited access to supermarkets, supercenters, grocery stores, and other sources of affordable and healthy food.” (ERS, USDA) Often, communities with low food access are described as food deserts. The term food desert is more heavily used than the term low access or low access neighborhood in some circles, though the USDA has recently transitioned from an emphasis on food deserts to measurements of access by miles. However, this term is still an important one in studies of food access trends. As recently as 2014, the *Food Deserts in Virginia* report defined the food desert as “an area where populations live more than one mile from a supermarket or large grocery store.” (Grant and Hairston 3) This kind of low access neighborhood gives rise to food insecurity amongst households, defined as “limited access or lack of access to a nutritionally sound and culturally appropriate diet from



reliable mainstream sources.” (Guptill, Copelton, and Lucal 212) Nationwide, some 14.3 percent of households are food insecure. (Coleman-Jensen, Gregory, and Singh)

Planning can play an important role in helping to change the landscape of food deserts that give rise to food insecure households. These landscapes are structured by a variety of things, not least of which is the absence of grocery stores and the correlated lower income levels of residents. (Morales 152) Suburbanization also plays an important role in creating food deserts in many cities. (151) McClintock notes as well that food deserts in the United States often overlap communities of color. (90) He goes on to point out that while “small corner stores and ethnic grocers are abundant in these food deserts....the type of food generally tends to be of poorer quality and less healthy.” (*Ibid*) Often, it is easier to access fast food restaurants than grocery stores for residents of these communities. (Grant and Hairston 5) With these descriptions, it becomes clear that not only are food deserts issues of locational food access, but also issues of economic access and social inequality. These environments perpetuate low food access for the poor and minorities, making it difficult if not impossible to find quality, fresh food items which are affordable.

The report *Food Deserts in Virginia* states that there are “food deserts and/or pockets of low access to differing degrees in all cities and counties” within the commonwealth. (Grant and Hairston 4) It should come as no surprise then that Roanoke, as one of these communities, also contains citizens suffering from low food access. At the state level, there are some 1,423,483 individuals who are considered low access, putting the low access rate as calculated by that report at 17.8 percent for the state. (*Ibid*) The national low access rate is only 7.3 percent. (*Ibid*) It is therefore apparent that there are specific influences within the Commonwealth of Virginia which may influence low access in ways perhaps not found as prevalently in the broader United States. The *Food Deserts* report identifies a lack of adequate transportation as a key contributing factor to low food access. (*Ibid*) A closer look at transportation in the Roanoke Valley, including a brief case study on public transit and food access, will be made available in the Roanoke Valley Transportation Planning Organization’s *Constrained Long Range Multi-modal Transportation Plan 2040*.

## Objectives

This project aims to show and explore the relationship between low food access within the City of Roanoke and other food system elements within the city. As shown in the introduction, the project is not without precedent. The APA document *Policy Guide on Community and Regional Food Planning* identifies specifically in policy #1A the need for food planning in communities which should “integrate major local planning functions.” (7-8) The guide goes on to emphasize that planners could take an active role in generating food system assessments as a way to facilitate this goal. It is the hope of the author that this food access assessment will be incorporated into future assessments of the broader regional food system. To this goal, a section of the appendix is devoted to suggestions for duplicating the data analysis contained below in other communities.

As planners within RVARC and Roanoke itself move forward with a broader food system assessment and plan, it will be important to look at other comparable works to inform their process. The Richmond, Virginia Food Policy Task Force (FPTF) has done remarkable work in that city in producing a more comprehensive assessment than was possible in this work. The FPTF was comprised of some thirty-nine members and six work groups. These work groups were set to study Food Security, Education and Awareness, Health and Nutrition, School and Community Gardens, and the Quality of School Food. The last group, Community Assessment, compiled the community needs assessment. The document makes policy recommendations and provides a fair snapshot of the city. While future studies will be able to draw upon existing work in the City of Roanoke, such as the *Community Health Needs Assessment* (CHNA) undertaken by the Carilion Clinic, changing the kinds of work groups needed for future study, there is no group undertaking the kind of comprehensive food assessment found in the FPTF.

Another notable food assessment and plan which may be of use to those involved in future food system projects is the *Central Ohio Local Food Assessment and Plan*. This document contains a local food assessment conducted over six months, which “provides a snapshot of existing local-food-system components.” (MORPC 1) This snapshot is then used to provide policy suggestions generated by the five task forces chosen by this group, Research,

Health/Access, Agricultural Business, Land Use, and Public Awareness. Comparing the two sets of work groups discussed above, that of Richmond and of the Mid-Ohio Planning District Commission, it is possible to see that the nature of an assessment is adaptable to the needs of the community in question. There is a great deal of activity within the Roanoke Valley – Alleghany Region around food systems improvements, as seen in Table 1 and again in Appendix B. These active community members and business owners will shape the nature of planning in the region’s food system, just as community stakeholders have played a key role in the other communities mentioned above.

**Table 1 Organizations Represented in the RVARC Local Food Stakeholder Meetings**

AARP	Jeter Farm
Appalachian Foodshed Project	LEAP for Local Food
Blue Ridge SWCD	Lick Run Farm
Botetourt County - Tourism	Local Roots
Carilion Clinic Outreach	Local Table
Catawba Meadow Farm	Mountain Castles SWCD
City of Roanoke - Economic Development	Private Citizens
City of Roanoke - Planning	VT Doctoral Students
City of Salem	Roanoke Community Garden Association
County of Roanoke - Planning	Roanoke Natural Foods Co-op
County of Roanoke - Economic Development	Town of Vinton
Feeding America Southwest Virginia	United Way of Roanoke Valley
Flying Pigs Farm	USDA, Rural Development
Food Writer - Roanoke Times	Virginia Cooperative Extension
Four Corners Farm	VT Agricultural and Applied Economics
Freedom First	VT Office of Economic Development
Grandin Gardens	VT Planning, Governance, and Globalization
Group Epignosis	VT Catawba Sustainability Center
Healthy Roanoke Valley	Virginia Western Community College

The *Food Deserts* report notes several ways that local and regional governments can have a positive effect in Virginia communities interested in addressing food system issues. There are many grassroots efforts within Roanoke and around the state that are working to improve food access, such as LEAP for Local Foods, Feeding America Southwest Virginia, and the Roanoke Community Garden Association (RCGA), among a plethora of others. Some of these will be discussed in greater detail below. However, the observation of the *Food Deserts* report, and of the author, has been that while these projects are exceedingly helpful

for the community, they are “only partially successful in meeting the need for adequate food access” and broader food system reform which could benefit Roanoke. (Grant and Hairston 5) Local governments can help to coordinate these efforts with a guiding document and assisting policy, maximizing effectiveness. The report also suggests that local governments create “budget lines that invest in incentives dedicated to addressing food deserts and food insecurity.” (6) It is hoped that the information in this document will incite action on these items of coordinating policy and financial investment on the part of governments, identified as necessary by the Food Desert Task Force of the State of Virginia.

## Methodology

The principal methodology applied in the analysis below is to combine the USDA map layers with layers of infrastructure information to show the relationships between these elements of the community and highlight potentially innovative ways to address food access problems within Roanoke. The use of maps provides a visual representation of what are otherwise very abstract concepts of low access communities within the city. The geographical relationship between low access tracts and their infrastructural attributes as well as their demographic makeup is explored.

This assessment was conducted using secondary data. All of the elements shown in the maps have been mapped previously, though the arrangement of data used below reveals important relationships which may be capitalized on to improve food access in the city. Infrastructural information such as the location of supermarkets, corner stores, parks, vacant lots, and other similar data was obtained from the Roanoke Valley - Alleghany Regional Commission. Data concerning the locations of local foods and farm sites and businesses was obtained from business websites and the Roanoke Valley Locavore directory, produced by the Catawba Sustainability Center and partner organizations, and available both as a printed publication dated 2010 and as an ongoing WordPress blog. A new iteration of the printed publication is expected to be published sometime in 2015.

More about these data sources can be found on the RVARC Local Foods webpage, listed in the references.

Most importantly, maps were created using the USDA's *Food Access Research Atlas*. The *Food Access Research Atlas* is a mapping tool created by the USDA to shed greater light upon food access issues across the United States. Unlike the original website produced by the USDA to track food deserts, which require both low access and low income information, this mapping tool focuses primarily on access as a distance measurement. Urban and rural census tracts are evaluated under different distance measures, with urban tracts being measured at both the ½-mile and 1-mile designations, where rural tracts are evaluated on a 10-mile and 20-mile designation. The entirety of the City of Roanoke is considered urban by the USDA, so all maps will be evaluated by ½-mile and 1-mile designations unless otherwise noted. Because much of the data incorporated within this study dates from 2010, there may be some disparities between current locations of certain elements of the maps and the reported locations which could somewhat affect food access trends in specific neighborhoods. However, it is the estimation of the author that analysis based on this data is still worthwhile given the gradual nature of change within most communities.

Within the low access information contained within the *Atlas*, there are several different aspects of low access that can be evaluated. While the predominant focus is low access by geographical distance to the grocery store, these data have been combined to examine such combinations of data as low access and low income, low access without access to a vehicle, and low access based off of age group. The USDA explains in their documentation on the *Atlas* that “a tract is designated as low access if the aggregate number of people in the census tract with low access is at least 500 or the percentage of people in the census tract with low access is at least 33 percent.” Transitions for the 1-mile lens to the ½-mile lens often bring a greater specificity to information, but also increase the number of people who are technically designated low access. It is important to note that secondary data can only encompass the statistical nature of the access problem. Lived experiences may vary substantially within the USDA groups designated.

The remainder of this document is divided into the Results section and the Conclusion. The Results section contains three subsections, which adopt three separate geographic lenses. The first looks briefly at the City of Roanoke in relation to the RVARC planning district. The second provides an in depth exploration of the city in regards to different food access measurements provided by the USDA, drawing attention to existing infrastructure and other attributes which may ameliorate or compound lack of food access. The third looks specifically at demographic information in six critically affected census tracts to evaluate compounding factors such as ethnic and racial identifications recognized by the Census Bureau. It is hoped that this information will help the City of Roanoke or RVARC as they continue planning for the future of the area's food system. Some recommendations drawing upon public stakeholder meeting notes and organization profiles may also be included, but this document is not meant to be a comprehensive approach to community food planning.

## Results

The following section is comprised of numerous maps, tables, and figures used to explore the food access situation in the City of Roanoke. These graphics reveal that there is a geographic access issue in the city experienced by all members of the population to various degrees. However, some citizens will find this limited geographic access to fresh foods compounded by such attributes as income, race, language preference, and age, as well as where they live in the city.

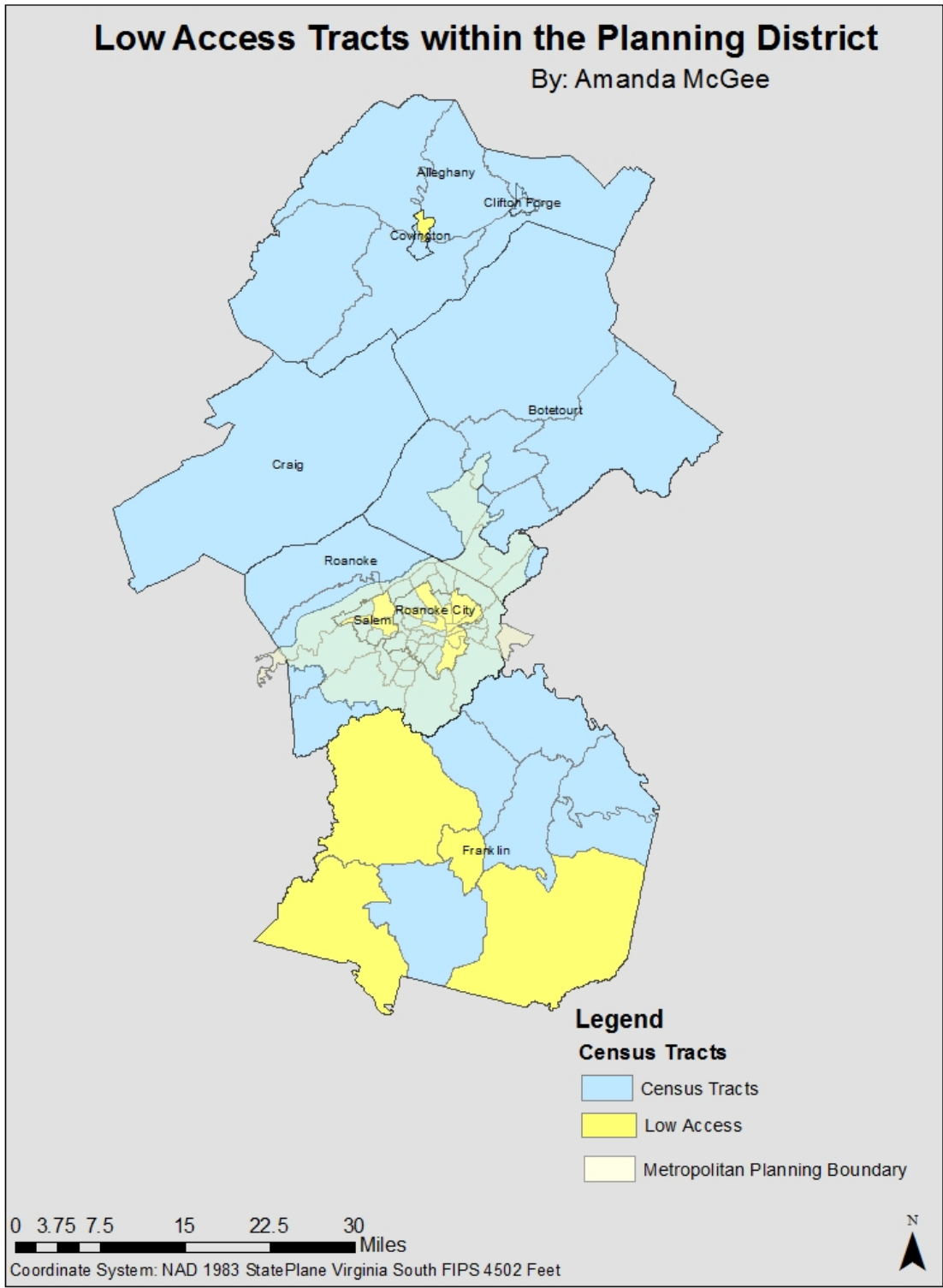
There are three subsections used to explore city attributes and needs in regards to food access. The first situates the City of Roanoke within the broader Roanoke Valley – Alleghany Region, showing that this city is an important economic and social hub for the area. The second subsection looks at the city as a whole, offering citywide maps and statistics to explore food access issues in this community. The last narrows the focus further to provide insight into six census tracts, tracts 5, 9, 23, 25, 26, and 27. The information revealed in each section tells a story not only of the need for change, but also of assets and avenues to facilitate that change.

### *A Regional Focus*

This document is designed to be a starting point for a broader regional food assessment. As such, it is important to contextualize the data available for the City of Roanoke with the below maps of the Planning District for the Roanoke Valley Alleghany Regional Commission (RVARC). The groundwork for a regional food assessment and food plan has already been laid by RVARC as they have begun conducting stakeholder meetings to assess local interest and activism in food systems. These meetings began in July and have continued on a more or less a bimonthly basis, with follow-up meetings in September, November, and January at the time of writing. Another meeting is scheduled for March, and future meetings will likely occur. Table 1 contains a list of the many organizations and groups throughout the region that have been represented at these meetings.

Low access is not just an urban issue. The surrounding area of the Roanoke Valley - Alleghany Region is also affected by low access concerns, especially Franklin County, as shown in Map 1. It is important to note in reading this map that low access for rural designated census tracts is measured at 10 miles from a supermarket, whereas low access in urban areas can be measured at the ½-mile or 1-mile mark. Further studies focusing on the specific effects and contributing factors of rural low access are needed to create a comprehensive regional food plan given this knowledge.

Map 1 is also important in that it highlights future planning boundaries for the Transportation Planning Commission, which RVARC also staffs. The metropolitan planning boundary for 2040 is shown on Map 1, highlighting the broadening urbanization of areas surrounding Roanoke and Salem. As population densifies in this area, designations of urban versus rural may change, changing the food access picture. What are now rural areas, and not by that measure low access tracts, may become urban areas, worsening the low access picture from what is projected above. A comprehensive food assessment for the region must include projections of the effects that urbanization may have on food access and ways to plan for a strong food system that will be resilient to these pressures.

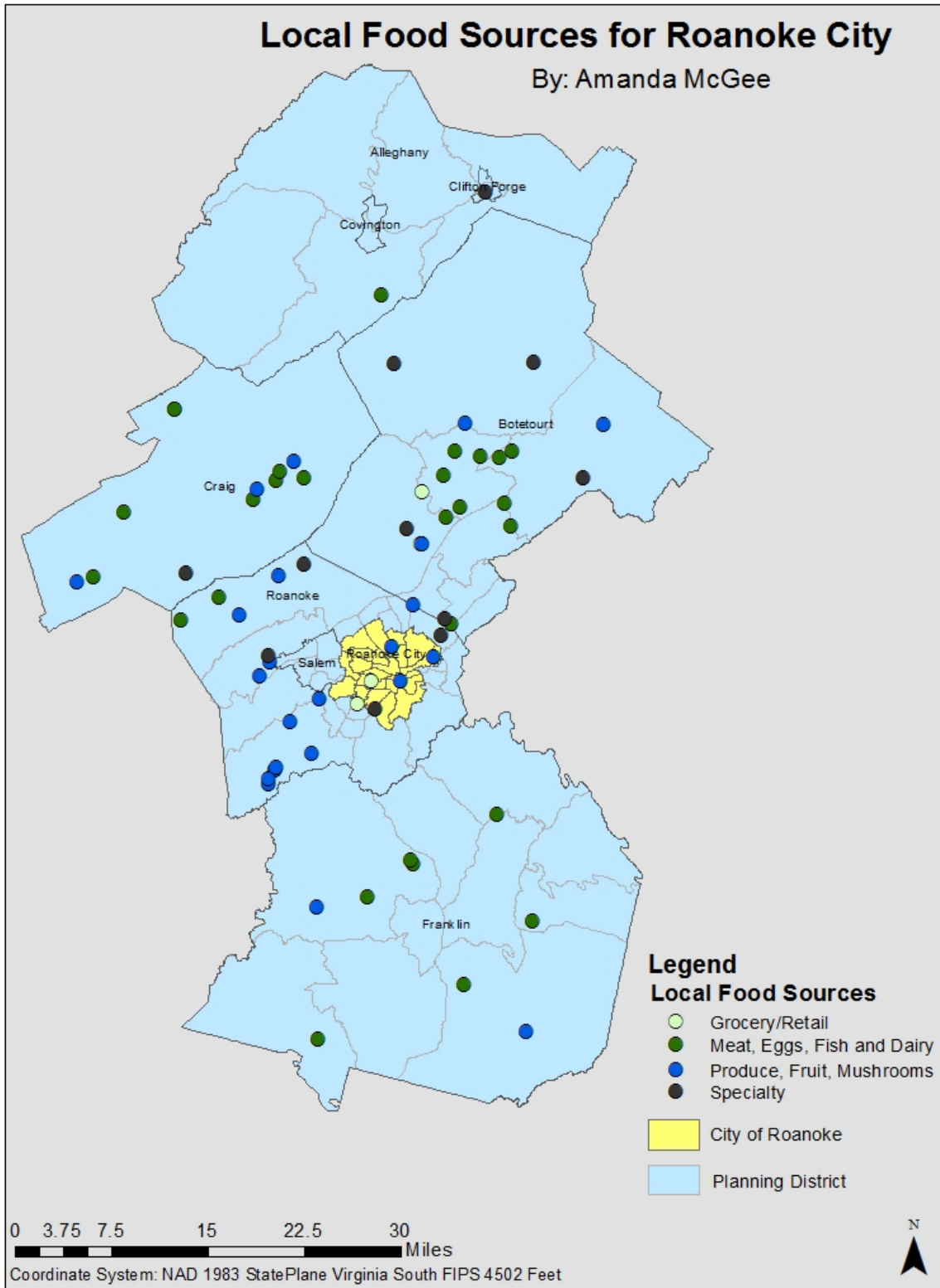


Map 1 Low Access Census Tracts within the Planning District



Food in the United States often travels a long time to reach the community that it feeds. However, local food producers do exist within the planning district, and attempts have been made to gather this information. Supporting local producers of food and food products is important because it both stimulates the local economy within the region, thereby helping to increase economic self-reliance on the part of producers, and also connects consuming individuals within the region to food production and food education. As food education is a critical food access issue, this is an important factor in bettering the food access picture. A comprehensive plan designed to improve the food system in the region would also need to speak to local food concerns, such as pressures which inhibit farmers from making a living and barriers to getting food to existing markets. A regional food assessment would need to attempt to evaluate these things.

In Map 2, known local food producers within the PDC are shown by category. It is important to note that producers outside of this boundary also often travel and sell within the Roanoke Valley - Alleghany Region, playing a key role in food provision, especially within the City of Roanoke. The majority of the locations shown in the map are producers of food - farmers, who are a key piece of the regional food system. It is important to note that there are relatively few farmers who are represented by the stakeholder group, and that their input will be vital in a regional food plan. Farmers often have somewhat inflexible work demands, which may mean that those seeking to reach out to them should use inventive methods to request their input. Farmers in low access tracts may be important to reach out to as partners in addressing food insecurity in their regions.



Map 2 Local Food Sources within the Planning District

### *The City of Roanoke*

The City of Roanoke is the largest urban area not only within the Roanoke Valley-Alleghany Region but also within southwest Virginia. It is the metropolitan lodestone for the planning district, and therefore a unique space within RVAR. It is important to describe that space before moving forward in examining the specific issue of low food access within this city.

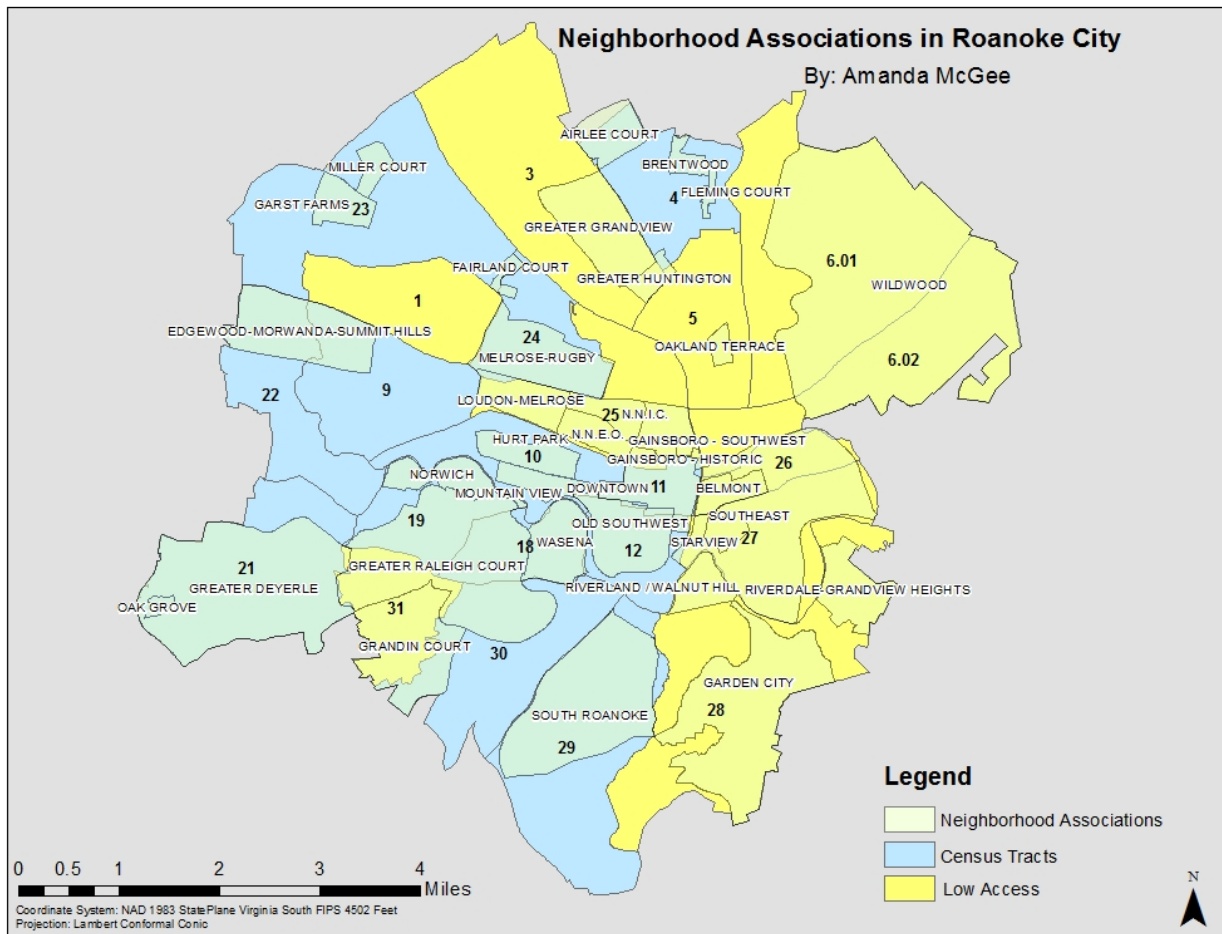
The Community Health Needs Assessment, conducted by Carilion, examines many of the main demographic and economic factors of the city. The CHNA was conducted from January through April of 2012, and attempted to look at the health needs affecting Roanoke Valley residents in a comprehensive manner. (CHNA 13) While relatively little attention was paid to food access within this report, Carilion and Healthy Roanoke Valley, of which they are a part, have attended several Local Foods Stakeholder Meetings and are aware of the nexus of nutrition and health amongst underserved populations. It seems therefore appropriate to use their statistics in describing the city.

Census Quick Facts shows the population of the City of Roanoke in 2010 to be 96,922 residents. Of those, the CHNA identifies 66 percent as white, 28.3 percent as black, and 4.6 percent Hispanic. (CHNA 54) One fifth (20.9 percent) of residents live below the federal poverty line, while slightly more (21.7 percent) live below twice the federal poverty line based off of household characteristics and income data. (61) Unemployment is relatively high in the city, or was at the time of the study, resting at 8.2 percent compared to the 6.2 percent unemployment rate experienced in the state at that time. (72) The national unemployment rate is recorded at 8.9 percent, by comparison. (*Ibid*) More specific to the issue of food and nutrition, the CHNA puts the number of Supplemental Nutritional Assistance Program (SNAP) recipients at 31,978 in 2011 and states that 68 percent of public school students were eligible for free or reduced lunch in the 2011/2012 school year. (66-7) More information on SNAP recipients can be found in Table 4.

These facts paint a poor picture of food access in the city. With a fifth of the population living below the federal poverty line and almost a third receiving federal food assistance,

Roanoke has a problem with food access. This problem is examined more closely in the following text to reveal possible solutions to low food access within the city.

The first attribute that Roanoke has which may be used to address food access issues are the existing active neighborhood associations within the city. While there are of course neighborhood planning designations used by the City of Roanoke, when reaching out to citizens to improve and assess access to food within the city it is often helpful to do so through active citizen organizations. These organizations have on-the-ground, specialized knowledge of the issues affecting their neighborhoods that can be useful in helping guide policymakers and in helping to spread information about issues and policy changes to the broader community. Map 3 shows the active neighborhood associations within the City of Roanoke. These organizations provide a good platform for community outreach, stakeholder meetings to assess access, and volunteer assistance for future projects.

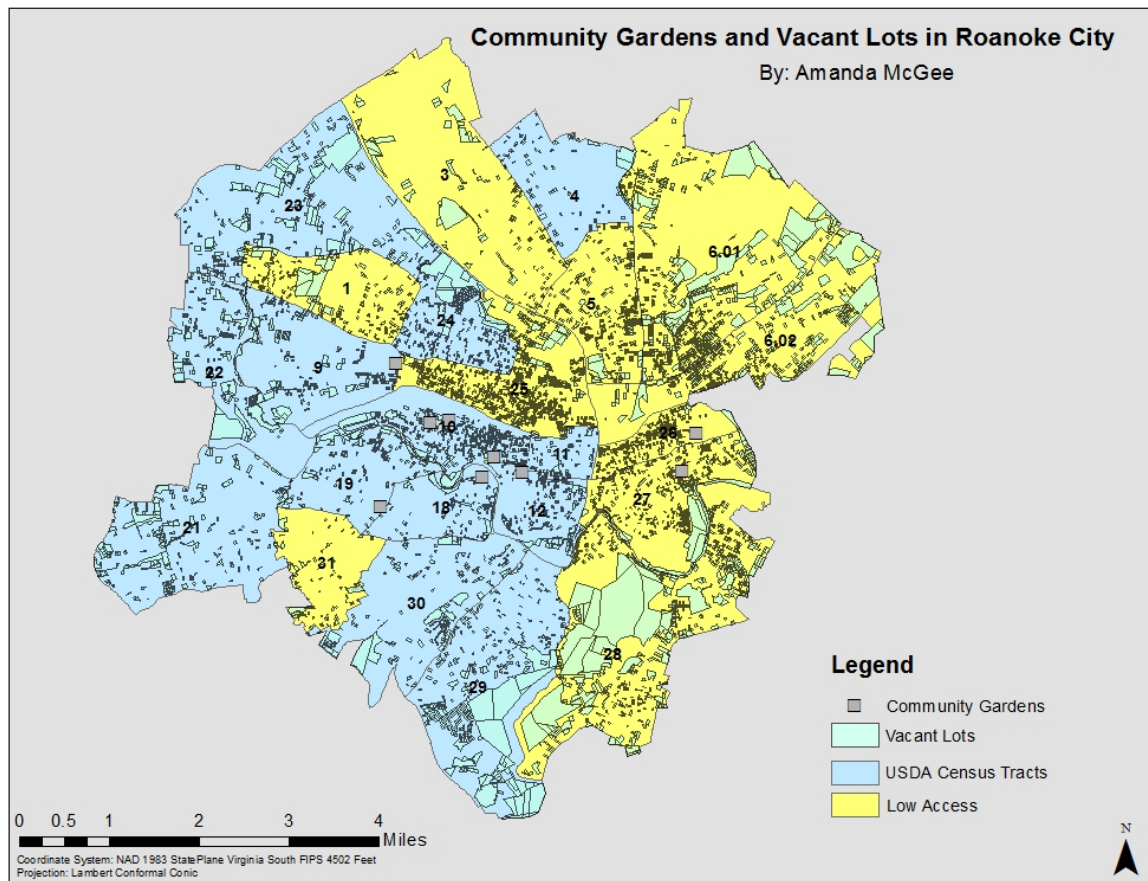


**Map 3 Neighborhood Associations in Roanoke City**

The areas in yellow are low access by 1-mile according to the USDA. This is a general indicator of a low access tract, and provides no closer look at the percentage of the tract which is affected. These areas are arguably those places with the worst access in terms of pure geographical distance, given that all of Roanoke is considered low access by the half mile designation. The distinction here, as will be seen below, is that geographical distance is not the only form of access boundary. Some neighborhoods may be more heavily impacted in different ways than other neighborhoods.

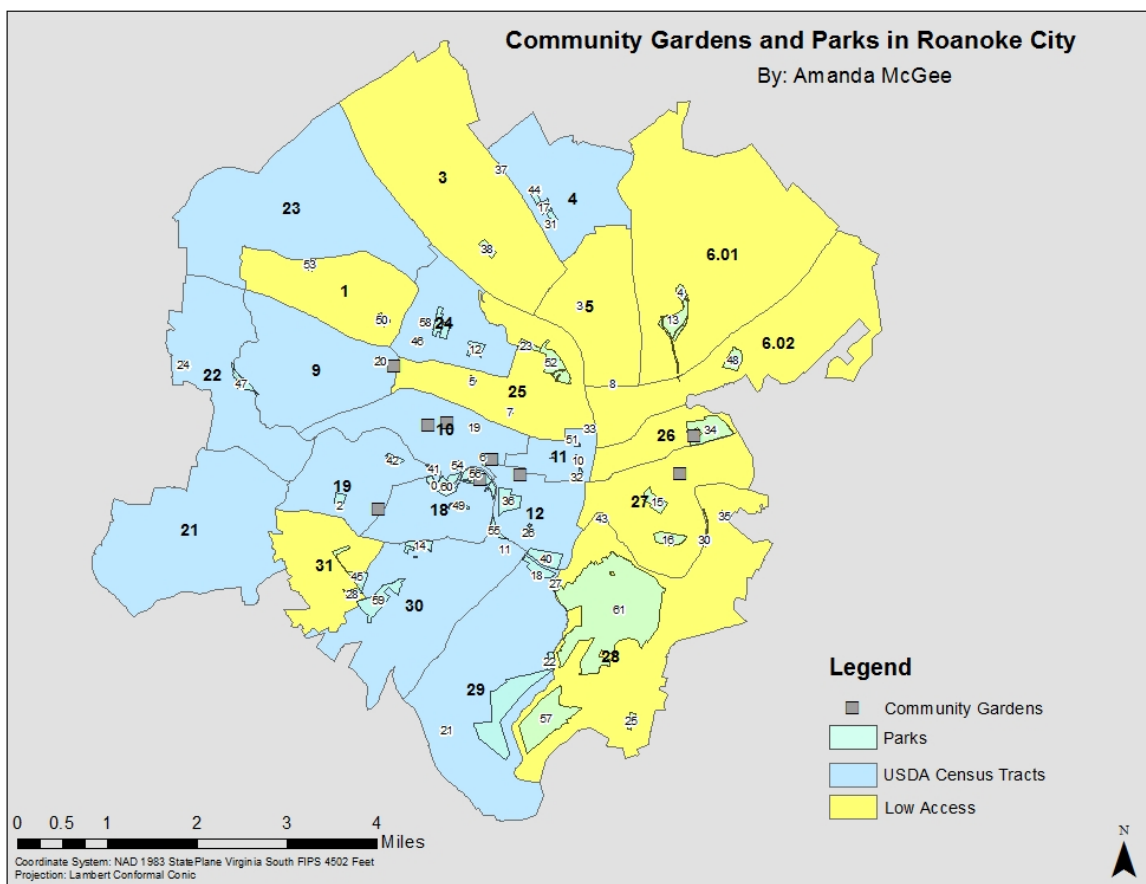
Another resource which may be used to improve food access in the geographic sense is vacant properties within the city, shown in Map 4. Vacant properties can be repurposed to

fill a variety of needs, including but not limited to urban gardening and farming operations, farmers markets, supermarkets, and educational or start-up facilities such as community kitchens. Many organizations in the nonprofit sector are already engaging in creating some of these facilities, including the Roanoke Community Garden Association (RCGA) and LEAP for Local Foods, among others. To assist these organizations, it would be helpful to index the large amount of vacant property within the city visible in Map 4. This indexing could include such measurements as plot size, real use (is it vacant with a structure on it, for example), former uses which may affect future use capacity (such as industrial uses), and ownership (public versus private). Some of this information may already be available to the city, while other aspects may need to be assessed through volunteer efforts.



**Map 4 Vacant Lots and Community Gardens in Roanoke City**

Many of the uses mentioned above can also be undertaken in public parks. Food forests, foraging and cultivation education, community gardens, and other similar community food spaces have been successfully incorporated in public parks in localities such as Seattle, WA, and Portland, OR, among others. Map 5 shows public parks in the city in relation to existing community gardens and low food access by the 1-mile designation. Using public parks and vacant lots is a good way to involve local government in food provision within the city and to boost the food movement in the area through partnerships with local nonprofits. A numbered index of the parks is included in Table 2.



**Map 5 Community Gardens and Parks in Roanoke City**

RCGA is currently petitioning the City of Roanoke Parks and Recreation Department to create a half-acre urban orchard in Fallon Park. This urban orchard would be the first of its kind in the city, a public space which individuals and organizations can pick from at will.

Other parks which overlap low access tracts could be targets for similar projects, providing gleaned opportunities for residents of those tracts or sources of food for soup kitchens and other emergency food systems within those neighborhoods. The most recent amendment to the *Roanoke Parks and Recreation Master Plan* speaks more extensively on this theme.

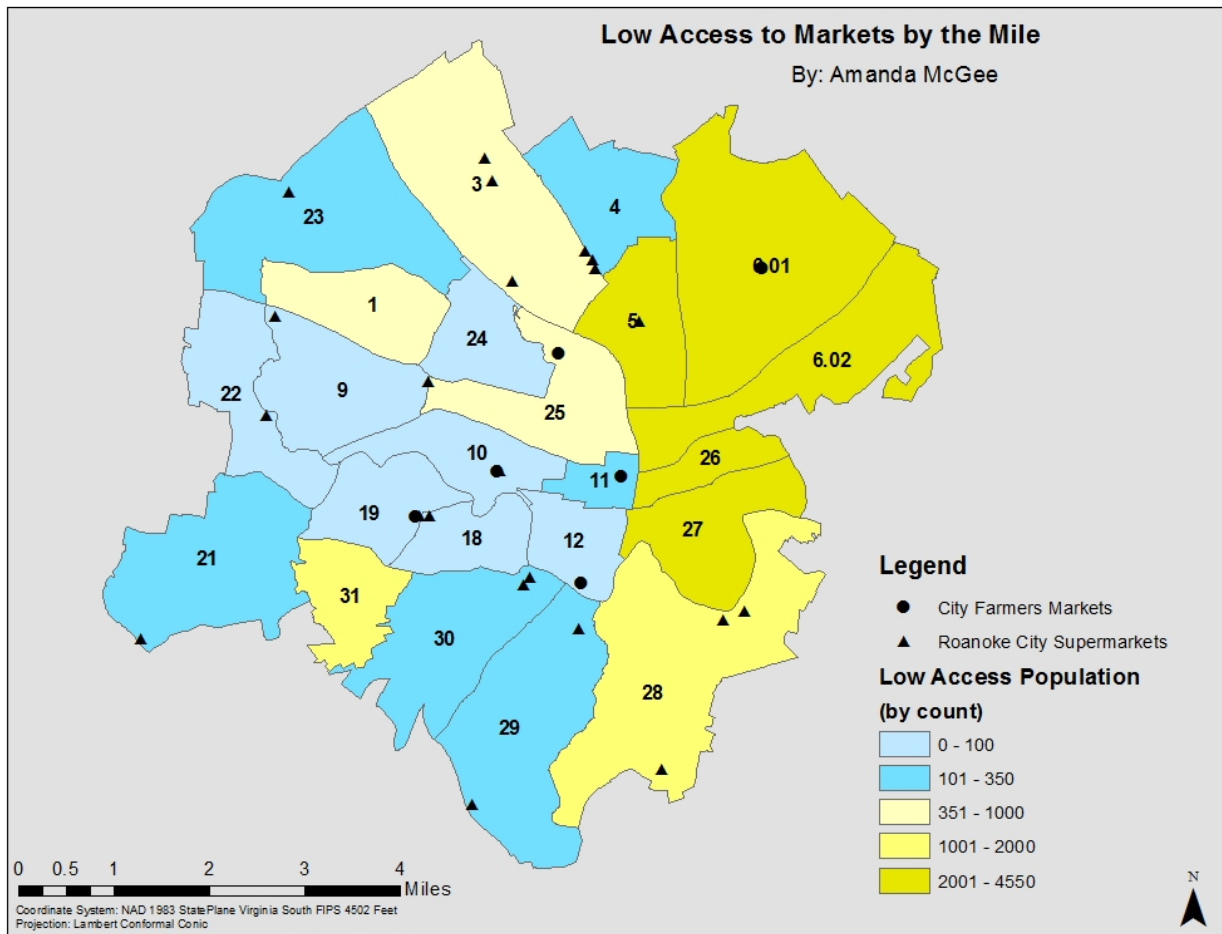
**Table 2 Parks in the City of Roanoke**

0	Ghent Hill Park	31	Breckenridge Ballfields
1	Triangle Park	32	Elmwood Park
2	Raleigh Court Park	33	Entranceway Park
3	Bowman Park	34	Fallon Park
4	Mason Mill Park	35	Golden Park
5	Melrose Park	36	Highland Park
6	West End Park	37	Andrews Park
7	Loudon Park	38	Huff Lane Park
8	Gateway Park	39	Hurt Park
9	Century Plaza	40	River's Edge Sports Complex North
10	Suntrust Plaza	41	Memorial Bridge Park
11	Harkrader Park	42	Norwich Park
12	Eureka Park	43	Piedmont Park
13	Eastgate Park	44	Preston Park Ballfields
14	Lakewood Park	45	Shrine Hill Park
15	Jackson Park	46	Staunton Park
16	Morningside Park	47	Strauss Park
17	Preston Park	48	Thrasher Park
18	Rivers Edge Sports Complex South	49	Valley Avenue Park
19	Perry Park	50	Villa Heights Park
20	Horton Park	51	Wachovia Plaza



21	Sunrise Park	52	Washington Park
22	Fern Park	53	Westside Ballfields
23	Brown-Robertson Park	54	Mountain View Park
24	Ridgewood Park	55	Smith Park
25	Garden City Park	56	Wasena Park
26	Argonne Circle	57	Yellow Mountain Park
27	Crystal Spring Park	58	Kennedy Park
28	Woodlawn Park	59	Fishburn Park
29	Lee Plaza	60	Vic Thomas Park
30	Bennington Park	61	Mill Mountain Park

Map 6 shows the same low access tracts, but with gradients of access delineated. This is the first more in-depth look at what low access means in Roanoke in terms of count and severity. As previously shown, low access tracts are in yellow and tracts that are not technically designated low access are in blue. A look at the key of the map shows that all low access tracts have at least 350 persons who are living more than one mile from a grocery store.



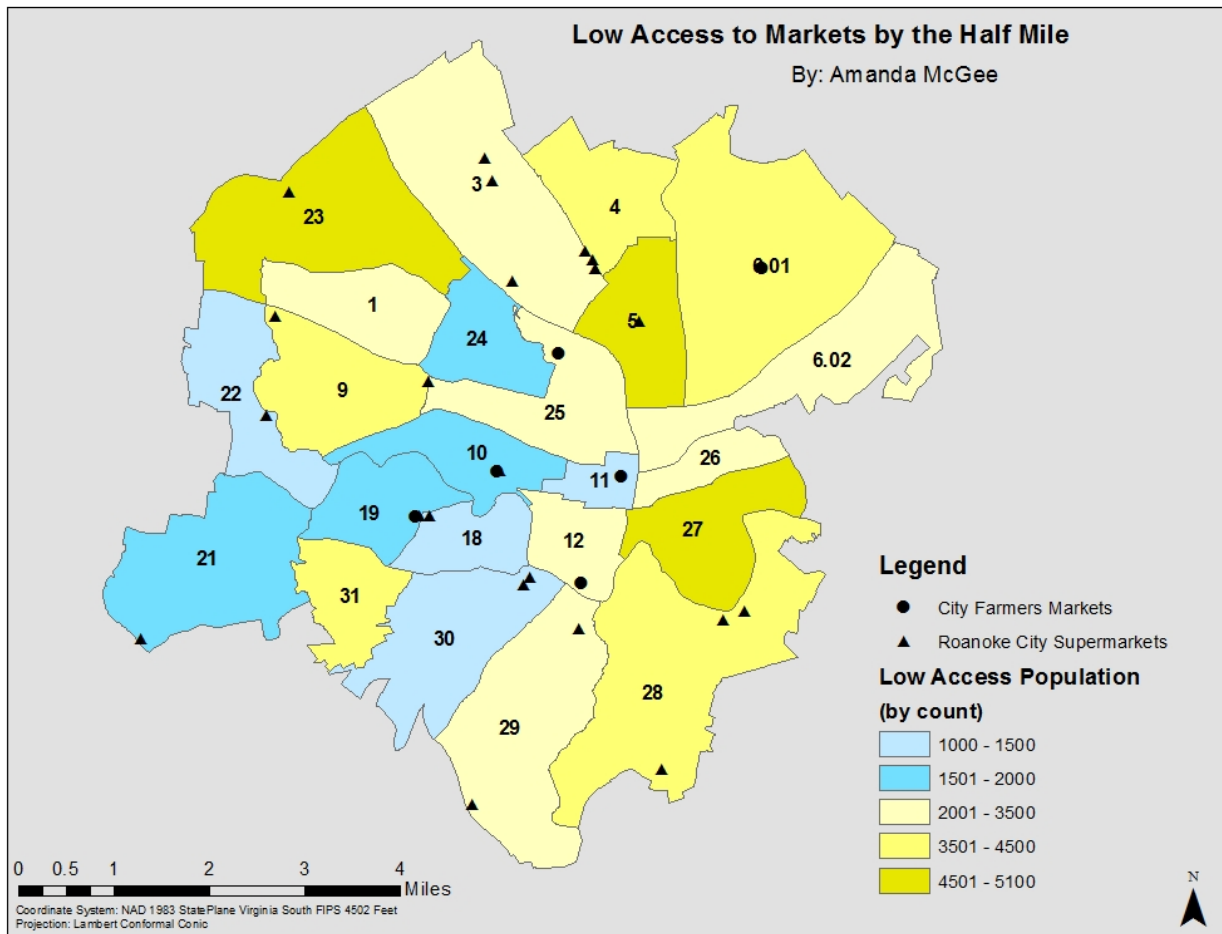
**Map 6 Low Access to Food Markets by Mile in Roanoke City**

There are several important takeaways that can be derived from Map 6. The first is to enumerate the lowest access census tracts within the city. These are tracts 5, 6.01, 6.02, 26, and 27 if making the designation purely by distance to a grocery store or supermarket based on the USDA's study. Three of these tracts, 6.02, 26, and 27, do not have a known supermarket, grocery store, or farmers market within them. Two, tracts 5 and 6.01, have one market location in the center of the tract, one of which is actually the Roanoke Natural Foods Co-op's Heritage Farm Farmers Market, a market that does not keep regular hours. While there will be some changes to the data on this map – e.g., new grocery stores are expected to go into tracts 3, 6.02, and 27 in the next few months - it remains a good representation of the lowest access areas in terms of raw geographical distance from a

fresh food location within the city. This finding is important because people who have other access issues - for example, physical access concerns such as lack of a car or physical disability, or economic access concerns - are especially vulnerable in areas with limited access to a grocery store.

Because all of Roanoke is low access by the ½-mile designation it was important to look at 1-mile designation first. Maps 3 through 6 looked at the city through the 1-mile lens, creating a preliminary picture about which areas were most heavily affected with geographical low food access. However, low access numbers increase dramatically by the ½-mile designation, highlighting access concerns for the same vulnerable groups mentioned above, people who are more susceptible to geographical lack of access because of compounding factors. Further maps will be in the ½-mile measurement to better explore issues affecting these groups.

Changing the low access measurement to ½-mile shows a strikingly different picture of the food access situation in the city, visible in Map 7. All yellow tracts have more than 2000 people living more than a ½-mile from a grocery store or supermarket. Three of the six farmers markets are located in tracts that are relatively low populations with low food access of less than 2000 persons. Of the markets in the worse off tracts, 6.01, 12, and 25, none are open in winter months. (No tract had less than 1000 people living in it who had low access to food by the ½-mile.) This is an intimidating vision of the city, one that argues for new ways of approaching food provision. Specifically, high levels of low access occur in tracts 5, 23, and 27, which have no farmers markets and only limited supermarket access.



**Map 7 Low Access to Food Markets by Half Mile in Roanoke City**

As noted briefly above, there are two types of markets highlighted in Map 7. One is the traditional supermarket. The other is the farmers market, which often caters to local food producers and consumers. There are several farmers markets within the city, some of which do not currently open regularly. The five that are active are listed in Table 3, along with their hours of availability. Most farmers markets in the city have a SNAP/EBT matching program, sponsored by various organizations, wherein the first \$10 worth of food purchased is matched with another \$10 worth of food. This is an advantage of the farmers market, which is generally considered a fairly affordable place to get fresh produce. Buying from a farmers market also helps to support economic development for the region by keeping dollars within local pockets. (“Importance of the Market”) However,

there are disadvantages to farmers markets, as highlighted by the below table. Farmers markets are generally only open on specific days, and selection can vary widely at these venues depending on season, weather, and other factors. There are also perceptions of farmers markets spaces as exclusionary spaces by some theorists. (Guthman; Alison and Agyeman) While farmers markets are a great way to augment the food provisioning system, they are not a silver bullet for addressing low food access. Further information about farmers markets can be found on the Local Foods webpage of the RVARC site.

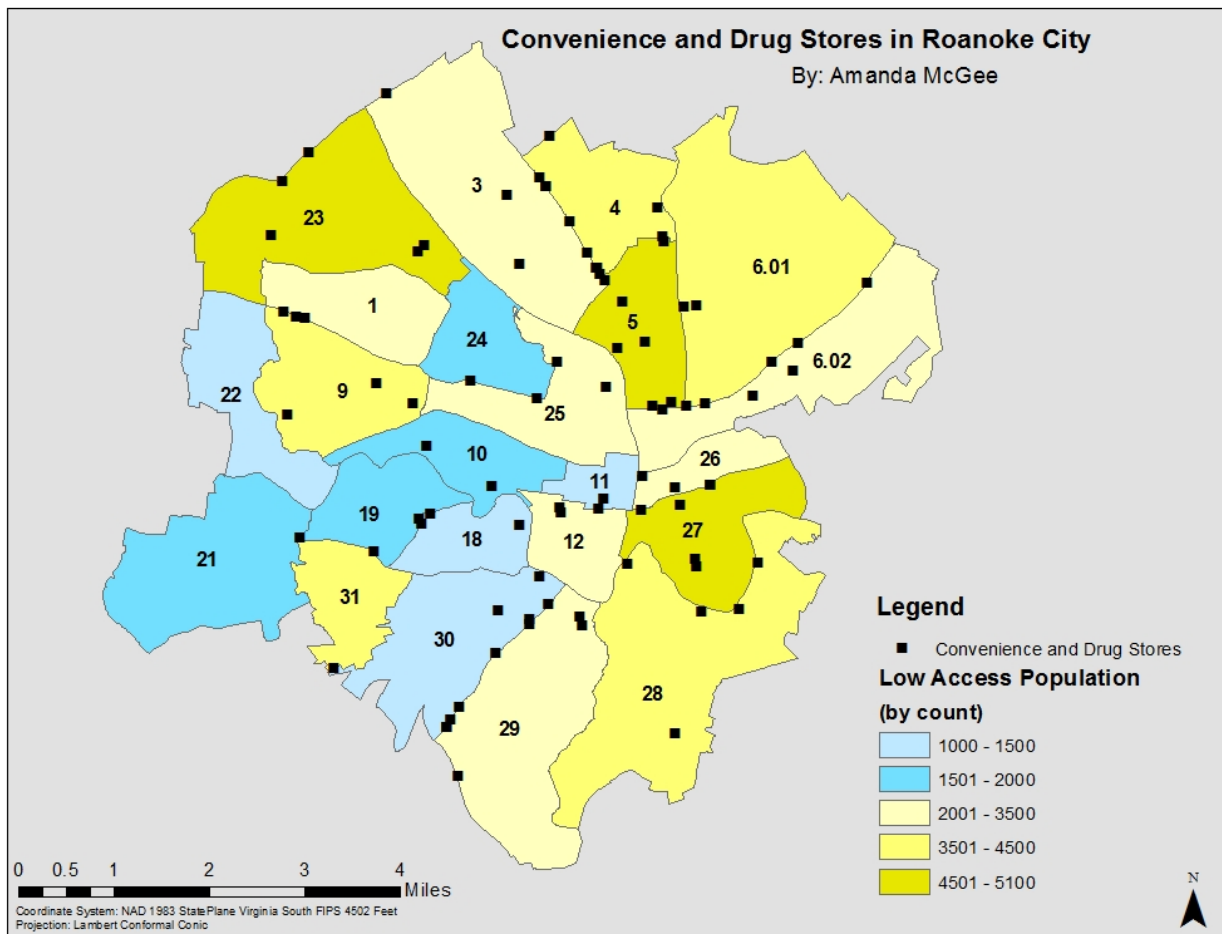
**Table 3 Farmers Markets and Hours**

Market Name	Hours	Days	Months	Phone	SNAP/ EBT
Grandin Village Market	8am-noon	Saturday	April - October	(540) 339- 6266	Double
Roanoke City Market	8am-5pm; 10am- 4pm	Mon-Sat; Sun	Year Round		Double
West End Market	3pm-6pm	Tuesday	Year Round	(540) 339- 6266	Double
Lick Run Community Market	2pm-5pm	Saturday	April - October	(540) 728- 1767	Double
Heritage Point Farmers' Market	N/A	N/A	N/A	(540) 519- 7205	
River's Edge Farmers Market	4pm-7pm	Thursday	May- September		

Source: Organization websites, verified by phone when possible.

One recommended way to increase geographical access to good food is through improving healthy food availability in corner stores or small shops which typically carry only processed foods (see Map 8). Anna Erwin, a Ph.D. student at Virginia Tech, spoke on the Healthy Cornerstore Initiative in the January 2015 meeting of the Local Foods Stakeholder Group. Erwin's presentation highlighted some of the issues with upgrading such stores for fresh produce provisioning by installing adequate refrigeration units and helping educate consumers and salespersons in the quality and use of new produce items. Notes from this meeting are available on the Local Foods page of the RVARC website (URL included in references). Future food system research in the city could apply Erwin's research to a plan for increasing food access through this method, including evaluating costs and potential incentives to business owners. Owners' decisions to honor SNAP benefits in their stores would also need to be evaluated in considering applications of the Healthy Cornerstore idea.

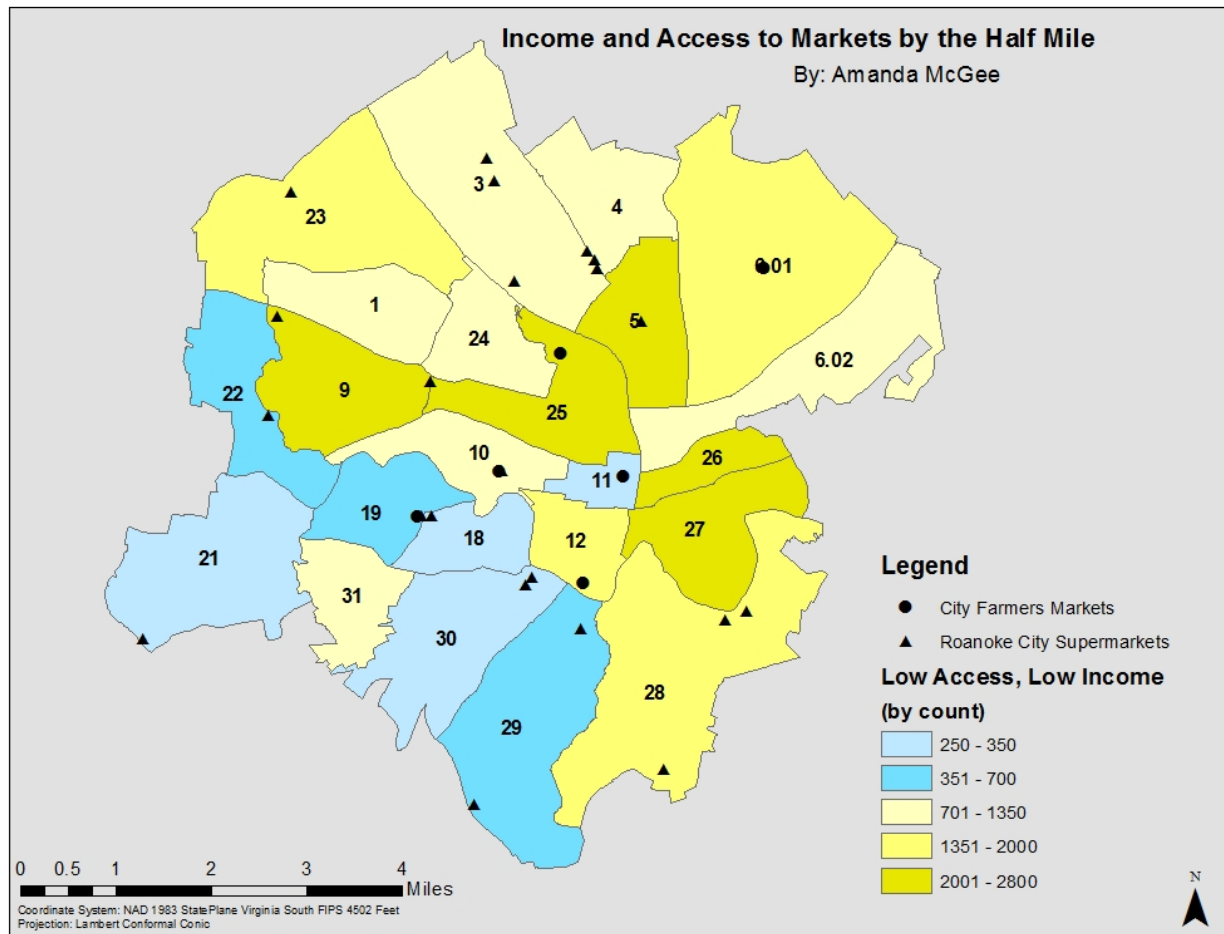
While there are more cornerstores than grocery stores in Roanoke and this method would provide much greater access, it is important to note that some tracts are less well-populated with these facilities than others. This may be, at least in part, a consequence of zoning. Studies of how zoning may be contributing to the creation of low access zones in the city may be a worthwhile endeavor in the future as well.



Map 8 Convenience Stores in Roanoke City

There are several groups which should be looked at to narrow down the picture of those particularly at risk for food insecurity given the geographic information in Maps 3 through 8. The first of these are people who are simultaneously low access and low income, the

original measurement for a food desert, shown in Map 9. Access to food is of course not just about geographic access, but also economic access.



**Map 9 Income and Access to Markets in Roanoke City**

Map 9 shows the count of people in each tract who are low income and low access. It is important to note that even the light blue tracts contain at least 250 people who meet this designation. Focusing on this measurement, the hardest hit tracts are 5, 9, 25, 26, and 27, each with over 2000 people who are low income, low access. These people are the most likely to experience food insecurity because of a lack of funds to use to buy sufficient food for themselves and their households. There are several federal programs which attempt to address this issue in part, such as the Supplemental Nutritional Food Assistance Program,

arguably the most well-known. However, as the name implies, these food programs are supplemental in nature only. Table 3 shows farmers markets which provide matching programs for SNAP benefits in buying fresh food. Table 4, below, shows the number of SNAP recipient households in the city of Roanoke within selected census tracts. These census tracts were selected because each has over 20 percent of resident households receiving SNAP benefits.

**Table 4 Selected Tracts in Roanoke City with Above Average SNAP Households**

Census Tract	Total households	Receiving SNAP	Receiving SNAP (%)	Median Income
Tract 5	2,119	482	23%	34,173
Tract 9	2,257	1,173	52%	19,878
Tract 10	815	513	63%	22,219
Tract 23	2,793	680	24%	41,552
Tract 25	2,361	1,219	52%	21,282
Tract 26	709	285	40%	27,993
Tract 27	2,133	630	30%	30,998
Tract 28	2,495	574	23%	34,820

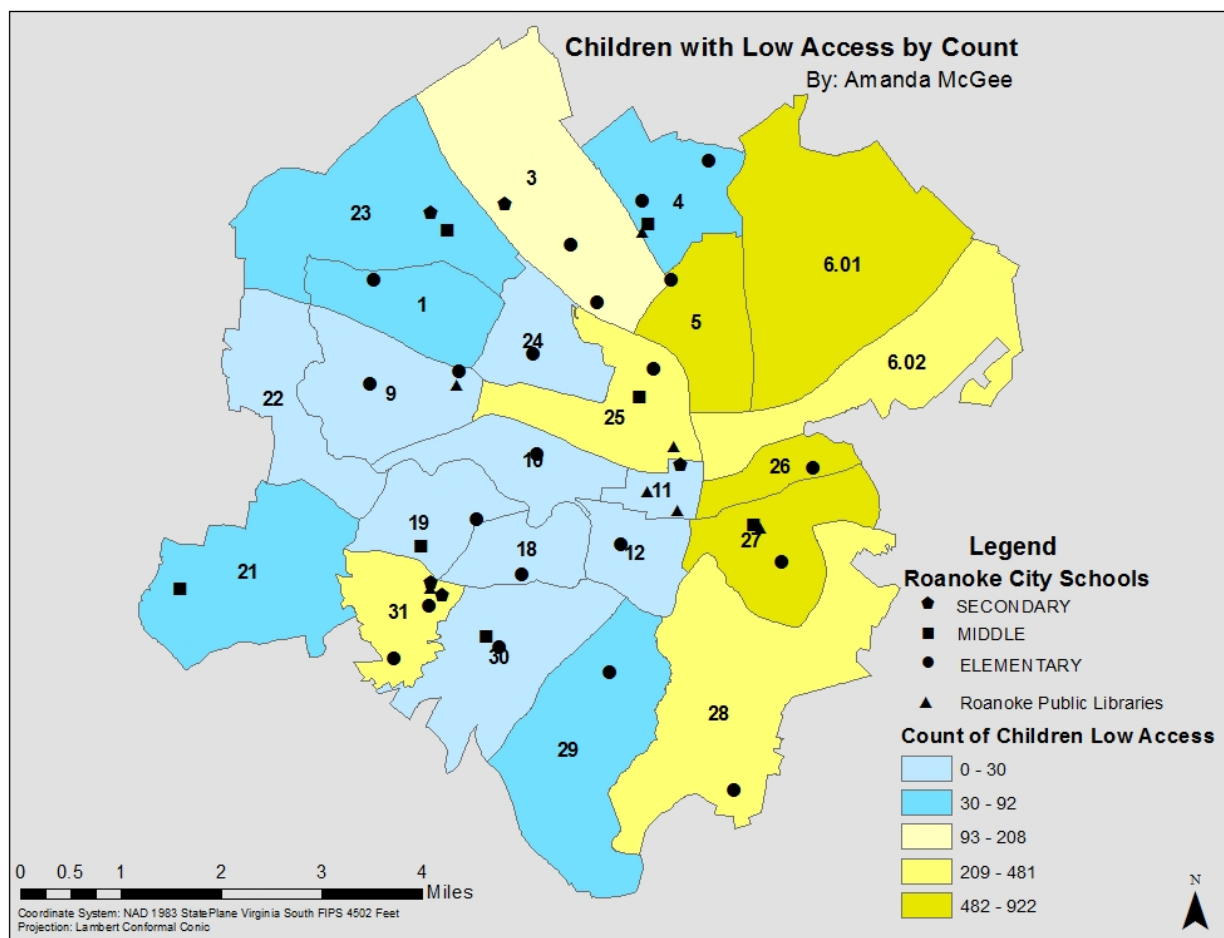
Source: American Community Survey Report DP03: Selected Economic Characteristics, 2009-2013.

Children are also a particularly vulnerable group in the face of low access, though also generally one of the groups that can be most easily approached through institutional methods to adjust for that low access. The top affected tracts in regards to children with low access are tracts 5, 6.01, 26, and 27, with over 480 children considered low access by the USDA. There are numerous organizations within the city seeking to address hunger faced by children and educate them about food, including Food for Thought, and Healthy Start, which is comprised of partner organizations RCGA, LEAP for Local Food, Happy Healthy Cooks, TAP Head Start, and the Virginia Cooperative Extension, according to the LEAP website. This list is likely not comprehensive. Many of these organizations have partnered with schools to complete school gardens (RCGA has constructed four) which are



designed to educate children about food while simultaneously providing a source of produce for consumption. The Virginia Food System Council is also working on a Farm to Institution initiative that will go into effect in 2015.

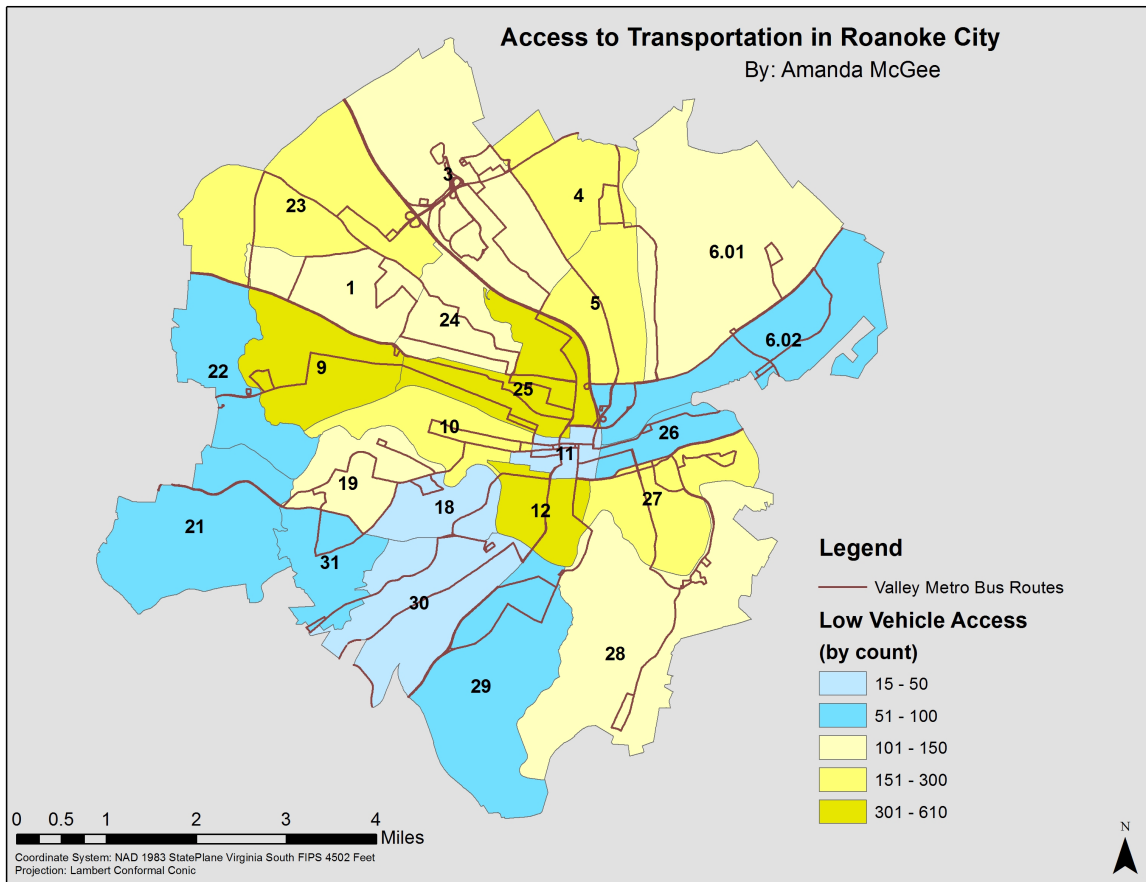
Map 10 shows both schools and libraries which may be vital locations through which children can be supplied with and educated about food. It is important to note, however, that two of the most critical tracts do not have centralized access to these locations. A numbered list of schools and libraries is included in Appendix B.



**Map 10 Children with Low Access in Roanoke City**

The last major low access group that will be discussed in this section is those without vehicles. The lack of a vehicle is a conjunction of physical and economic access barriers. In

the three most critical tracts, there are over 300 people lacking a vehicle who live more than a ½-mile from a supermarket. These people are dependent on alternative forms of transportation for food acquisition. In Roanoke, the primary mode of transportation probably utilized by this population is the public bus route. A case study of specific issues users of Valley Metro may have in acquiring food, including hours of availability, cost of fares, and storage space on buses, is available in the RVTPO CLMRTP 2040 report. While a public transit option is available for some critically affected residents, further study should be done on the impacts of transportation decisions on this critical group.



Map 11 Transportation Accessibility in Roanoke City

### *Demographic and Economic Pressures*

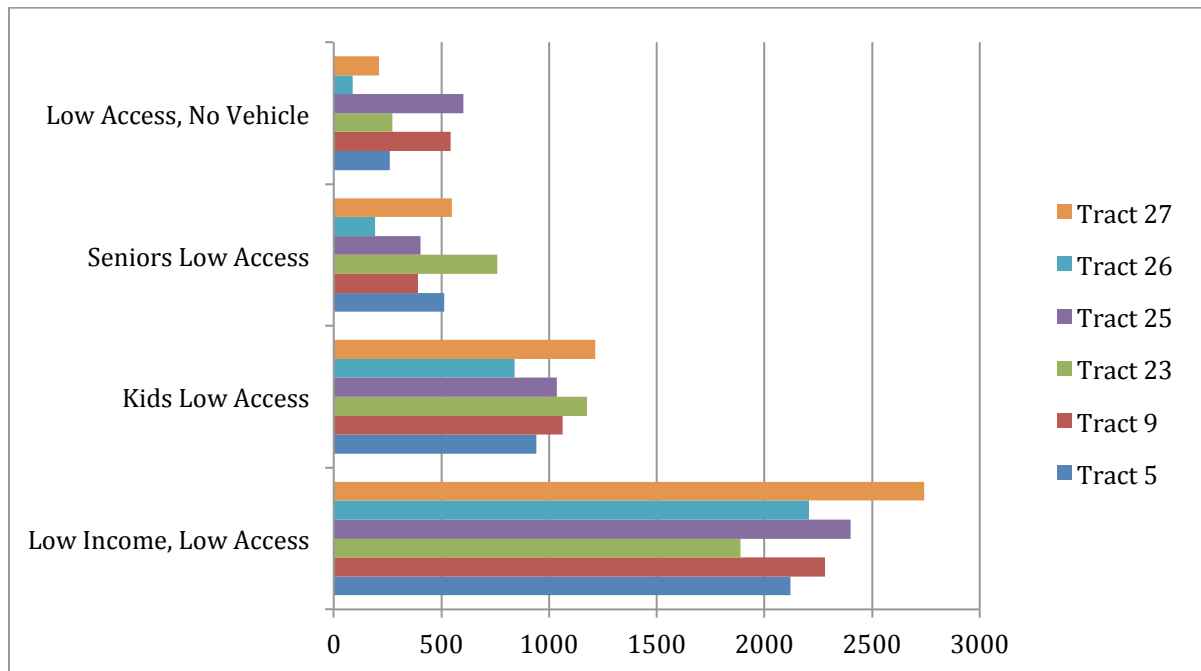
In this section, six of the tracts identified as among those most critically affected by low food access in the City of Roanoke will be analyzed in more detail. Questions of age, sex, language, and race will be raised and evaluated using US Census American Factfinder data, unless otherwise noted, from the DP05: ACS Demographic and Housing Estimates, 2009-2013. It is hoped that these demographic data points can shed some light upon each tract and the unique culture and issues which may be present there. Table 5 shows the six tracts selected along with the number and percentage of the population of each which has low food access according to the USDA data.

**Table 5: Low Access Numbers and Percentages in Selected Tracts, USDA Data**

Census Tract	Pop. (2010)	Low Access (½ Mile)	Low Access (%)
5	4615	4615.00	100.00%
9	5361	3731.03	69.60%
23	6971	4946.61	70.96%
25	5641	3283.90	58.21%
26	3215	3215.00	100.00%
27	5395	5036.89	93.36%

These tracts were chosen for a closer look because they had the highest number of low access persons living in them by the ½-mile measure. As mentioned, vulnerable populations such as those without vehicle access, those with low income, or children and the elderly are more heavily pressured by geographical low access than the broader population may be. Therefore, the demographic situation of these six tracts will be explored below to identify what the primary issues may be in these tracts. Tracts 5, 9, 25, 26, and 27 were the most heavily affected tracts by low income, low access measures. Tract

23 is not technically low access by the 1-mile measure, but was included because of the high number of people with low food access by the ½-mile. As can be seen in Table 5, all of these tracts have over 3000 people flagged as low access by the ½-mile measure. Tract 27 is arguably the most critical tract by several measures, as can be seen in previous maps and in Figure 1.



**Figure 1: Vulnerable Populations of Census Tracts in Roanoke City, USDA Data**

Figure 1 shows USDA numbers concerning low access among four critically affected populations for each of the six tracts. This chart allows comparison of the number of people in each tract that are in a given vulnerable population. Tract 27 has the highest number of low income, low access residents, as well as the highest number of children with low access to food. Tract 25 shows the highest number of low access persons without a vehicle, and tract 23 displays the highest number of seniors with low food access, a population that was not studied in the previous maps.

It is important to note that future assessments should take care to capture the needs of elderly populations within the city. Figure 2 groups the population of each tract into three groups, younger than 18, older than 65, and all other residents. Seniors make up a small but

significant proportion of each tract, being, as expected, the highest proportion of the population in tract 23. While the senior population was not mapped above, this was not because they are any less affected by low access issues than other members of the population - indeed, the opposite is often true. As seniors age, they become less able to perform basic daily functions such as operating a vehicle, often leaving them particularly vulnerable to food access issues. The author was unsure how best to display relevant infrastructure for elderly populations with regards to access to food, as layers for senior facilities were not available. Future assessments should attempt to acquire this data, as well as data on seniors living without access to a motor vehicle, with physical disabilities, or with competing financial needs such as costly medications.

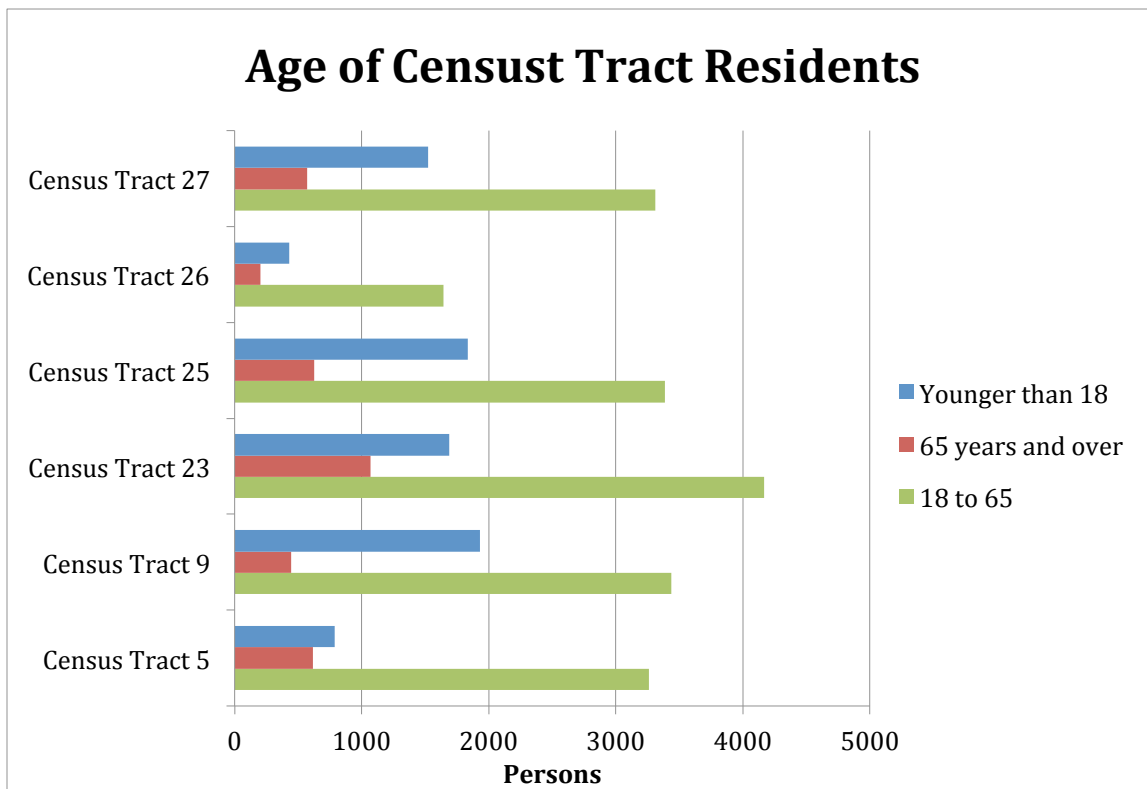


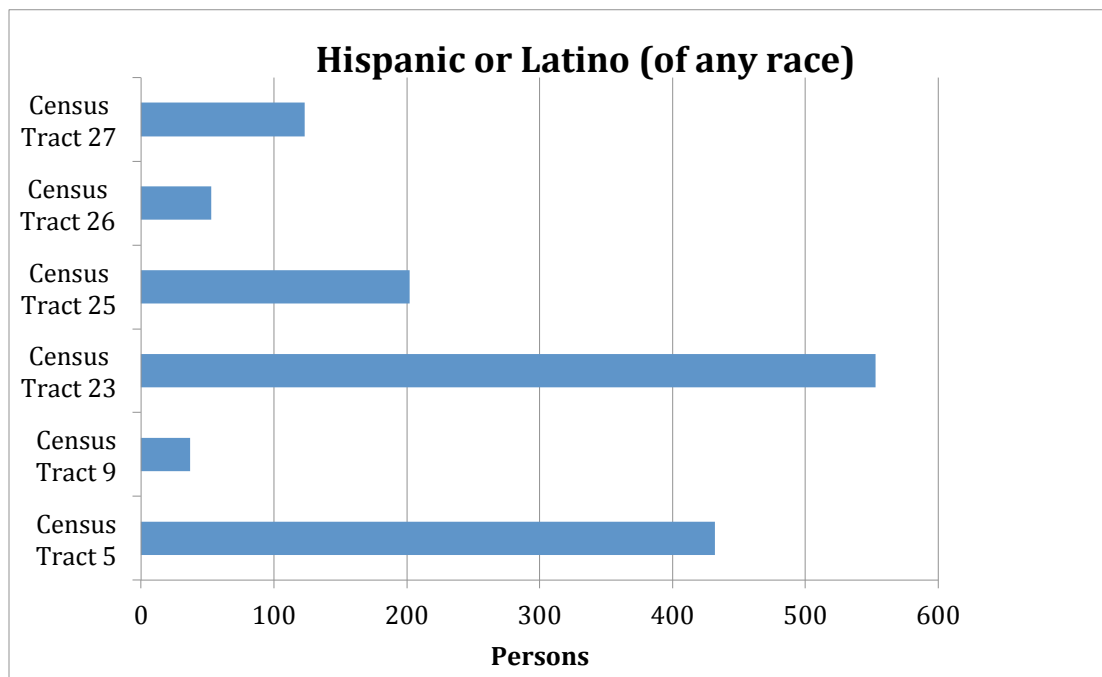
Figure 2: Age of Residents of Select Census Tracts in Roanoke City



Figure 3: Race Breakdown of Select Census Tracts in Roanoke City

As was pointed out in the introduction, people of minority races are often more heavily affected by low access than their white counterparts. Figure 3 shows a breakdown of the racial makeup of each of the six selected census tracts. Tracts 5, 26, and 27 are predominantly white, though tracts 5 and 26 have significant black and other minority

populations comprising over a quarter of the residents. Tracts 9, 23, and 25 are predominantly black, with tract 23 having a large fraction of Asian and other minority residents. This information is important for two reasons. First, if food desert situations are truly more critical for minority populations as has been posited by other writers (see Alison and Agyman; Guptill, Copelton, and Lucal), these comprise yet another critical population for the food access study. Second, if seeking to reach out to these tracts to instigate programs to improve access or expand upon assessments to include primary data from residents, it will be important to reach out in ways that are inclusive for these populations. A better food system must be better for all members of the community.



**Figure 4: Hispanic or Latino Population of Select Census Tracts in Roanoke City**

Another minority population which is not captured in Figure 3 is the Hispanic population, shown in Figure 4. Capturing this information is important because language barriers can be an informational and social barrier to food access. Tracts 5 and 23 have the highest level of potential Spanish speakers, though it should be noted that not every person who identifies as Hispanic or Latino will speak Spanish as their first language. It will be important to be inclusive in attempting to address access issues within these tracts.

Organizations which serve Spanish speaking populations in Roanoke include Roanoke Spanish and La Conexión, and could help the local government by partnering to provide Spanish translations of policy, Spanish-language notifications of public meetings, and other similar assistance.

Figure 5 shows the gender of residents of each tract. This is important because women are often generally more heavily affected by food access issues and more involved in foodwork. A useful discussion of this issue can be found in Guptill, Copelton and Lucal's *Food & Society*, but for the purposes of this access study it is important to note that most of the low access tracts in Roanoke contain a preponderance of women. Since women often perform most of the foodwork in the home, reaching out to this population in low access tracts is an important step for programs working on improving food access.

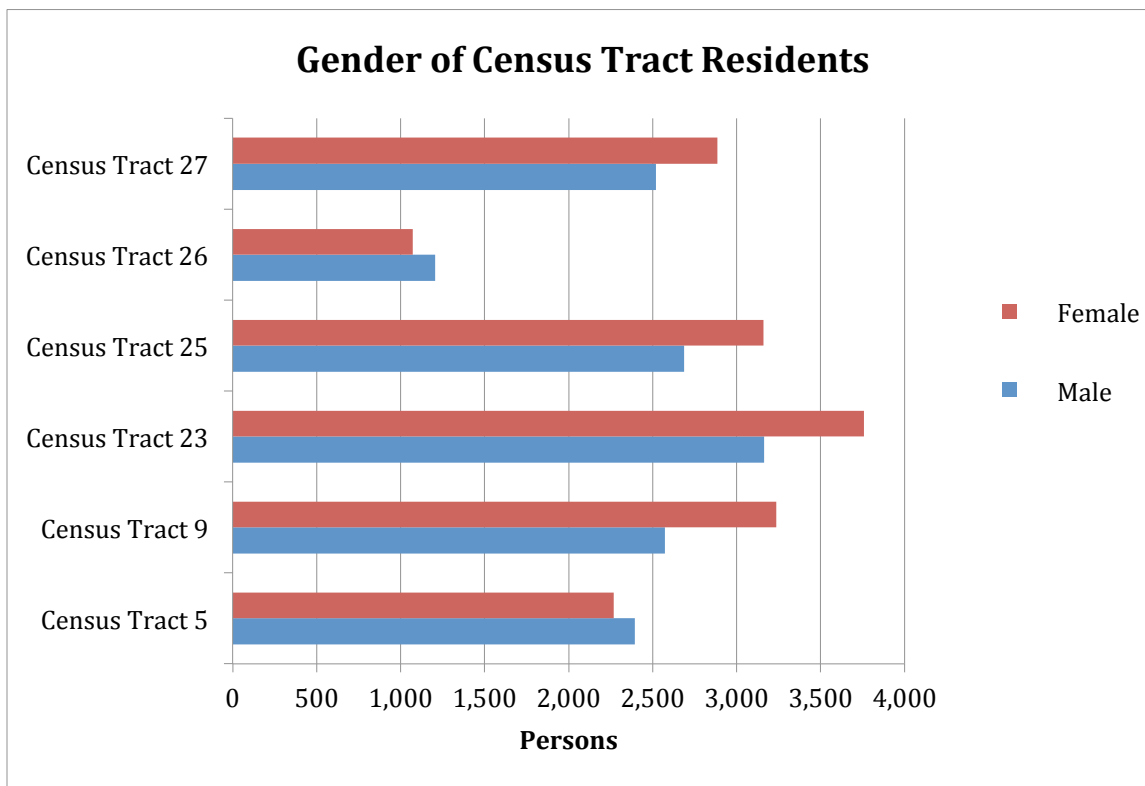


Figure 4: Sex of Residents in Select Census Tracts in Roanoke City



## Conclusion

A number of important conclusions can be drawn from this food access assessment. These include:

- The importance of expanding geographical access through increased food access locations;
- The necessity of considering vulnerable populations in evaluations of other physical access concerns such as access to transport and issues of disability, which include unique issues facing both the very young and the very old;
- The potential uses of existing infrastructure elements such as parks and schools to address food access concerns;
- The integral role of transportation in physical access and the unique distribution of transportation concerns within the city;
- The role of economic status in determining food access and driving market locations;
- The necessity of considering the demographic makeup of given areas to determine ways to reach out to communities, including racial and ethnic minorities, and improve informational access to food; and
- The need for a comprehensive food system assessment to provide a baseline for coordinated local or regional government policy.

The City of Roanoke has many resources which can be used to fill these gaps. The Local Food Stakeholder Group has made strides already in increasing connections between groups working on food systems issues, and beginning the collection of data that must come from primary sources for a more comprehensive assessment. These stakeholders have come from many areas of the food system and would be a good group to reach out to in forming a Food Policy Council for the City of Roanoke or the broader planning district. Such a council could provide policy recommendations and push programmatic elements to address not only food access issues but food system strengthening throughout the region. In regional planning, it will be important to incorporate both rural and urban stakeholders from all counties, as well as to look at unique food issues which may be specific to rural

areas such as the sprawling nature of infrastructure and the needs of farmers. A list of representative organizations of the stakeholders who have attended the meetings so far is available in Table 1, and an expanded list of contacts is available in Appendix B.

In addition, it is important to utilize resources available at the city and regional level as the planning process moves forward. Organizations already doing active planning work in the RVARC region include the aforementioned Carilion Clinic, whose CHNA provides a solid groundwork for the health and nutrition assessment which would feed into future planning. Carilion is currently in the process of updating this document and could be worked with to focus on nutrition more extensively if it were identified as a need by the community. Contact persons for this organization are listed in Table 7, Appendix B. Additional documentation that could be drawn upon includes the upcoming report to be released by the Catawba Sustainability Center in April 2015, which will be available on the Roanoke County website. This report looks at food system needs in six municipalities, including Craig County, Botetourt County, Roanoke County, and the cities of Roanoke and Salem. This data and the methodology used to collect it could be invaluable for future food planning work in the RVARC region.

Lastly, all of the information presented in this assessment is of limited value without action. While it is hoped that the contributions of this document provide a clearer picture of the food access issues facing the City of Roanoke, this document is meant to be only a launch point not only for further study but for comprehensive efforts to better the low access situation. Some of those efforts are already being undertaken by nonprofits, and any government intervention should be careful to respect work already being done. There are many opportunities for partnership within the vibrantly engaged community of Roanoke, some already being capitalized on by governing bodies. The imperative of centralized coordination and efforts, however, remains. If low food access is to be dealt with systemically, it must be done by the whole community, with vision and equality.

### *Limitations*

This food access assessment has not been comprehensive, though it covers a depth and breadth of information previously uncompiled within the City of Roanoke. There have been several areas identified for further study, including but not limited to further examination of issues affecting vulnerable populations such as the elderly and minorities. This assessment also does not cover the entirety of the Roanoke Valley - Alleghany Region, nor even the entirety of the metropolitan transit area surrounding the City of Roanoke. Appendix A provides a more comprehensive methodology for replicating this study to other areas within the region, and suggestions have been made throughout the document on ways that this study could be expanded.

One of the key limitations of this study has been the reliance on secondary data. While secondary data provides a good estimation of food access at a remove, lived experiences can vary drastically across the access designations used in this report. As action is taken to ameliorate food access issues in the city, it will be important to reach out to affected populations to gain insight into the specific problems they face and their perceptions of how best to affect change.

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## Appendix A - A Guide to Replication

This appendix seeks to provide some basic information about the methodology used to create the maps above, in the hope that the steps will be easily replicated. The mapping was made using ArcGIS software. Most of the techniques described are not difficult for a user of moderate competence. Indeed, there will likely be many who, upon reading this guide, think of far more innovative ways to approach mapping these data. However, for the purposes of future assessments it is hoped that the below will prove useful.

As discussed in the methodology, data for this study came from the following primary sources: 1) the USDA Food Access Research Atlas, 2) the US Census Bureau, 3) existing infrastructure shapefiles used by local and regional governments, and 4) location information gleaned from websites such as the Roanoke Community Garden Association site and the Locavore blog. This guide will focus on importing USDA Food Access Research Atlas data only, as much of the other data will already be available to local governments and other such organizations.

## Step 1: Acquiring USDA Data

The screenshot shows a web browser window displaying the USDA Food Access Research Atlas website. The address bar shows the URL: [www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data.aspx](http://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data.aspx). The page title is "Food Access Research Atlas". The left sidebar contains a navigation menu with the following items: Overview, Go to the Atlas, Why Introduce a New Mapping Tool?, About the Atlas, Download the Data (highlighted with a red box), and Documentation. The main content area features a header image of a dry, cracked landscape with a small green plant. Below the image is the section "Download the Data". The text in this section states: "All data included in the Food Access Research Atlas are aggregated into an Excel spreadsheet. The Documentation section provides complete information on data sources and methods. 'No data' fields are empty or referenced with '-9999'." It also mentions that the current version of the data file and document are available. Under the "Current Version" heading, there is a list item: "Food Access Research Atlas Data File" (highlighted with a red box). Below this link is a note for GIS users: "Note for GIS users: The Atlas is based on 2010 census tract polygons. If you are using a GIS, the data from this spreadsheet needs to be joined to a census tract shapefile." The bottom of the page shows a "Related Topics" section with links to "Diet Quality & Nutrition", "Food & Nutrition Assistance Research", and "Food Access".

First, go to the USDA website and search the Food Access Research Atlas. Then click on Download the Data. Click the Food Access Research Data File, which will begin your Excel download. The URL highlighted above will also take you to the site where you can access the file. The file is very large, so the download may take some time.



	A	B	C	D	
1	CensusTract	State	County	LILATracts_1And	LILATract
59225	51770000100	VA	Roanoke City		1
59226	51770000300	VA	Roanoke City		1
59227	51770000400	VA	Roanoke City		0
59228	51770000500	VA	Roanoke City		1
59229	51770000601	VA	Roanoke City		1
59230	51770000602	VA	Roanoke City		1
59231	51770000900	VA	Roanoke City		0
59232	51770001000	VA	Roanoke City		0
59233	51770001100	VA	Roanoke City		0
59234	51770001200	VA	Roanoke City		0
59235	51770001800	VA	Roanoke City		0
59236	51770001900	VA	Roanoke City		0
59237	51770002100	VA	Roanoke City		0
59238	51770002200	VA	Roanoke City		0
59239	51770002300	VA	Roanoke City		0
59240	51770002400	VA	Roanoke City		0
59241	51770002500	VA	Roanoke City		1
59242	51770002600	VA	Roanoke City		1
59243	51770002700	VA	Roanoke City		1
59244	51770002800	VA	Roanoke City		1
59245	51770002900	VA	Roanoke City		0
59246	51770003000	VA	Roanoke City		0
59247	51770003100	VA	Roanoke City		0

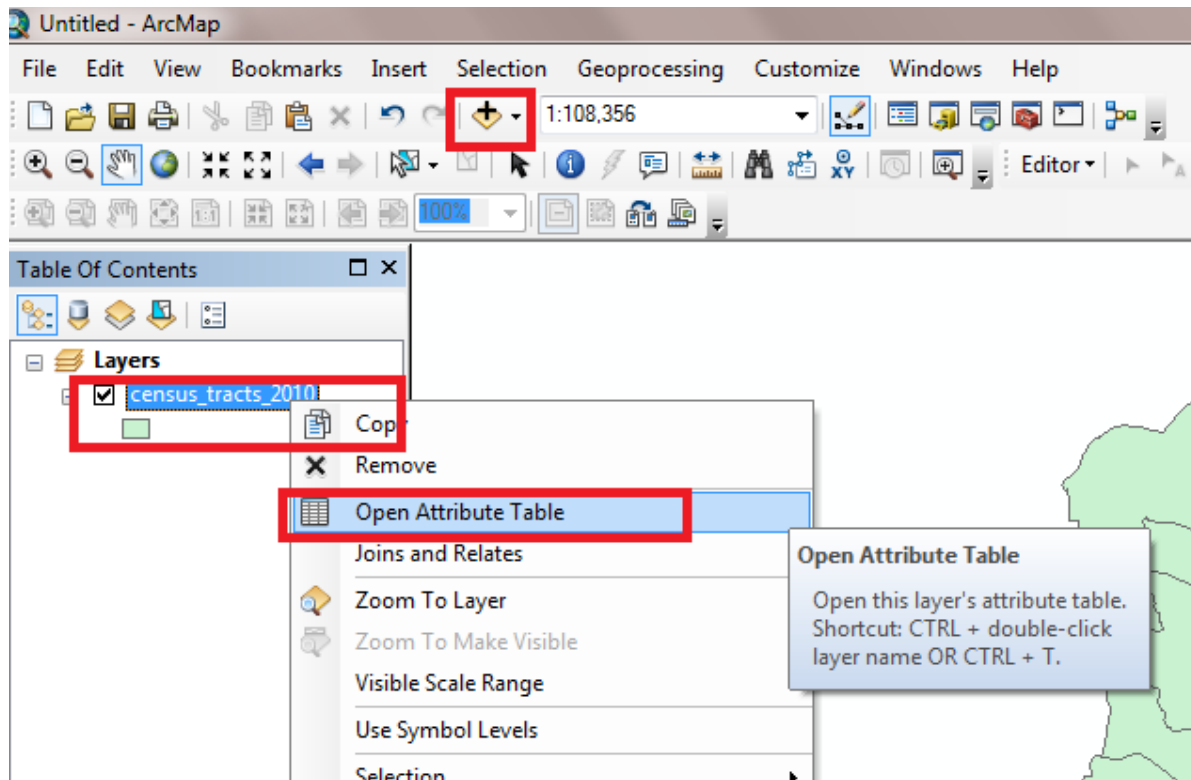
Read Me Variable Lookup **Food Access Research Atlas Data**

Ready 23 of 72864 records found

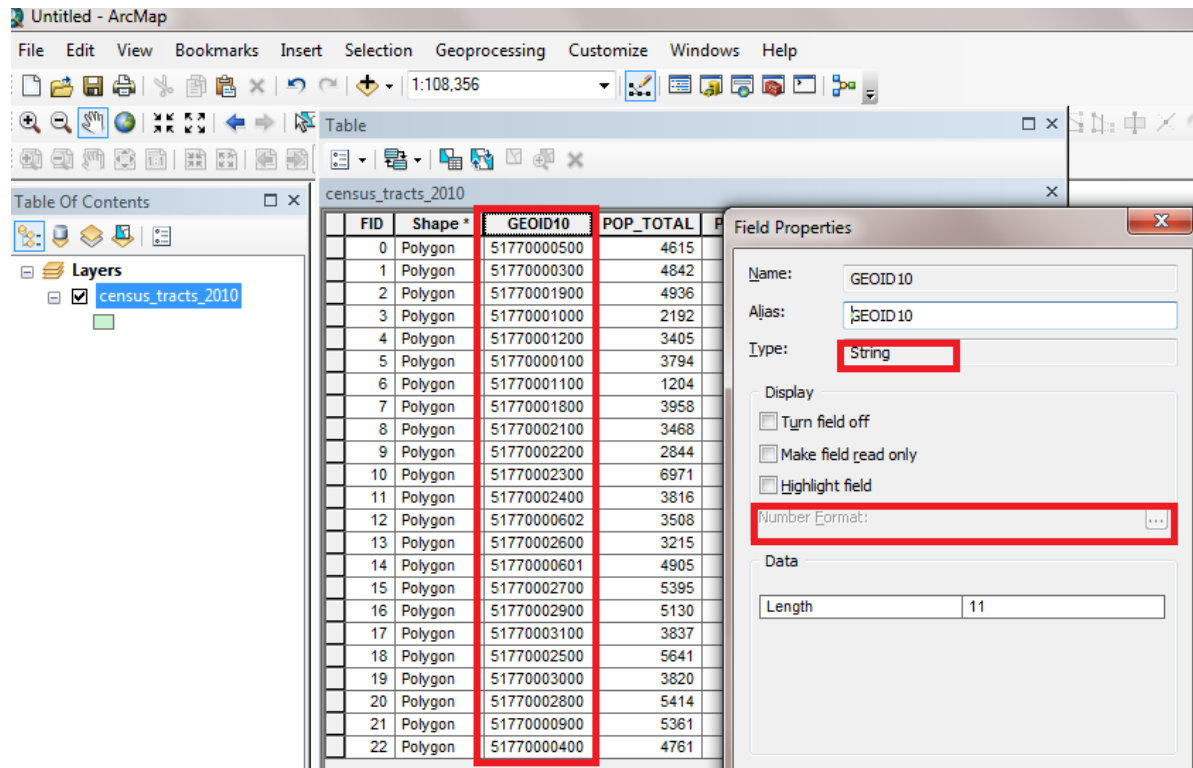
Once downloaded, open the Excel file. You will need to click to the Food Access Research Atlas Data tab of the spreadsheet. You will then need to filter to the locality that you desire to use. It is suggested that you copy this information into a new sheet or Excel file in order to minimize processing time when trying to import the data into ArcGIS, as well as to minimize the work Excel is doing on your computer.

### *Step 2: Importing Data to Existing Census Tract File*

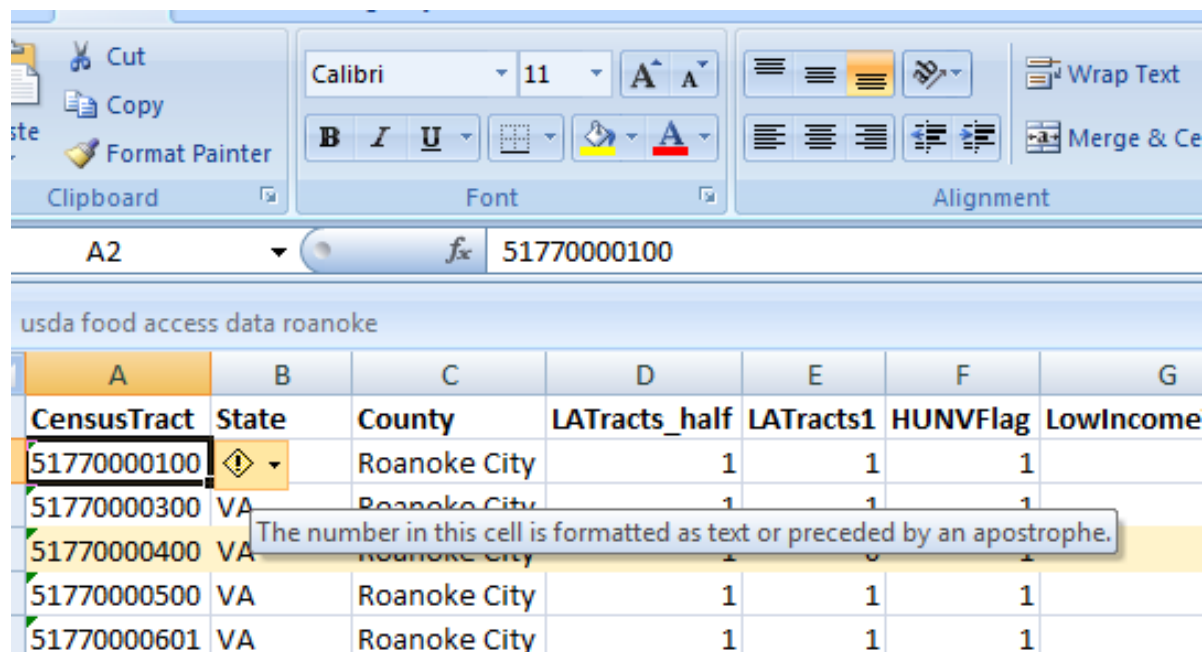
As noted on the USDA website, you will need a layer with census tract polygons to which to join the USDA food access data. Open ArcGIS and add this layer to your new map. Then open the attribute table.



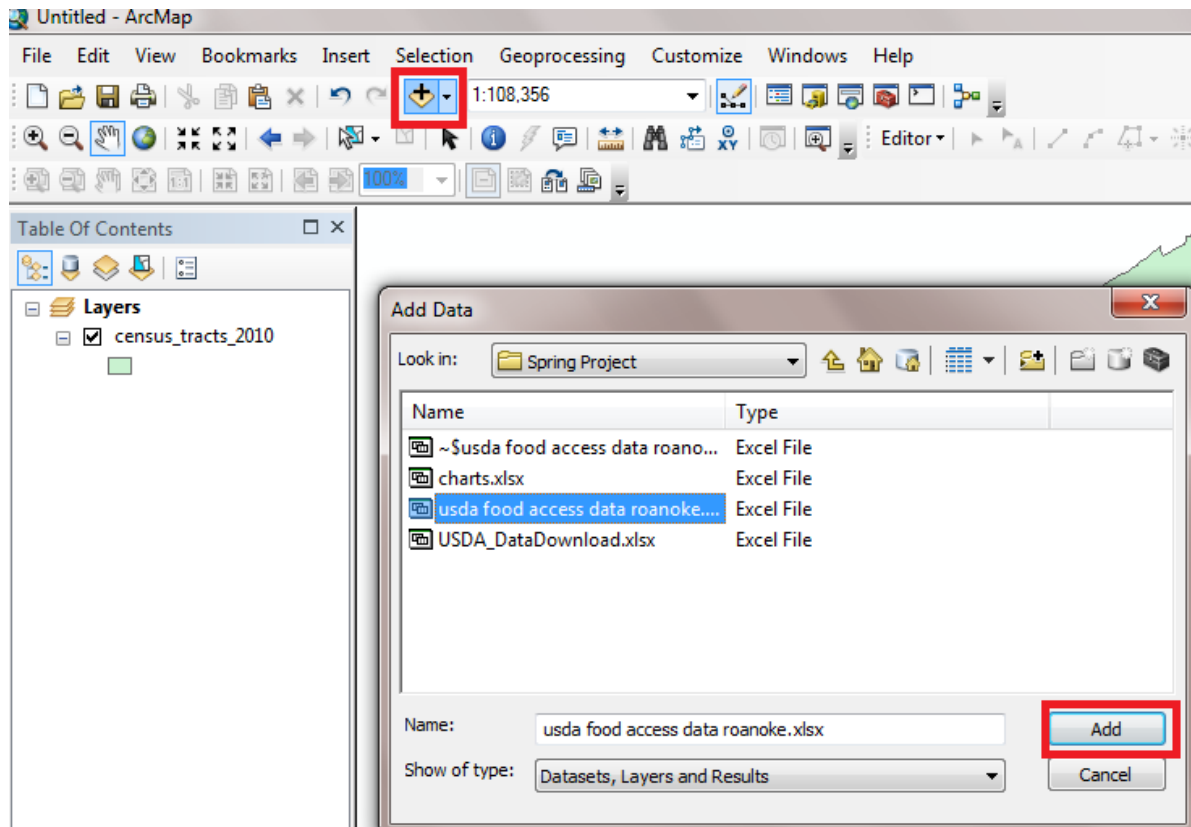
The USDA data can be merged to the census tract data using the corresponding census tract numbers. In the attribute table, find the column which contains the long census tract numbers. In the example below, this column is called GEOID10.



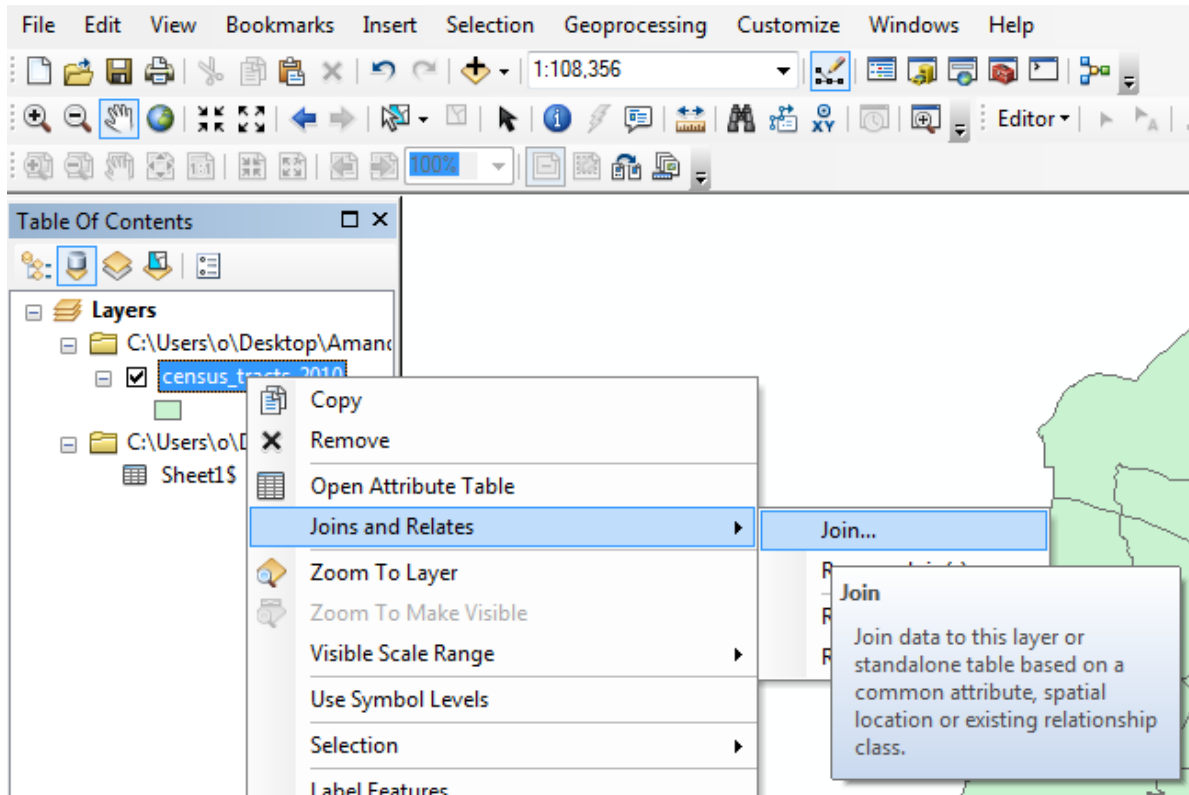
Right click this column and check to see its properties. This field is a string type, as opposed to a number. Making sure to import information so that it will match the type of this field is an important next step



In this case, the Excel column which contains the matching information from which the join will be performed is labeled CensusTract. If this column was formatted as a number, it would import as a number to ArcGIS and be of the wrong field type to join with the GEOID10 field, which is a string type field. In this case, check to see that your data is formatted as text.



Add the spreadsheet data to the file just as you would add a shapefile.



Then join the data to the census tract layer using the Joins and Relates menu.

Join Data

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

Join attributes from a table

1. Choose the field in this layer that the join will be based on:

GEOID10

2. Choose the table to join to this layer, or load the table from disk:

Sheet1\$

Show the attribute tables of layers in this list

3. Choose the field in the table to base the join on:

CensusTract

Join Options

Keep all records  
All records in the target table are shown in the resulting table. Unmatched records will contain null values for all fields being appended into the target table from the join table.

Keep only matching records  
If a record in the target table doesn't have a match in the join table, that record is removed from the resulting target table.

Validate Join

[About joining data](#)

OK Cancel

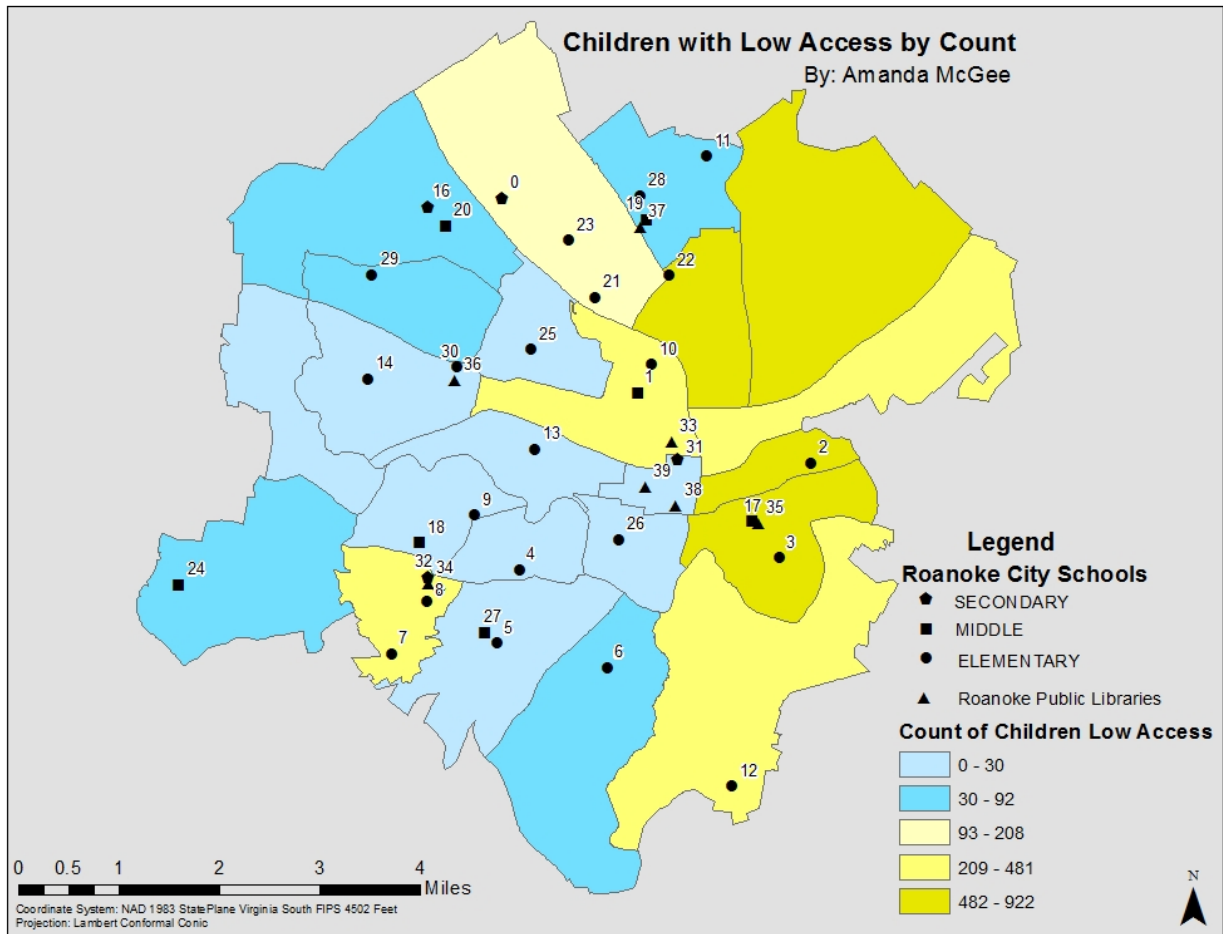
As seen above, select the field from the original layer (in this case the GEOID10 field), the source of the data you wish to join to the layer, and the field or column which should be matched to the field in the original later (in this case CensusTract). Then click OK.

The screenshot shows the ArcMap interface with the 'Table' window open for the 'census\_tracts\_2010' layer. The table contains the following data:

Shape_Area	Hispanic	NonHispani	CensusTract	State	County
38139930.2936	604	4225	51770000500	VA	Roanoke City
96125211.1468	1061	3770	51770000300	VA	Roanoke City
31679447.6231	141	4724	51770001900	VA	Roanoke City
32838078.9334	79	2023	51770001000	VA	Roanoke City
24234902.5147	194	2997	51770001200	VA	Roanoke City
36962028.4244	59	3510	51770000100	VA	Roanoke City
11326916.8016	42	1021	51770001100	VA	Roanoke City
24245409.4876	19	3903	51770001800	VA	Roanoke City
72927608.7326	35	3383	51770002100	VA	Roanoke City
43931786.565	32	2904	51770002200	VA	Roanoke City
85642846.4348	594	6557	51770002300	VA	Roanoke City
30557011.7626	3	3393	51770002400	VA	Roanoke City
66229745.9502	654	3353	51770000602	VA	Roanoke City
17050599.3887	316	2371	51770002600	VA	Roanoke City
119503502.919	137	5214	51770000601	VA	Roanoke City

Open the attribute table of the census tract layer to check for a successful join. The field that was selected to base the join off of, CensusTract, marks the beginning of the USDA data. From this point you can manipulate the data as usual.

## Appendix B - Further Graphics and Information



Map 12: Schools and Libraries, Numbered

Table 6: Schools and Libraries, Numbered

0	Noel C. Taylor Learning Center	20	William Ruffner Middle School
1	Addison Aerospace Science Magnet	21	Round Hill Primary School
2	Fallon Park Elementary School	22	Oakland Intermediate School
3	Morningside Elementary School	23	Huff Lane Intermediate School
4	Wasena Elementary School	24	Hidden Valley Junior High School
5	Fishburn Park Elementary School	25	Roanoke Academy/Math and Science



6	Crystal Spring Elementary School	26	Highland Park Magnet Elementary School
7	Grandin Court Elementary School	27	James Madison Middle School
8	Raleigh Court Elementary School	28	Preston Park Primary School
9	Virginia Heights Elementary School	29	Westside Elementary School
10	Lincoln Terrace Elementary School	30	Forest Park Magnet
11	Monterey Elementary School	31	Blue Ridge Technical Academy
12	Garden City Elementary School	32	Roanoke Valley Governor's School for Science & Technology
13	Hurt Park Elementary School	33	Gainsboro Court Library
14	Fairview Magnet Elementary School	34	Raleigh Court Library
15	Patrick Henry High School	35	Jackson Park Library
16	William Fleming High School	36	Melrose Library
17	Stonewall Jackson Middle School	37	Williamson Road Library
18	Woodrow Wilson Middle School	38	Main Library
19	Breckinridge Middle School	39	Law Library

**Table 7 Local Foods Stakeholder Contact Information**

Name	Representing	Email
Shane Sawyer	Roanoke Valley - Alleghany Regional Commission	<a href="mailto:ssawyer@rvarc.org">ssawyer@rvarc.org</a>
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Bruce Phlegar	Roanoke Natural Foods Co-op	<a href="mailto:bruce@roanokenaturalfoods.coop">bruce@roanokenaturalfoods.coop</a>
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Mark Powell	RCGA	<a href="mailto:markdouglasspowell@hotmail.com">markdouglasspowell@hotmail.com</a>
Anna Erwin	Virginia Tech	<a href="mailto:erwinae@vt.edu">erwinae@vt.edu</a>
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Betty Bailey	Catawba Meadow Farm	<a href="mailto:catawbadream@aol.com">catawbadream@aol.com</a>
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