

AGRICULTURE OF THE MIDDLE: A FEASIBILITY ASSESSMENT FOR A LOCAL  
FOOD DISTRIBUTOR IN NORTH CENTRAL FLORIDA

By

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To those that have helped me along the way

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## LIST OF ABBREVIATIONS

ESRI	Environmental Systems Research Institute
FDOT	Florida Department of Transportation
NCF	North Central Florida
NCFFS	North Central Florida Food Summit
ULDC	Unified Land Development Code
USDA	United States Department of Agriculture

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America's food system has become increasingly industrialized and centralized. As a result, the consumer is dependent on a supply chain that is entirely beyond their control. Today, only specific areas of the U.S. are associated with agricultural production. Prior to World War Two, farming occurred almost everywhere, including urbanized areas. Our current food system is very different from previous generations and our values regarding agriculture have changed accordingly. However, a movement to return to decentralized agriculture that possesses all the components for a self-sustaining, local food system is gaining momentum across the country. North central Florida has a unique topography and warm climate that allows for agricultural production almost year round. If a viable local food-supply chain were present, the region would reap the economic, health, and community benefits.

The main components of a viable local agricultural market is a circular, self-sustaining system where producers, consumers, retailers are all inter-connected. Following the goals of a local initiative known as the North Central Florida Food Summit (NCFFS), this paper researches the agricultural infrastructure needs of the region.

Specifically, the potential for the establishment of a cooperative distribution center is considered. The presence of this infrastructure in close proximity to producers and food retailers is imperative to achieving the goals of the NCFFS. Research uses a feasibility study involving geospatial, policy, and market analysis of North Central Florida.

Interviews with people involved in the local food supply chain are also being used to gain a better understanding of barriers and opportunities. Through this research, the importance of local food distribution is identified in a regional context. Based on the study results, recommendations for institutionalized planning policy and site location of a facility are proposed to enhance the viability of a local food supply chain.

## CHAPTER 1 INTRODUCTION

Since the advancement of technology and transportation in the 1940s, agriculture and the urban areas have long been considered separate spheres. Large tracts of inexpensive, rural land became the preferred area for growing the U.S.'s food supply. Rural and urban issues began to be dealt with separately and considered unrelated. However, agriculture is a unifying issue because it affects everyone. The agriculture sector plays a vital role to the whole community because people are dependent on it for our food supply. To diagnose the health of a community one has to consider the health of whole economy, of which agriculture is an important part. We can no longer ignore the outside industrial food system that is hurting our local farmers and our community. A decentralized, local food system is critical to the health of the community and the environment. Ultimately, a successful local food system can be a useful component for today's government planners who are creating new sustainable comprehensive plans and local officials that are trying to combat a dismal economic climate.

Our current system of transporting food from distant corporate farms then to large distributors and finally to our grocery stores is a fairly new approach in agricultural production. Many towns used to have a greenbelt surrounding the urban core that would provide food for its citizens. In World War One and Two, Victory Gardens sprung up in urban centers. Populated urban centers were home to more than 20 million gardens during the wars, producing a stunning 40 percent of all vegetables grown in the United States during World War II (Dolash, 2011, 1). Eventually, land prices in the city began to rise and highway transportation became more accessible than ever. Gas prices were inexpensive and the U.S. began experiencing a growth in economies of mass

production (Dolash, 2011). These factors contributed to the outsourcing of farming to large, rural tracts of land that could be cultivated in an intensive manner by commercial businesses.

Currently, small farms face obstacles such as minimum load quotas for subsidized transport (Rich, 2011). Federal policies subsidize corporate farms' transportation of large quantities of food at long distances. This infrastructure "favors export production rather than local food systems" (Vallianatos, Shaffer, & Gottlieb, 2002, 3). Subsidies to large agriculture hinder the ability of small farms to stay competitive and forcing farmers to drive their personal vehicles to Farmers Markets. Distribution options are needed to make it economically viable for farmers to keep their food production in the local area instead of exporting elsewhere. Bridging the gaps between North Central Florida farms, food retailers, and consumers is possible through a local distribution center that helps farms and retailers stay competitive in their area.

This paper uses the case study of North Central Florida to understand if it is feasible to introduce a distribution center to the region that will remove barriers of accessibility and consequently improve the local food supply chain.

### **Research Objectives**

This thesis focuses on the feasibility of a distribution center and the potential benefits of a sound infrastructure for a thriving local food supply chain in North Central Florida. It explores the environmental, economic, and social elements of local supply chain. The paper also makes the connections in the chain of local food and explains how small distributors are the missing link in the current system. The reader should be left with a better understanding of the supply chain as whole and how this alternative system is more beneficial to communities rather than the traditional one. The reader will

understand the unique role that small distributors play and their ability to improve farmer livelihood and access to fresh, local food.

### **Questions**

The questions that will be asked in the paper are:

1. What are the barriers and benefits to local food distributor within the context of a local food supply chain?
2. How can the role of the planner facilitate a viable, local food distributor?
3. Does existing policy and regional market make it feasible for a local food distributor to physically locate in north central Florida?

The flaws in the current system can be corrected if we decentralize and rescale.

A local food system is a complex issue, but part of the problem is the lack of social and economic infrastructure. If small producers had collection, storage, processing, and distribution centers conveniently located near their farms, their produce would have a much better chance of staying within the local food system. A circular, inclusive supply chain that forms strategic partnerships with community members can help provide access to local food and empower its people. This claim will be substantiated through a literature review of local food supply chains and policy initiatives that have already experienced success. If a region's government and community properly plan for viable infrastructure, the presence of local food in regional markets is indeed possible.

## CHAPTER 2 LITERATURE REVIEW

### **Why a Local Food Distributor?**

In many ways it is hard to reject our current traditional food system because it is extremely efficient and can supply an exorbitant amount of food. Yet, there is a food movement gaining momentum across the U.S. that recognizes that our agricultural system is unsustainable. It not only uses too much energy and natural resources, it also degrades the land with industrial farming practices and high fertilizer usage. Today, the average plate of food travels 1,500 miles to reach your table (Hewitt, 2010). This way of production and distribution also rejects the most basic and inherent connection between people and the land. Concerned citizens and advocacy groups are beginning to collaborate to shed light on this unnatural way of food production and are coming up with innovative ways to make a change. Communities are developing food incubators, cooperatives, and food hubs to facilitate a reconnection between grower, retailer, and consumer. Building these strategic partnerships strengthens the local economy and the overall health of the community.

### **Definitions**

The definitions and terms used here all have varying meanings depending on the literature and by no means are universal. It is necessary to provide definitions that best fit this paper and define how these terms were used.

### **Value Supply Chain**

The path of goods that links supply with markets efficiently is widely known as a supply chain. The supply chain can vary in size and components depending on objectives of the businesses involved. The firms that choose to be part of a value chain

are trying to link supply with markets while promoting certain core values. These values include “equity and fair pay, ecological sustainability, community capacity, health and food access” (Flaccavento, 2009, 6). These core values are essentially the benefits a community and region will experience if all components of the value chain are present. These core values also reflect many of the same objectives in the Alachua County Comprehensive Plan.

### **Local Food Hub**

A local food hub takes the role of distributor and expands upon it to become a support system and market facilitator for small producers. The USDA defines it as,

“a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products” (Bragg, 2012).

### **Distributor**

The Department of Agricultural, Resource, and Managerial Economics at Cornell University defines distributors as “intermediaries who arrange for the movement and transportation of food products” (Perrett, 2007). The overall trend in distribution has been for consolidation and vertical integration in the retail food sector, where retailers create their own distribution arm to serve their stores. Despite this trend retailers continue to purchase 25% of their produce through intermediaries, and smaller stores rely more on intermediaries than larger stores do (Perosio, McLaughlin, Cuellar, & Park, 2001). In the Southeast it is not uncommon to see large retailers such as Publix and Wal-mart having their own distribution centers for more product and price control. For the purposes of this research, large retailers are excluded due to their vertical integration of the food supply chain. It is unrealistic to expect large corporations to



procure produce and specialty food from a small distributor. Their objective is usually quantity sourced from around the U.S.

### **Food Retailer**

One of the last stops in the food supply chain is the food retailer. The USDA defines this outlet as,

“A market outlet where consumers can purchase food products. Based on the nature of products sold and the size of operation, food retail outlets range from convenience stores to warehouse-style discount outlets” (ERS, 2011).

To access the market that is most likely to procure food locally, this research will focus on mostly independent food stores. They usually have a space of less than 5,000 square feet and specialize in packaged groceries, where food accounts for at least 50 percent of total retail sales (Euromonitor International et al., 2011).

### **Producer**

In a traditional sense the producer is purely an input supplier of food commodities. In a progressive, regional food supply chain farmers, ranchers, and fisherman are treated as strategic partners and benefit from collaborative principles that feature high levels of inter-organized trust (Stevenson et al., 2009) .

### **Local Food**

There are many definitions of what “local” food truly is. While some definitions used geographic distance, some use a defined area based on the climate and availability of natural resources to sustain agriculture for the population. The geographic connotation has been adopted by the U.S. Congress in the 2008 Food, Conservation, and Energy Act (2008 Farm Act) and considers,

“The total distance that a product can be transported and still be considered a locally or regionally produced agricultural food product is less than 400

miles from its origin, or within the State in which it is produced” (Martinez, et al., 2010).

### **North Central Florida Food Summit**

The North Central Florida Food Summit (NCFFS) is a coalition of stakeholders, government officials, and University academics that meets annually. The summit's purpose is defined as a group dedicated to develop a thriving, local food system in North Central Florida to promote economic growth, environmental stewardship, and the health and well-being of our community. To accomplish this goal, priorities were set to strengthen marketing, economic development, and infrastructure.

### **Study Area**

For the purposes of this research I will use the regional area defined by the North Central Florida Food Summit as local. The 10 county region includes:

- Alachua
- Bradford
- Columbia
- Gilchrist
- Levy
- Marion
- Suwannee Union
- Clay
- Putnam
- Union

### **Comprehensive Plan**

The State of Florida has a comprehensive plan that is included in the Florida Statutes. It states that the plan, “shall provide long-range policy guidance for the orderly social, economic, and physical growth of the state” (FL Comp Plan, 2010). Alachua County has its own document for comprehensive planning to achieve the goal to “encourage the orderly, harmonious, and judicious use of land, consistent with the

following guiding principles” (2011). The plan has four main principles, but the following two pertain closely to the research topic.

**Principle 1:** Promote sustainable land development that provides for a balance of economic opportunity, social equity including environmental justice, and protection of the natural environment.

**Principle 2:** Base new development upon the provision of necessary services and infrastructure. Focus urban development in a clearly defined area and strengthen the separation of rural and urban uses.

### **Alternative System**

Innovations in agriculture have allowed people to be separated from the land where food is produced. Three conditions related to agriculture enable cities to exist as we know them today. According to Urban Economist, Arthur O’Sullivan, there must be an agricultural surplus from people outside the city to provide for urban dwellers. These city dwellers must produce goods or services that can be exchanged for food grown in urban areas. Lastly, as explained earlier there must be “an efficient transportation system to facilitate the exchange of food and urban products” (O’Sullivan, 2009, 4). Due to these conditions, the business of growing food has played a lesser role in regional areas. It is a broken system in our country when large and distant farms prosper while small, local farms are suffering due to the regional population’s inability to access their food.

Many concerned citizens have begun to realize that this inequitable, resource depleting method of supplying food needs to change. This local food movement has caught the attention of planners and local governments. The guiding principle of a local food supply chain deeply resonates with planners because it supports making healthy, sustainable decisions that improves the quality of life for a community. Planners have gotten involved in local food system planning by incorporating agricultural urbanism,

food deserts, community gardens, and foodsheds into local policy. Another emerging facet is the development of viable agricultural infrastructure that enables a local food system to support itself. Production and distribution planning is essential if any local food system and supply chain is going to be successful. A community can possess many local growers and support local food consumption, but without the presence of an aggregated intermediary, it is difficult to maximize market efficiency. The local food system is subject to the same framework as the General Systems Theory. One of presumptions is that the “part of the whole are not only interrelated but they interact with one another and in the process creating a self-evolving network” (Easton, 2009, 1). The local food system is a whole consisting of parts. The evolving network is a patterned relationship between grower, distributor, retailer and consumer (Figure 1-1). It is the community’s responsibility to ensure that the system has all the parts fully developed to produce an efficient whole.

### **Market Inefficiencies**

Figure 1-2 illustrates the different areas of the local food supply chain that are necessary for a healthy local food system. North central Florida possesses most of the links in the food supply chain except a small independent distributor. According to a recent study done by the Ohio Department Agricultural, Environmental, and Economic Development on the best market channels to scale-up local Ohio food production found that, “the regional mid-size chains and independent grocery stores interviewed report a willingness to purchase from local small and medium-sized farms, and tend to increase their local fruit and vegetable inventory when common aggregation points are available, such as an auction house or a distributor who carries local fresh produce.” (Clark et al., 2011, 2). This logical tendency is an opportunity to develop exactly what a local food

supply chains needs to be successful. The need for a local distribution center extends beyond convenience for independent food retailers. Ben Hewitt, a local food systems author, put it best when he said,

this leaves us with a rather daunting truth: The fact is that we need to rethink our entire food-supply chain for reason of economic security, health security, and even social security. We need to reinvent how we grow and distribute food; we need to re-scale and decentralize (2011, 6).

Providing a small distribution center that focuses on local production/retailer market channels can assist in making the aforementioned securities a reality for north central Florida. The heart of the region and majority of the population resides in Alachua County. The County encourages people to live in the area because of the quality of life. By supporting plans for a small distributor, the County is fulfilling its goals to be a sustainable area that attracts people because of its quality of life.

### **Food Miles**

The amount of miles traveled by our produce to reach our grocery stores seems to increase as the industrialized agricultural markets expand. The origin of our food basket often starts a continent away. While trucking is the dominant transportation method, other modes are often used to get quantities of non seasonal produce to the store. A UK study done by the Department for Environment, Food and Rural Affairs, quantified the costs of air mileage due the increasing use of planes for produce imports. Transporting something by plane creates more carbon emissions than transporting the same thing by truck. Substantial amount of produce is imported into England such as the onion, which travels a whopping 19,310 km from New Zealand (Choice Mag, 2007). The study that analyzed the environmental and health costs of U.K.'s weekly food basket calculated that "the external costs of air imports of fruit and vegetables are £2.23

M yr<sup>-1</sup>" (Pretty, 2005, 15). This financial burden is only 0.09% of domestic road costs, but that is only because of the low volume that is presently imported comparatively (15). Like air travel itself, it is possible that air freight will increase in flights due to the ever expanding globalized economy.

It seems that more and more produce is not from the U.S. every time one goes to the grocery store. It is a challenge to seek out domestic products. If air freight consistently increases then the additional environmental costs would become severe. Uncovering the environmental impact of food miles is important to convincing the public and officials that we are dealing with a broken food system. Research is the first step in providing credible evidence to support environmentally sustainable alternatives in agribusiness. Research is needed to properly plan for implementation of alternatives and garner public support.

Transporting food from farms to retail stores incurs more costs than just the amount of gasoline burned. It impacts people and the environment through congestion, harm to health (noise, asthma), climate change (from greenhouse gases) and infrastructure damage (Pretty, 2005). These factors were calculated and quantified by British scientists who wanted to know the costs of getting food to our grocery basket. Specific modes of transportation were considered such as cars, light commercial or heavy goods vehicles. The resulting environmental and health costs of the domestic data are calculated to be £2348 M yr in total externalities of movement to retail outlets of agricultural produce. This is an incredible amount considering that there alternative methods that are feasible. The monetary amount saved by making cost avoidance changes is significant. The British study:

calculated the benefits of various scenarios for changes in farm practice, transport to retail outlets, transport to home and for waste disposal. If the food basket were all organic, and that food were locally-sourced or predominantly transported by rail, and then transported home by walking/cycling, bus or home delivery, then external costs would fall from 11.8% of the food basket to 1.1–1.8% (Pretty, 2005, 15).

If we isolate just the transportation issue, and supposed that “all food were sourced within 20 km of homes or other places of consumption, then we estimate that £2119 M of environmental costs would be avoided (15). Now, this formula considers more negative impacts of the current food system than just carbon emissions. It quantifies all the consequences and monetarily proves that we need a more viable option. Of course, this paradigm shift is not suitable for the short sightedness of conventional agriculture. The current system is profitable for the corporate farmers, but not socially equitable or healthy for our communities.

The extent to which we are transporting our food may not be the largest carbon polluter, but it is a problem that can be addressed effectively through comprehensive planning. Ideally, we should all be eating organic and with little red meat intake to significantly cut down on our carbon footprint. Yet, there is no reasonable planning mechanism that can turn everyone into organic eating vegetarians. A more viable option and one that has already shown success is a stable local production and distribution system.

## **Benefits to the Consumer**

### **Purchasing Patterns**

An important component that drives the economic viability of a local supply chain is the amount of consumer demand. Knowing the market for local food helps to inform production planning. Community interest in accessing local food is apparent with the

increased number of studies by the University of Florida to understand different aspects of the local food system. Researching the flows of the market can create opportunities for economic development in a time of economic uncertainty. One such local food system study conducted by IFAS and funded by a Specialty Crop Block grant from the USDA surveyed consumer characteristics and economic impacts. They study surveyed residents from all over Florida, but also specifically analyzed results from North Central Florida.

The method of data collection was a cross-sectional survey mailed to 7,500 people in Florida. “Usable survey responses were received from 1,599 respondents, representing 21.4 percent response rate” (Hodges, 3, 2012). 623 of these respondents were within the 10 county study area. In this region, total value of local food purchases was estimated at \$140M, which represented an average of \$338 per household annually, and 17.5 percent of food purchases for at-home consumption. The main reason why respondents chose to purchase local was “freshness” followed by “food safety”. Barriers to purchasing locally were mainly the “high price” and “unavailability or limited selection of local food in the area”. These limiting factors are part of the rationale behind local infrastructure development. Distribution centers can often reduce financial risk for growers and wholesalers, therefore lowering the retail price of food commodities. The ability of distribution centers to reduce costs will be discussed at a later point. Interestingly enough, the most common definition of “local” foods chosen by respondents was “within a radius of 100 miles of home”. This is a much narrower definition than the USDA uses and is more suited to describe a local system the size of the north central study area of Florida.



Consumption trends in the past two decades have shown an increase in the demand for fresh fruit and vegetables (Kaufman et al., 2011). One reason for this has been the national campaign to improve the health of Americans through informed food choices. There are many health benefits gained from the consumption of fresh produce. The Food Guide Pyramid advises 5-9 daily servings of fruit and vegetables to reduce the risk of cancer. According to the Center for Disease Control and Prevention, fruits and vegetables “provide essential vitamins and minerals, fiber, and other substances that are important for good health” (2012, 1).

Purchasing local distributed food not only benefits the health of the consumer, but it comes with the advantage of knowing one has made socially responsible decisions. Buying produce that has stayed within local marketing channels is an intentional decision to support the local community. Consumers also have the peace of mind knowing that local food purchases are most likely directly impacting the local economy. Locally grown items have made inroads since the 1980s because people recognize the quality in the product and the community that it supports.

### **Food Security**

The distance food has to travel not only increases the amount of liability, it jeopardizes the control we have on our food stocks. Food Security is defined as, “a condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through sustainable food system that maximizes self-reliance social justice (Community Food Security Coalition, 2010). Food security is often discussed in two types of discourses. Food hunger advocates cite food security as an important issue to prevent even more wide spread hunger. America’s agricultural surplus has enabled it to become the number one exporter, yet thirty six million

Americans are experiencing hunger or at the risk of hunger (Deumling et al., 2003). This paradox is a disturbing reminder of the priorities of our current system. Even worse is the inevitable decline of the system's efficiency. "In 2001, the United States had a \$14.3 billion agricultural surplus. By 2005, the surplus had shrunk to \$3.8 billion" (Hewitt, 2011, 26). There are many factors that contribute to the unreliability of a large centralized system. The current system is susceptible to political conflicts, petroleum availability and global food prices. Currently, extensive trucking across the country is used to deliver goods. An extreme spike in petroleum prices could make such routes unfeasible. An extended drought in Brazil could cause an extreme spike in sugarcane prices. Political conflict in Middle East could cause a blockade of specialty crops like olives and lemons. Why would Americans want to be at the mercy of these uncontrollable events? Why would residents of the north central region in Florida want to deal with this when they live in a fertile region that is capable of producing and distributing much of its own food necessities? An unforeseen emergency can easily break our currently fragile system and leave many Americans without a reliable food source. Decentralizing towards a self-reliant, closed system of growers, distributors, and retailers can create a strong, reliable food system.

To avoid being at the whim of an unforeseen emergency, communities aspire for food security so they can achieve their food needs in a more sustainable and environmental way (Anderson & Cook, 1999). Many consider the reduction in ecological footprint as important as reliable access to food. The Environmental Protection Agency defines Ecological Footprint as,

how much nature we have, how much we use, and who uses it. It shows us how much biologically productive land and water a population (an

individual, an organization, a city, a country, or all of humanity) requires to support current levels of consumption and waste production, using prevailing technology (2011).

Essentially, Ecological Footprint is Earth's supply and human's demand. Unfortunately, globally we "need 1.3 planets to meet our average resource consumption" (EPA, 2011). Many communities are trying to reduce their consumptive patterns because our current rate is unsustainable. An environmental consciousness is pervasive in many progressive Florida communities such as the one surrounding the University of Florida. There are numerous citizens groups, non-profits, and government initiatives that promote a change in consumptive patterns to support a more sustainable lifestyle. A local food distributor is one piece to the sustainability puzzle because of the capacity to reduce energy expenditures.

### **Obstacles**

Consumer choices have dictated the increase in the size of produce sections in grocery stores. The food retailers expanded their supply of produce because of the yearly increase in fruit and vegetable consumption. In 1997, "consumers consumed 133.2 pounds of fresh fruit, per capita" (Kaufman et al., 2000, 1). Monetarily, this consumption equated to \$30.9 billion dollars in produce purchases. This ever increasing market is dominated by large industrial farm commodities and foreign imports. If trends are pointing to consumer preferences for local food the market should start reflecting that. The popularity of large organic food chains shows that the market has already picked up on consumer choice for organic goods. There is an easier procurement process for mass produced organic goods than local food commodities. A local food distribution center could help streamline the process and remove such barriers that are prohibiting the fruition of consumer preference for local food.

Research has already been conducted to confirm that Floridians would chose local food if it were readily available and priced comparatively to products outside the region. The IFAS study found,

the survey sample was generally representative of the Florida population, however, the data were weighted to adjust for age, education and income factors to account for differences in sampling intensity. The weighted share of respondents who reported purchasing local food at retail grocery stores (52.9%), farmer's markets, roadside stands or U-pick operations (61.7%), and at restaurants (27.8%) were higher than has been previously reported in the literature (Hodges, 2012, 39).

Consumer preference for local food provides a major case for the presence of local distribution infrastructure. The infrastructure opens the marketing channels that will alleviate the barriers that consumer cite as the major reasons why they do not purchase local foods.

### **Benefits to Producers**

What if we could remove some of the links in the food supply chain that makes the price of food so expensive? What if by removing the cost incurred through extensive distribution, logistics, and overhead, producers were able to receive a fair return? A more equitable approach is to overcome the dearth of local infrastructure. In this manner, producers can utilize local distributors that are better equipped to handle small orders and distribute to independent grocers. A distributor can take on responsibilities that small producers find to be a significant financial burden.

An attractive market for producers is a large natural food chain, but usually the logistics required to access it makes it unrealistic. According to study done by the Ohio DAEE, a large natural food chain is committed to selling local food if an intermediary is present. The store manager works with a distributor because,

The cost of delivery can be prohibitively expensive for small farms, limiting the profit they can make on any one sale. To address this issue and reduce the number of accounts the store needs to manage, the store works with its regional produce distributor to coordinate produce purchases and inventory management with small local farmers. The distributor also runs a logistics firm that assists with developing efficient pickup and delivery routes. It is less expensive for the farmers to put their product on the delivery truck than to individually deliver to the store. Additionally, the distributor manages the billing and payment to the individual farmers, thereby eliminating the need for the store to manage multiple accounts (Clark et al., 2001, 17).

The local distributor creates a stronger relationship between grower and retailer. The small producer is currently a jack of all trades and has to do its own marketing, networking, and transporting. The only outlet tends to be direct marketing through Farmers markets. A local distribution center can facilitate an aggregation of producers and their commodities, which allows growers to “jump” scales, reaching larger markets. Table 3-1 suggests that a united front of growers can have an active role in larger markets.

### **Access**

Small farmers in North Central Florida are producing large quantities of fresh, healthy produce, but they do not have the proper outlet to make their food available to most consumers. Currently, most growers access consumers through farmers markets because the entire basis for these entities is fresh, local food. Although Farmers Markets are very popular, it is only targeting a certain part of the population. People that attend farmers markets have to be off work for the specific time that the Market is open and they have to have transportation access. Markets, therefore, tend to be more successful in upper income neighborhoods. Farmers Markets that are held only twice a week and at specific times are easily accessible for automobile riders, but can be difficult for those relying on transit. A non-profit initiative between UCLA and the

Southland Farmers Market Association in Los Angeles had the good intention of providing food to low-income areas through a community supported agriculture, food basket model. The CSA model was funded by the USDA's Sustainable Agriculture Research and Education Program. Unfortunately, when local papers inquired what residents thought about the program, "27% of those surveyed cited access-related reasons for non-participation" (Community Food Coalition, 2004, 68). If small farmers had access to a functioning infrastructure that assisted in processing and distribution, they would not have to solely rely on bringing their product to Farmers Markets. Distribution centers would expand the local produce market and provide access to people of all socio-economic levels.

The local food systems surveyed conducted by IFAS confirms that a major limiting attribute of local food is the lack of access (Hodges, 2012, 6). For convenience most people shop at food outlets as opposed to farmers markets. Almost 90% of all food for home consumption is acquired from retail venues (such as grocery stores) (ERS, 2010), suggesting an important strategy to increase the consumption of North Central Florida foods for Floridians is to focus on increasing the flow of these foods through the state's distribution and retail market systems.

### **Liability Coverage**

The strategic partnerships that are fostered through a local food-supply chain are significantly based on reputation. Small growers have too much to lose if their product is contaminated. If a food-borne illness was traced back to their farm, the damage would be much more severe than an industrial farm. Large corporate farms are able to weather the storm of bad media and the halting of retailer procurement. One incident for a small farmer could potentially ruin their business. Therefore, the utmost care is taken

with the growing and handling. Despite the precautions that small growers take most restaurants and food outlets require a certain amount of insurance coverage. Studies have shown that, “while food safety is a concern for all retailers, the larger retailers seek formalized certifications, especially those purchasing from large-scale farmers or companies not in close proximity. The greater physical and social distance from the actual producers creates the need for extra security, often achieved via third-party certification (Clark et al., 2011). Food safety coverage is a financial burden that many small growers cannot afford, subsequently, blocking access to potential markets in larger retailers. The farmers market is often the only outlet for small growers because it does not enforce these regulations. Distributors can alleviate this financial burden by being certified and therefore covering all food commodities that go through its doors.

In Albuquerque, New Mexico many small producers that cultivate 20 or less acres do not have the finances to be certified for food security and sanitation coverage. Thankfully, cooperative distribution center La Montanita provides this insurance so growers are covered. Small growers can now sell their produce to places like Whole Foods and larger distributors like Sysco. Both of these large businesses require gap coverage, which can be as much as \$2 million dollars. Good Agricultural Practices (GAP) is the gold standard in training and certification of food safety measure for farms. Farms must undergo an audit to become certified (Food and Nutrition Service, 2011) Having a third party such as a distributor share the cost of the coverage is a way to streamline the food safety process. Some State Departments of Agriculture offer resources and tools to facilitate this cooperation. Local extension offices are usually the best resource to determine if these resources are available. Part of this research

methodology involves policy analysis to determine if the area of north central Florida is receptive to a local food distributor. I will analyze local extension office policies to see if cost-share incentives are available for growers.

### **Network Integration**

Small farming is essentially a small business and small businesses are always looking for ways to maximize efficiency and profits. According to a case study of local producers dispersed across Sweden, logistics of their food distribution system is fragmented and inefficient. The sustainability of localized systems is dependent upon improving routes, distance, and time. Engineers in the Department of Energy and Technology at the Swedish University of Agriculture used cluster building and transportation analysis to determine optimum location for collection centers for each cluster and integrate with large scale food distribution centers (Bosona et al., 2011). Like this project, GIS analysis was used to find the clusters and determine location of infrastructure. Objectives were to increase potential markets and reduce the logistics cost and environmental impact of local food delivery systems. Through different scenarios of route analysis and collection center placement, the case study was able to optimize routes and improve logistics network integration. This study supports the notion that if attention is paid to rescaling and connecting the local food supply chain, the system can be profitable and functional.

### **Business Development**

The role of the distributor is not only to aggregate and distribute goods, but to advise growers on responsible business decisions. Educating producers about the opportunities helps them diversify their business. Ultimately, strengthening the voice and presence of the local producers improves the overall strength of the local food



supply chain. Many producers have been farming in the conventional manner for generations. The conventional way involves planting and cultivating one or two traditional crops like tobacco and corn. After harvesting they are usually sold at auction houses or to a large retail distributor. The food commodity could end up practically anywhere in the U.S. by the end of its journey. This process chips away at the price the farmer receives for their product because of the numerous other marketing entities and personnel that must get paid. This way of business is barely keeping the producer's head above water. Now, consider the alternative production and distribution plan that builds local relationships and increases the volume of local product sold.

The Appalachian Harvest Network in Abingdon, Virginia is an example of a food enterprise that offers business support to small growers that are looking to transition to local markets with organic vegetable production. Business support involves offering advice on specialty crop production, organic standards, and guaranteed local buyers. The enterprise deals personally with the buyers and negotiates for the best asking price for organic vegetables. Instead of getting 18 cents to the dollar for their vegetables in the conventional manner, producers are now getting 80 cents to the dollar (Peterson, 2012). The enterprise charges a 20% service fee for aggregating and distributing the product. Net sales for producers increases usually by using the services of a local distributor, therefore improving the viability of their business.

### **Obstacles**

Consumer access to healthy, local food is attributed to the access producers have to the market. Unfortunately, many producers export their goods because there is no network for them to distribute locally. In this era of mass produced goods and transit it is easier for wholesalers to procure good from one major distributor. Large corporate

grocers have implemented vertical integration so now they are their own distributor. This makes financial sense because it can save 25 to 60 percent on operations (McMillan, 2012, 1). The likelihood of a small farmer doing business with a large distributor or straight to wholesaler is slim. Large food retailers require large quantities of food in one order than small farmers simply cannot provide. Local farmers need a way to link into the distribution system so they can increase their production. Increased production means increased volume of north central Florida fruits and vegetables being distributed to retailers.

One misconception is that local food is more expensive to purchase. Large food retailers have convinced consumers that their ability to buy in bulk reduces the purchasing price for consumers. In fact, the lengthy food supply chain that these retailers employ is expensive and barely compensates the farmer's production cost. Some portion of the price we pay for food commodities at the store does go back to the farmer. Unfortunately, this portion is very small. The majority of the price pays for what economists call "marketing". This encompassing term includes not only advertising, but the "entire chain that ensures food makes it from farm to plate. For every dollar we spend on food, only about 16 cents goes to the farmer (McMillan, 2012)

## **Obstacles to Local Distribution Center**

### **Government**

The success of agricultural infrastructure at a local scale is usually dependent on local government. There are federal policies that dictate farming practices, but many differ from state to state. Many policies can make it hard for a new business that handles food commodities to succeed such as zoning, liability coverage, facility standards, audits, and permits for operations. These potential impediments can prevent

start-up companies from ever getting off the ground. Governments must protect the health and safety of their citizens through high sanitation standards, but often the rigid criteria can only be upheld by large businesses with deep resources. Local governments are also concerned with the construction of new businesses and the impact it will have on surrounding residential, industrial, and commercial areas. Major construction of a new building would have to be in the best interest of the community. The best interest usually equates to economic development. Governments perceive certain sectors to be most profitable and it usually isn't local foods. At the state, national and international level, there are regulations that rank economic competitiveness over local foods (Sonnino, 2009).

Ideally, local governments should represent the needs of the people. The needs of the people are not always fulfilled by the development of large corporate businesses in the community. In fact, there is a lot of documented resistance to large corporate chains invading small communities. The influence of corporate dollars can push local governments to overlook existing policies and citizen sentiment. A well known, almost clichéd example of this is pressure from the company Wal-mart to approve their big box chains even though it's not in accordance with comprehensive plans or popular demand. Putnam County, one of the counties included in this researcher's study area experienced such pressure from Wal-mart in 2007. Wal-Mart tried to influence officials to use eminent domain to seize land from a handful of property owners who didn't want to sell their land to the company for the construction of a distribution center (CLUE, 2007). Another example in the study area is the construction of a super Wal-mart in Gainesville, FL. The building obviously contradicted urban design codes, by being

located more than ½ mile from the road, but local officials overlooked this inconsistency because of the supposed economic opportunity. These types of decisions may bring jobs to an underserved area, but more responsible decisions like supporting local infrastructure has lasting effects beyond initial job creation.

The American Planning Association has taken notice to the increase in citizen support for a healthy, local food system and just conducted a survey to determine if local government policies reflect this. The survey found that only 9 percent of respondents “indicated that their comprehensive plans explicitly address an aspect of local or regional food systems” (Hodgson, 2012, 20). The top reason for including a food system component in their jurisdiction’s plans was community support. Political awareness was seen as one of the barriers. A food systems component should be incorporated in comprehensive plans this document is suppose address a wide variety of interconnected social, environmental, and economic topics. According to the American Planning Association it is a long-rang policy document that provides legal, political, and logical rational behind a community’s development. “For these reasons, comprehensive plans are well suited to address the complicated food access and community-based food system issues and opportunities” (Hodgson, 2012, 7). The components of food systems are multi-faceted and are not isolated issues. Developing an infrastructure for local foods requires a comprehensive system that is bolstered by the strategies in government policies.

The dominant food system is an expansive centralized system. To decentralize and rescale it takes cooperation at a local level. The transition cannot happen without investment and strategies from local governments. Industrial agri-businesses have done

an excellent job of convincing consumers that food supply chain is normal and healthy. It will take a concerted effort from local officials to make the alternative a viable option. Local food systems work does happen in a vacuum, but rather requires cooperation between local governments and community actors.

There are excellent examples of comprehensive or sustainability plans that incorporate the distribution component of local food supply chain. Greenworks Philadelphia encourages distribution of local foods through joint department cooperation between the Mayor's office and the Department of Public Health. Together they are exploring "whether neighborhood grocery stores should be required to stock a certain amount of fresh and local produce (products grown within a 100-mile radius of Philadelphia) (2009, 144).

Local governments that may not possess the expertise to incorporate local food system language within comprehensive plans can usually look to local food policy councils for recommendations. These councils are major actors on a regional scale and understand the inter-dependence of each facet in the local food system. Comprehensive plans cannot merely state a support for local food systems. They have to detail specific strategies for each component because the system is only as good as the sum of its parts. The Food Policy Council of Seattle/King County has specifically recommended that King County incorporate infrastructure development for the sake of small grower viability into the comprehensive plan. By addressing infrastructure needs including warehousing, distribution and cold storage, governments can enhance the viability of small-scale agricultural producers (Food Policy Council of Seattle, 2008, 3).

## **Funding**

Starting a business in local food distribution is an opportunity that comes with financial risk and capital investment. Competition is present from larger chains that have vertically integrated to utilize existing resources. A local distribution may be a critical component to the overall health of a local food system, but not initially a profitable venture. The capital required to start a distribution firm can be a major barrier. Many organizations that have started a local distribution firm do so with guiding principles to support the welfare of a community and provide market access for struggling small farmers. These organizations usually start off as a non-profit to receive grants from donors and the government. The non-profit distributor concerns themselves with helping farmers develop a core enterprise that brings a good return on investment in work and capital (Flaccavento, 2009, 20). Finding the funds to address the gaps in infrastructure can be challenging.

The Appalachian Food Network (AFN) extended their services to farmers through USDA grants to help diversity the region's deteriorating economy. Farmers in the region were suffering from out dated conventional farming practices that focused on growing primarily tobacco. AFN was able to aid the farmers in transitioning to new local, organic markets through government funding. Grants "usually come with conditions that range from following certain standards, reporting on progress and outcomes, and providing matching funds so that the grantee has a financial stake in the project too" (USDA Risk Management, 2012). The network also works closely with the local extension agency at the Virginia Tech and University of Tennessee. Support from major institutions can provide assistance in sourcing funds.

Another way to overcome the obstacle to funding is to utilize existing resources. The La Montanita Distribution warehouse is part of a larger enterprise known as La Montanita Cooperative. The Cooperative did so well in the Albuquerque area that they opened a facility to aggregate and distribute their goods. The membership fees and loans that that cooperative receives directly support the warehouse. To stay viable, the facility also relies on the popularity of their brand and other well known organic brands. The co-op built a reputation of quality goods that are equitably sourced. Preserving this identity was possible through a value chain that promoted the brand. To create more service opportunities the center contracted out with a well known organic company, Organic Valley (Franklin, 2012). This brand is respected throughout the U.S. and has managed to do well in even large chain food retailers like Publix and Krogers. Growing companies such as this have to strategize for a maturing market. To remain in a value supply chain that respects the livelihood of the farmer, Organic Valley has built partnerships with regional distributors that work under the same guiding principles.

Working with the local cooperative in Gainesville, Florida could be an excellent branding strategy. Distributing food commodities that are associated with a respected community institution can increase sales significantly. Sales from a reliable market are crucial to a distribution center staying operational. A reliable reputation is also bolstered by government cooperation. Alachua County can lend support through eating local initiatives that spread awareness about the exciting local food supply developments that are happening in the region.

## **Logistics**

### **Locations Theory**

To reduce transportation costs and enhance operation efficiency, selecting a suitable distribution location is important to the operations of a local food supply chain. The location of a distribution center can vary depending on the location of the raw material, the manufacturing required, and the source of market demand. A distribution firm wants a local monopsony as opposed to a monopoly for a single seller. There are many sellers within a monopsony and they sell to one firm. The farmers within the market area sell their output to the nearest firm. The market area is usually determined by the net price farmers receive.

Distribution centers have to consider the procurement and distribution costs when determining the location of the firm. "Procurement cost is the cost of transporting from the input source to the production facility. Distribution cost is the cost of transporting the firm's output from the production facility to the output market" (O'Sullivan, 2009, 36). To maximize profits the distributor wants to minimize its transportation costs. Usually a local food distribution firm will travel to the farms or a centralized pick up spot to minimize the travel burden for farmers. Successful local food distributors La Montanita in Albuquerque, New Mexico and Appalachian Harvest in Abendon, Virginia use a fleet of two trucks to procure their product. The trucks are on the road six days a week coordinating pick-ups and delivering produce to the food retailers. Appalachian Harvest invested in its own infrastructure to reduce travels costs for the grower and themselves by setting up "cool bots" in central locations. According to the maker, a "Coolbot turns almost any brand of off-the-shelf, window-type air conditioning unit into a turbo-charged cooling machine. Transform an insulated room



into a walk-in cooler to keep your vegetables, meat, flowers and other products fresh and thermostatically controlled cool down to 35 F” (Coolbot, 2012). This technology is perfect for a holding room of vegetables and fruit that need to be kept cold for a few hours until a distribution truck picks makes its delivery. Many states are providing incentives for farmers to utilize this technology because it is energy efficient compared to conventional coolers and benefits farmers in the procurement process. New York and Tennessee both offer “Consolidated State Funding” to reduce the purchase cost by 50%. Assistance with the distribution infrastructure is provided by local extension agents. Incentivizing this type of infrastructure locally in north central Florida lowers transportation costs and subsequently reduces financial risk for farmers and distributors.

### **Network Integration**

Small farming is essentially a small business, and small businesses are always looking for ways to maximize efficiency and profits. According to a case study of local producers dispersed across Sweden, logistics of their food distribution system is fragmented and inefficient (Bosona & Gebresenbe, 2011, 10). The sustainability of localized systems is dependent upon improving routes, distance, and time. Engineers in the Department of Energy and Technology at the Swedish University of Agriculture used cluster building and transportation analysis to “determine optimum location for collection centers for each cluster and integrate with large scale food distribution centers” ( 2). This research reflects the same goal of determining location of infrastructure. Objectives were to increase potential markets and reduce the logistics cost and environmental impact of local food delivery systems. Through different scenarios of route analysis and collection center placement, the case study was able to optimize routes and improve logistics network integration. This study supports my

objectives and fundamental problem that local food supply chain can be profitable and functional if infrastructure is in the appropriate location.

### **Production Planning**

The organization and management of a business often resembles the framework of governments. Businesses, like governments, need long and short range plans. Responsible planning enables governments to be where they envision the community being at a particular point in the future. An independent distributor needs to engage in production planning that prepares for business as much as three years in advance. Just like a city has to plan for development, a distributor has to manage growth properly. To build markets there has to be a reliable produce available throughout the year. Marketing plays an integral part of determining regional demand for local food. Proper planning can reduce over production and product shortages. Table 1-2 shows an example from Appalachian Harvest's large volume buyer demand. Based on retailer advance purchases, a distributor can calculate the plant and acreage requirements for farmers. Farmers then bid for particular crops and the number they commit to growing. This all has to be done in advance so the harvesting season is in time for the order delivery. It is a year round effort that requires close relationships with community members.

Table 1-1. Production Volume

Grower Production	Very Small Volumes	Small Volumes	Medium Volumes	Large Volumes
Outlet Activity	Farmers Market Direct Selling Private	Farmers Market Direct Selling Public/Private	Wholesalers Packers Distributors Public/Private	Wholesalers Packers Processors Public/Private
Outlet Type	Direct Outlets	Direct Outlets	Retailers Wholesalers	Wholesalers
Outlet Size	Very Small Volumes	Retailers Small Volumes	Medium Volumes	Large Volumes

(Source: Clarke et al., 2011)

Table 1-2. Production Planning

Crop	Size	Food City	Whole Fds	Earth Fare	Yield Per Acre/Wk	Wkly Total/ yield/acre	Total Acres
Sugar Snaps	10#		350	10	200	2.5	2.5
Red Grape	12 pint	50		50	400	1.5	3
Cucumbers	½ bu	60	50	15	200	2.5	10
Eggplant	½ bu	25	50	30	255	1.25	2.5
Romaine	24 ct	25	50	60	800	0.3	2

(Source: Appalachian Harvest Network, 2013)



Figure 1-1. Local Food System

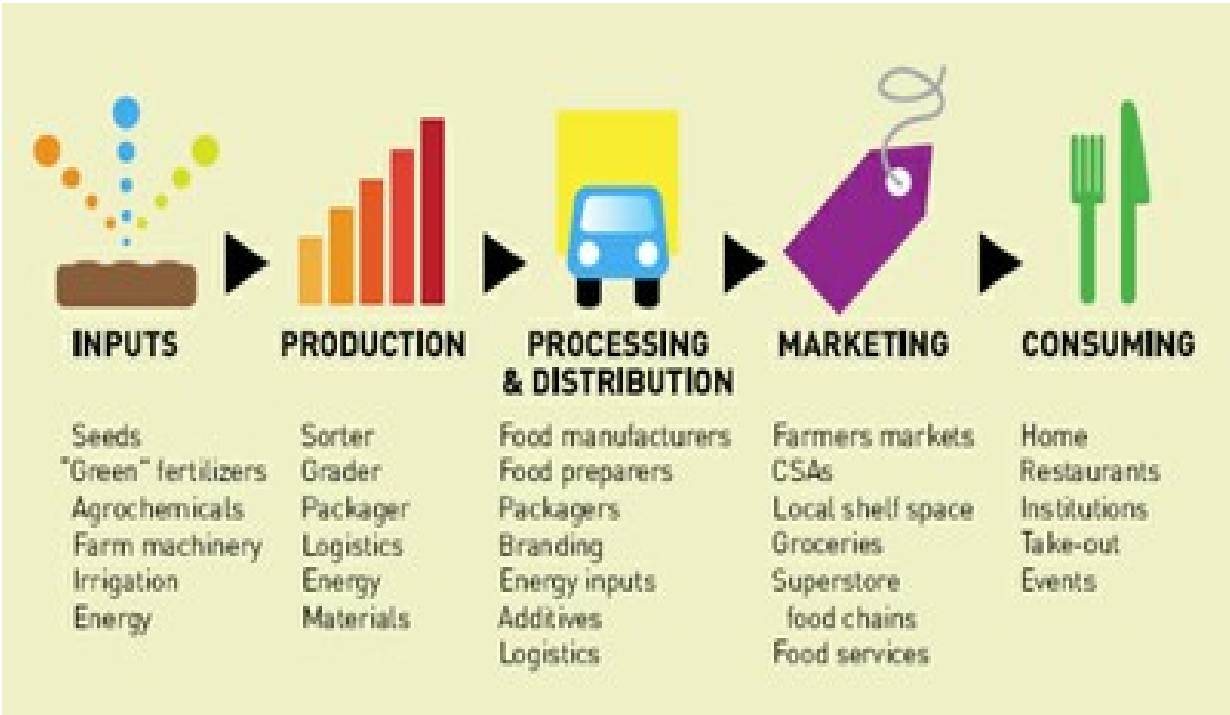


Figure 1-2. Local Food Supply Chain

## CHAPTER 3 METHODOLOGY

This paper is a cross-sectional case study of north central Florida. The study area was pre-determined by the ten counties identified in North Central Florida Food Summit. The counties include Alachua, Bradford, Columbia, Gilchrist, Levy, Marion, Suwannee, Union, Clay, and Putnam. Several methods of analysis were used in this non-experimental study to determine feasibility. Policy analysis allows for this retrospective-prospective study to see what supportive measures already exist for local food distribution. State, regional, and local policies were reviewed due to food distribution economies of scale. Interviews were also conducted to obtain a human element to the current agricultural landscape. Market analysis will reveal what sort of potential the study area has to support a local distribution center in the future. Site selection for a distribution center through GIS analysis was performed last to incorporate useful information from the aforementioned analyses. Figure 3-1 provides an illustration of the study's workflow.

### **Market Feasibility**

Defining the need for a new business is necessary for the success and longevity of the firm. The distribution center model may vary, but it should be treated like a business to determine if the opportunity is possible, practical, and viable. The model can range from retail oriented to non-profit, but a feasibility assessment is still necessary before starting a new company. Two major considerations reflecting supply and demand need to be included in the feasibility guidelines. First, marketing firm considerations need to be handled to understand supply inputs and infrastructure. The organization must evaluate A. situation and competition B. source of raw product C. assembly and

distribution D. facility requirements E. capital F. labor supply. The second consideration is product sales. Guidelines require the evaluation of A. competing markets B. type of product C. market outlets D. sales plan and E. transportation (Hoagland & Williamson, 2000). For organizational purposes most of these components will be addressed in the results section as supply and demand. To determine if the cultivated land in north central Florida can feed the local population, three constants calculated by fooshed researcher, Christian Peters, from Cornell University and based on average American diets, will be divided into existing cropland. Peters conducted research on the human capacity of New York's agricultural land base based on a framework of three types of diets. Vegetarian diets needed 0.45 acres per person. The average U.S. meat diet required 1.06 acres per person. A diet high in fat and meat would require 2.13 acres per person (2006). The three constants will be divided into existing cropland to determine the number of people that can be fed. The result will also be converted to percentage of the existing population of the study area.

### **Policy Analysis**

A local food distribution center may be supported by the results of a feasibility assessment, but local policy must explicitly allow for its development. The community can be in support of such a proposal, but local policy may be outdated and not encompass local food systems planning. A policy analysis was conducted to find what tools were available to the ten county study area to pursue the development of local food distribution infrastructure. The documents looked at were Florida Food Safety and Food Defense Advisory Council Report, North Central Florida Strategic Policy Plan, and comprehensive plans of all ten counties. A word search was performed in the

comprehensive plans to find references to local food and local food infrastructure.

Specific words searched were:

- Food
- Local food
- Food system
- Distribution
- Agricultural distribution
- Agricultural infrastructure
- Agricultural warehouse

Alachua County's plan was the only the document where these words were found. Due to the lack of language pertaining to this research topic, the other nine county comprehensive plans and land use codes were eliminated. GIS site analysis also narrowed all potential distribution locations to Alachua County reinforcing the focus on this county.

### **Interviews**

To help inform both the feasibility assessment and recommendations, interviews are conducted with people that possess expertise in different areas of the local food supply chain. A list of interviewees was developed based on their role in the local food system. Represented in the interviews are professionals involved in producing, distributing, and retailing local foods. Due to availability and work schedules, interviews were conducted throughout periods of other research analyses. Most participants are from north central Florida, but two are from other areas. The interviews are a way to understand how other regions have been successful with their development plan. It also sheds light on the barriers and facilitators of a local food distribution center from different perspectives. Each interview includes a general background of the interviewees' involvement in the local food supply chain. Additional questions are



tailored to their expertise to obtain the most useful information. These unique perspectives may identify topics that this research needs to explore further. Their first hand knowledge can also influence the direction of feasibility study. Types of questions asked were:

1. How can a local food distribution center reduce some of the costs incurred in the food supply chain?
2. Do you think north central Florida has the capacity to provide the local population with the majority of its food?
3. What barriers exist that prevent access to other marketing channels?
4. Do you believe a local food intermediary that aggregates and distributes your product to small chains, independent grocery stores, and cooperatives help facilitate access?

### **Geographic Information Systems (GIS) as a tool in site selection**

GIS has proved to be a valuable tool for professional planners to solve and analyze projects through mapping. The precursor to GIS was a manual method of overlaying a region's geographical areas to identify suitability for development and conservation. This practice became known as the "McHarg's Method" crediting Ian McHarg, the innovative planner and landscape architect that revolutionized the field in the 1960s with his approach to sustainable development (URISA, 2012). Another method to automatic mapping was the preparation of the Atlas of the British Flora, which "employed a modified punch card tabulator to produce maps on pre-printed paper from cards on which has been punched the grid reference of recorded occurrences" (Perring & Walters, 1962).

The 1970s brought the advent of the evolved computer and mapping systems became tools for government organizations like the US Geological Survey and the US Bureau of Census. Aggregated data was eventually made available to the public

domain. The commercial sector found its GIS champion in Environmental Systems Research Institute (ESRI), originally a non-profit it provided environment consultancy. In the late 70s it developed a vector-based system, the Planning Information Overlay System (PIOS) and changed to a with-profit enterprise. The firm's first state-wide mapping design was for the client, Maryland Automatic Geographic Information. ESRI has become one of the most successful mapping software companies due to its close relationships with users in education and government.

The origin of GIS and its evolution was originally a need to build a suitability analysis map for environmental purposes. Ian McHarg and ESRI both began their careers in GIS by "layering" different attributes to create a suitability map. Suitability modeling is an application that allows planners to determine the appropriateness of a given area for a particular use. This method will be used for site analysis of a distribution center in north central Florida. The result will provide the physical representation component of the visioning process.

The first step in providing a physical representation of the local food system is to build an inventory of all food related land uses and businesses. This inventory has to be assembled from several locations because the local foodshed has so many components. Farms and agricultural land use vectors were selected from the Florida Department of Revenue's parcel data. Raster data was all used from digital imagery captured by the National Agricultural Statistics Service, (<http://www.nass.usda.gov/>). Grocery stores, processing facilities, and distribution centers were obtained from the ESRI Business Analyst dataset. Each business is accompanied by a six digit NAICS code that identifies what type of company it is. The facility should be centrally located in

the foodshed to service producers and retailers. The central feature tool was used for both producers and retailers to identify the most centrally located feature in the feature class. The median tool was used as another method of finding a center location of the two feature classes based on geographical center with Manhattan distance. Manhattan distance follows a grid-like pattern, mimicking city blocks. Parcel data, roads, and soils for all ten counties were gathered from the Florida Geographic Data Library (FGDL) website (<http://www.fgdl.org/metadataexplorer/explorer.jsp>). Food retailer locations were gathered from the Delhaize Group. Farmers markets and existing distributors were queried on the internet and then geocoded. Additional data for Alachua County came from the growth management ([http://growth-management.alachuacounty.us/gis\\_services/gis\\_data/index.php](http://growth-management.alachuacounty.us/gis_services/gis_data/index.php)).

An intersect was also performed to find parcels that were suitable based on certain requirements. Requirements included within 1 mile of major roads, more than half a mile away from schools, be in the correct zoning district, out of a flood zone, and not ideal for farmland. To narrow down the selection further, the parcel had to intersect land that was zoned warehouse and distribution in the Alachua County future land use map. Finding a location that supports the long-range planning goals of Alachua County will help get the project approved.

All six potential locations will be input into a network that was built with road attribute data in the study area. The ArcGIS Network Analyst tools provides network-based spatial analysis, such as routing, fleet routing, travel directions, closest facility, service area, and location-allocation (<http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//00470000005r000000>).

Major roads data from FGDL.org provided distance with start and end point attributes. Data from the Florida Department of Transportation was obtained to input speed limits (<http://www.dot.state.fl.us/planning/statistics/gis/roaddata>). To build a useful network, a simple equation was created to determine time. The network takes the equation shown below and incorporates it into functions like location-allocation.

$$([\text{Length}] / [\text{Speed}]) \times 60$$

The location-allocation function was used to find a facility that maximized coverage of supply locations despite transportation costs of time and distance.

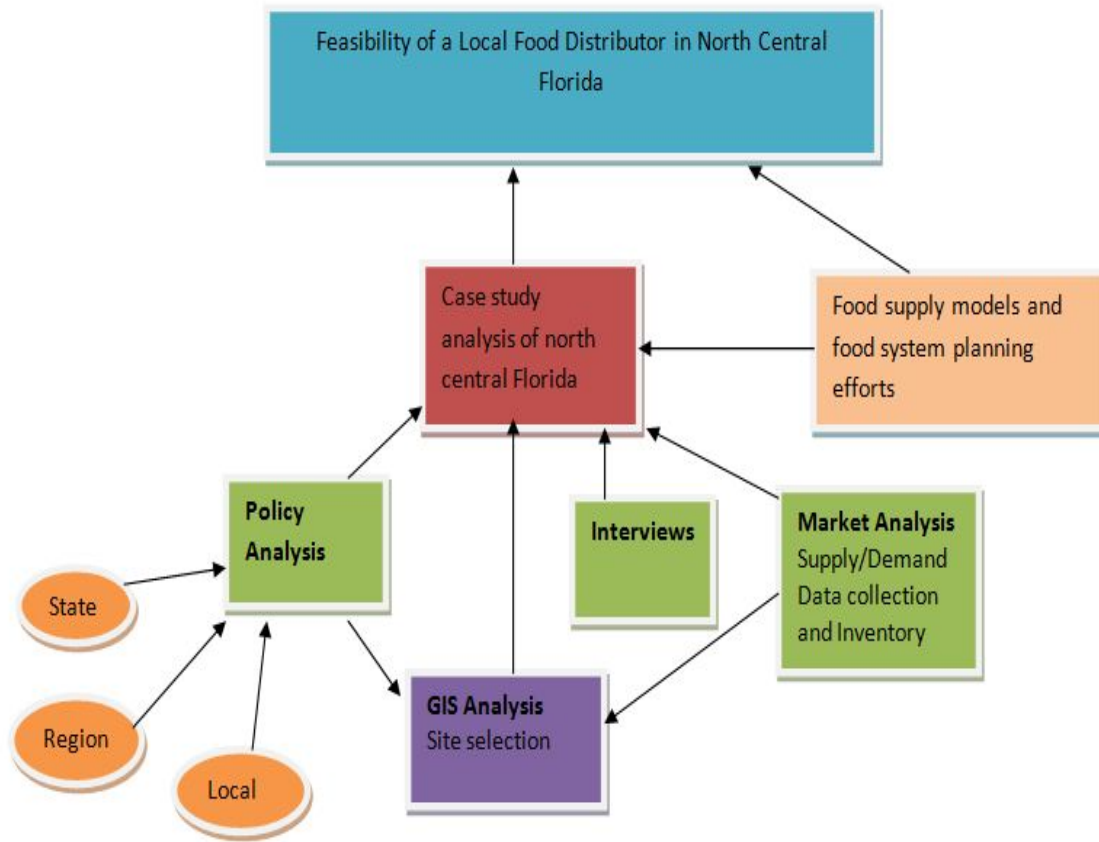


Figure 3-1. Methodology Workflow

## CHAPTER 4 RESULTS

### Market Analysis

#### Supply

Alachua County is the center of the study area not only geographically, but economically and in density. Alachua County encompasses 965 square miles out of the 7412 square miles of the study area. The U.S. Census documented 249,365 people in Alachua County in 2011. Marion County has the largest land mass with 1,584 square acres. It also has the largest population of 332,529. Marion County is primarily rural and less dense than Alachua County with 209 people per sq mile compared to 282.7. There is large disparity between population amounts among the counties. Alachua County's population is more than 16 times that of Union County. Although Union County has the smallest population at 15,388 it is not the poorest. 24 percent of Putnam's population of 74,041 is below the poverty level. The median household income is only \$34,174 (US Census, 2012)

According the North Florida Regional Chamber of Commerce, "North Central Florida is mainly sunny year 'round. Temperature highs range from 90° to 105° in the summer and from 50° to 70° in the winter. Extreme highs and lows do fall outside these ranges, but on rare occasions only. On average, there are many rainy days throughout the year in North Central Florida, with some thunderstorms rising to severe levels" (NCF CoC, 2012). This type of climate allows agriculture to take advantage of long growing seasons due to winter warmth, supplying not only citrus, but also winter vegetables like cabbage, carrots, beets, and radishes.

There is a significant amount of land in agricultural use in the research area. The number of farms in each county varies with Clay County having the least at 275. 15.55 percent of the land in the farms is actually cropland. As expected, Marion County has the most farms at 3,496. 22.48 percent of the land in the farms is cropland. There are 362,729 acres in cropland in the entire research area. Other farmland uses that were excluded because of the nature of this research are woodland and pasture. The agriculture census includes these land uses in total farm acres. The majority of farms in the research area are between 10-49 acres. Another common characteristic is the value of farm sales. The majority of farms by sales of value is less than \$1,000. The top crop item among all counties is forage – land used for all hay and haylage, grass silage, and greenchop. These types of forage are used for animal feed. The largest quantity of crop production in the research area is not even grown for human consumption. Other top crop items included peanuts, corn, and potatoes (AgCensus, 2007). These traditional crops are typical of conventional farming. Despite the growing industrial agribusiness Census data shows that most farms in the research area are family owned and relatively small.

The 2007 census of Agriculture reported that Alachua County made \$65,039,000 in crops sales. Only \$670,000 was in direct farm sales. Direct farm sales are straight to consumer sales through farmers markets, individual purchases, or community supported agriculture (CSA) shares. Alachua County has a strong farmers market following so the direct farms sales may not be representative of the region. Suwannee County is traditionally a conservative agricultural community. The county made

\$49,487,000 in crop sales in 2007. Only \$122,000 was in direct sales. There are a total of 48 farms within the region that participate in CSAs (ERS, 2012).

According to the USDA's Environment Atlas there are no food hubs in the research area. There are seven food distribution facilities located in the area. They range from large companies like Sysco to large family owned food service distributors like Gordon Food Service. There are other distributors mainly in the Orlando and Jacksonville area that service some part of the research area, but are not physically located within the boundary. There are approximately 34 food retailers that have been identified as potential markets for a local food distributor. They are mostly independent grocery stores or small regional food retailer chains. The market selection does not include schools, hospitals, or jails.

## **Demand**

The ten county study area in north central Florida has a population of 1,058,565. It has been verified that 95% of the food consumed in Alachua County is imported from outside the county and it is probable that this is the same for the other counties. Food expenditures are estimated at \$4.2 billion (Leitner & Brown, 2012). Despite importing almost all our food from other areas, people in north central Florida would prefer to eat local, but cited unavailability or limited selection of local food in their area as a significant barrier (Hodges, 2012).

Based on our current cropland and local population, it was determined that 32% of North Central Floridians on an average U.S. meat diet could be fed. If everyone was on a vegetarian diet, 76% of the population, or 806,064 people could be fed. If everyone was on high fat, high meat diet 16% of the population, or 170,295 people could be fed.



The acres per person were taken from a study done by Cornell researcher, Christian Peters, and detailed in the methods sections. Larger acres are necessary for higher meat diets because it requires more land to grow livestock feed requirements. The results may be deflated because diet acreage constants were developed for New York's land capacity. North Central Florida's land is less fertile, but the climate allows for a longer growing season enabling the area to grow more food

## **Policy**

### **Food Safety Requirements for Permitting Small Farms Report**

The Small Farms Report is a document to the Florida Commissioner of Agriculture at the request of the Florida legislature. It was prepared by the Florida Food Safety and Food Defense Advisory Council. The existence of the Advisory Council is mandatory under Florida Statutes 500.033. The statute states:

“There is created the Florida Food Safety and Food Defense Advisory Council for the purpose of serving as a forum for presenting, investigating, and evaluating issues of current importance to the assurance of a safe and secure food supply to the citizens of Florida” ( 2010).

The contents of the report is now law, but it can certainly influence the Advisory Council and the Commissioner of Agriculture, to put forth programmatic efforts that will help reduce costs for small farmers. The report acknowledges that Florida's climate and geography makes it advantageous to research and invest in local food production. The report also acknowledges that certain regulations may be prohibiting small farmers from accessing local markets. The Subcommittee made certain recommendations that are similar in nature to the Alachua County open space community workshops. The farmer should not be defined by size of his/her farm, but rather by the means by which he or she markets to the end consumer. This definition suggests that a small farmer does not

operate by the amount of gross income but rather by what distribution chain and transactions they want to participate in. This definition reconceptualizes what it means to be a small producer. Being a small producer is a conscious decision to market directly to the consumer through direct sales or a local food distributor.

The subcommittee realizes that regulations are not a one size fits all solution for agricultural producers. By removing specific permitted facility requirements, the farmer is left with more flexibility for fixed cost structure. Distribution centers that are doing the packaging and processing work would benefit from relaxing certain regulations as well. According to the subcommittee exemption from FDACS permitting should be feasible if proper labeling reflects the exemption and the consumer is made aware.

### **North Central Florida Strategic Policy Plan**

The North Central Florida Strategic Policy Plan is a document constructed by the North Florida Regional Planning Council. The Council represents regional planning efforts and tries to coordinate growth management and economic development. It is important to consider scales when planning because decision making can affect those beyond city or county lines. Natural and built systems can extend beyond or be limited to cities and counties. A local food system can have varying scales and research is still being done to determine what size foodshed is appropriate for certain population numbers. It is apparent however that region of north central Florida has much of the raw input necessary to support a regional food system. The supply of raw material is dependent upon the conservation of cropland and access to reliable market channels.

The document lacks specific language addressing food systems on a regional level. The plan comprehensively evaluates other natural systems like salt marsh

ecosystems and habitat connectivity. The language illustrates the negative impacts that occur when one part of the system is compromised due to the interdependence of the natural elements. It would be beneficial to planners if there was section that addressed the components of a local food system in the same manner.

The Economic Development section of Chapter Two broadly addresses the need for logistics and distribution industries in rural areas. Consulting firm Enterprise Florida worked with north central Florida in a series of workshops to identify target industries for the creation of catalyst projects that hope to increase economic development. Logistics and Distribution industry in Alachua County was identified as gaining position while also growing nationally. It is considered an industry that fills economic gaps and is a regional metro target. There are also stakeholders present to support the industry. This consulting process could be applied to logistics of a specific sector to research the economic opportunities in local food infrastructure. This is a different approach of the visioning process compared to the community workshops that were held in Gainesville to make open space and urban agriculture amendments to the ULDC and Comprehensive Plans. The Regional Council already has a priority of improving rural economies and sought the expertise of professionals for consultation. This can be an effective tool for s because workshops results and action plans are backed by an authority on the matter. This can be useful for more complicated and involved issues like economic development.

## **Alachua County, Florida Policies**

### **Alachua County Comprehensive Plan**

The Alachua County Comprehensive plan was adopted in April, 2011 and offers several opportunities to facilitate a local food system in the county. The Future Land Use Element contains most of the language dedicated to local foods. Policy 6.1.4 in the Rural and Agricultural Policies specifically states:

“The County shall support the development of markets and programs that promote the sale of locally produced agricultural goods, including but not limited to farmers markets, community gardens, farm to institution programs, and agritourism opportunities. The County shall partner with local community groups and organizations and other local governments to pursue funding sources for the development of a sustainable local food system” (2011, 107).

This policy addresses possible funding partnerships to open direct to consumer marketing channels.

The Energy Element addresses more of the physical representation of a viable, foodshed in the region. The justification for local food production is energy efficiency and maximizing local resources. A viable local food system inherently uses less fossil fuels because of reduction in transportation. It also is low impact because it supports best management practices like crop rotation and natural fertilizers. Policy 6.1.2 specifically pertains to this research and strengthens the foundation for a local food distribution center. It states:

“Work with local government, institutions, and community groups within in the defined foodshed area to determine processing facilities and other food-related infrastructure needed “to process locally grown foods” (422).

This policy objective provides a basis for building infrastructure that will be inclusive and support a circular food system within Alachua and the greater north central Florida area.

In addition to addressing marketing channels and infrastructure needs, the Energy Element chapter also looks to educate growers in the use of sustainable agricultural practices. Many farmers do not have the business background or resources to know how to transition their conventional farming methods to more sustainable, low impact practices that not only help the environment, but are in high demand by consumers seeking organic, local food. The pursuit of assistance through cost-share programs and best management practices programs ultimately help producers gain access to markets that they were previously denied because of financial issues and liability coverage. More farmers in the area cultivating crops that are ideal products for the local, organic market justifies the need for an intermediary to facilitate aggregation and distribution.

The comprehensive plan has a holistic grasp on what it takes to develop a healthy, local food system. Providing locally sourced food to the Urban Cluster breaks down the divide between rural and urban. Communities will start to build relationships with their farmers and their food because they are personally involved in the local food supply chain. The plan provides a host of opportunities for s to initiate forward thinking action plans to bolster the local food system. The Comprehensive Plan and the ULDC are similar in regards to the emphasis on community gardens and farmers markets more so than local food hubs and distribution warehouses. This makes sense because introducing these policies tends to be less problematic and more comfortable for people to embrace. Proposing a larger operation like a distribution facility can make people more apprehensive because of the nature and intensity of the land use.

## **Alachua County Unified Land Use Code**

The Alachua County Unified Land Use Code (ULDC) essentially deals with zoning issues within the county. Its purpose is to “promote the public health, safety and general welfare of the residents and property owners of Alachua County” (2005, 400-1). This only includes unincorporated areas of Alachua County. Gainesville, Florida has its own planning documents. ULDC was written in 2005 and last amended October 9, 2012.

Agricultural warehousing or distribution is clearly defined in Chapter 410 codes. Article 5 in Chapter 403 Zoning Districts, identifies wholesale and warehousing permitting in Wholesale/Warehousing (BW), Light industrial (ML) and Industrial Services (MS) (MP). These districts detailed in the comprehensive plan and designated in the Future Land Use map. Agricultural warehousing and distributing is considered an industrial use, but it does not fall within the more selective categories that require more specific permitting. In fact, Article 21 in Chapter 404 Use Regulations, expands upon the permitted areas for the distribution of agricultural related products. Bulk food products are also allowed to be distributed in Agriculture (A) and Agricultural Rural Business (A – RB) districts. These zoning categories will inform the GIS site analysis for a local food distribution center.

The zoning categories identified in the ULDC is pretty standard and traditional. It does not specifically include food infrastructure within the context of a local food system as an element in the codes. There is, however, a general principle to conserve the character of open spaces and agricultural uses. . Required open space can support the use of community gardens and urban agriculture Community gardens and Farmers market fall under agricultural and conservation uses. They are permitted with limited use

in almost all zoning districts. Required open space can support the use of community gardens and urban agriculture. There is only mention of local food systems in the landscaping section of Chapter 407. General Development Standards. One of the objectives is “promote local food systems through use of edible landscape material where appropriate” (407-33).

The codes addressing open space and urban agriculture were recently implemented after proposed amendments to the ULDC were developed through a workshop co-sponsored by Alachua county and Grow Gainesville. The draft of agricultural code amendments came from citizen input and focus groups during the workshop. The citizens of Alachua felt that there should be more opportunities to grow and handle their own food. This community input went through the planning process and is now reflected in the ULDC.

### **Interviews**

In addition to policy analysis, this research involved conducting expert interviews. It is important to include expert opinions because the feasibility of a local distribution center is not just determined by numbers and existing documents. A distribution center serves the community so it is important to capture the voice of those directly involved in the local food supply chain. Farmers, distribution managers, food retailers, and food system experts were consulted. Interviewees were asked about their role in the food supply chain, challenges to larger markets, opportunities in a local distribution center, and recommendations.

Interviews were conducted via email, on the phone, and in person, depending on the scheduling and availability. The interviews were conducted mostly with people involved in the local food system in north central Florida, but also throughout the United

States. One respondent was a farmer, two were distribution managers<sup>21</sup>, one was involved in a nonprofit, and one was university affiliated. The overall rate of people contacted that were willing to participate in this study was 85%.

General background questions were uniform in all interviews, but other questions were more tailored to the interviewee's specific role in local food and their knowledge on the matter. Three categories of interviews were established based on the main sectors of local food supply discussed throughout this study. General categories were producer, distribution, and retailer. There was also another set of interview questions for the university affiliate that had a general knowledge of the local food system as a whole.

### **Barriers**

The interviewees identified several barriers to the larger local food system and more specifically a distribution center. The absence of a distribution center was actually identified as a barrier to a viable local food system. Other obstacles were the lack of research, awareness, unified initiatives, and economic development. At the University of Florida, a sustainability expert indicated that there needs to be data collection, inventory, and foodshed analysis to justify investment in infrastructure. We have to quantitatively prove that there is existing resources to sustain the local population. Creating a viable, local food system is sometimes a catch-22 paradoxical situation where constraints to the system involves lack of infrastructure, but to create infrastructure you have to validate that there is existing proponents of a local food system.

A small farmer in Alachua County that makes less than 50,000 dollars in farm profit sales believed that the local food system cannot be at full capacity if the farmer is



perpetually burdened with other responsibilities besides farming. Due to the labor intensity of the job, the farmer cannot handle additional responsibilities of handling, processing, and delivering large volumes of produce, therefore, limiting her market access. Another issue limiting market access is regulation and certification. The farmer stated, “you need to jump through a million hoops to sell food through large outlets. Farmers markets end up being the only available and easily accessible outlet for many local growers” (E. Eckhardt, personal communication, February 1, 2013).

The barriers to existence of a distribution center generally involve capital, business assistance, and general awareness. A distribution manager from Albuquerque, New Mexico stressed that starting a distribution business is not financially easy. Many people ask her how the company found funding to start the business. She articulated that it has been extremely beneficial for the distribution center to be part of a larger local food cooperative that has found previous success. There are some years when the distribution center does not make a profit, but they have financial backing from the cooperative food retailer that supplements for any loss (M. Franklin, personal communication, January 20, 2013) .

Awareness is an issue that also inhibits the existence of a distribution center. Interviewees cited that the public is increasingly becoming supportive of a local food system, but they are unaware of the crucial link in distribution. Distribution plays more of a behind the scenes role and does not have a face that the public can associate with like farmers or the friendly, local grocery store. Without awareness, initiatives are less likely to occur. This may be a situation where government and policy can step in and use discretion because despite the lack of overwhelming public support for this part of

local food supply chain it is definitely necessary for a viability of the local food movement that has become so popular.

### **Opportunity**

The potential for a distribution center to assist in the overall viability of a local food system was posed to the interviewees. For the farmer, the center would be an opportunity to relieve much of the current burden. She believed that distribution “is a critical missing link in most local food systems. Currently, farmers are doing it all. From planting the seeds to dropping food off on door steps sometimes. If the community would provide the service of aggregating local food stuff, more farmers could focus on their job: growing food”.

According to the distribution center manager, distributors offer the opportunity to improve the livelihood of farmers. One of the best feelings is knowing that the services provided by the intermediary are helping existing farmers improve sales and encouraging more people to begin farming because they know it is viable. Improved access to local food is also evident since the inception of the facility. The service the distribution center provides goes beyond pure logistics. It is a community support system that educates and fosters agricultural entrepreneurship. It also focuses much of its effort on marketing for small farmers so they get the best price for their goods.

### **Conclusion**

North Central Florida is ideally suited for a distribution center if there is the proper governmental support or a major community actor that provides investment. Despite a climate and topography that is less suited for farming than north central Florida, Albuquerque has become a Mecca for local food aggregation and distribution. The

facility has the support of a major actor with capital in the community. A major actor has not emerged in north central Florida, but coordination between the University of Florida and local government is on the verge of asserting itself in the local food movement. According to all interviewees involved in the local food supply chain, there is no logical reason not to have a local food distributor. Due to the nature of the business, public awareness may never develop enough to make a change from the bottom up. Those in government and academic fields that realize the importance of the missing link should use their discretion to influence policy and initiatives because it is in the public interest. To overcome major barriers of conventional farming most interviewees agree that a facility may need to expand beyond the framework of a traditional distribution center.

### **Geographic Information System (GIS) Analysis**

Now that relevant policies and market factors that can affect the feasibility of a local food distributor have been analyzed, a suitability analysis will be administered. Information gathered from the interviews pertaining to distribution site characteristics also helped inform the GIS analysis. Using GIS as a tool can help determine if there are ideal locations for a distribution center based on certain requirements.

The central feature and median center tools were used to find an approximate location for the facility. The central feature identifies the most centrally located feature in a point, line or polygon feature class. The median center identifies the location that minimizes overall Euclidean distance to the features in a dataset. Both tools were run once for the producer input data and the grocery store data to produce four locations. Figure 4-1 shows the scale of the local food supply chain and where local produce will be transported from in the research area. Since the facility would have a fleet that made frequent trips to small growers to pick up produce it was determined that the best

location approach would be to situate near the supply input. However, it was important not to be far from the market demand. A map was generated that shows all four locations are clustered in the Gainesville area (Figure 4-2). After the central and median tools were run, Alachua County was found to be the central location for all four points. An illustration of Alachua's foodscape was created in Figure 4-3.

After it was confirmed that the central location for both local food supply and demand is in the greater Gainesville area, analysis was narrowed down to specifically Alachua County. Figure 4-4 shows that the intersect of all requirements was found at the southwest corner of the 39<sup>th</sup> avenue and I-75 junction. There are several adjacent parcels in the area that would be suitable for the distribution facility. There is an old Mercedes dealership that is vacant and could provide an acceptable space for warehousing if the appropriate amenities like coolers were installed. There is also a parcel that is categorized as cropland, but is not ideal for farmland because of its soil class. Avoiding nutrient rich soils for building construction is important to preserve agricultural land use.

The two locations identified are in accordance with Alachua County's future land use allocations, but they are 10 miles north of the area identified by the central feature and median center tools. Three additional locations were chosen based on their proximity to central demand and supply points. They are also within a mile of access to major roads and are in the permitted zone of warehouses and distribution centers. The area is directly south west of the Williston exit of the I-75 interstate. The sixth and final potential location is directly west of the I-75 interstate on Newberry road. It is unused cropland that has had proposals for development such an apartment complex, but

nothing has been built. The Comprehensive Plan allows for agriculture related businesses including warehousing on agriculturally zoned parcels.

The next step in identifying one facility out the six potential locations is to build a network dataset in order to analyze transportation costs. The best location that minimizes impedances of time and distance is state parcel ID C11-000-003-6381-2. The parcel sits on 31.51 acres is valued at 755,900. The parcel is identified in Figure 4-5. An alternative site was chosen based on the parcel identified in the intersect that conforms to future land use plans. The state parcel ID is C11-003-4909-2. The physical address is 3525 NW 97<sup>th</sup> Blvd and the county's descript identifies it as automotive repair, service, and sales. It has 30,134 square feet of total living area and just value is \$1,371,800 (Figure 4-6). There are trade-offs between the two parcels that will be explored in the Discussion section.

**Limitations:** GIS is a useful tool for spatial analysis, but it is only as good as the data you input. The dataset created for the network analyst was sufficient to solve the location-allocation function, but it could have been more accurate given more attributes. Unfortunately, there was not enough time or resources to create an extensive network dataset of the ten county research area. The network could be enhanced by additional attributes like road capacity, elevation, access, one-ways, etc. This would give a truer representation of travel costs.



## Small Producers & Independent Food Outlets

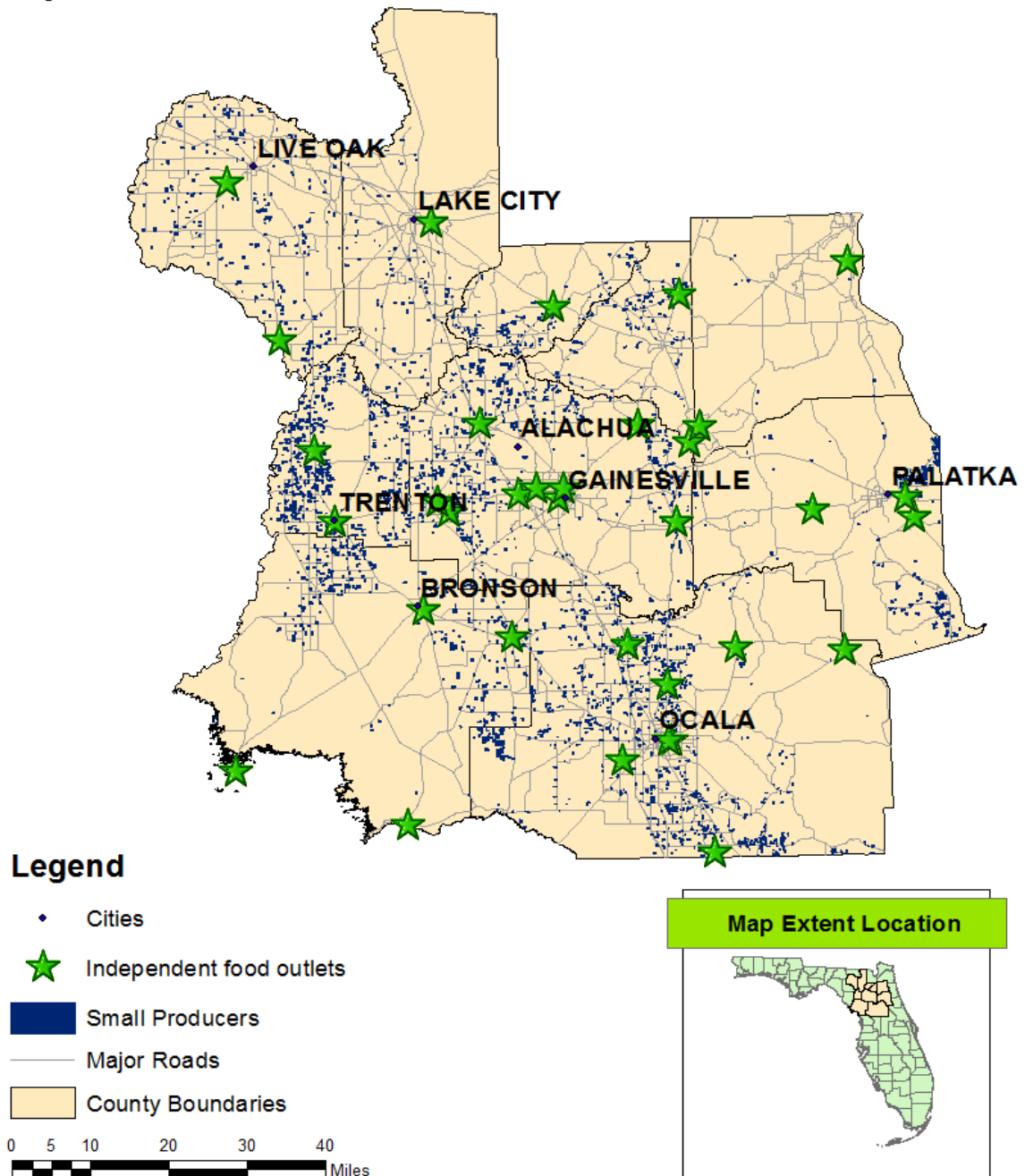


Figure 4-1. Producers and Retailers

# Potential Distribution Locations

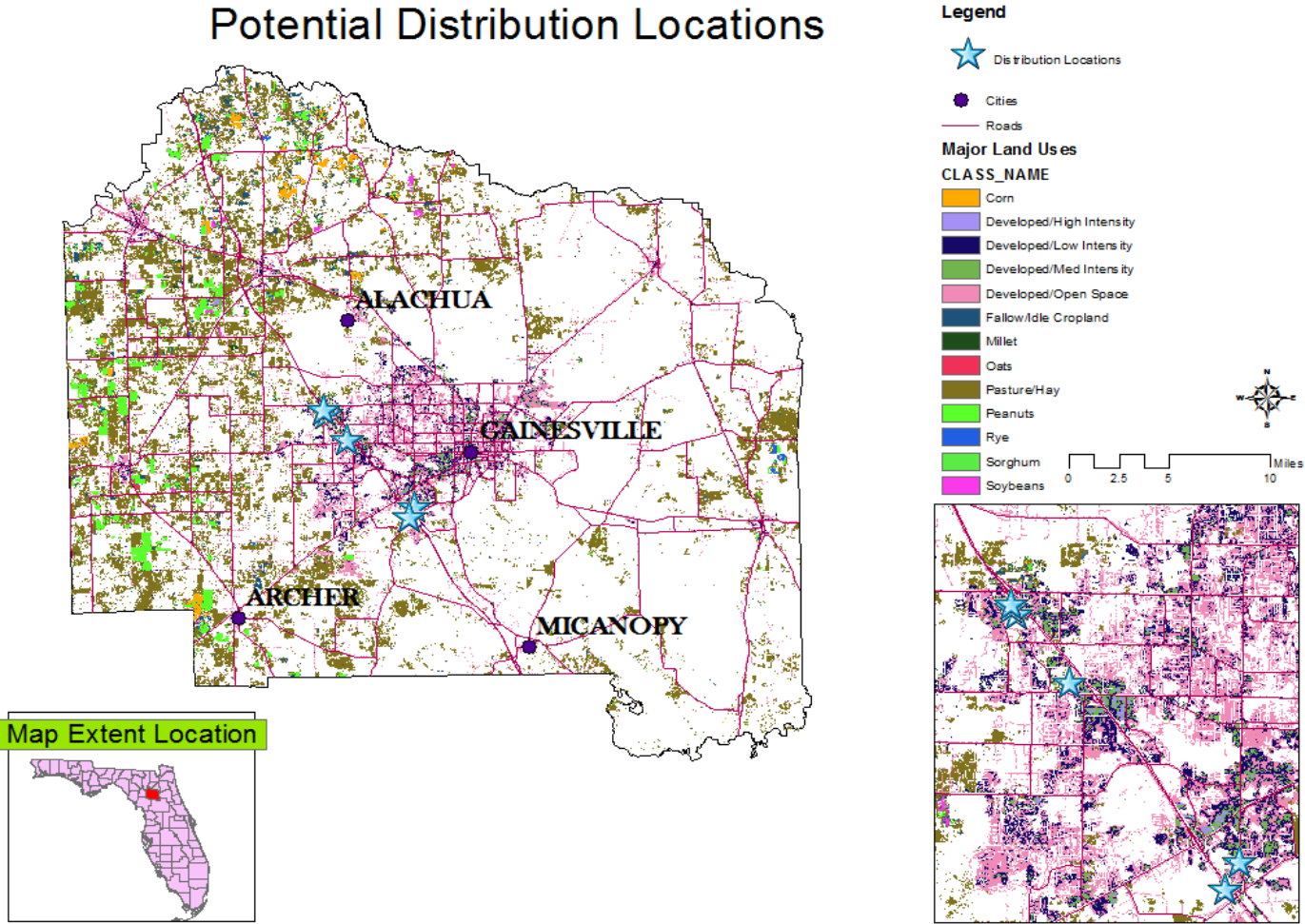


Figure 4-2. Potential Distribution Locations

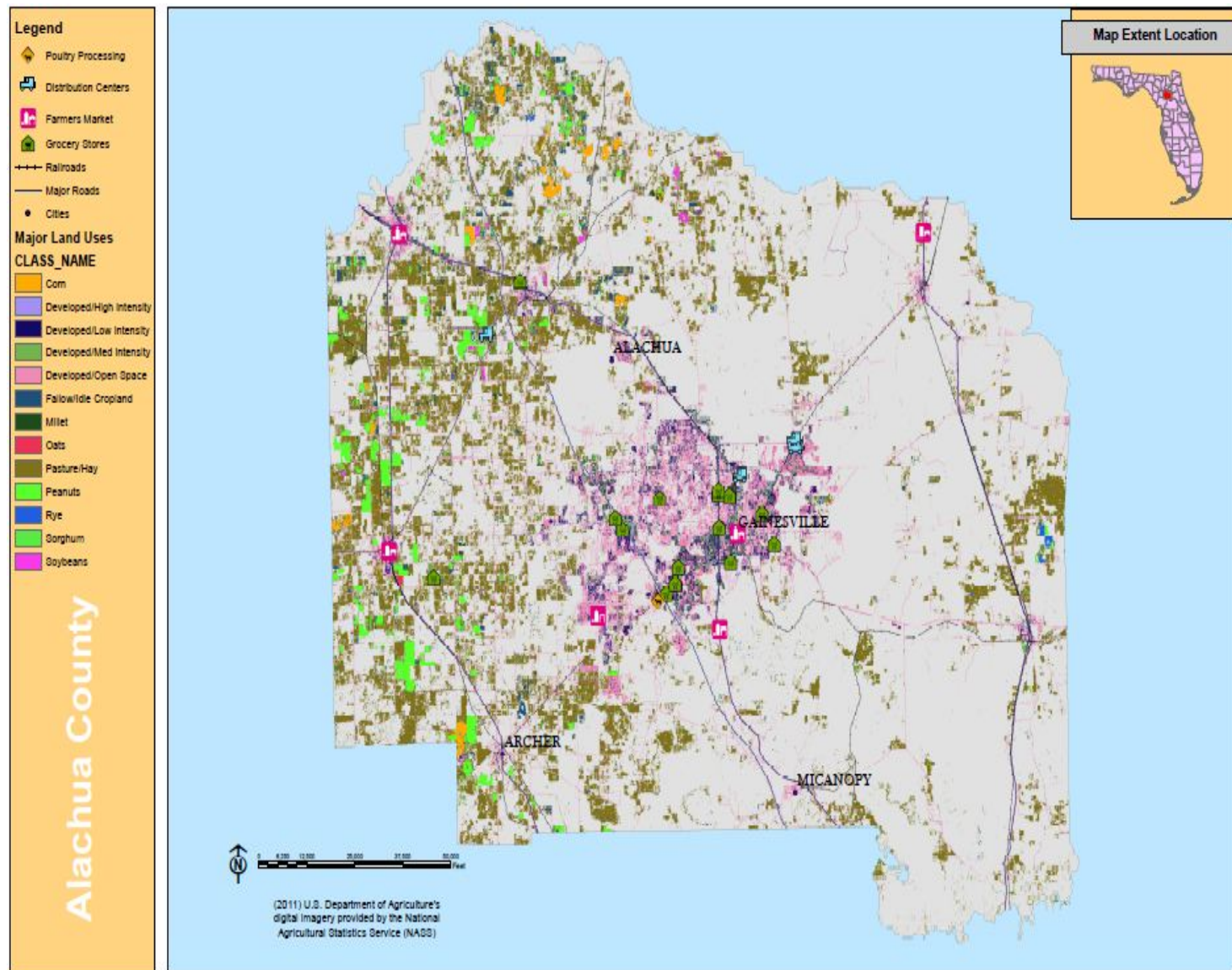


Figure 4-3. Alachua County Foodscape



# Suitability Analysis

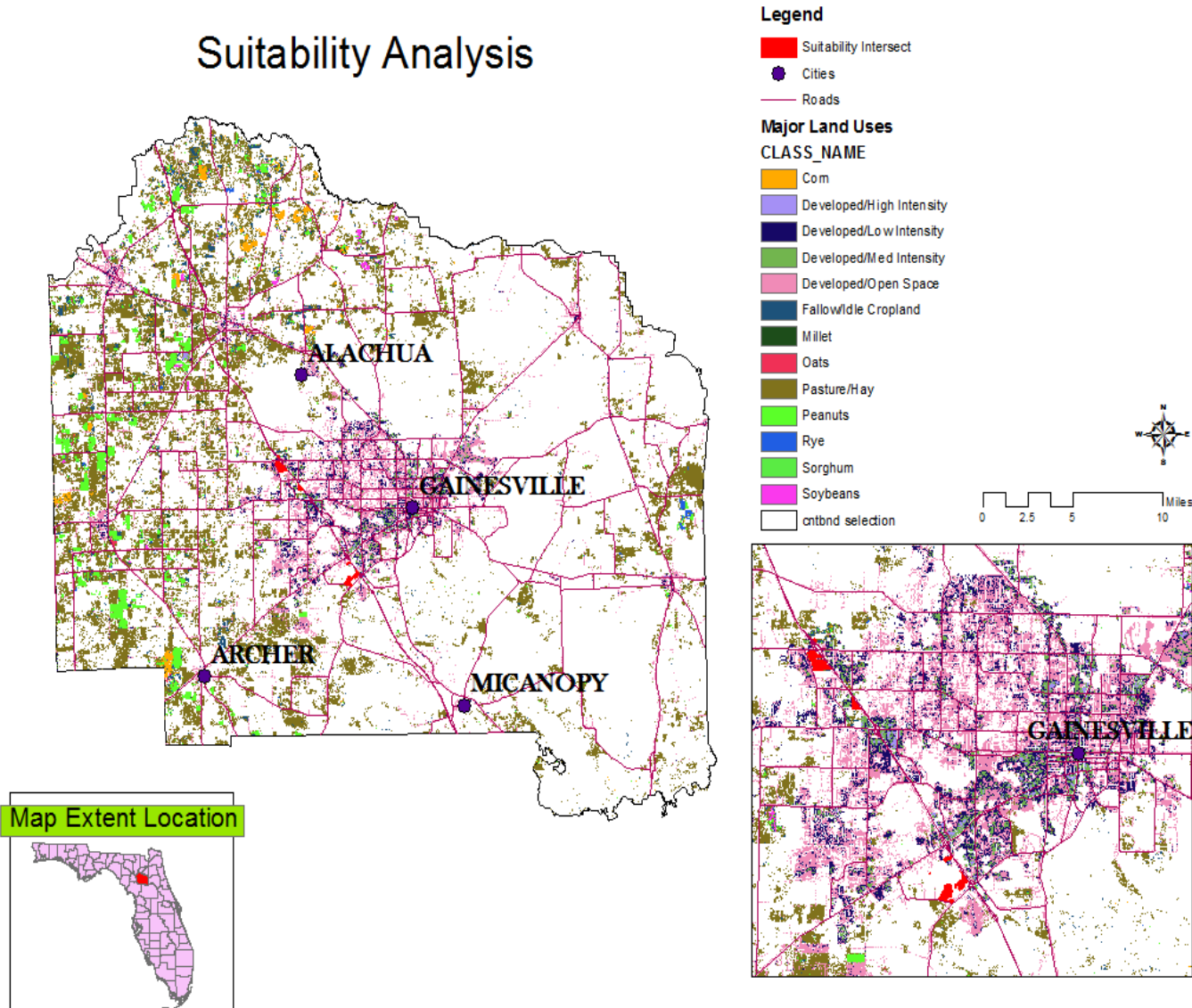


Figure 4-4. Suitability Intersect

## NETWORK ANALYST DISTRIBUTION SITE SELECTION

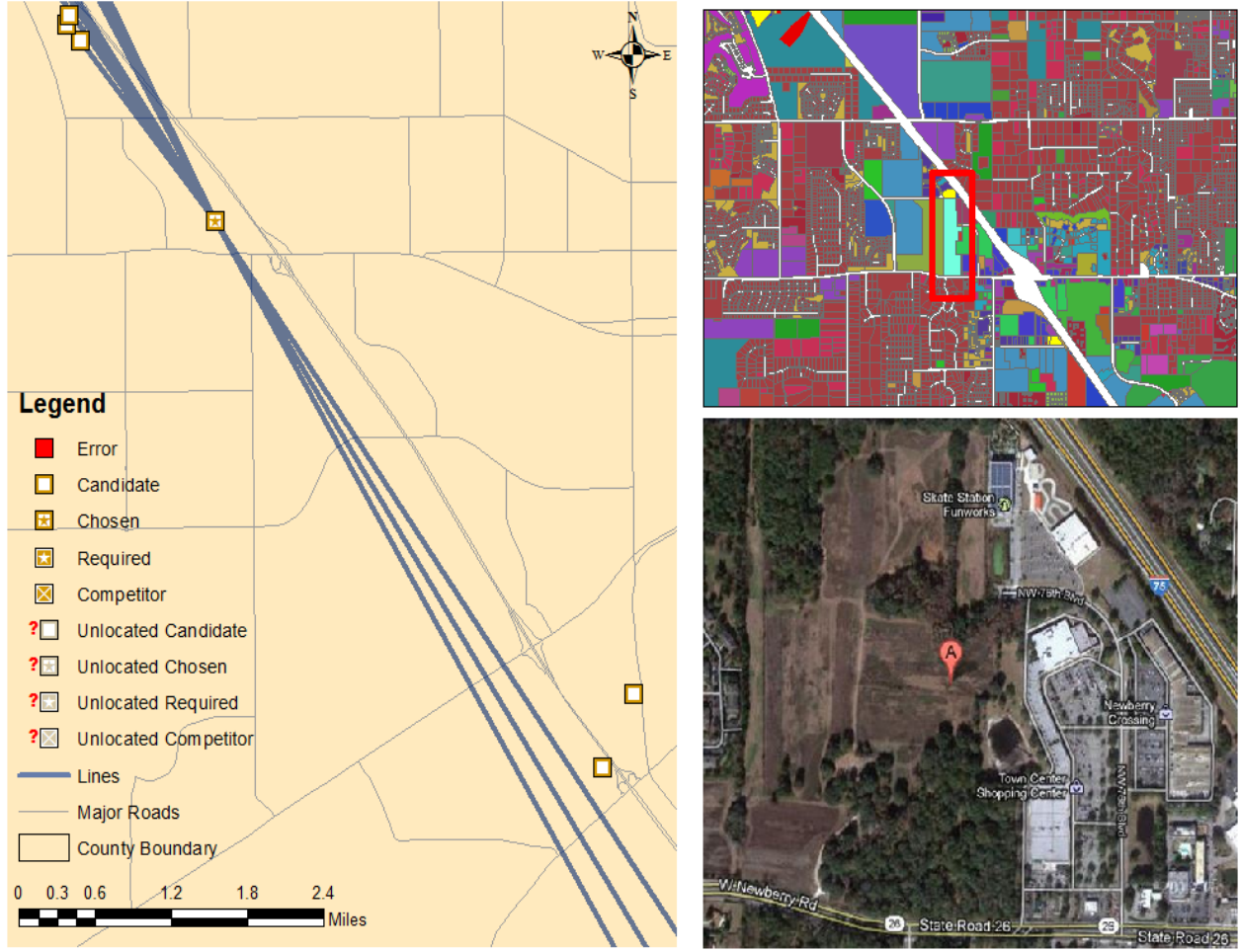


Figure 4-5. Network Analyst – Location Allocation Site Selection

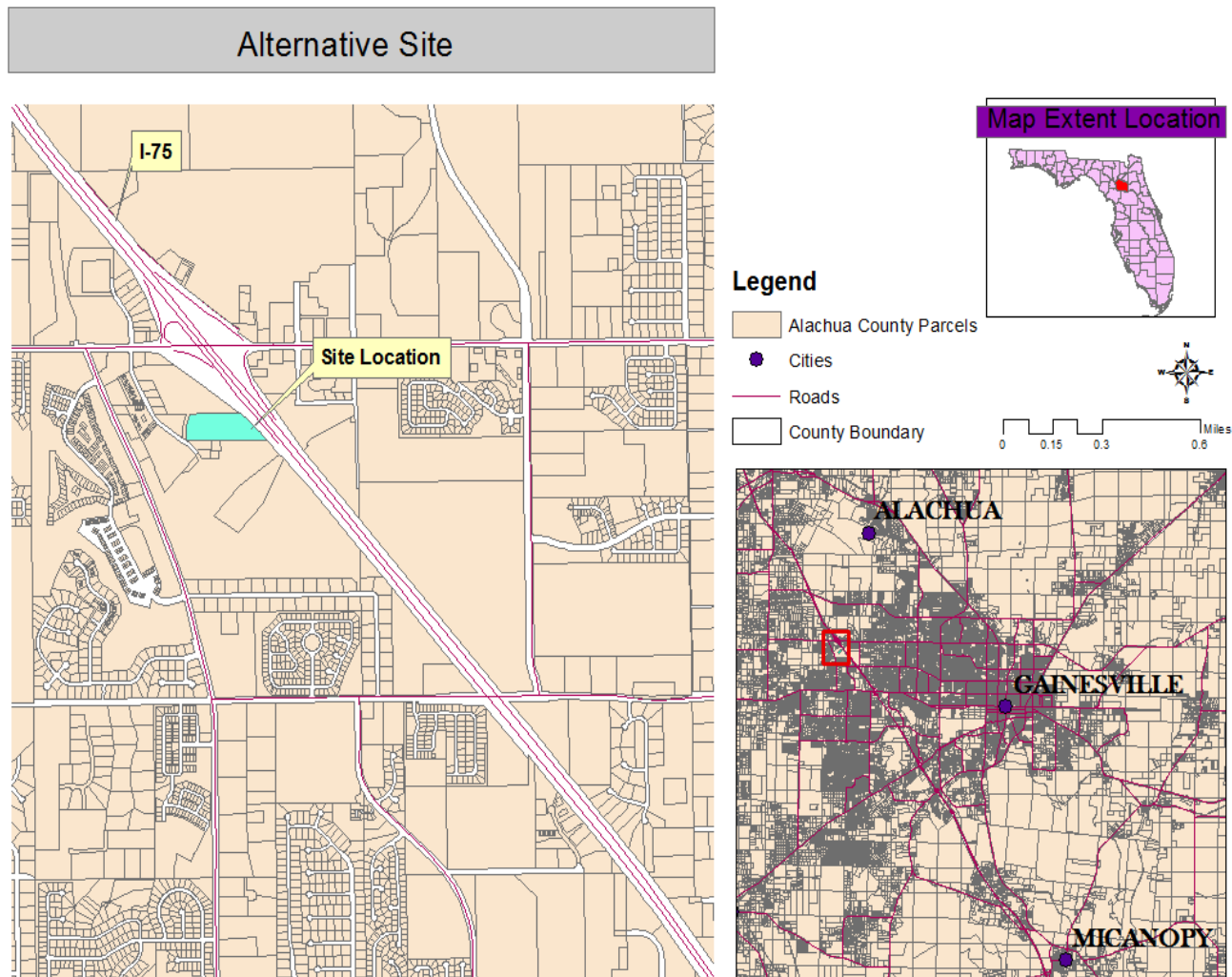


Figure 4-6. Alternative Site

## CHAPTER 5 DISCUSSION

The intent of this paper was to assess whether it was feasible for the region of the north central Florida to support a key production component of a local food supply system. The feasibility study involved a market, policy, and GIS analysis. The regional market must have the supply and demand capacity to support a local food system. Regional and local policies should address food infrastructure in its zoning, economic, or energy elements. The physical area must provide a space that is suitable for such an operation to function cost-effectively. This analysis is framed within a context of the planning profession and the role of the planner to facilitate a viable local food system.

### **Feasibility**

Fulfilling the guidelines in the feasibility assessment is an important asset for decision making. The point of completing a feasibility study is to justify the cause for a local food distribution center. Providing a convincing case for this undertaking is important for planners if they are going to present such a proposal to a city commission. The study will enable planners to realistically look at both the positive and negative aspects of the opportunity. The public and city officials can then take the evidence, compare it to the community's guiding principles, and determine if it is the best interest of the community.

The local food market has a significant demand base if the produce was conveniently available and a competitive price. It is estimated that the research area's food expenditures total to approximately 4.2 billion. Yet, more than 95% of food consumed within Alachua County (and likely other counties) is imported (Leitner & Brown, 2012). Physically there are 362, 729 acres of cropland in the study area. A

significant portion of the produce harvested could be distributed to the population within the foodshed. Although it is not conclusive whether the entire population can be supported by the available farmland and farming enterprises, a steady shift towards an inclusive system is feasible. Efforts in Northeast Ohio have focused on a 25 percent shift toward fully meeting local demand for food with local production.

Recommendations from the executive summary sponsored by the Cleveland-Cuyahoga County Food Policy Coalition and Kent State University Cleveland Urban Design Collaborative stressed the, “deployment of a network of food-business incubators and “food hubs” operating in concert within a network of enterprise support” (Shuman et al., 2010). Implications of the results suggest that a more robust interpretation of a distribution center is needed. The concept of a food hub brings issues to the table that interviewees found lacking in the study area. Interviews thought there was potential for a distribution center based on a lot of ifs occurring first. Farmers in the area still need be educated and assisted with transitioning away from conventional farming practices. They also need the business development assistance to realize how to access larger markets. A local food hub takes the role of distributor and expands upon it to become a support system and market facilitator for small producers. It also is a center for burgeoning agricultural entrepreneurship. This may sound like a tall order, but communities are bannin together and creating these hubs across the U.S. The Gainesville area has just recently seen the fruition of a technology innovation hub that follows similar concepts of a food hub. The vision of Innovation Square at the University of Florida believes that “the ability to take innovative ideas from mind to market becomes exponential in the right environment” (Innovation Square, 2012). The square is

creating a self-sustaining eco-system that is highly effective by aggregating great minds to an area that has a strong history of research. You can take the concept of redefining technology innovation and community and apply it to the local food system and supply chain. The role of a local food hub would redefine innovation and community much like innovation square is attempting to do.

GIS analysis provides evidence that there is a physical area that is suitable to locate a distribution facility in Alachua County. The location allocation tool within ESRI's Network Analyst is an excellent way to validate location choice. The network runs computerized algorithms that make the results accurate and defensible. The site chosen to minimize time and distance from producers is an empty lot that used to be a produce stand. The land also offers the space and soil to have a large community garden for personal consumption or a small farm to contribute to local distribution. The Local Food Hub in Charlottesville, Virginia has a small farm cultivated by staff and volunteers on their property that is processed, packaged, and stored on site (NGFN, 2012). The site, however, does not provide existing infrastructure, increasing the price of the already expensive listing price. There is no living space currently, but this provides the opportunity to construct a building tailored to aggregation and distribution needs. The alternative site is appealing because it conforms to future land use maps of Alachua County. Staying consistent with planned zoning districts, increases the likelihood of project approval. The site already has an auto repair facility located on it that could be retrofitted for distribution purposes. There are trade-offs to locating at either location, but both could serve the purpose for a distribution warehouse facility.

Expanding the concept of the distribution center into a food hub like the results suggested, would change the requirements for site selection. Unlike a warehouse a food hub should be located in more a mixed-used area with heavier food traffic. A food hub shouldn't be located in a cluster of warehousing district. A food hub requires multi-functional facilities with room for gardening, farmers market, and food aggregation. These requirements would make site selection one more suitable for the location of a food hub. The site has 30.1 acres of crop soil 1 that is suitable for cultivating. It may also be useful to aggregate near other like-minded organizations in the area that are working towards similar goals of increasing local food production and access. There is already a cooperative grocery store, small farmers market, and a non-profit food incubator on South Main Street in Gainesville. This area is zoned as a city central district and is currently experiencing revitalization efforts from the city. The Downtown Gainesville Redevelopment Plan identifies the area as transitional industrial. The vision for the area is to redevelop it into a more intense, mixed use business commercial district (Ivey, Harris, & Walls, 2001). This location would be ideal for a food hub because it still possesses some of that traditional warehouse character, but is transitioning to more mixed-use. It is also close to the core downtown, which receives a lot of foot traffic. It would also be advantageous to locate a food hub in this area because of the relatively inexpensive real estate compared to site one. Most parcels' just value is almost 50% less expensive than the parcel identified in site one.

### **Existing Policy Conditions**

The small farms report presented by the Florida Food Safety and Food Defense Advisory Council is the largest scale of recommendation policies analyzed. The report

addresses the regulations related to infrastructure, sanitation, and health that inhibit small farmers state-wide, due to the cost burden. The report has an excellent grasp on the concept that due to economies of scale, there should not be a “one size fits all” regulations on food commodities. The enlightened report admits that Florida is behind in providing the necessary support for small growers. By ignoring the issues of small farmers, state policies are essentially stunting the economic growth of the local food system sector. Lawfully, states adhere to federal standards that require at minimum, yearly inspections of facilities and farms. Many states, like Florida, have additional regulations that involve more frequent and stricter inspections. States like New York and Washington have provided small farms with regulation exemptions as long as the product is properly labeled to indicate so. A local comprehensive plan can be a leading policy tool to enhance local food supply chain, but being an issue that can possibly affect the health and safety of thousands of Floridians, regulations are going to be an obstacle. While it is the responsibility of the state of Florida to protect the health and safety of its citizens, it is encouraging to see that Florida officials are recognizing that there is a growing public interest in sustainable agriculture, local food production, and distribution.

Fewer regulations can be an opportunity for planners to implement costly community projects. A planning project seems more rational when state statutes do not create barriers to its success. Efforts to build a shorter distribution chain create unique relationships between growers and the community. The community’s well-being is improved by access to healthy, local food. Growers are also a part of the community and their livelihood improves with greater market access. Redefining the producer as a



businessperson that wants to specifically serve the community provides a local food system framework to build upon. The Subcommittee recognizes that this is a special part of the community that needs assistance if we are going to move towards a more sustainable food system. Planners can use the framework to explore options that continue to assist reducing the cost to farmers.

On a regional policy scale, the North Central Florida Strategic Policy Plan addresses local food infrastructure, even less than Alachua County. The Plan has failed to acknowledge the environmental and economic benefits of a local food system. The other strategies within the plan do an excellent job of understanding the interdependence of ecosystem habitats and the life they support. Emphasis on protecting the seagrass marshes of the Big Bend Region because of the aquaculture business and sensitive ecosystem show the plan is attune to the economic and environmental issues of the region. Extensive research and consulting has also gone into rural development to determine the best industries suited for the area. One of the target industries for rural areas is logistics and distribution (2011, XXI). The recommendation does not provided specifics about the type of distribution, although an agricultural warehouse would be logical in a rural area. The Council financially invested in private consulting firms to identify these industries. It is apparent that the Council is willing to invest and provide capital for opportunities in economic development. It is not surprising that there is a lack of attention to food system infrastructure despite the potential to create jobs and improve the well-being of rural communities. Overall, planners and local governments have generally had a limited interest or exposure to community food systems. Presenting concrete results from research and a feasibility

study on the viability of a local food supply chain would bring awareness to the issue and be a catalyst for an action plan

Alachua County has a Comprehensive plan that acknowledges the responsibility of the local government to foster programs and initiatives that develop a local foodshed. It is actually one of the few comprehensive plans in the South East that directly address food principles (Figure 5-1). Policy 6.2.1 in the Energy Element specifically addresses the priority to determine processing facilities and other food-related infrastructure. The language of this policy reveals several things about the County's understanding of a local food system. Alachua County realizes that there is a process that must be undertaken to have a viable system. Defining a foodshed involves collecting data, creating an inventory, researching other community programs, and evaluating the demand for local food. Knowing how well local agricultural land can support a population provides a foundation to move forward with local food planning. By addressing the need for infrastructure the government acknowledges that the defined foodshed may have the ability to feed the local population, but the system is not operating at full capacity. In order for that to occur, coordination between local government, institutions, and community groups needs to take place.

Unfortunately, the Policy 6.2.1 is the most direct reference to local production in the food supply chain. Since the amendments in 2012, the Comprehensive Plans and ULDC address local food systems mostly within the context of urban agriculture for personal consumption. Open spaces and community gardens provide direct access to healthy foods and can empower certain demographics that are at a socio-economic disadvantage. Encouraging urban agriculture can increase direct sales through farmers

markets and individual purchases. This market channel, however, is limited in its capacity to reach the average consumer. It is simply more convenient to go to a grocery store that is open regularly and provides other household items one may need to purchase. If Wal-marts and Coscos have proven anything, it is that people love convenient one-stop shopping. There is an untapped market of local food consumption that needs to be explored through intermediary assistance.

### **Planning Policy Best Practices**

The literature on local food distribution channels indicates that agricultural related organizations and agencies like the USDA have picked up on the societal and economic shift towards local food production and consumption. Due to large, conventional means of food distribution there is a missing link in local food supply chain. Without a local food intermediary a local food system cannot operate at full capacity. A recent study completed by the USDA articulates the current trends and distribution barriers that this research is trying to rectify. The report states, “despite increased production and consumer interest, locally grown food accounts for a small segment of U.S. agriculture. For local foods production to continue to grow, marketing channels and supply chain infrastructure must deepen” (Low & Vogel, 2011). So the question is how do we do that? This research asserts that the role of planner can help facilitate a local food distribution that represents the growing community interest in local food. Planners have the unique responsibility of ensuring that the public interest is incorporated into a comprehensive plan that is a “leading policy tool with legal significance” (Hodgson, 2012). The American Planning Association’s Advisory Report in 2008 “suggested that planners would be negligent if they failed to overlook [the planning profession’s] role in removing barriers that limit people’s access to healthful foods” (Raja et al., 2008). The

North Florida Regional Planning Council does not have any policies explicitly addressing food principles, but it is promising to see that Alachua County's Comprehensive plan is progressively addressing food issues.

Local food distribution policy can be included in other components besides comprehensive plans. It can be mentioned in ordinances, zoning, and other programmatic efforts. Other regions and cities across the nation have employed local food experts and stakeholders to provide recommendations to determine the best way to encourage a viable local food system. In 2009, San Francisco's mayor sought recommendations to foster ecologically responsible food and agriculture from Roots of Change, a project of the California Trust for Conservation Innovation. The first recommendation was to institutionalize food system policy and planning. The most thorough and legally binding way for a local government to promote local food system is to have a Food System Policy that is integrated into the City and County Charter, General Plan, municipal code, and other relevant planning documents. The recommendation report thought that the,

“General Plan is critical to food policy implementation because subordinate plans, projects, and planning policies must conform to the General Plan. The Food System Policy would then need to be considered by all officers, boards, commissions, and departments when conducting City and County affairs” (Roots of Change, 2009, ).

A stand alone food policy would be comprehensive in nature and dedicate significant time to addressing the local distribution component of the local food supply chain. This is important if the county is going to locate a distribution facility within its borders. It is also important because Alachua County accounts for agriculture infrastructure in its

Comprehensive Plans, but dedicates most of its food system attention to community gardening and open space.

The way in which community gardens and open space became incorporated into Alachua County's Comprehensive Plans and ULDC is the similar route that local food distribution needs to take. In order for the distribution component to become incorporated into policy, partnerships between community, government, and institutions need to occur. The APA Community-Based Food Systems Report recommends:

1. Establish a food policy council, coalition, or network of food system stakeholders.
2. Actively engage food-related nonprofit organizations in the planning development and implementation process.
3. Partner with local foundations to support community engagement, food assessment activities, and long-term coordination.
4. Collaborate with a land grant university, university, or college to collect and analyze food access and systems at baseline and over time.

Many of these recommendations are already coming to fruition with the North Central Florida Food Summit. As mentioned earlier, the summit is essentially a coalition of University of Florida faculty, Alachua County officials, and local food stakeholders trying to bring viability to a promising community food system. The original inspiration for this research assessment of local food distribution stemmed from the priorities outlined by the Summit.

The community workshops that aided in the success of the urban agriculture and community gardening amendments would have to be modified to fit the stakeholders of local distribution. The citizens and consumers of local food that were involved in the community workshops in 2011 are not likely to be as knowledgeable about marketing channels of distribution. One of the difficulties and short-comings of the local food effort

in the north central Florida region is the ability to give a voice to small farmers and build connections between producers and retailers. Small producers are the ones that understand the barriers to larger market access. If they were educated on the potential planning policies that could increase their viability they would certainly have insightful input. The planner's ability to perform spatial analysis, data collection and inventory for a local distribution center would be enhanced by the human aspect of small grower input.

Planners can also extend the framework of a local plan to a regional level. The North Florida Regional Planning Council can take the direction of Alachua County and start developing a regional plan around food and agriculture. The local food supply chain needs small growers from beyond Alachua County so developing the systems planning can "be a bridge between urban residents and those living in peri-urban and rural communities" (Peyton, 2012). Partnering with a Food Policy Council at the regional level like the APA advised, would be advantageous since there is already a Florida Food Policy Council. The Council has board members that are specifically concerned with access and food security in the north central area and are working on a foodshed project. Preliminary project analysis and results involve economic development strategies for Counties that within the Planning Council's governing area. To analyze and organize results, the project used a method known as SWOT (Strengths, Weaknesses, Opportunities, and Threats). One of the opportunities identified is to develop infrastructure businesses that support growing food markets. This type of finding can be used as evidence by the North Florida Regional Planning Council to support a local food distributor.

## **Role of the Planner**

Planning for local food infrastructure fits within the larger local food system planning nexus. Advocates of local food system may propose addressing the issue through policy for reasons of health, food safety, environmental awareness, or economic security. Planners recognize the interconnectedness of all these issues and understand the value of planning documents that incorporate the needs of the community. The needs of the community are usually first expressed through an initiative or community visioning. To validate the implementation of local food infrastructure policy, “it is important to engage the community in a visioning exercise to articulate a community’s values, ideals, and preferences for a healthy food environment” (Raja et al., 2008, 30). Implementing the recommendations can take the form of a plan to improve the food environment for the community. The most comprehensive plan would be a stand-alone food plan that specifically rectifies commonly cited barriers like the lack of connection between producers, processors, and consumers. If a stand-alone food plan is not feasible, “food” can be included as an element in plans. Planners can build capacity in transportation and environmental plans for a more self-sustaining food system. Planners also have the discretion of encouraging programmatic efforts that will start shaping the landscape of local food systems. For example, fast-tracking development for a local food distributor can support local visioning and initiatives that haven’t been implemented yet.

## **Study Limitations**

The research for this paper is limited in time, access, and data. Extended land use codes could not be obtained from all County Property Appraiser Offices, limiting the detail of agricultural land uses. Certain categories of county crop acreage in the

Agricultural Census were not provided in order to avoid the disclosure of confidential information. Alachua County's zoning, future land use, and comprehensive plans enable a distribution facility to feasibly operate, but no communication with the county was made regarding this proposal. At the time of this research, the North Central Florida Foodshed Project was incomplete. Stakeholders of the North Central Florida Food Summit had not yet provided input based on preliminary inventory and analysis of farmland. Due to plethora of local food initiatives and movements across the United States that included a distribution element it was difficult to choose what resources were most relevant to the study area. With more time and information, a more extensive, place-based analysis could be conducted.

### **Further Research**

This study focused on vegetable production for local distribution. This is only one part of the supply input required for a comprehensive local food system. Distribution logistics would be different for local poultry, cattle, and other livestock. Studying the feasibility and impacts for the local meat industry would be beneficial for a complete local food systems analysis. Raising livestock can be time intensive and expensive, but meat products have a significantly higher market value, increasing economic development.

Implications of the research reveal that a more robust concept of distribution facility is needed in the study area to overcome existing barriers. There are many types of models for a local food hub. It would be beneficial to research these models to optimize the services provided. There are innovative models that take a distribution center and expand it to a fully operational community grocery store concept. Figure 5-2



shows a concept for a “healthy food hub” that includes areas for a community gathering place, business incubators, and agricultural micro-enterprise project planning. Locating community assets for a local food system in one public space can provide innovative ways to leverage profitability and long-term sustainability (Bragg, 2012). Locating a food hub requires different policy, zoning, market, and GIS requirements analyses. A potential site location was discussed earlier, but a more comprehensive study is needed for defensible results.

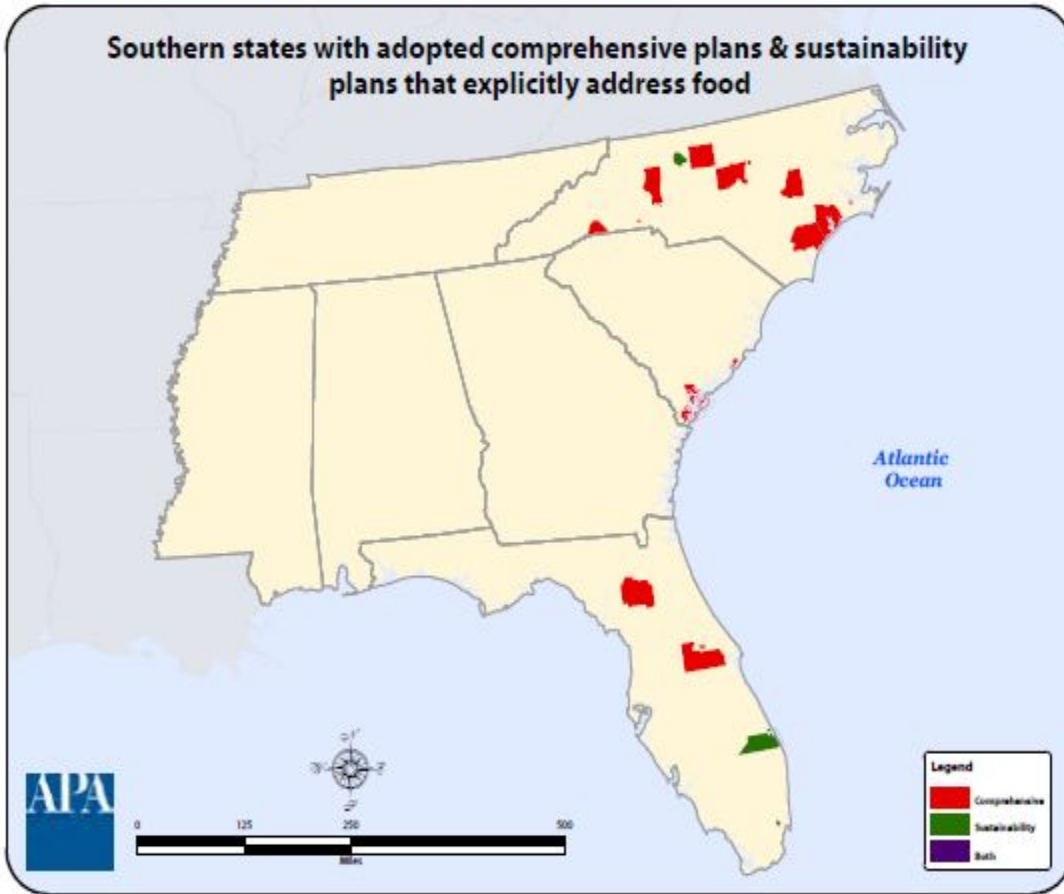


Figure 5-1. Comprehensive Plans Addressing Food in the South (Source: Hodgson, 2012)

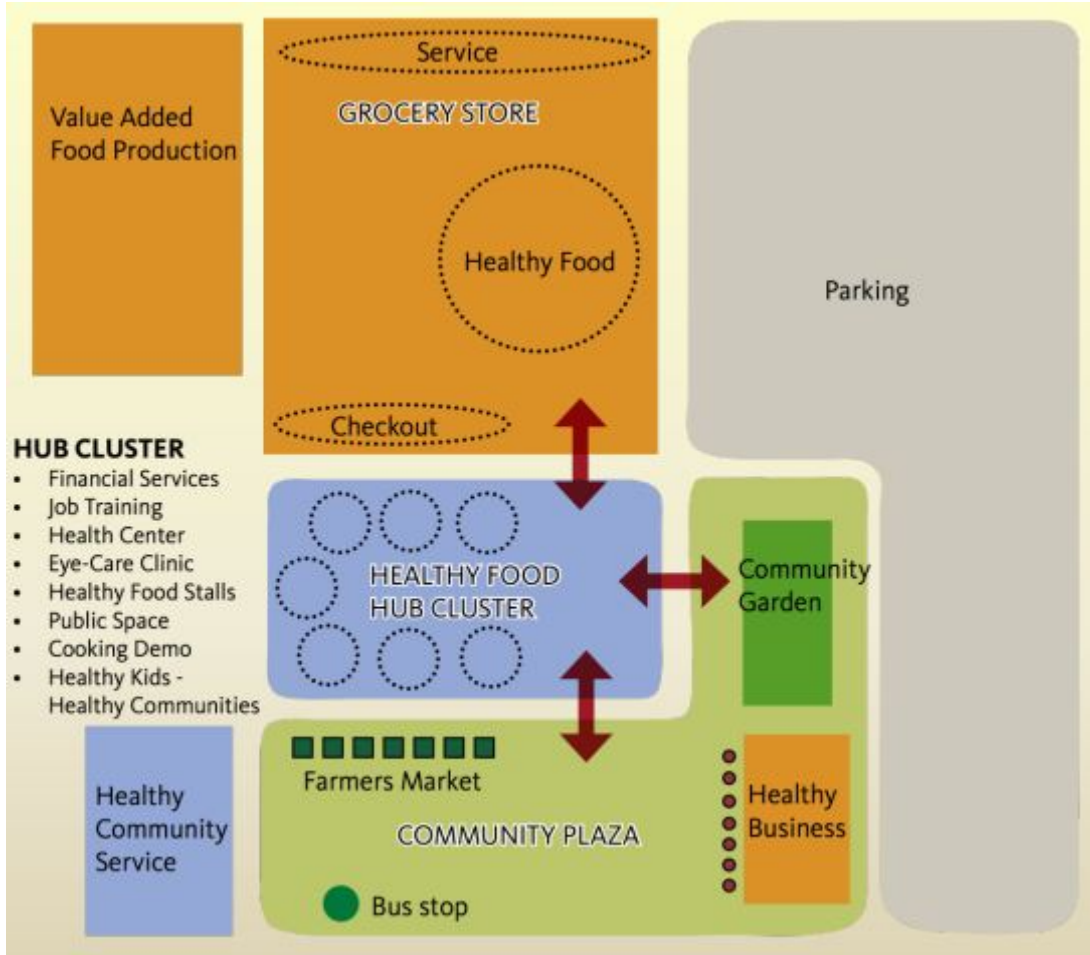


Figure 5-2. Healthy Food Hub Model (Source: Bragg, 2012)

## CHAPTER 6 CONCLUSION

### **Planner's Opportunity**

Economic and agricultural research points to the necessity of having a functional distribution component of a local food supply chain. The local food movement has become a phenomenon that has caught the attention of planners because it encapsulates many of the same guiding principles of their discipline. It makes sense that the first local food issue that planners have approached is one of consumer access. A myriad of reports has provided recommendations and strategies for the increase in community gardens, farmers markets, and urban agriculture. It is time now to find innovative ways for planners to get involved beyond the consumption of local food and into the viable infrastructure that helps local food enter the markets. By addressing the distribution aspect, planners are improving the welfare of two sectors of the community. The farmers' livelihood is often overlooked because farming is not deemed as important by modern society as other industries such as technology, healthcare, and communications. Yet, farming is something that connects our past, present, and future. Communities need to have a long-range plan for food procurement and security because our existence depends on it. The other sector of the community, everyone that is not a farmer, will benefit from the availability of local food in a diverse variety of convenient food outlet locations.

According to the Florida Planning Officials Handbook, "serving as a planning official is a public trust. Consensus has emerged on the purpose of planning - to serve the broad interests of the community in developing thoughtfully into the future" (2011, 42). What could be more universal and thoughtful than having a plan that

ensures the continued distribution of local, healthy food to a community? Not only is food supply inherently connected to people's livelihood, societal priorities have shifted to include a demand for locally sourced food. It would be negligent for planners not to incorporate the local food supply chain into their programmatic and planning efforts. Due to the unique position of planners, planning departments can lead a local food supply plan and also partner and include a cross-section of local department staff. Engaging other departments of government will help ensure the plan's effectiveness. This is certainly warranted because local food planning requires a holistic approach. Fostering a healthy distribution system of local food involves the support from the economic development department, transportation, public works, and the health department.

Planners are primary actors in facilitating decision making that represent the voice of a community. Trends across the country are indicating that planners are reconnecting local farmers, distributors, and the consumers with their toolkit of programs, plans, and policies.

### **Regional Opportunity**

The region of north central Florida has the potential to make an impact in the local food supply chain because of the physical and social characteristics that shape it. Distribution centers like La Montanita in Albuquerque, New Mexico that focus on connecting small growers to local consumers have flourished without the ideal growing season of north central Florida. The dry climate makes it difficult to grow year round, yet, "in four years of operation, the Co-op has increased the number of local producers served from about 300 to nearly 700" (Bragg, 2012, 3). The Local Food Hub that began

with 3 staff members and a group of volunteers four years ago in rural, resource limited Charlottesville, Virginia now distributes to more than 180 purchasers comprised of schools, restaurants, and retailers (NGFN, 2013). North central Florida has a valuable resource in the University of Florida, a Mecca for higher learning, research, and grant writing. IFAS is also a valuable tool that provides the link to rural areas in the other counties within the study area besides Alachua County.

North central Florida has only begun to tap the myriad benefits of local food. There are already community gardens, farmers markets, and community-supported agriculture (CSA) springing up all over the region. Expanding the local food network in north central Florida requires a valued supply chain that includes the agriculture of the middle. Agriculture of the middle represents growers that do not have the volumes to compete successfully with large agricultural commodity markets, yet they do not want to just sell directly to consumers. A distribution facility that can range from non-profit to retail driven can assist growers in effectively operating at a regional level. A facility with the proper packaging and cooling facilities would ideally operate in central Alachua County directly accessing I-75 to reduce transportation costs and optimize market coverage. The research conducted provides evidence that a facility is feasible from the market, policy, and spatial analysis. North Central Florida is poised to provide the local population with healthy and convenient local produce, but the region needs to build and connect the local food supply chain. Planners can use their practical toolset and position within local government to capitalize on such an exciting opportunity that improves the well-being of the community and builds civic pride.

APPENDIX A  
HIGHLIGHTS FROM ALACHUA COUNTY COMPREHENSIVE PLAN 2011-2030

## Community Health Element

### OBJECTIVE 1.3

Promote a healthy community by providing for obesity and prevention of other chronic illnesses.

- Policy 1.3.1** Alachua County shall promote access to healthful, affordable and nutritious food.
- Policy 1.3.1.1** Promote food security and public health by encouraging locally-based food production, distribution, and choice in accordance with the Future Land Use Element.
- Policy 1.3.1.2** Alachua County shall consider programs to encourage property owners to make use of vacant properties as community gardens.
- Policy 1.3.1.3** Continue to offer support for home and community gardening through programs offered by USDA Farm to School Programs and the Alachua County Extension Office and target low-income and populations at high-risk for health disparity for programs promoting gardening, healthy food access and nutrition improvement.
- Policy 1.3.1.4** Alachua County shall discourage the sale of less healthy foods and beverages as defined by Institute of Medicine within local government facilities including recreational areas.
- Policy 1.3.2** Alachua County shall partner with local organizations and develop standards to promote community food systems.
- Policy 1.3.2.1** Standards for community agriculture shall be developed in coordination with the UF IFAS and Extension agents and local and regional agricultural organizations. Existing standards will be utilized to the greatest extent possible.
- Policy 1.3.2.2** As provided in the Future Land Use and Energy Elements, Alachua County shall promote and develop standards for uses, including produce stands, farmers markets and food cooperatives, to facilitate location of fresh produce providers within or in close proximity to residential areas.

- Policy 1.3.2.3** Alachua County shall utilize economic development tools including public/private partnerships, and site facilitation, to promote location of grocery stores and Farmers Markets in proximity to underserved areas.
- Policy 1.3.2.4** Alachua County shall work to implement the 2009 Hunger Abatement Plan and future updates, and shall provide technical assistance for community food access studies.
- Policy 1.3.2.5** Alachua County should encourage edible landscaping (i.e., fruit trees and scrubs) for landscaping requirements through appropriate policy and standards of the ULDC.
- Policy 1.3.2.6** Alachua County community planning efforts and the CHOICES program will encourage participation by health coalitions and networks to create environments that support enjoyable, healthy eating, physical activity and a positive self-image.

## **Future Land Use Element**

### **6.0 RURAL AND ANGRICULTURAL POLICIES**

#### **OBJECTIVE 6.1 - GENERAL**

Rural and agricultural areas shall be protected in a manner consistent with the retention of agriculture, open space, and rural character, and the preservation of environmentally sensitive areas, and efficient use of public services and facilities.

- Policy 6.1.1** The County shall encourage the continuation of productive agricultural uses through an integrated program of strategies, including innovative land use regulations in conjunction with transfer of development rights and support for use of local, State, and Federal incentives including pursuit of funds from state and federal programs for purchase of agricultural conservation easements and purchase of development rights. The County shall initiate a stewardship program utilizing strategies from but not limited to the Rural and Family Lands Protection Act, Section 163.3177 (11) (d) F.S. and Section 570.70, F.S., as appropriate to Alachua County.
- Policy 6.1.2** Protection of important agricultural areas, based on factors such as the existing agricultural uses, soils, land use patterns, and economics of the county's agricultural community, shall be encouraged.
- Policy 6.1.3** The most recent, applicable best management practices for agriculture and silviculture shall be required consistent with Section 5.5, Agricultural and Silvicultural Practices, of the Conservation and Open Space Element. The County shall encourage sustainable and conservation-



oriented agricultural practices for agriculture and silviculture, and shall work with landowners to facilitate participation in the County's Transfer of Development Rights program, voluntary certification programs whose standards meet or exceed best management practices, agricultural and conservation easements, and federal and state cost-share programs. The land development regulations shall be reviewed for the inclusion of incentives to encourage voluntary participation in certification programs.

**Policy 6.1.4** The County shall support the development of markets and programs that promote the sale of locally produced agricultural goods, including but not limited to farmers markets, community gardens, farm to institution programs, and agritourism opportunities. The County shall partner with local community groups and organizations and other local governments to pursue funding sources for the development of a sustainable local food system.

**Policy 6.1.5** Agricultural pursuits shall be allowed in all land use classifications, provided that the health, safety and welfare of the general public and the protection of the natural environment are assured. The land development regulations shall include standards for agricultural pursuits and related uses in the Urban Cluster, including but not limited to farmers markets, community gardens, laying hens, and other small scale agricultural uses as allowable uses in appropriate areas.

**Policy 6.1.5.1** In order to provide access to fresh, nutritious local foods in the Urban Cluster, farmers markets shall be allowed in the Cluster within mixed-use and non-residential areas as permitted uses subject to the standards provided in the land development regulations and site plan approval by the Development Review Committee.

**Policy 6.1.5.2** Community gardens shall be allowed in the Urban Cluster in areas with an urban residential land use designation, mixed-use areas or in Activity Centers as permitted uses subject to the standards provided in the land development regulations and administrative approval by the Growth Management Department.

**Policy 6.1.5.3** The land development regulations shall include standards for the allowance of laying hens in residential areas within the Urban Cluster, such as standards for coops/runs, setbacks, and number of hens permitted per lot.

**Policy 6.1.5.4** The land development regulations shall include standards for the allowance of other small scale agricultural uses in residential areas within the Urban Cluster, such as aquaculture, apiculture, poultry and rabbit raising.

- Policy 6.1.6** The land development regulations shall specify performance criteria and standards for intensive agricultural operations such as concentrated animal feeding operations and dairies to ensure protection of water quality and natural systems.
- Policy 6.1.7** Clean debris and construction and demolition debris landfills may be permitted through the special use permit process in areas identified as Rural/Agriculture, subject to performance criteria in the land development regulations, including the protection of groundwater quality.
- Policy 6.1.8** The land development regulations shall include thresholds that address the size, intensity and impacts of off-site agricultural product packaging and processing facilities, below which such uses shall be appropriately located in areas identified as Rural/Agriculture. Uses exceeding the established thresholds shall either be allowed in areas identified as Industrial on the Future Land Use Map or processed as a materials oriented industrial use in the Rural/Agriculture area subject to a Comprehensive Plan Amendment in accordance with Policy 4.1.1, Section 4.0, Industrial, of the Future Land Use Element.

## **OBJECTIVE 6.2 RURAL/AGRICULTURE**

Areas identified for Rural/Agriculture on the Future Land Use Map are for agricultural activities including forestry and other agricultural uses, such as cattle grazing, cultivation of field crops, vegetable crops, dairies and those commercial or other uses on a limited scale serving or ancillary to agricultural activities, such as farm equipment and supplies, sales or service, farmers' markets, agritourism activities, composting, limited agricultural processing as provided in Policy 6.1.8 above, and agricultural products distribution. Rural residential uses, home-based businesses, heritage tourism and ecotourism activities, resource-based recreation and outdoor activity-based recreation are also allowed. Other uses involving animals not normally associated with agricultural activities, which would be suitable in the Rural/Agricultural areas, such as animal sanctuaries, kennels, and commercial animal raising, may be approved by the County Commission. New residential uses at a maximum density of one dwelling unit per five acres shall be permitted subject to the restrictions in Policy 6.2.7, except that the total allowable dwelling units may be increased pursuant to the Planned Development-Transfer of Development Rights program in accordance with 6.2.5.1 or the incentive bonuses for clustering of rural residential subdivisions in accordance with Policies 6.2.9 - 6.2.14.

- Policy 6.2.1** Road construction to support new development in the Rural/Agricultural area shall be the responsibility of the private land developer. Public funds may be allocated to roads designated as part of the State primary and County road system or those roads determined to be needed for the benefit of the general public and designated for construction by the State

or Board of County Commissioners. The County shall only assume operation and maintenance responsibilities for a road that is dedicated to the County and that meets the standards of the Subdivision Regulations and the Transportation Mobility Element.

**Policy 6.2.2** Central water and sanitary sewer lines shall not be extended into the Rural/Agricultural area, unless these services are needed to correct a public or environmental health threat, or as necessary for the efficient delivery of services to the Urban Cluster, as provided in the adopted Potable Water and Sanitary Sewer element.

**Policy 6.2.3** Stormwater facilities consistent with the level of service standards for drainage shall be required as a condition of new development.

## **Energy Element**

### 6.0 LOCAL FOOD AND PROCESSING

#### **Objective 6.1**

Maximize local resource and energy-efficient food production and processing within the County's local foodshed.

**Policy 6.1.1** Partner with community groups and other local governments in the region to delineate and promote a local foodshed for the development of a sustainable local food system.

**Policy 6.1.2** Work with local governments, institutions and community groups within the defined foodshed area to determine processing facilities and other food-related infrastructure needed to process locally grown foods.

**Policy 6.1.3** The land development regulations shall permit and encourage dispersed, small scale agricultural production and sale direct to the public.

**Policy 6.1.4** Increase support for farmers' markets through partnerships with local governments, institutions and community groups.

#### **Objective 6.2**

Increase the use of locally grown and/or processed foods in County facilities where food is provided and encourage other local government facilities to do the same.

**Policy 6.2.1** Work with the Alachua County Jail to develop a plan for an agricultural program to grow food onsite and teach sustainable farming methods.

**Policy 6.2.2** Alachua County shall work to facilitate partnerships between local farmers and local government organizations such as the Alachua County School Board to implement the 2009 Alachua County Hunger Abatement Plan and provide healthy, fresh foods in local schools and other institutions.

**Objective 6.4**

Support and encourage local agricultural operations in the use of sustainable agricultural practices including organic farming.

**Policy 6.4.1** In accordance with the policies of Objective 6.1 of the Future Land Use Element, the County shall work with landowners to facilitate participation in programs that meet or exceed best management practices, cost share programs, and to assist in the pursuit of funding sources to aid in the development of a sustainable local food system.

**Policy 6.4.2** Reduce use of and dependence on fossil-fuel based synthetic fertilizers in Alachua County consistent with adopted Best Management Practices and Florida Statutes, incorporating research based information.

**Policy 6.4.3** Work with IFAS and local agricultural groups to encourage use of sustainable agricultural practices that maximize carbon sequestration, conserve energy and water, minimize soil erosion and protect ecosystems and water quality.

APPENDIX B  
HIGHLIGHTS FROM ALACHUA COUNTY LAND USE DEVELOPMENT CODE

**Article 1 General**

**400.01 Title**

The rules and regulations hereby adopted shall be known and cited as the “Unified Land Development Code of Alachua County, Florida” and may be referred to as “this ULDC.”

**400.02 Purposes**

This ULDC is adopted for the purpose of promoting the public health, safety and general welfare of the residents and property owners of Alachua County, and to encourage the orderly, harmonious and judicious use of land, consistent with the goals, policies and strategies of the Alachua County Comprehensive Plan. More specifically, this ULDC is adopted to accomplish the following purposes:

- (a)** To carry out the purpose and intent of and exercise the authority set out in Florida Statutes 163.3202 and to implement the adopted principles, strategies, goals, objectives, policies and maps of the Comprehensive Plan related to the regulation of use and development of land and structures, and apply these standards to guide decisions affecting land use and development within the County.
- (b)** To protect and conserve property values and property rights, consistent with Florida law and the Constitutions of the State of Florida and the United States.
- (c)** To provide for adequate light, air and privacy; secure safety from fire, flood and other dangers and from human-made hazards; protect and enhance the aesthetics and character of all parts of the County; and avoid traffic congestion on streets, eliminate conflicts between pedestrian and vehicular movements, and encourage multimodal development.
- (d)** Without limitation but as a matter of emphasis, to carry out the following more specific purposes:
  - 1.** Promote sustainable land development that provides for a balance of economic opportunity, social equity including environmental justice and protection of the natural environment.
  - 2.** Base new development upon the provision of necessary services and infrastructure. Focus urban development in a clearly defined area and strengthen the separation of rural and urban uses.
  - 3.** Recognize residential neighborhoods as a collective asset for all residents of the County.

4. Create and promote cohesive communities that provide for a full range and mix of land uses.

## **Chapter 403 Zoning Districts**

### **Article 2 Rural/Agricultural Districts**

#### **403.03 Rural/Agricultural District Descriptions**

##### **(a) Agricultural (A) District**

The Agricultural District (A) implements the Rural/Agriculture designation on the Future Land Use Map, and the policies of the Comprehensive Plan to allow rural and agricultural areas to be developed in a manner consistent with the retention of agriculture, open space, and rural character; preservation of environmentally sensitive areas; and the efficient use of public services and facilities. Permitted uses are found on the Use Table in Article 2 of Chapter 404. Any use with a blank cell for this district in the Use Table or that does not meet the requirements of §404.08 for similar uses is prohibited.

##### **(b) Agricultural Rural Business (A-RB) District**

The Agricultural Rural Business District (A-RB) implements the Rural/Agriculture designation on the Future Land Use Map, and the policies of the Comprehensive Plan to provide for those commercial or other uses on a limited scale serving or ancillary to agricultural activities. Properties zoned A-RB shall front a paved publicly-maintained road and shall be located at least a mile from all other properties zoned A-RB. Permitted uses are found on the Use Table in Article 2 of Chapter 404. Any use with a blank cell for this district in the Use Table or that does not meet the requirements of §404.08 for similar uses is prohibited.

##### **(c) Agriculture (AG-TDR) District (with Transfer of Development Rights)**

The Agriculture Transfer of Development Rights district implements the Rural/Agriculture designation on the Future Land Use Map and the Transfer of Development Rights policies of the Comprehensive Plan, to provide principally for agricultural activities while allowing limited residential development at a density of up to one dwelling unit per 40 acres. A rezoning to this district shall occur when the owner of an Agricultural property, defined as having an approved Agriculture Classification from the Alachua County Property Appraiser, has voluntarily sold or otherwise conveyed associated development rights pursuant to the TDR program outlined in Chapter 402 Article 29.

##### **(d) Conservation (C-TDR) District (with Transfer of Development Rights)**

The Conservation Transfer of Development Rights district implements the TDR policies of the Comprehensive Plan, to provide principally for preservation of environmentally sensitive land while allowing limited residential development if resources can be protected at a density of up to one unit per 200 acres where consistent with a Conservation Area Management Plan. Higher densities of up to one dwelling unit per 40

acres may be proposed where it can be demonstrated that there is not impact on resource protection and where consistent with the Conservation Area Management Plan. A rezoning to this district shall occur when the owner of Conservation property, defined as properties that contain Strategic Ecosystems or are on the Alachua County Forever (ACF) active acquisition list, has voluntarily sold or otherwise conveyed associated development rights pursuant to the TDR program outlined in Chapter 402 Article 29.

## **Article 5 Industrial Districts**

### **403.14 Industrial District Descriptions**

#### **(a) Wholesale and Warehousing (BW) District**

The BW district implements the Warehouse/Distribution, Light Industrial, and in some cases Commercial policies of the Comprehensive Plan and the associated designations on the Future Land Use Map. Permitted uses are found on the Use Table in Article 2 of Chapter 404. Any use with a blank cell for this district in the Use Table or that does not meet the requirements of §404.08 for similar uses is prohibited.

#### **(b) Light Industrial (ML) District**

The ML district implements the Light Industrial policies of the Comprehensive Plan and the associated designations on the Future Land Use Map. The ML district is established to allow certain office and light industrial uses, such as research and development and experimental laboratories and similar uses or the manufacturing or fabrication of products that have minimal off-site impacts. Permitted uses are found on the Use Table in Article 2 of Chapter 404. Any use with a blank cell for this district in the Use Table or that does not meet the requirements of §404.08 for similar uses is prohibited.

#### **(c) Industrial Services and Manufacturing (MS and MP) Districts**

The MS and MP Districts implement the Heavy Industrial policies of the Comprehensive Plan and the associated designations on the Future Land Use Map, for establishments engaged in manufacturing. Permitted uses are found on the Use Table in Article 2 of Chapter 404. Any use with a blank cell for this district in the Use Table or that does not meet the requirements of §404.08 for similar uses is prohibited.

## **Chapter 407 General Development Standards**

### **Article 4 Landscaping**

#### **407.41 Landscape and Planting Plan Objectives**

Landscape and planting shall be designed to achieve the following objectives:

- (a)** Continuity of on-site and off-site open space and greenway systems.
- (b)** Preservation of the natural environment to the greatest extent possible.

- (c)** Use of native plant material to the extent feasible in conjunction with appropriate soils and moisture regimes.
- (d)** Integrate the landscape and stormwater management areas of the proposed development with existing topography, hydrology and soils.
- (e)** Integrate the functional systems, particularly the drainage systems and internal circulation systems, with the landscape or planting plan.
- (f)** Promote water conservation through xeriscaping.
- (g)** Promote a reduction in stormwater pollution, temperature, and rate of flow from developed areas.
- (h)** Promote local food systems through use of edible landscape materials where appropriate.
- (i)** Design stormwater management facilities to resemble natural areas in form and function resulting in a facility that is not required to be fenced.
- (j)** Limit stormwater management facilities to the maximum extent practicable through the reduction of impervious surfaces.
- (k)** Minimize the impact of utility service installations on mature trees
- (l)** Address visual privacy, acoustical privacy, noise attenuation and the maintenance of important view sheds relative to adjacent developed properties
- (m)** Ensure reduction of noise, heat, glare, water runoff and other conditions concomitant with the construction of expanses of building or pavement within the parcel.
- (n)** Demonstrate that within 20 years 30 percent of the site will be under mature canopy.
- (o)** Deciduous tree canopy should be concentrated along the southern and western exposures of buildings so as to enhance shading and energy conservation.



APPENDIX C  
LETTER OF CONSENT



College of Design, Construction and Planning  
Department of Urban and Regional Planning

431 Architecture Building  
PO Box 115706  
Gainesville, FL 32611-5706  
352-392-0997, ext. 431  
352-392-3308 Fax

Dear Key Informant:

I am a graduate student at the University of Florida. As part of my thesis I am conducting interviews to understand the local food production and distribution system. I am asking you to participate in this interview because you have been identified as an expert in local food systems. The interview will be conducted over the phone or a mutually agreeable location, and will last up to one hour. You will not have to answer any question you do wish to answer. With your permission, I would like to audiotape this interview. Only I will have access to the tape, which I will personally transcribe. I will then erase the tape.

There are no anticipated risks, compensation or other direct benefits to you as a participant in this interview. Your participation in this interview is completely voluntary. You are free to withdraw your consent to participate and may discontinue your participation in the interview at any time without consequence. If you have any questions about this research protocol, please contact me at 813-416-7754 or [cmc23@ufl.edu](mailto:cmc23@ufl.edu) or my supervisor, Dr. Ruth Steiner at 352-392-0997, ext. 431 or [rsteiner@dcp.ufl.edu](mailto:rsteiner@dcp.ufl.edu).

Questions or concerns about your rights as a research participant may be directed to the UFIRB office, University of Florida, Box 112250, Gainesville, FL 32611; ph (352) 392-0433.

By signing this letter, you give me permission to conduct the interview and incorporate you responses into my thesis. A second copy is provided for your records. Your responses will not be used for any other purpose other than the thesis.

Sincerely,

Caitlin Cerame

I have read the procedures described above and agree to participate in the interview session on the 'Agriculture of the Middle: A Feasibility Assessment of a Local Food Distributor in North Central Florida'. I **AGREE** to have remarks included and identified in the thesis submitted to the University of Florida.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

I have read the procedures described above and agree to participate in the interview session on the 'Agriculture of the Middle: A Feasibility Assessment of a Local Food Distributor in North Central Florida'. I **DO NOT** wish to have my remarks included in the thesis submitted to the University of Florida.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

Reviewed by:  
University of Florida  
Institutional Review Board 02  
Protocol # 2013-U-0047  
Date of Review: 01/30/123

*The Foundation for The Gator Nation*

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## BIOGRAPHICAL SKETCH

Caitlin Cerame was born in Morristown, New Jersey and moved to Tampa, Florida in the seventh grade. She received her undergraduate degree at the University of Florida and soon became a gator for life. She majored in political science and minored in european union studies. Her dream originally was to work for the European Union and got a chance to learn first-hand about the organization when she studied abroad in Brussels, Belgium. Through her four years of undergraduate schooling she also developed an interest in environmental conservation and added another minor in environmental sustainability. In 2008 she graduated with a Bachelor of Arts and immediately began working for the Florida Geological Survey as an Environmental Specialist. The job gave Caitlin the opportunity to work in environmental protection and exposed her to the need for rural community development. She decided that to obtain a more fulfilling career she would need to pursue higher learning opportunities. She was accepted to the Department of Urban and Regional Planning master's program at the University of Florida in 2011. During her enrollment she worked for Dr. Kathryn Frank on a sea level rise planning project. She also interned for the UF Office of Sustainability on a local food system project giving her the inspiration to focus on food distribution issues for her thesis topic. Caitlin continues to work on the sea level rise planning project while residing in Gainesville with her boyfriend, dog, and two cats. She hopes to find a local planner position working for Gainesville's wonderful community.