From Vacant to Verdant: A look at the feasibility of urban agriculture in Orange and Durham counties
PREFACE

“In the end, we will conserve only what we love; we will love only what we understand; and we will understand only what we have been taught.” ~Baba Dioum

I aim to leave the world a greener, healthier, happier place. I believe the most valuable way to do this is by reconnecting people to nature and to each other. Humans are creatures of habit. We feel compassion and empathy for the things that we love. The ability to love is learned from parents, peers, and personal experiences especially at an early age but also over the course of a lifetime. My conservation ethic and love for nature were born and nurtured in my childhood and remain the driving force in my life but many have not been given the opportunity to positively connect with nature. I want to create opportunities for others to make this connection through urban agriculture. My study explored the feasibility of using urban agriculture as a means of reconnecting communities to nature in Orange and Durham counties.

We cannot separate ourselves from the natural world, it is part of us. However, we have had the financial means and technology to work against nature for many decades. This cannot last. It is a counter productive task. Our holding capacity is near. The advent of peak oil is upon us. Global temperatures are rising. Humans spend 90% of their time indoors (EPA, 1987). Doctors prescribe depression medications more often than any other drug (Cohen, 2007). America is experiencing the worst economic recession since the Great Depression. Children are unable to identify the native flora and fauna of their environs. Obesity rates climb each year. In 2008, 64.5 percent of adults were overweight or obese (Trust for America’s Health, 2008). The divide between rich and poor continues to grow while the price of fresh fruits and vegetables rise and processed foods remain cheap. Globalization sucks money and jobs from local communities. DDT remains in American mother’s breast milk 37 years after being banned in the United States. Children think water comes from the tap and food comes from the grocery store. Food travels on average 1,500 miles before arriving on our plates and often contains genetically modified organisms (GMOs), and antibiotics (Pirog & Benjamin, 2003).

But there is hope. We can harness the sun, wind, and tides to provide energy. We can compost to create high quality soil while keeping refuse out of our landfills. We can build water treatment systems that use wetlands to filter pollutants. We can use native vegetation for landscaping thereby reducing the amount of water and fertilizer necessary to keep lawns lush and green. We can provide vegetated, riparian buffers to create wildlife corridors and limit stormwater runoff. We can use rain barrels, cisterns, and other water collectors to provide grey water for irrigation and flushing our toilets. “At colleges around the country, students seem to be flocking to environmental studies,” (Galbraith, 2009). GMOs have been rejected across the globe. The number of land trusts, CSAs, and farmer’s markets continues to rise. Companies are taking responsibility for their products from cradle-to-grave. And we can garden on vacant land within our towns and cities to feed ourselves locally.
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“Gardening is civil and social, but it wants the vigor and freedom of the forest and the outlaw.”  ~Henry David Thoreau
1. INTRODUCTION

Abuzz in the planning field is this idea of greening our cities to create sustainable, resilient places. According to the authors of Resilient Cities: Responding to Peak Oil and Climate Change, “Such cities will innovate so that they become based on renewable energy, not oil; are eco-efficient and carbon-neutral; will produce energy and grow food locally; and will take other measures to reduce consumption and become sustainable. They will be transit-based (especially rail), not car-dependent, and far more in tune with nature, and they’ll create much more viable and pleasant walking and cycling spaces,” (DeMark, 2009). How do we create these places? I believe that urban agriculture is a crucial element to achieving sustainable, resilient communities.

What is urban agriculture? Urban agriculture is a practice that has occurred for as many years as humans have resided in cities but it was only in the late 1990s that the term was coined. “Urban Agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, an urban centre, a city or metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, reusing mainly human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area,” (Mougeot, 1999). Urban agriculture, or UA for short, is an academic term that encompasses but is not limited to the following agricultural activities: a pot of herbs grown on a balcony, backyard gardening, rooftop gardening, greenhouses, market and community gardens, edible landscaping, fruit trees, aquaculture, farmers markets, small-scale farming, hobby beekeeping, food composting, greenhouses, window boxes, community farming, mushroom cultivation, raising small livestock, and sustainable forestry (Collective Roots, 2008; Mendes, Balmer, Kaethler, & Rhoades, 2008).

The most well-known form of UA and the most commonly found in the United States is community gardening. For this reason, this paper will often look at urban agriculture in the form of community gardening. The paper will begin by more clearly defining the research question by looking at the meaning of each component of the question and will move into the key principles that must be present for success as understood by the current literature. From there the research question will be explored from two angles, the physical feasibility and the regulatory feasibility of urban agriculture, through an explanation of the methodology and findings of each analysis. Overall findings, barriers, and limitations of the study will then be presented with the paper ending with recommendations for implementing the research that has been conducted to date.

2. PURPOSE

The purpose of this study is twofold, 1) to explore urban agriculture as a way to connect people, particularly urban dwellers, to their local environment, to one another, and to the local community and 2) to create a land inventory of each of the four study areas to present a strong case, to each community, for implementing local planning and agricultural policies that support the use of vacant, publicly-owned land for
To begin the research question must be fleshed out to truly understand what it is asking by explaining each of the elements it encompasses.

### 2.1 RESEARCH QUESTION: What is the feasibility of using vacant, government-owned land for temporary urban agriculture in Orange and Durham Counties, the Town of Hillsborough, and the City of Durham, North Carolina?

#### Feasibility
Feasibility, according to Merriam-Webster, means “capable of being done or carried out,” (Merriam-Webster Online, 2009). For this study two forms of feasibility were explored, physical and regulatory. Physical feasibility looks at what parcels are available and suitable for urban agricultural activities including site location, land cover, zoning, and ownership. Regulatory feasibility entails how zoning and policy affect what types of urban agricultural activities can occur on qualified parcels. Combining these two types of feasibility produces a land inventory of vacant, government-owned parcels where urban agricultural activities are permissible.

#### Vacant
Vacant is a term that has, “no formal or standardized definition” but “often refers to many different types of unutilized or underutilized parcels... It can be small or irregularly shaped parcels left over from earlier development. It can be parcels with physical limitation, virtually unbuildable due to steep slope or flood hazard. [or] Land in temporary use (e.g. storage, pasture)...” (Pagano and Bowman, 2000). Orange County’s Tax Assessor’s Office defines vacant land as “any parcel that does not contain a building or contains a building with no electricity running to it,” (R. Gunn, personal communication, March 9, 2009). Durham’s Department of Tax Administration defines it as, “A parcel having no permanently affixed improvements,” (Durham County Office of Tax Administration, 2008). Neither Orange nor Durham County’s Planning Departments recognize the term vacant. Instead the term underutilized is used. Therefore vacant pertains to valuation not land use. In this study vacant is equal to an appraised building value of zero.

#### Government-Owned
Government-owned describes land that is owned by a local government body and used to serve a public purpose. These lands include schools, government buildings, parking lots, parks, trails, greenways, rights-of-way, landfills, water and wastewater treatment facilities, conservation lands, sewer easements, libraries, surplus property, reservoirs, etc. For this study parcels under Orange County, Durham County, the Town of Hillsborough, and the City of Durham ownership were used.

#### Temporary
A temporary use is a use that lasts for a limited time. Limited time has no set duration. This study looks at urban agriculture as a temporary use because government-owned property is purchased for a particular, public purpose (see previous section for a list of typical purposes). A parcel that is both vacant and government-owned likely will only
remain so until it is converted to its intended use. Urban agriculture could take place on the parcel until the conversion occurs, allowing community groups temporary tenure on the parcels and providing government with the necessary flexibility it needs to serve the public interest.

Urban Agriculture
The following uses were considered in this study as possible urban agricultural activities, based on the definition of urban agriculture used in the Introduction of this paper.

- Community gardening
- Sustainable forestry
- Container gardening
- Raising small livestock (chickens, rabbits, ducks, goats)
- Food composting
- Community farming
- School gardening
- Edible landscaping
- Bee keeping
- Fruit trees and berry bushes
- Mushroom cultivation
- Greenhouses

Study Areas
The analysis looked at four separate subject areas: Orange County, Durham County, the Town of Hillsborough, and the City of Durham. For each study area all of the parcels under government ownership were located. Table 1 displays the various owner names within each area. This list does not include surplus property. Surplus property is property acquired by a government, often through the foreclosure process, that the government intends to dispose of, in a timely fashion, through the auction process to the private real estate market in order to recuperate lost tax revenue. Due to its short-term ownership by government it was not included in the analysis.

<table>
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<td>Orange County</td>
<td>County of Orange, Orange County North Carolina, Orange County c/o County Manager, Orange County of, Orange County% McAdoo Public Works, Orange County Board of Education, Orange County% Planning Dept, Orange County c/o Geoffrey E. Gledhill, Orange County of Attention Beverly Blythe, Orange County North Carolina c/o Geoffrey E. Gledhill, Orange County ATTN Pam Jones,</td>
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<tr>
<td>Durham County</td>
<td>County of Durham, Durham Soil &amp; Water, Durham Public Schools Board, Durham County Brd of Education</td>
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<tr>
<td>Hillsborough</td>
<td>Hillsborough, Hillsborough City of, Hillsborough Town of, Hillsborough Town of Cemetery, Hillsborough Historic Commission, Hillsborough Town of c/o Eric Swanson</td>
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<td>Durham</td>
<td>City of Durham</td>
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2.2 Why urban agriculture?
With the recent discussion about how to green our communities to create sustainable, resilient places, urban agriculture is an important but often overlooked means of achieving this goal. All four study area governments are committed to greener, more sustainable communities. Over the past two years Durham has hired a sustainability manager; embarked on an urban open space plan; passed a Limited Agriculture ordinance; and allowed hens and bees in city limits; while Orange County has created a native landscaping ordinance; conducted a Greenhouse Gas Emissions Inventory; focused its Lands Legacy1 dollars on protecting farmland through conservation easements; and incorporated community gardening into its New Hope Park at Blackwood Farm master plan (Orange County, 2004).

These are all important steps but more must be done. “One-third of the 2 million farms in the United States alone are located within metropolitan areas, and produce 35% of U.S. vegetables, fruit, livestock, poultry, and fish,” (Bellows, Brown, Smit, 2003). This statistic recognizes the importance of urban agriculture to each of us as consumers and as residents. Allowing for urban agriculture throughout the communities of Orange and Durham counties can increase this figure, increase local food security, strengthen community networks, improve air quality, lessen stormwater run-off, beautify, and reduce energy consumption. All of these elements contribute to greener, more sustainable places.

3. LITERATURE REVIEW

Although research on urban agriculture is limited and only more recently available it is viewed with hope as a viable step to greening communities while connecting people to one another and with the physical environment. UA is cited as having positive community benefits - socially, environmentally, and economically. Social benefits include: reducing crime, making communities more walkable, enabling food education, contributing to food banks, bringing fresh produce to neighborhoods where fresh fruits and vegetables often are not available, providing recreation and exercise for neighborhood residents, providing a focal point for community organizing and social networks, promoting interaction between the diverse residents of an urban neighborhood, discouraging illegal dumping and vandalism, empowering residents to take on more active roles in the further development of their neighborhoods, influencing overall food consumption patterns and improving dietary knowledge, providing a relatively secure and more locally controlled food source, addressing simultaneously the physical, mental, spiritual and social health of individuals and their communities, increasing self-esteem, pride, confidence, personal satisfaction and efficacy, providing job training, preventing illness, and beautification (Hess & Winner, 2007; Voicu & Been, 2008; Schukkoske, 1999; Glover & Parry, 2005; Kirby, 2000; Bellows, Brown, & Smit, 2003).

Environmental benefits include: enhancing green spaces, preserving open space, reducing the number of food miles traveled from field to fork, decreasing energy use,

1. In April 2000, the Orange County Board of Commissioners adopted the Lands Legacy Program to protect the county’s most important natural and cultural areas through voluntary means, including purchasing land or working with private landowners to develop conservation easements.
shrinking our carbon footprint, improving air quality, increasing the range of biodiversity, improving soil quality, stabilizing soils, reducing erosion, lowering urban mass temperature, and providing flood control (Schukoske, 1999; Bellow, Brown, & Smit, 2003; Spirn, 1984).

Economic benefits include: stabilizing and improving host neighborhoods, reducing blight, spurring neighborhood revitalization, increasing the value of neighboring properties, saving household food dollars, increasing tax revenues, and encouraging investment (Voicu and Been, 2008).

It is powerful to me that one type of activity can have such far-reaching, positive effects. These overarching benefits will provide the necessary justification for the study areas’ governments to support planning and policymaking processes that allow for UA. But how can these diverse benefits be achieved on the ground? Despite the Triangle area’s reputation as being a haven for foodies, and having a population that is supportive of a strong local foods system, little research has been done on UA in the region. To begin to fill this knowledge gap, my study focused on the current physical and regulatory feasibility of using vacant, government-owned land for urban agriculture in the communities of Orange and Durham counties, Hillsborough, and Durham.

From a review of the current literature emerged a series of key principles, necessary to urban agriculture’s success.

1. **Community Driven**
   Community drive is the most critical of all the principles. Without community participation the garden is destined to fail. Community meetings should be held throughout the process, from seed to table, to get input regarding what to grow, level of experience, marketing of the sites, needs for and while participating. Getting people to meetings and to participate happens through word of mouth, through churches, civic organizations, ethnic organizations, community gardening non-profits, and other community groups. “UA typically involves a wide range of people, and has been identified as an exemplary “networked movement” because of its cross-sectoral nature and its citizen-led approach to knowledge and solutions,” (Werkerle, 2004; Welsh & MacRae, 1998). The benefits of public participation will be felt by local government in that the policies they produce will be more likely to meet the needs of all effected parties and to be supported by the community. Greater pride and buy-in will result from the process being community-driven.

2. **Accessibility**
   Sites should be within walking distance of residences, work places, and public transit...
stops. The community should be able to reach the UA sites without having to get into an automobile. Sites should be within a 10-15 minute walk or a quarter mile of residences or transit stops. Walkability is ideal, particularly if tools need to be brought to the site. At the same time the site should have road access to allow for deliveries of compost and mulch and pick-ups of refuse and produce. If possible there should be enough room on the site to provide minimal parking for those who must drive to the site including inspectors, visitors, and participants.

Public transportation must run regularly and participants must be able to get to the site multiple times a week for it to be successful. “It was observed that without regular transportation, attendance at both the farm and the market suffered,” and, “A bus schedule [was] not a [reasonable] solution,” (Andreatta, 2006). Without accessibility the site likely will not succeed particularly if the target population is low-income or immigrants because often these groups do not have access to reliable vehicles.

3. Well Designed

Proper and good designs are needed for urban agriculture sites. Each design should be based on the goals of the individual site and the group maintaining the site. Sites should be designed to be built with the skill and labor of the participants. This will keep costs low because the design will respect what can be contributed by the community. A plot or area of community gardens should be constructed for use by children giving them their own place to experiment separate from their parents. If it is a vegetable garden it will need at least six hours of full sun a day. Each community garden site should have access to a permanent source of fresh water. Raised beds will be necessary if there is any soil contamination.

Community gardens can be used strategically to, “create ‘defensible space’ – neighborhood areas in which escape routes for criminal perpetrators are limited and public range of vision is maximized to prevent illicit conduct,” (Schukoske, 1999). Sites should be located and designed in such a way that they are visible and can be monitored by surrounding residences, providing eyes on the site. This will deter vandals and other illicit behavior (American Community Gardening Association, 2009). Vegetation should remain low enough to expose unlawful behavior by providing clean site lines. To reduce vandalism berry bushes should be planted around the perimeter to create a natural, unwelcoming barrier. Common, prolific producers should be placed within the berry buffer to deter vandals from the more unique and specialized produce in the center of the garden.

It is, “more energy efficient for a tract of land to be designed to serve multiple functions...to improve air and water quality, to prevent or mitigate natural hazards, to reclaim derelict land, to conserve energy resources, and to enhance the city’s beauty,” to name a few (Spin, 1984). “The most successful school gardens are actually community gardens located on school grounds, (Hess and Winner, 2007). This is because school gardens often fail during summer recess because no one is there to maintain them. This issue is avoided by having community members whose children attend the school or who live close to the school participate year-round.
4. Strong Partnerships
“Community gardens flourish in cities where there is a strong nonprofit advocacy organization that can build partnerships with the city government,” (Hess and Winner, 2007). Partnering is fundamental for both groups. For government, “working with nonprofit partners and community groups, and by using federal block-grants, existing public lands, state university extension services, and foundation resources, the single employee working on community gardening programs can leverage his or her job into a multiorganizational network,” (Hess and Winner, 2007). Additionally, “Because the work of gardeners is voluntary, the city government can leverage extensive resources by serving as a source of networking and information exchange without incurring the full cost of program implementation,” (Hess and Winner, 2007). “The primary role of the city government is to serve as a catalyst that connects neighborhood groups with community gardens, the broader local food system and local nonprofit organizations and funders,” with government filing the role of coordinator, supporter, and facilitator of land tenure (Hess and Winner, 2007). This will allow programs to be set up in ways that leverage the power of the city government at minimal cost.

From the perspective of the non-profit or community group, government can provide start-up services, such as soil-testing, soil remediation, initial materials, and education and training. They can also provide trash removal, compost, equipment, water taps, and police patrols. Community groups are the driving force providing political support, physical labor, creativity, financial support, management responsibility, liability insurance, public participation, cooperation, and coordination. There must be an open line of communication between the two parties and a point person within each party who is available and responsive.

Another critical relationship is within government itself. Gardening programs should be located within “a strong department where there is support for the program” (Hess and Winner, 2007). The program should be located within the department whose mission most closely aligns with that of the program so that both move forward in the same direction. For example if the goal of the program is to enhance community development or provide job training the program should be located in a Neighborhood, Community, or Economic Development Department. If the goal is to provide environmental education or recreation, the opportunity to reconnect with nature, or make the area more sustainable it should be located in the Parks, Recreation & Open Space Department. Without support from inside government the program will never succeed because it will be thought of as additional work rather than an integral part of the department’s mission.

5. Well Managed
Building off the principle of strong relationships is that of good management. In order for urban agriculture to succeed there must be one person who manages the site. This person must be respected by the UA participants, the government agency, and the greater community. This person would be in charge of divvying up garden plots, maintaining the relationship with local government, the neighbors, suppliers, distributors, etc. They would also ensure that the participants maintain their sites through watering, weeding, and picking of produce and flowers. A good manager provides consistency
between growing seasons, allowing the garden to remain viable for a longer period of time. Management can come from a community member, a local non-profit, or a government agency. For the most part it is better for it to be an established non-profit organization that the community knows will be around into the future and is not restricted by bureaucracy.

6. Supportive Policy
There is no one, right way to formulate policies that are supportive of urban agriculture but having policies is key for success. The groundwork should be set by discussing urban agriculture as a goal within a government’s planning and visioning documents particularly within comprehensive plans (Hess and Winner, 2007). These overarching plans are the basis for creating policies and programs that allow for urban agriculture and local food systems and once they policies and programs are in place these documents provide grounds for securing funding. “Cities without comprehensive open space strategies and the benefit of working partnerships are less likely to achieve high-level results,” (Kirby, 2000).

Some states including New York and Tennessee have statutes that allow for community gardening on public lands. Support at the state level makes it easier for community members and local governments to create, maintain, and enforce local ordinances. When no express urban agriculture statutes exist guidance can be found from agricultural and parks and recreation related policies.

“Legislators should realize that community gardening is consistent with social policies such as the promotion of health and welfare, environmental protection, economic development, education, youth employment and tourism,” keeping in mind that, “Provisions permitting government officials to summarily close community gardens are inconsistent with the aforementioned social policies,” (Schukoske, 1999). When structuring urban agriculture policies specific public purposes should be identified that merit broad based support. “By stating the gardens’ public purposes, ordinances promoting community gardens clarify what distinguishes them from for-profit agricultural production. Courts have held that a lease, granted to a private party and yielding a legitimate public benefit, constitutes a valid public purpose,” (Schukoske, 1999).

7. Land Availability
“When considering land use for future farms, other factors need to be incorporated into site selection and not just the availability of a vacant lot, (Andreatta, 2006). This principle is more complex than it appears. Obviously there must be available land for urban agriculture to take place on. What is less clear is what land qualifies as available. As discussed above site selection should be “arranged to reduce distance as an obvious barrier to anyone’s participation,” it must be out of the floodplain, the soil must be tested for contamination, it must be located at least 50 feet from busy streets, away from old painted structures, within a residential zoning district or another district that allows these uses, must have access to air, water, light, and nutrients to survive and succeed, be available for at least a growing season, and should be accessible by multiple forms of transportation (Andreatta, 2006; Spim, 1984).
“Cities across the United States that have considerable vacant land are debating whether to foster community gardens on that land, while cities with land shortages are debating when to replace gardens with other uses,” (Voicu and Been, 2008). Governments can play a significant role, “...by providing access to public land on parks and other city property,” (Hess and Winner, 2007). Often time governments own land that is underutilized or already being used for a public purpose. Urban agriculture could be an additional use of these properties.

8. Land Tenure
The length of time that the potential site can be used by the community for urban agriculture is critical to the success of each endeavor. “When allowing community groups to use vacant lots for gardening, the city needs to consider the length of tenure and the size of the garden. Conversion of a vacant lot to gardening requires considerable investment from the gardeners and advocacy groups, and the gardeners are more likely to develop and maintain the garden if they have a long-term agreement with the city and if the gardening group is large enough to accommodate turnover of membership,” (Hess and Winner, 2007). It should be determined at the beginning of the agreement whether or not the parcel could potentially be purchased by the community group. If so this may spur the group to form a non-profit and to seek funding to acquire the site. This could be a boon for government by relieving it of the fiscal and management requirements, while knowing that the property will contribute to the greening of the jurisdiction.

“Outright ownership of garden lands provides the greatest degree of control. While ownership of garden lots may be feasible and prudent for community organizations that are firmly established, the process of obtaining title may require a greater investment of resources and a longer time commitment than less established garden organizations can provide,” (Schukoske, 1999). Outright ownership may often not make long-term sense for either government or the community particularly if the site is within the city or town’s urban core. Firstly the land is more valuable as potential real estate. For government, being able to sell this prime land to private real estate developers will provide the greatest financial benefit to itself and the community. Green spaces can disrupt an area’s urban fabric. Open space on a successful block may indicate the end of the business district to someone strolling down the street despite the fact that there are open businesses in the building just past the open lot. Secondly many have negative associations with open spaces in urban areas and are unwilling to walk past or through them.

Although there is no specific minimum tenure that must be achieved a commitment of at least three to five years would be ideal (American Community Gardening Association, 2009). “The duration of garden lot leases is specified in various authorizing laws, and ranges from as long as five years (renewable) in Seattle, to two years in Boston, to as short as one growing season under New York law,” (Schukoske, 1999). They are often terminable on short notice, 30 days is typical for a public purpose and five for a public nuisance,” (Schukoske, 1999). Often agreements are indefinitely renewable.

Vacant and underutilized land is a good way to provide both temporary and permanent sites for urban agriculture. Most of the sites that have been developed throughout the United States have been in disenfranchised, minority communities in large urban areas. Most are parcels owned by municipal governments, which they obtained through foreclosure, condemnation, unsettled wills, or abandonment, but do not have the funds to maintain (Accordino & Johnson, 2000). These sites are eyesores and foster urban crime. Disinvested lots have been scientifically correlated with urban violence. With the assistance of non-profit and civic partners, cities have been able to turn some of these lots into community gardens. Having stewards on-site, working the land and reaping its rewards, minimizes negative activities from occurring.

Cultural Views

Vacant and abandoned lands are stigmatized though often for good reason. When properties are left vacant or abandoned the entire area suffers from increased crime, decreased property values, increased insurance costs, decreased positive aesthetics, decreased wealth, decreased availability of affordable housing, decreased tax base and services offered, decreased quality of life, decreased business, and decreased potential for new businesses (Accordino & Johnson, 2000; Schukoske, 1999). These concerns directly play a role in determining how professionals manage and use these lands. The APA feels that the term vacancy should not be used as a land use classification. The vacant classification is interpreted as land that has no value to the community as is. This is an anthropocentric bias that does not even give value for the natural processes that are sustained by the land.

How vacancy is described, valued, and perceived by the community is critical to understanding how it is treated and how it can be used to change our perceptions (Accordino & Johnson, 2000). Artists have provided a different way to view abandoned lots. By terming them “open sites” and focusing on the benefits they provide, allowing light, air and sun to penetrate dense areas bringing nature to the urban fabric (Corbin, 2003). It has also been pointed out that vacant sites provide municipalities with opportunities and flexibility. “...vacant retains an idea of value, though perhaps deferred to the future,” (Corbin, 2003). These are properties that currently were unavailable to the city and can be used for new, more appropriate uses. Allowing municipalities to ask, “What needs are not being met within the community?” and using these parcels to address those needs.

Social Impacts

Vacant sites do have both positive and negative social impacts on the communities they are found within. They fill a need as places for children to gather and play, which is often a public service that is lacking within the disenfranchised neighborhoods where abandoned lots are more likely to be found (Ries et al, 2008). More often they become spaces for less reputable members of the community involved with urban crime to gather. The longer the lots are abandoned, the more comfortable people feel in these spaces, the more likely the structures are to be damaged, and the higher and denser the vegetation becomes. In order to successfully turn these properties around the community must be involved in the process. They have to want change to
occur and must be committed to making it happen by providing time, knowledge, money and skills or allowing those with these qualities to come in and do so.

Economic Impacts
Land is valued in two ways, by aesthetics and by its highest and best use with the latter having significantly greater influence. Vacant and abandoned lands do not have worth under either of these systems. When dealing with vacant lands, cities must determine how important the loss of value is to their tax base and reputation and use a strategy that will address these concerns. Unfortunately even if a city would like to tackle this problem there are legal and economic barriers that make the process time consuming and expensive. America’s legal system favors private property owners over community rights, placing the burden of proof on the municipality. Tax foreclosure proceedings take time, usually about 12 months per property, and funding, resources that government often does not have enough of.

Using this list of nine guiding principles, I was able to analyze parcel data and evaluate zoning ordinances to determine potentially feasible sites for urban agriculture in the four study areas.

4. QUESTION ONE: What is the physical feasibility of urban agriculture?

4.1 Purpose of the Land Inventory Analysis
This question looks at the physical feasibility of using publicly-owned land in Orange and Durham counties, Hillsborough, and Durham for urban agriculture. Physical feasibility is defined by what lands are appropriate for varying agricultural activities based on land cover, improvements, distance from residences, land use, road access, visibility, and topography. This analysis assumes that every parcel that is vacant and owned by a local government is available for urban agriculture. Through a simple analysis using GIS it was determined, which parcels would be appropriate for urban agriculture.

4.2 Land Inventory Analysis
A land inventory analysis was conducted for each of the four study areas. Although a similar methodology was used for each of the study areas they were not precisely the same (See Appendix 1 for a step-by-step analysis of each jurisdiction to understand the methodological differences). This section lays out the general methodology that was used and discusses the varying types of urban agriculture that the study considers.

4.2.1 Methodology
A two step analysis was conducted to determine potential sites for urban agriculture in each of the four study areas.

Step 1: GIS Evaluation
Basic shapefile data including county and municipal boundaries, parcels, roads, floodplain, and zoning was obtained from Orange and Durham counties. The ownername and building value fields of the parcel layer attribute tables was used to identify government-owned parcels that are currently vacant.
By defining characteristics that would make a site good for urban agriculture, a list of criteria was created. Potential UA sites must: a) be within a quarter to a half-mile of residences, b) not be in the 100-year floodplain, c) not be part of a reservoir, d) be in a residential zoning district, e) be at least 50 feet from major roadways, f) be publicly-owned, and g) be vacant.

**Step 2: Google™ Earth Evaluation**

The parcels identified in Step 1 were then individually evaluated in Google™ Earth to determine if they were appropriate for UA activities. By zooming in on satellite imagery of each parcel I was able to see the land cover of each parcel and if there were buildings, parking lots or other improvements on site. Based on the data gathered during the visual inspection I was able to make a determination about what type of urban agriculture was appropriate for each site, if any.

The data from Steps 1 and 2 was compiled to create maps displaying the potential sites for urban agriculture for each of the study areas as well as tables showing the same data but broken down by total parcels and total acres by type of urban agriculture.

### Table 2: Types of Urban Agriculture

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Land Cover</th>
<th>Agricultural Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Gardens</td>
<td>At least 0.2 Acres</td>
<td>cleared</td>
<td>vegetable gardens, flower gardens including individual garden plots or shared gardening spaces</td>
</tr>
<tr>
<td>Small-Scale Farming/Undisturbed Land</td>
<td>Greater than .09 Acres but less than 10 Acres</td>
<td>cleared and/or pine and hardwood forests</td>
<td>berries, fruit trees, mushroom cultivation, apiculture, composting</td>
</tr>
<tr>
<td>Community Farm</td>
<td>At least 3 Acres</td>
<td>cleared and/or wooded land</td>
<td>vegetables, apiculture, raising chickens, horticulture, aquaculture, berry bushes, fruit trees, horticulture, composting</td>
</tr>
<tr>
<td>Sustainable Forestry (government use only)</td>
<td>At least 10 Acres</td>
<td>pine and hardwood forests</td>
<td>horse logging, timber management</td>
</tr>
<tr>
<td>Impervious Surface Gardening</td>
<td>At least 0.1 Acres</td>
<td>parking lots, rooftops</td>
<td>vegetables, flowers, greenhouse, vermiculture in containers or raised beds</td>
</tr>
<tr>
<td>Edible Landscaping</td>
<td>Less than 0.25 Acres</td>
<td>Any</td>
<td>vegetative landscaping around buildings planted in pots or in the ground</td>
</tr>
<tr>
<td>School Gardens</td>
<td>At least 0.25 Acres</td>
<td>cleared and/or wooded land</td>
<td>educational gardens for school children and the community</td>
</tr>
</tbody>
</table>
4.2.2 Types of Urban Agriculture
Using the City of Portland, Oregon’s Diggable City’s urban agriculture categories for guidance, I created a list of urban agriculture types and defined them by parcel size, land cover, and type of agricultural use (Mendes et al., 2008). Each is included in Table 2.

Sites completely covered by hardwood and pine forests that were over ten acres were categorized as appropriate for sustainable forestry but only available for government use. Sustainable forestry is defined by the Ministerial Conference on the Protection of Forests in Europe (MCPFE) as, “the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems,” (MCPFE, 2009). According to Thomas Craven, a North Carolina registered forester, approximately 10 acres would be needed to make it worthwhile for a forester and logger to be interested in creating a timber management plan and removing timber for a sustainable forestry job (T. Craven, personal communication, March 28, 2009). Additionally I determined that sustainable forestry should only be undertaken by the jurisdiction itself because it is an activity that requires a level of expertise the general public does not have and it requires the landowner to have an interest in holding on to the parcel for an extended period of time to allow time for the trees to grow and mature, 10-50 years. Due to the expense of contracting with a forester and engaging in a logging operation, it would be wise for the jurisdiction to create an overall forest management plan for the area rather than one plan for each parcel.

Scale not land cover dictates small-scale versus community farming. If the site was completely covered by trees or was a mix of trees and cleared land and less than ten acres it was categorized as available for small-scale farming. Mostly cleared sites with some wooded areas that were greater than three acres were categorized as being appropriate for community farming, the farming of one tract of land by multiple individuals. Gravel and paved parking lots were appropriate for impervious surface gardening including container gardening, raised beds, farm stands, or other sale and distribution practices. Government-owned parcels where buildings and parking lots are the dominant features were appropriate for edible landscaping, which occupies the same amount of space as commercial landscaping while requiring less water and maintenance. Any site with a school was categorized as available for school gardening though they may be community gardens as long as they contain an educational component. Community garden sites were cleared sites, greater than 0.2 acres. This acreage was chosen to allow sites to be available to enough participants for them to be successful.

4.3 Results of the Land Inventory Analysis
The physical feasibility of using local, publicly-owned, vacant land for urban agriculture is good. The number of potential sites varies based upon the size of the jurisdiction with the City of Durham having the greatest number of sites, 304 parcels totaling 1,209 acres, and the Town of Hillsborough having the fewest sites, 13 parcels totaling 63 acres.
Very few parcels within each jurisdiction are more than a ½ mile distance from residences due to the generally suburban nature of the study areas. This increased the number of parcels for potential UA sites in theory. In practice I fear that the layout of the neighborhoods and land uses will prevent people from being able to access the sites without either a car or a walk that is greater than a ½ mile distance. Mostly this is due to the lack of direct routes to the sites due to private property and the lack of a grid-iron street pattern except within the town and city centers. If this analysis were run again I would limit the potential site buffer to a ¼ mile and would take into consideration how long the walk actually is rather than making this determination based on GIS.

Many of the potential sites are located on school grounds. Partnering with the school system to create school gardens that are maintained by the community would be the ideal use for these sites. That way the gardens can provide educational opportunities for the students while having year-round maintenance.

A visual inspection of the sites is necessary to understand what sites are viable for UA. Making a site visit would allow me to gather information regarding what kind of access is available to the site, the density of the land cover, identify what purposes the varying buildings serve, how accessible it is via foot and automobile, how large the site is, etc. Upon visual inspection I would expect that the number of viable sites would drop significantly for each type except for the sustainable forestry and school gardens.

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Type</th>
<th>Community Garden</th>
<th>Small-Scale Farming/Undisturbed Land</th>
<th>Community Farm</th>
<th>Sustainable Forestry (government use only)</th>
<th>Impervious Surface Gardening</th>
<th>Edible Landscaping</th>
<th>School Garden</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange County</td>
<td>9 parcels</td>
<td>26 parcels</td>
<td>9 parcels</td>
<td>19 parcels</td>
<td>3 parcels</td>
<td>3 parcels</td>
<td>3 parcels</td>
<td>21 parcels</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>25 acres</td>
<td>54 acres</td>
<td>343 acres</td>
<td>399 acres</td>
<td>35 acres</td>
<td>1 acres</td>
<td>386 acres</td>
<td></td>
<td>1,243 acres</td>
</tr>
<tr>
<td>Town of</td>
<td>7 parcels</td>
<td>2 parcels</td>
<td>0 parcels</td>
<td>1 parcel</td>
<td>0 parcels</td>
<td>3 parcels</td>
<td>0 parcels</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>38 acres</td>
<td>0.3 acres</td>
<td>0 acres</td>
<td>25 acres</td>
<td>0.04 acres</td>
<td>0 acres</td>
<td>63 acres</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>Durham County</td>
<td>38 parcels</td>
<td>29 parcels</td>
<td>1 parcel</td>
<td>36 parcels</td>
<td>2 parcels</td>
<td>1 parcel</td>
<td>17 parcels</td>
<td></td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>27 acres</td>
<td>13 acres</td>
<td>4 acres</td>
<td>782 acres</td>
<td>1 acres</td>
<td>0.4 acres</td>
<td>540 acres</td>
<td></td>
<td>1,367 acres</td>
</tr>
<tr>
<td>City of Durham</td>
<td>50 parcels</td>
<td>191 parcels</td>
<td>11 parcels</td>
<td>48 parcels</td>
<td>2 parcel</td>
<td>1 parcel</td>
<td>304 acres</td>
<td></td>
<td>1,209 acres</td>
</tr>
<tr>
<td></td>
<td>299 acres</td>
<td>73 acres</td>
<td>59 acres</td>
<td>770 acres</td>
<td>0.2 acres</td>
<td>6 acres</td>
<td>2 acres</td>
<td></td>
<td>3,832 acres</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>248</td>
<td>21</td>
<td>104</td>
<td>6</td>
<td>9</td>
<td>39</td>
<td></td>
<td>531</td>
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<tr>
<td>Total Potential Sites</td>
<td>389</td>
<td>140</td>
<td>406</td>
<td>1,976</td>
<td>36</td>
<td>7</td>
<td>928</td>
<td></td>
<td>3,832 acres</td>
</tr>
</tbody>
</table>
Figure 1: Potential Urban Agriculture Sites in Hillsborough, NC
Figure 3: Potential Urban Agriculture Sites in Durham County, NC

Emily Ander  4.13.09
Source: Durham County
Figure 4: Potential Urban Agriculture Sites in Durham, NC

Source: Durham County

Emily Ander  4.13.09
**Town of Hillsborough**
The fact that Hillsborough is a small town with a fairly tight-knit downtown community makes it an ideal place for UA to succeed. Hillsborough has 13 potential sites for urban agriculture totaling 63 acres with the majority of sites located in Downtown west of Churton Street, Hillsborough’s main thoroughfare. Forty percent of this land is contained within one of two parcels that make up Fairview Park, a joint project between Hillsborough and Orange County. Although the master plan does not provide an area for community gardening or other UA activities it would be an ideal location because it is bound on three sides by residential development with Orange County’s Public Works Department residing to the east. (See Figure 1).

**Orange County**
Orange County has 90 potential urban agriculture sites totaling 1,243 acres. The potential sites in Orange County are generally located around municipalities, Hillsborough and Carrboro in particular, and along the interstate corridors. The majority of publicly-owned sites are government buildings, schools, parks, or open space dedicated to the county by developers meeting the county’s open space requirement. All of these uses are conducive to varying types of urban agriculture. Government buildings are appropriate sites for edible landscaping or demonstration sites, schools and parks are ideal for educational gardens open to the community and sustainable forestry, and dedicated open space is ideal for small-scale agriculture to community farming and gardening. (See Figure 2).

**Durham County**
Durham County has 124 potential urban agriculture sites totaling 1,367 acres. The majority of these sites are located downtown, which is where government facilities and services are sited. The remaining sites are scattered throughout the county though there are more located in the southern half of the county than in the northern half. Southern Durham is under significant development pressure while Northern Durham remains rural and agricultural. (See Figure 3).

**City of Durham**
The City of Durham has 304 potential urban agriculture sites totaling 1,209 acres. As the most urban of the four study areas it is not surprising that Durham has the greatest number of potential sites and lags behind both counties in total acreage available for UA. Urban areas have a significantly greater number of parcels, due to increased population density and smaller parcel sizes. The potential for creating successful community gardens and small-scale farming is higher because many of the parcels are located downtown near population centers and contain a mix of cleared and forested land. This combination of land cover allows for the greatest number of possible UA activities. (See Figure 4).
5. QUESTION TWO: What is the regulatory feasibility of urban agriculture?

5.1 Purpose of the Local Land Use Policies Assessment
This question looks at the current zoning ordinances for each jurisdiction to understand how urban agriculture fits within the established land uses. Do these regulations bar or support the use of county and municipally-owned land for urban agriculture? It further looks to understand what would need to change within the current regulatory framework to fully allow urban agriculture to take place. This is done through an understanding of county and municipal policing powers and how they influence the current zoning ordinances and the process for creating text amendments to the zoning ordinance.

5.2 Methodology for the Local Land Use Policies Assessment
Through a series of interviews and reading each jurisdiction’s zoning ordinance I was able to determine the regulatory feasibility of urban agriculture in three of the four study areas. I began by contacting government employees in the county tax offices by email introduction. I heard back from Durham rather quickly but never received a response from Orange County. Instead I made an in-person trip and was able to talk with a series of staffers regarding the county’s definition of vacant land. These staffers provided further county contacts that I followed up with either by email or in-person. Each contact I made referred me to another staffer in another department that could answer a different question that I had. Thanks to the referrals I was able to name drop in my email introductions, which increased the number of responses I received. I heard back from the majority of staffers that I contacted with some providing information via email and others providing information via in-person interviews. In total I contacted 24 individuals, received feedback from 22 of them, and conducted 14 in-person interviews.

I found that it was much easier to get time with people by dropping in on them during the business day rather than calling or emailing. Everyone was willing to stop the task at hand in order to hear about my project and answer a few questions. I assumed this was because it is difficult for people to turn you away when you are present and also the fact that it allows a small break from the ordinary while providing a venue to share their expertise. I found that it was critical to understand how the various departments interact and communicate and what roles each serve in order to receive relevant answers. I did not go into the majority of my interviews with this understanding so many of my questions were unanswerable because they were misdirected.

Without working within the structure it is often hard to understand the interconnections. Land is an asset that is dealt with by a large number of departments. The tax office determines its tax value and assesses and collects property taxes based upon that value. The tax department also initiates the foreclosure process when property owners do not pay their property taxes. The planning department defines and regulates what can be done on the land. The real estate department manages surplus property and runs the auction process to disinvest the government from this property. Departments including parks & recreation, open space, public works, solid waste, and the school board have exclusive use to particular tracts of land and construct appropriate facili-
ties in the public interest.

5.3 Results of the Local Land Use Policies Assessment

"Local government power to legislate derives from state constitutional provisions, state statutes, and home rule powers. These grants of power vary from state to state," (Schukoske, 1999). In North Carolina, a Dillon’s Rule state, Chapter 153A and 160A of the North Carolina General Statutes grants and defines the powers and responsibilities of county and municipal governments. Articles 19 and 18, respectively, outline the powers of adopting and enforcing zoning ordinances for cities and counties. Powers and responsibilities, although generally the same for both jurisdictions, do have some differences one of particular relevance when it comes to regulating agricultural activities. “Bona fide farms are exempt from county zoning, but not from city zoning. This distinction has been in the NC statutes since counties were first given zoning power in 1959,” (D. Owens, personal communication, March 29, 2009). This statute is found under NCGS § 153A-340, Grant of Power, rather than NCGS §106-581.1 which defines agriculture.

5.3.1 Orange County Land Use Policies

Vacant is defined by the Orange County Tax Assessor’s office as any parcel without a building or with a building without power (electricity running to it) (R. Gunn, personal communication, March 9, 2009). This definition is used to appraise the value of the improvements on the parcel and is equal to the building value. The parcel is also assessed based upon its zoning, which determines the land value. These two values are added together to get the total value of the property. While the tax office recognizes the term vacant, the Planning Department does not. When talking about a vacant property they use the term underutilized. The term underutilized means that the parcel is not being used for its ‘highest and best use’ according to its zoning. The Planning Department looks at parcels solely based on what can be done on the parcel based upon the zoning code. Therefore a vacant property can be located in any zoning district. This was a critical distinction to make in the interviews.

The term temporary is used within my research question as an adjective to describe the length of time for urban agriculture on a particular site. Unlike in Durham, the term is not defined or used in the Orange County Zoning Ordinance. When asked if Orange County has a temporary use, Zoning Officer, Michael Harvey chuckled and said, “Temporary uses don’t exist. The use is or it isn’t, there is no in-between,” (M. Harvey, personal communication, March 27, 2009).

Urban agriculture is not covered under any section of Orange County’s zoning ordinance. The ordinance allows for gardens in every zone but it only allows for them as an accessory use (Orange County Planning Department, 2006). Agriculture is not defined though different activities that are considered to be agricultural are including: ‘specialized animal husbandry’, ‘agricultural services’, ‘commercial feeder operation’, ‘specialized horticulture’, ‘farming’, and ‘avocational farming’. Avocational farming is defined as, “The use of land for those activities which constitute general farming on less than five acres or have sales less than $1,000 for the preceding three years or less than ten acres of forest land for which a management plan has been prepared. The
use of the land for the raising and keeping of animals, reptiles, etc., or the propagation of ornamental plants, fruits and vegetables, in a manner which does not constitute specialized animal husbandry or specialized horticulture. Avocational farming does not include home gardening or the keeping of pets, both of which are allowed in any zone. Those uses are customarily accessory uses to the primary use of the land,” (Orange County Planning Department, 2006). Farming is defined as, “The use of land primarily for one or more of the following: The production in the open of cash grains, field crops, vegetables, melons, fruits, berries and nuts. The raising or keeping of general livestock and poultry for the sale of such livestock and poultry for the products thereof or the breeding of such livestock and poultry. Farming includes any buildings or structures which are customarily incidental or subordinate to the farming activities listed above, including residences for the owners, operators or employees of the farm and their families. General livestock and poultry includes those animals involved which are customarily and traditionally raised on farms, such as beef and dairy cattle, hogs, sheep, goats, rabbits and horses, mules, ponies, chickens, turkeys, ducks, and geese for the purpose listed above. Farming does not include agricultural services and processing, avocational farming, specialized commercial horticulture, and specialized commercial animal husbandry,” (Orange County Planning Department, 2006). Bona fide farm is defined as, “The use of land for farming meeting one of the following criteria: (1) composing two or more acres on one or more tracts owned or leased by the bona fide farm unit; (2) average annual sales of $1,000 for the preceding three years; or a minimum of twenty of forest land for which a management plan has been prepared,” (Orange County Planning Department, 2006). The Orange County Planning Department uses a very broad definition of farming and agriculture because these activities are regulated by the State. In my estimation, under the definitions of bona fide farm and avocational farming, all types of urban agriculture are allowed. Additionally, neither is restricted to specific zones.

With that said, the concern becomes not what the agricultural activity is or whether or not it is income producing but whether the land is privately or publicly owned. Private property rights are well protected in North Carolina. A landowner may do whatever he or she pleases as long as it is contained within the bounds of their parcel and is not a nuisance to neighbors. While county and municipal land is owned for the benefit of the public and therefore any activity that takes place on the land must be equally available to every resident within the jurisdiction. In Michael Harvey’s estimation urban agriculture, specifically in the form of community gardening, on public land, is prohibited by the Orange County Zoning Ordinance because the use is not expressly listed in the Permitted Use Table and according to Article 3.12, Prohibited Uses, “Use of land or structures which are not expressly listed in the Permitted Use Table, Article 4, as Permitted Principal Uses, Permitted Accessory Uses or Special Uses in a district are prohibited and shall not be established within that district,” (Orange County Planning Department, 2006).

There appear to be at least three strategies for allowing urban agriculture in accordance with Orange County’s Zoning Ordinance.

1) The first is to include urban agriculture within new master plans for municipal properties. Once the master plan is approved by the County Commissioners
the use is condoned for the life of the property or until the use is revoked by the Commissioners. This has been used for Orange County’s New Hope Park at Blackwood Farm, which calls for community gardens on 1.7 acres located northeast of the original farmstead (See Appendix 2 for a map of the master plan).

2) The second is for urban agriculture to be an accessory use to a site. This is currently happening at Orange County’s Planning and Agricultural Building on Revere Road in the form of a demonstration compost pile. Although it is rarely used, there are two bins set up, one for new material and one for material that has had time to break down and a sign explaining the function of the bins and the process of food breaking down into soil. Another example is the Eno River Farmer’s Market held in the Public Meeting House in Downtown Hillsborough, which is co-located with multiple Orange County office buildings, an Ecosystem Enhancement Program restoration project, Occoneechee Village, and the Sheriff’s Department. Finally edible landscaping would be a particularly easy accessory use to accommodate because it can be done anywhere there is commercial landscaping. “Edible landscaping is the use of plants that produce food in place of more commonly used ornamental plants,” (City of Vancouver, 2009).

3) The third strategy is for a community group to find a site, determine a county agency that is supportive that can partner on the project, and write a letter directed to a zoning officer within the planning department laying out the project in a manner that strictly defines the land use as bona fide farming within Orange County’s parameters cited above, and request approval of the use. The letter would need to address the issue of private liability insurance, which would be in addition to the insurance coverage held by the county; provision of facilities including parking, restrooms, water, sewer, lighting, etc., if necessary; and the proposed period of time the use will occur for. Potential government partners are the Environment and Resource Conservation Department, the Orange County Cooperative Extension Agency, the School Board and Board of Education, and Recreation and Parks. The most influential support that could be gained is that of one or multiple county commissioners. Currently there are at least three commissioners who are interested in supporting agricultural activity and farmers within the county. There may be support from some School Board members as well.

5.3.1.1 Barriers created by Orange County’s Land Use Policies

It is encouraging that there are tactics for overcoming the fact that urban agriculture is prohibited from the zoning ordinance, strictly speaking, yet barriers remain. Firstly there are economic costs implied by the ordinance that could easily make urban agriculture on municipal land infeasible. Only a portion of Orange County’s jurisdiction is served by the Orange Water and Sewer Authority (OWASA) with the remaining areas of the county requiring a well and septic system. Water and sewer fees through OWASA would total approximately $3,000 for a 5/8 inch connection. See Appendix 3 for a full fee schedule. Drilling a well and providing a septic field would be an additional expense. The permit process alone for a new well and septic system costs
$610, $350 for Site Evaluation and $260, for Construction Authorization and requires submittal of a site plan. In my estimation a septic system would not be necessary but even with the use of cisterns, a permanent water source is critical. Liability insurance coverage must be provided.

If all of the typical regulatory requirements must be provided including restrooms, lighting, parking, a site plan, than urban agriculture is economically infeasible.

Secondly Mr. Harvey felt that because it was a public property being used for a public purpose that every member of the community should have equal access to the property. In order to provide this resource to all, a county-wide program would have to be implemented by inventorying all possible sites and then divvying them up through some sort of lottery system. This would be time-consuming, expensive, and likely unsatisfying to all parties involved, again making urban agriculture infeasible.

5.3.2 Durham City-County Land Use Policies

On January 1, 2006 Durham’s City-County Unified Development Ordinance (UDO) went into effect after being passed by the Board of County Commissioners and City Council at a joint meeting in December 2005. The UDO defines one type of agriculture, commercial agriculture, but allows for two types, commercial within the county and limited agriculture within the city. Agricultural uses are defined as, “Land used as pasture or in the commercial production of crops, horticultural products, fish hatcheries or aquaculture. Also for the purposes of this Ordinance, the keeping of livestock for commercial or noncommercial purposes is defined as an agricultural use. Livestock includes but is not limited to poultry and hoofed animals such as cattle, horses, goats, sheep, and swine;…Also included in this definition of agricultural uses are agricultural accessory buildings, and sales of agricultural products grown or raised on the premises. Not included in this definition are any use conducted pursuant to a valid permit issued under Sec.3.23, Limited Agriculture Permit, apiculture, the commercial slaughtering of animals for marketing, and farm tenant dwellings.” (Durham City/County Planning Department, 2006). Agricultural activities in the county are only allowed within the Residential Rural and Residential Suburban zones while limited agriculture in the city is allowed in any of the Residential zones. Agricultural uses can be the primary land use if the land is in county, but under the Limited Agriculture ordinance agricultural uses are only allowed to be accessory within the city. Currently the Limited Agriculture ordinance only allows for the keeping of female chickens while another ordinance allows for apiculture (bee-keeping). Other uses would require additional text amendments.

Although the UDO contains a section in regards to temporary uses, urban agricultural uses do not fall within this categorization. Temporary uses require permits, are allowed for up to 45 days, and include carnivals, construction trailers, Christmas tree lots, etc.

Currently urban agriculture, except in the form of domestic chickens, apiculture, greenhouses, nurseries, and forestry, is not explicitly allowed in Durham. Additionally these uses are only allowed in residential zones and as non-commercial, accessory uses. Gardens themselves are not mentioned within the UDO. Forestry activities are allowed in any zone and are regulated by the State (Durham City/County Planning Department, 2006).
Department, 2006). Only recently, the end of 2008, has Durham amended its ordinance to include Limited Agriculture, Section 5.4.12 (See Appendix 4). To date the only subsections it covers are general terms and domestic chickens. Limited agriculture requires a limited agriculture permit to conduct the use; a building permit to construct any accessory structure associated with the use; can only be done for non-commercial purposes; and cannot create a nuisance. All of these seem reasonable for urban agriculture except for the non-commercial aspect. This requirement would limit urban agriculture activities by not allowing for community farms, farm stands, farmers markets, or sustainable forestry. It would force these activities to take place within the County’s jurisdiction or into other use districts. It is possible that these barriers could be overcome through the crafting of additional text amendments that specifically relate to each of the activities.

With that said the fact that the Limited Agriculture amendment was added and in such a short time period—6 months, according to Julia Mullen, the planner who writes Durham’s ordinance text—and comprises an entire section with the UDO rather than being positioned within another section, indicates that there is support for such land uses and that there is openness to expanding these uses (J. Mullen, personal correspondence, March 25, 2009). Section 5.4.12 is the best place for including urban agriculture as a land use within the UDO. Mullen believes that there is support for urban agriculture within the community, within both city and county government, and with some elected officials.

5.3.2.1 Barriers created by Durham City-County’s Land Use Policies
In addition to the barriers mentioned above—limited agriculture is only allowed in residential zones, is limited to particular activities, does not include non-commercial uses, and only can occur as an accessory use—there is also the difference between public versus private land and the costs associated with bringing a parcel to the appropriate standards to allow for urban agriculture.

Currently there are community gardens within the City of Durham; however, with the exception of the small educational garden run by SEEDS, which is located on the same site as the Durham Farmer’s Market, none are located on government owned property. Based on my interviews with Durham staff in Tax Administration, Real Estate Services, and Planning, Durham does not have any agreements with private citizens or community groups for use of government owned property.

Prohibitive costs may include water tap fees, liability insurance, and text amendment additions. Fees related to bringing water onto a site for a 5/8 inch meter total $995 upfront plus monthly water usage fees (See Appendix 3 for a fee schedule). Construction of a tool shed may require a permit depending on the ratio of the building to the overall site. Although based upon the correspondence I received from John Read, an inspector for Durham, there is no definitive answer to the question, “What is the maximum size a building can be without having to get a permit to construct it?” (J. Read, personal correspondence, March 31, 2009). He did refer me to the 2006 N.C. International Building Code a document that Durham uses as a reference guide.

Unlike Orange County no one I spoke with in Durham mentioned required facilities—
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parking, restrooms, lighting, landscaping, buffering, etc. The only concern of that nature that was brought up was stormwater. Any site disturbance that is greater than 12,000 square feet, a 1/4 acre, requires a stormwater management plan. I was told that a stormwater management plan could likely be avoided unless the government receives a complaint from a neighbor about excessive stormwater runoff. I would imagine that having plant material on the site would reduce rather than increase stormwater runoff and this would not be an issue. Durham officials were more concerned with liability insurance, vandalism, harboring negative activities via vegetative cover, aesthetics (what the garden would look like at the end of the season), management (who maintains the site, who provides enforcement), environmental education, and the duration of the activity.

5.3.2.2 Text Amendment Process

The text amendment process takes anywhere from six months to two years. It begins with a citizen, internal staff, or an elected official bringing forth an issue to the Planning Department. If it is a citizen that brings forward the amendment the cost to do so is $3,000+. It is infrequent that a request comes forward in this manner. Typically a citizen will solicit the support of an elected official and have them bring the issue forward. Since staff are directed by elected officials this is probably the most effective scenario. An application is submitted to planning staff along with the appropriate fees. A meeting is held between the applicant and the appropriate staff member to ensure the meaning of the amendment is understood. Staff researches the request, sends notices out to the appropriate organizations and interested individuals, and brings forward their recommendation to a Joint City-County Planning Committee (JCCPC). The JCCPC hears the amendment and determines whether or not it is in the public interest. If it is they recommend staff to move forward and if not no staff initiative is taken. Staff drafts text for the amendment and sends it out to all departments for internal comment and feedback, then incorporates this feedback. The amendment goes forward to the Planning Commission who holds a public hearing, discusses the subject, and makes a recommendation to the JCCPC. The JCCPC holds a public hearing and either makes a final decision or postpones the decision until their next meeting. Notice of both public hearings is sent via letter and/or published in the Durham Herald-Sun, 10-25 days before the hearing. The applicant is notified within seven days of the final decision (J. Mullen, personal correspondence, March 25, 2009).

Going through the text amendment process is the best way to ensure that urban agriculture is allowed as a land use through both administrative and political changes within Durham’s government.

6. FINDINGS

Urban agriculture is a subject with growing support from the Triangle community. This is most evident from the increasing number of farmer’s markets, 14, and community supported agriculture programs, 24, that have sprouted up in the area over the past few years (LocalHarvest, 2009). It is also apparent by the discussion and passing of zoning ordinances to allow female chickens within city limits throughout the Triangle. This sup-
port was reaffirmed during the interview process for this project. Nearly everyone I spoke with was interested in the subject matter either personally or from the perspective of the community or elected officials. That said each staffer I interviewed was also very logical in his/her assessment of the subject matter and the issues that must be addressed when considering urban agriculture, particularly if a text amendment is going to be requested and written or if the activities are going to take place on publicly-owned land. These issues include liability insurance, vandalism, communication between the government agency and the community group, management, duration of land tenure, equal access, provision of facilities, accessing water, and insuring the parcel is always aesthetically pleasing.

6.1 Insurance
The one concern that each person I interviewed brought up was the issue of liability insurance. Although each government entity holds liability insurance on every parcel it owns, in order to enter into any formal agreement with a private group, personal liability insurance would have to be obtained for the duration of the agreement. The purpose of the insurance would be to assure that the government entity could not be held liable if any member of the public was to become injured on the site and if someone was to become injured that it would be the leasee’s responsibility not the government’s.

Unfortunately insurance companies have limited experience insuring community gardens and other types of urban agriculture. It is recommended by the American Community Garden Association that insurance be obtained from one of the nation’s largest insurers as they are more likely to have experience with this type of land use. However, it is significantly less costly to have the government entity add the use of public land for community gardening to its policy than to have the community group itself get an insurance policy. Adding on community gardening as a rider to the existing policy would be the most financially efficient means of achieving this goal. Insurance apparently is more an issue of politics. If a government is truly supportive they may be willing to take on the cost of insuring the property.

Another possibility is getting “umbrella coverage”, which is an add-on to homeowner’s or renter’s insurance (Hale, 1999). It is also possible for all urban agriculture sites to get one insurance policy to insure a large number of parcels rather than just one parcel. This would need to be done through a local non-profit who is involved in this type of work or related work and would be willing to sponsor this activity. According to the Gardening Matters Web site, an insurance policy for the average home lot should be no more than $150.

6.2 Management
Many in government view the issue of consistent management as crucial to the success of urban agriculture. This is not an activity that local government has the capacity to undertake. Government would have to rely on the community group to provide itself with oversight and management. The managing entity would ensure that the land is maintained for the uses described in the agreement with the government agency, that participants remain involved, that the site does not create a nuisance to
its neighbors, that oversight is provided, that illicit activities are not taking place on-site, remains the contact for the extent of the agreement or if this changes informs the overseeing department of the change, and maintains consistency from year-to-year.

6.3 Perception of Vacant Land
Both Planning Departments I spoke with had a very negative association with the term vacant. The connotation is so strong that the term has been replaced with underutilized – land that is not being used to its highest and best use under current zoning. Vacant land is associated with disinvestment, crime, as unwanted and uncared for. With a change in perception this disadvantage could be viewed instead as an economic opportunity for growth and recovery (Pagano & Bowman, 2000).

6.4 Regulations differ on Private versus Public Land
Legally there is a difference between privately and publicly-owned land. Basically anything can occur on privately owned land as long as zoning ordinances are heeded and nuisances do not arise. Because publicly-owned land is owned in the public interest it must benefit the public. Leasing public property to one community group eliminates the possibility of equal access to that site to all.

Mr. Harvey mentioned that equal access could be provided through a lottery or medallion system. This way all interested individuals and groups would have equal opportunity for participation. Unfortunately this would also mean that those who would want to participate in UA close to home would have the same chance of being chosen for the site closest to their home as the person who lived furthest from the site. This would defeat the additional purposes that UA serves within a community including getting people to make trips without their cars, providing eyes on-site, and creating social networks.

He also stated that in order for a community group to use the property for UA public facilities would have to be provided. In Orange County these include water and sewer, lighting, restrooms, parking, and handicapped accessibility. This would allow equal access to every citizen to participate in UA at each site. It would also eliminate UA as a potential land use for these sites because it would be cost prohibitive. It would be difficult enough for groups to be able to pay the initial water tap fee, monthly water bills, annual liability insurance costs, purchase seeds, pay property taxes (if any), set up water catchment systems, site clean-up, construct a tool shed (if necessary), and rent necessary equipment without adding the burden of public facilities.

6.5 The Semantics of the term Urban Agriculture
The term “urban agriculture” although relatively implicit, is unfamiliar to most outside of the academic community, while the term community garden is well understood. In my interview with Keith Luck, Assistant Planning Director for Durham City/County Planning Department, he suggested that I consider a new term for urban agriculture, one that resonates and is clear to the average citizen (K. Luck, personal correspondence, March 11, 2009). UA is vague. It is apparent in that it means producing agricultural products within urban environments but it does not suggest what types of activities are encompassed within it, where it should take place, how much land is needed, if it in-
volves all citizens or just community groups, etc. Agricultural activities are broad and some of these activities do not belong in urban areas like animal feedlots and raising large livestock. These uses can create public health and safety concerns. At the same time many agricultural uses that are feasible are prevented due to the way the zoning ordinances are written. Gardening as anything other than an accessory use falls in this category. For this paper it makes sense to use the term “urban agriculture” but in order to move this research into reality a new term must be coined or an old term must be found that encompasses the essence of UA while also being a descriptor for what it is.

6.6 Legal Issues
There must be some sort of legal agreement between the two parties that is signed and recorded at the Register of Deeds for a UA program to be successful. This agreement could be in the form of a contract, a lease, a license, a deed, etc. A binding legal agreement would lay out who owns the land, for what purpose the land is owned, a legal description of the property, who is leasing the land, for how much, for how long, for what purpose, as well as the responsibilities of each party. The agreement would protect both parties and would allow each party to terminate the agreement and under what circumstances termination could take place. Drafting an agreement might prove to be a large hurdle because it would require that a document be drafted by the government’s attorney and approved by the elected body before it could be used. Each agreement would require review and approval by both the attorney and the elected body.

Based upon the interviews I conducted Orange County was the only study area that had engaged in such agreements for any purpose. Orange County has used a license agreement and a liability waiver, which document is used is dependent upon the requested duration of use (See Appendix 5 and 6 for sample agreements).

6.7 Temporary Land Tenure
The key finding here is that the agreement period must be long enough for UA to be viable but short enough not to restrict government from using the property for its intended purpose. Time is critical for agriculture of any kind to succeed and one growing season would be an insufficient tenure period. The amount of labor and resources it would take to prepare a site for agriculture is too intensive and draining for a group to be willing to do UA for this time period. Temporary would have to be defined depending on each individual parcel, its future use and its proposed agricultural use.

6.8 Costs
It is possible that the costs mentioned earlier, even without considering the possibility of having to provide public facilities to each site, would be too great for UA to succeed. A community group’s ability to pay for these fees is directly related to the length of their agreement with the government. Fixed costs, including a water tap, permitting fees, constructing a tool shed, testing the site for soil contamination, and preparing the site for agricultural use (cleaning up the site and bringing in new soil if necessary), are incurred upfront so the longer the timeframe, the cheaper these expenses are if they are considered over the term of the agreement. These upfront costs will make or
break the endeavor.

On the other hand if the site is close enough to residences and the water tap is not required, a water hose or rain barrel could be used as a water source, preparation of the site is free because labor is provided by volunteers, soil testing is conducted through Cooperative Extension, a tool shed is not needed because gardeners bring their own tools or a garden shed is donated or, and if the government provides free compost then the project would be financially feasible.

Despite this support there are barriers that must be overcome. Luckily overcoming the barriers is often possible if there is enough support for the land use, which appears to be the case in Orange and Durham counties.

7. LIMITATIONS OF THE STUDY

There are many limitations to the study I conducted. Many were found during the research process and reinforced by the interview process.

Non-profit Input
Probably the largest limitation of my study was the fact that I was unable to speak with anyone from SEEDS, South Eastern Efforts Developing Sustainable Spaces, a Durham non-profit. SEEDS is the local expert on community gardening and would have the greatest knowledge on urban agriculture.

Community Interest
Although I knew there was local interest in urban agriculture this study does not account for its feasibility from a community perspective.

Site Evaluation
Making site visits to all of the potential urban agriculture sites is necessary to create an accurate listing of sites. Unfortunately I did not have enough time to perform this step of the analysis.

Human Attachment to Land
Gardening is a very personal activity that directly attaches a person to a distinct place. This attachment burgeons over the course of a growing season and deepens further with time no matter who owns the land. Despite a full understanding of the time frame of the agreement at commencement when the agreement comes to an end it may be difficult for the community group to separate itself from the site.

Land Ownership
I focused on publicly-owned rather than on privately-owned land because private land is more difficult to regulate, there is significantly more of it, data is more difficult to access, and the number of interviews that would need to be conducted would be overly ambitious given the study’s timeframe.
Measurement of Walking Distance
The differing road and land ownership patterns between the urban, Durham and Hillsborough, and rural, Durham and Orange counties, study areas created a discrepancy in determining which sites were truly within a quarter to a half mile walking distance of residences.

Temporary Land Uses
Focusing on publicly-owned land necessitated that I look at temporary uses. Owning real estate and having the ability to sell it on the private market is one of a handful of revenue generating options available to government. For a government to give this right away by allowing urban agriculture or any other non-revenue generating activity to occur on the land for perpetuity would be fiscally unwise and likely not the highest-and-best use of the land.

Organizational Structure
The study did not look extensively at ways of organizing urban agriculture programs and therefore does not provide recommendations on the best way to structure new programs in Orange and Durham counties.

Human Error and Bias
Significant human error arose during the GIS analysis from fatigue and inconsistent judgment.

Google Earth Satellite Imagery
Due to legal concerns with Google™ Earth satellite imagery, specifically with the Street View feature, I likely should have used an alternative imagery data source for my site-by-site visual evaluation. I did attempt to gather data from LandCover and from the local governments but these data sources to be much more complex and time consuming to use.

8. CONCLUSIONS
Temporary, urban agriculture is feasible on vacant, government-owned land from a physical standpoint but technically not from a regulatory standpoint. Yet UA is happening in Orange County and in the City of Durham. It is this discrepancy between what is allowed and what is occurring on the ground, in concert with the interest I encountered over the course of this project that incites my belief that UA is possible and that the time is ripe to move urban agriculture forward across the four study areas.

There is unmet community demand, as local groups search for land available for urban agriculture. During the course of my research I encountered an anthropology professor at UNC-Chapel Hill who is looking for a site to do community gardening in North East Central Durham; discovered a group of young farmers called the Crop Mop who are looking for affordable land to produce food on; participated in an urban farm tour of Carrboro, NC whose goal was to expose community members to many forms of urban agriculture taking place within town limits to inspire others to use land creatively to produce food; and met multiple students who are frustrated by the lack
of community composting facilities because they live in apartments and are unable to compost at home. I learned all of these things through random community connections not because I was seeking them out so I would imagine that if I conducted a survey I would discover significant demand throughout the community.

Urban agriculture is already on the ground in Orange and Durham counties despite the lack of regulatory support. It is occurring on both privately-owned and publicly-owned land. Privately held examples include the Anathoth community garden at Cedar Grove United Methodist Church in Orange County; a community garden under construction at St. Bartholomew’s Episcopal Church in downtown Durham; two educational gardens at SEEDS office in downtown Durham; two community gardens have come to fruition on the Duke University campus, one beside the Smart Home and one in Sarah P. Duke Gardens; the Arcadia co-housing community in Orange County shares a quarter acre community garden near the center of the development. On publicly-owned land there is a miniature SEEDS garden on the Durham Farmers Market site, owned by the City of Durham; a community garden is part of Orange County’s master plan for New Hope Park at Blackwood Farm; a compost demonstration site at the Orange County Planning and Agricultural Services building in Hillsborough; flower gardens outside classroom windows at New Hope Elementary; and the farm enterprise incubator program at Breeze Farm in rural Orange County where interested residents learn agricultural techniques and also can rent land to grow.

These examples are encouraging because they prove that there is support from both the private and public sectors for urban agriculture. It is this broad-based support that will provide the cornerstone for creating and moving forward local government ordinances and policies that allow for urban agriculture. The diversity of examples helps to define the breadth of activities that the term UA encompasses. It is also encouraging that the 2030 Orange County Comprehensive Plan supports locating community garden sites throughout the county in its Natural and Cultural Systems Element Section. “Orange County should continue to identify suitable locations for agricultural facilities—processing centers, community kitchens, demonstration tracts, community gardens and the like”. It also encourages community farms by encouraging, “...small-scale farmers to pursue more cooperative ventures and seek more regional programs to compete with corporate operations,” (Orange County Planning Department, 2008).

We must build off of these success stories to make these opportunities available to a larger populace. Doing so will directly contribute to the greening of our community. Having regulations that allow for urban agriculture will help Orange County meet Objective AG-7 of the Comprehensive Plan which states, “Complete an examination of the local food system, and create a regional sustainable food network, whereby local residents consume 10% locally grown and produced products in five years,” (Orange County Planning Department, 2008). Urban agriculture is possible and it is necessary for the Orange and Durham communities to achieve their goal of becoming green, sustainable, resilient places. We need all kinds of UA and must create policies that allow for it on public land and on private land, for temporary timeframes and for long term ones, to educate youth, to support our local farming economies, to provide food security, to clean up our towns and cities, to use underutilized land in creative ways, to
beautify our communities, to buffer us during periods of recession, to invest in our communities, and to reconnect people to nature and to one another.

9. **RECOMMENDATIONS**

A series of recommendations resulted from my study that may be used to move this study forward so that it may be useful to the four study area governments.

**Recommendation 1:**
Locate one staff member within each local government to act as a point person. This person should be known and respected within their agency, have an understanding of government and community politics, have a good rapport within their community, and have a personal interest in the subject matter. The point person would provide information on the vacant sites owned by the government - why they acquired them, when they acquired them, if they are currently being used for their intended purpose, and if not a timeframe for when they will be.

In Orange County this person would be Rich Shaw, Land Conservation Manager with the Environment and Resource Conservation Department. Mr. Shaw maintains a list of the counties owned, vacant parcels, has relationships with or connections to staff in the county departments that would be interested in this subject matter, and has a personal interest in the topic.

In Durham City/County it would be Keith Luck, Assistant Director of Planning and Inspections. He has been with Durham for a couple of decades and understands inter and intradepartmental interactions as well as the most appropriate contacts within each department.

In Hillsborough the best staff member would be Margaret Hauth, Director of Planning. Although I did not speak with her about my project she has been with the town for many years and understands town politics and the community pulse as well as the history of almost every parcel in Hillsborough. She would know the purpose of Hillsborough owning each of its vacant parcels and whether or not they would be feasible UA sites. She would also know which groups in town would be interested in using the sites and whether or not these uses would be feasible from a regulatory standpoint.

**Recommendation 2**
Working with the point person, determine a list of criteria to use in a land suitability analysis for potential UA sites. Conduct a land suitability analysis using GIS. This will create a list of potential sites in ranked order. This list can be further subdivided into type of agricultural use.

**Recommendation 3**
Make site visits to the potential vacant parcels to determine if they are truly suitable for urban agriculture. Drive to each site to determine accessibility. Walk around the site to get a feel for the land cover, topography, slope, current uses, former uses, and
overall size to determine what agricultural types would be possible.

**Recommendation 4**
Remove any parcels from the potential sites list that are planned to be used by the government within the next three years. These sites will not make successful UA sites. Create maps from the data gathered showing UA sites color coded by type of urban agriculture.

**Recommendation 5**
Determine if there is support at a staff and departmental level within the local government for initiating some sort of program. Provide the initial list of urban agriculture sites to them to solicit their feedback. This list will also need to be shared and okayed by Cooperative Extension, the School Board, Parks & Recreation, ERC, General Services – Open Space and Real Estate division, Hillsborough Historic District Commission, and Soil & Water because some of the sites are held or intended for their use.

**Recommendation 6**
If there is support from within government contact Town Council, City Council and Board of County Commissioners to find supporters among the elected officials. Determine with them the best way to go about moving UA forward.

Have an elected official(s) propose that planning staff look into the feasibility of a text amendment to the zoning ordinance or unified development ordinance that would allow for urban agriculture. In Durham’s UDO it would fall under Section 5: Limited Agriculture. The best fit must be determined for Hillsborough and Orange County’s ordinances.

In Durham, work with Julia Mullen to understand what elements need to be researched in order to make a text amendment feasible. Provide as much of this research as possible to assist staff to move the process forward.

Craft another term for UA that is understood by the general public.

**Recommendation 7, concurrent with Recommendation 6**
Work with both Durham and Orange Cooperative Extension to figure out how to structure a program for UA and a process that is clear to the community without overly burdening the staff.

Potential Roles for Cooperative Extension:
- Provide oversight by being the main point of contact for the government to the community
- Appoint a Master Gardener to oversee each site
- Provide technical expertise and education
- Extension Agent
- Master Gardener

3) Determine what kinds of government services can be provided and which department would provide them. Possible services to be considered: a) Trash pick up, b) Water taps, c) Technical assistance, d) Seeds, e) Equipment, f) Compost, g) Site design advice, h) Policing if any vandalism issues, i) Rider on insurance
policy, j) Management, k) Oversight

**Recommendation 8**
Get the word out to the community about the possible program through the local paper, contacting neighborhood associations near available properties, contacting local community gardens, related listservs, Craigslist, related non-profits who can pass the word along, etc. This support will be crucial to having the text amendment pass through all elected bodies. Support must be broad-based and consistent during the decision making process.

**Recommendation 9**
Have government attorney draft legal agreement.

**Recommendation 10**
Pass text amendment

**Recommendation 11**
Encourage community use of the regulation.
10. REFERENCES


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References


Appendix 🌟
Appendix

APPENDIX 1: Land Inventory Analysis—Step-by-Step Methodology

Hillsborough
The following data layers were used for the analysis: the Orange County parcel layer, the Planning Department’s official floodplains layer, the Orange County Boundary layer, the Municipality Boundary layer, and the main Orange County zoning layer. All data was as of March 13, 2009 and was provided by Beth Young of Orange County’s Environment and Resource Conservation Department.

Step 1:
Using the Orange County parcel layer I opened the attribute table and used the Select by Attributes feature to create a new shapefile for “Vacant Parcels owned by Hillsborough”. Vacant is defined by parcels without the presence of buildings, which is understood by a building value of zero, $0.00. Using the building value field I selected for parcels with a building value of zero. Hillsborough parcels include those parcels with Owner Name – Hillsborough, Hillsborough Town of, Hillsborough City of, and Hillsborough Historic Commission. This generated a total of 95 parcels.

Step 2:
Of these 95 parcels, Hillsborough’s West Fork on the Eno Reservoir accounts for 56 of them. These parcels were removed from the “Vacant Parcels owned by Hillsborough” layer leaving 39 parcels available for urban agriculture. This was achieved by setting the “Selectable Layers” tool to “Vacant Parcels owned by Hillsborough” layer, selecting all of the parcels making up the reservoir, using the “Switch Selection” tool to select the remaining parcels, and finally exporting these records into a new shapefile. Future right-of-way parcels were removed in the same manner.

Step 3:
The “Vacant Parcels owned by Hillsborough” layer was then clipped with Orange County’s official floodplain layer and these parcels were removed from the vacant parcels layer using the same steps as above.

Step 4:
Next these parcels were visually compared against Hillsborough’s 2010 Vision Plan (see Appendix 7), which includes a hand drawn zoning map to determine, which parcels were in residential use districts. Those parcels that were not in residential zones were removed from the layer using the Switch Selection and Export tools.

Step 5:
A multi-ring buffer of one-quarter and one-half miles was applied to the remaining vacant parcels to determine which parcels are walkable from residences.

Step 6:
The next part of the evaluation used Google™ Earth to visually explore each of the physically feasible, vacant, Hillsborough-owned parcels. First the “Vacant Parcels owned by Hillsborough” layer was exported to .kml using Open Source MapWindow-
Appendix

GIS and a limited-time free version of Shape2Earth. The .kml file was then imported into Google™ Earth.

**Step 7:**
Each parcel was visually inspected to determine if it would be appropriate for urban agriculture and if so what type of agricultural activity. Parcels were inspected by having Google™ Earth with the exported .kml file open on one computer and having the Orange County GIS webpage and an Excel spreadsheet, listing the appropriate parcels sorted by North Carolina Parcel Identification Number (PIN), open on a second computer.

**Step 8:**
The Excel spreadsheet was created by exporting the “Vacant Parcels owned by Hillsborough” layer into a .dbf file and then opening the .dbf using a converter tool (which was already installed on a co-worker’s computer) in Excel and saving it as an .xls file. The Excel file was then sorted by PIN, copied, pasted into a new worksheet, unnecessary fields were deleted, and finally fields were added for “Feasibility, Yes or No”, “Type of Use”, and “Notes”.

**Step 9:**
Each parcel was visually inspected by first locating the PIN in Excel, using the “Search” feature on the Orange County GIS web site to locate the parcel by PIN, and then finding the corresponding parcel on Google™ Earth and zooming in to see what was on the ground. I then made a judgment call, using the Google™ Earth image and my own personal knowledge of the specific sites, to determine the most appropriate agricultural use, if any. Any parcel that was inappropriate was deleted from the Excel file. As each parcel was inspected I recorded information for feasibility, type of use, and wrote a brief description of the property including land cover, adjacency to other publicly-owned parcels, if there were buildings on the site, if there was road access, and what the site was used for when that information was known.

**Step 10:**
The Excel spreadsheet was then sorted by “Feasibility’’. “No’s” were removed. The attribute table for the “Vacant Parcels owned by Hillsborough” layer was opened in ArcMap along with the Excel spreadsheet. Each parcel was searched for using the “Find and Replace” function under “Options” on the attribute table and any that were not found in Excel were deleted from the layer by performing a Switch Selection and Exporting the new feature.

**Step 11:**
The remaining 13 parcels were the physically-feasible potential sites for urban agriculture in the Town of Hillsborough. This polygon feature was then converted to points using the “Features to Points” tool in ArcToolbox under Data Management Tools. This tool uses the centroid of each parcel’s polygon to create a point.

**Step 12:**
An Orange County roads layer was downloaded from the U.S. Census Tiger/Line web-
site. I chose to create a new feature from this layer that included Interstates 40 and 85, U.S. Highway 70, and State Roads 86 and 57. This layer will be used to provide context for the location of the potential UA sites on the final map.

**Step 13:**
Using the point feature, along with the Hillsborough boundary feature, the Orange County boundary feature, and the roads feature I was able to create a map showing Potential Sites for Urban Agriculture in Hillsborough, NC.

**Orange County**

**Step 1:**
I followed Step 1 for Hillsborough with the exception of selecting those parcels with the following Owner Names – Orange County, County of Orange, Orange County School Board, Orange County Board of Education, Orange County Soil & Water. This layer was named “Vacant Parcels owned by Orange”.

**Step 2:**
The “Vacant Parcels owned by Orange County” layer was then clipped with Orange County’s official floodplain layer and these parcels were removed from the vacant parcels layer using the same steps as above.

**Step 3:**
The remaining parcels were reduced further using Orange County’s zoning shapefile. Using the “Select by Attributes” I was able to select those parcels that were within residential zoning districts including Rural Buffer (RB), Agricultural Residential (AR), Rural Residential (R-1), Low and Medium Intensity Residential (R-2, R-3, R-4), and High Intensity Residential (R-5, R-8, R-13). Those that were not were removed from the layer by exporting the selected features into a new layer.

**Step 4:**
A multi-ring buffer of one-quarter and one-half miles was applied to the remaining vacant parcels to determine which parcels are walkable from residences.

**Step 5:**
The next part of the evaluation used Google™ Earth to visually explore each of the physically feasible, vacant, Hillsborough-owned parcels. First the “Vacant Parcels owned by Hillsborough” layer was exported to .kml using Open Source MapWindow-GIS and a limited-time free version of Shape2Earth. The .kml file was then imported into Google™ Earth.

**Step 6:**
Each parcel was visually inspected to determine if it would be appropriate for urban agriculture and if so what type of agricultural activity. Parcels were inspected by having Google™ Earth with the exported .kml file open on one computer and having the Orange County GIS webpage and an Excel spreadsheet, listing the appropriate parcels sorted by North Carolina Parcel Identification Number (PIN), open on a second computer.
Step 7:
The Excel spreadsheet was created by exporting the “Vacant Parcels owned by Hillsborough” layer into a .dbf file and then opening the .dbf using a converter tool (which was already installed on a co-worker’s computer) in Excel and saving it as an .xls file. The Excel file was then sorted by PIN, copied, pasted into a new worksheet, unnecessary fields were deleted, and finally fields were added for “Feasibility, Yes or No”, “Type of Use”, and “Notes”.

Step 8:
Each parcel was visually inspected by first locating the PIN in Excel, using the “Search” feature on the Orange County GIS web site to locate the parcel by PIN, and then finding the corresponding parcel on Google™ Earth and zooming in to see what was on the ground. I then made a judgment call, using the Google™ Earth image and my own personal knowledge of the specific sites, to determine the most appropriate agricultural use, if any. Any parcel that was inappropriate was deleted from the Excel file. As each parcel was inspected I recorded information for feasibility, type of use, and wrote a brief description of the property including land cover, adjacency to other publicly-owned parcels, if there were buildings on the site, if there was road access, and what the site was used for when that information was known.

Step 9:
The Excel spreadsheet was then sorted by “Feasibility”. “No’s” were removed. The attribute table for the “Vacant Parcels owned by Hillsborough” layer was opened in ArcMap along with the Excel spreadsheet. Each parcel was searched for using the “Find and Replace” function under “Options” on the attribute table and any that were not found in Excel were deleted from the layer by performing a Switch Selection and Exporting the new feature.

Step 10:
The remaining 13 parcels were the physically-feasible potential sites for urban agriculture in the Town of Hillsborough. This polygon feature was then converted to points using the “Features to Points” tool in ArcToolbox under Data Management Tools. This tool uses the centroid of each parcel’s polygon to create a point.

Step 11:
An Orange County roads layer was downloaded from the U.S. Census Tiger/Line web site. I chose to create a new feature from this layer that included Interstates 40 and 85, U.S. Highway 70 and 54, and State Roads 86, 49, and 57. This roads layer will be used to provide context for the location of the potential UA sites on the final map.

Step 12:
Using the point feature, along with the Orange County boundary feature I was able to create a map showing 90 Potential Sites for Urban Agriculture in Orange County.

Durham County
I used the following data layers for this analysis: the Durham parcel layer, the FEMA 2006 floodplain layer, the Durham City-County Boundary layer, and the Durham zon-
Ander

48

ing. All data was as of March 9, 2009 and was provided by Greg Schuster of Durham County’s General Services Department – Open Space and Real Estate Division.

**Step 1:**
Using the Durham County parcel layer I opened the attribute table and used the Select by Attributes feature to create a new shapefile for “Vacant Parcels owned by Durham County”. Vacant is defined by parcels without the presence of buildings, which is understood by a building value of zero, $0.00. Using the building value field I selected for parcels with a building value of zero. Durham County parcels include those parcels with Owner Name – Durham County Brd of Education, Durham Public Schools, County of Durham State of, Durham Public Schools Board, County of Durham, and Durham Soil & Water.

**Step 2:**
From this layer I removed parcels that were part of either of Durham’s Reservoirs - Lake Michie or Little River. This was done by setting the “Selectable Layers” tool to “Vacant Parcels owned by Durham County” layer, selecting all of the parcels making up the reservoirs, using the “Switch Selection” tool to select the remaining parcels, and finally exporting these records into a new shapefile. Future right-of-way parcels were removed in the same manner.

**Step 3:**
The FEMA 2006 layer for Durham County was added to the map. Using the “Select by Location” tool all parcels that were in the “Vacant Parcels owned by Durham County” layer located in the floodplain layer were selected. These parcels were visually inspected to determine what percentage was in the floodplain. Any parcel that was more than two-thirds outside of the floodplain was left in as a possible site for urban agriculture. The rest were removed from the vacant parcels layer using the “Switch Selection” and “Export” tools.

**Step 4:**
The remaining parcels were reduced further using Durham County’s zoning shapefile. Using the “Select by Attributes” I was able to select those parcels that were within residential districts including Residential Rural (RR), Residential Suburban-20 (RS-20), Residential Suburban-10 (RS-10), Residential Suburban-8 (RS-8), Residential Suburban Multi-family (RS-M), Residential Urban-5 (RU-5), Residential Urban-5(2) (RU-5(2)), Residential Compact (RC), Residential Urban Multifamily (RU-M), and Mixed Use (MU). Those that were not within one of these 10 districts were removed from the layer by exporting the selected features into a new feature.

**Step 5:**
A multi-ring buffer of one-quarter and one-half miles was applied to the remaining vacant parcels to determine which parcels are walkable from residences.

**Step 6:**
The next part of the evaluation used Google™ Earth to visually explore each of the physically feasible, vacant, Hillsborough-owned parcels. First the “Vacant Parcels
owned by Durham County” layer was exported to .kml using Open Source MapWin-

dowGIS and a limited-time free version of Shape2Earth. The .kml file was then im-

ported into Google™ Earth.

Step 7:
Each parcel was visually inspected to determine if it would be appropriate for some

type of urban agriculture and if so what type. Parcels were inspected by opening
Google™ Earth with the exported .kml file, the attribute table for the “Vacant Parcels
owned by Durham County” feature in ArcMap 9.3, and an Excel spreadsheet listing
the appropriate parcels sorted by North Carolina Parcel Identification Number (PIN) on
one computer.

Step 8:
The Excel spreadsheet was created by exporting the “Vacant Parcels owned by Dur-
ham County” layer into a .dbf file and then opening the .dbf using a converter tool
(which was already installed on a co-worker’s computer) in Excel and saving it as
an .xls file. The Excel file was then sorted by PIN, copied, pasted into a new worksheet,
unnecessary fields were deleted, and finally fields were added for “Feasibility, Yes or
No”, “Type of Use”, and “Notes”.

Step 9:
Since Durham’s GIS website does not have a Search by PIN option I used a different
methodology for visually inspecting the Durham-owned, vacant parcels. Each parcel
was visually inspected by first locating the PIN in Excel, using the “Find” tool under op-
tions in the attribute table in ArcMap, choosing “Zoom to Layer” to determine the ap-
proximate location of the parcel, zooming in on the parcel to determine its shape,
then finding the corresponding parcel on Google™ Earth, and zooming in to see the
land cover. I then made a judgment call using the Google™ Earth image and my own
personal knowledge of the specific sites to determine the most appropriate agricul-
tural use, if any. Any parcel that was inappropriate was deleted from both the Excel
file and from the shapefile. As each parcel was inspected I recorded information for
feasibility, type of use, and a description of the property including land cover, adjac-
cy to other publicly-owned parcels, if there were buildings on the site, if there was
road access, and what the site was used for, when that information was known.

Step 10:
The Excel spreadsheet was then sorted by “Feasibility’”. “No’s” were removed from
the spreadsheet.

Step 11:
The remaining parcels were the physically-feasible potential sites for urban agriculture
in Durham County. This polygon feature was then converted to points using the
“Features to Points” tool in ArcToolbox under Data Management Tools. This tool uses
the centroid of each parcel’s polygon to create a point.

Step 12:
A Durham County roads layer was downloaded from the U.S. Census Tiger/Line web-
I chose to create a new feature from this layer that included Interstates 40 and 85, and the Durham Freeway, N.C. Highway 147. This roads layer will be used to provide context for the location of the potential UA sites on the final map.

**Step 13:**
Using the point feature, along with the Durham County boundary feature, and the roads feature I was able to create a map showing a total of 124 potential urban agriculture sites Durham County.

**City of Durham**

**Step 1:**
Using the Durham parcel layer, I followed Step 1 above with the exception of selecting those parcels with the following Owner Names – City of Durham and Durham City of. This generated a total of 923 vacant parcels. The layer was named “Vacant Parcels owned by City of Durham”.

**Step 2:**
The “Vacant Parcels owned by City of Durham” layer was then clipped with the 2006 FEMA floodplain layer and these parcels were removed from the vacant parcels layer using the “Switch Selection” and “Export” tools.

**Step 3:**
The remaining parcels were reduced further using Durham’s zoning shapefile. Using the “Select by Attributes” I was able to select those parcels that were within residential districts including Residential Rural (RR), Residential Suburban-20 (RS-20), Residential Suburban-10 (RS-10), Residential Suburban-8 (RS-8), Residential Suburban Multifamily (RS-M), Residential Urban-5 (RU-5), Residential Urban-5(2) (RU-5(2)), Residential Compact (RC), Residential Urban Multifamily (RU-M), and Mixed Use (MU). Those that were not within one of these 10 districts were removed from the layer by exporting the selected features into a new feature.

**Step 4:**
A multi-ring buffer of one-quarter and one-half miles was applied to the remaining vacant parcels to determine which parcels were walkable from residences.

**Step 5:**
Due to the large number of parcels that still remained, 567, I further reduced the parcels by removing any parcel smaller than 0.09 acres. This was accomplished using the Editor tool, which allowed selected parcels to be deleted directly from the attribute table after sorting the records by parcel size and highlighting the records that were less than 0.09 acres, pressing delete, and then saving the feature.

**Step 6:**
Each parcel was visually inspected to determine if it would be appropriate for some type of urban agriculture and if so what type. Parcels were inspected by opening Google™ Earth with the exported .kml file, the attribute table for the “Vacant Parcels owned by Durham” feature in ArcMap 9.3, and an Excel spreadsheet listing the appropriate parcels sorted by North Carolina Parcel Identification Number (PIN) on one computer.
Step 7: The Excel spreadsheet was created by exporting the “Vacant Parcels owned by Durham” layer into a .dbf file and then opening the .dbf using a converter tool (which was already installed on a co-worker’s computer) in Excel and saving it as an .xls file. The Excel file was then sorted by PIN, copied, pasted into a new worksheet, unnecessary fields were deleted, and finally fields were added for “Feasibility, Yes or No”, “Type of Use”, and “Notes”.

Step 8: Since Durham’s GIS website does not have a Search by PIN option I used a different methodology for visually inspecting the Durham-owned, vacant parcels. Each parcel was visually inspected by first locating the PIN in Excel, using the “Find” tool under options in the attribute table in ArcMap, choosing “Zoom to Layer” to determine the approximate location of the parcel, zooming in on the parcel to determine its shape, then finding the corresponding parcel on Google™ Earth, and zooming in to see the land cover. I then made a judgment call using the Google™ Earth image and my own personal knowledge of the specific sites to determine the most appropriate agricultural use, if any. Any parcel that was inappropriate was deleted from both the Excel file and from the shapefile. Parcels were deleted from the shapefile using the Editor tool. As each parcel was inspected I recorded information for feasibility, type of use, and a description of the property including land cover, adjacency to other publicly-owned parcels, if there were buildings on the site, if there was road access, and what the site was used for, when that information was known.

Step 9: The Excel spreadsheet was then sorted by “Feasibility”. “No’s” were removed from the spreadsheet.

Step 10: The remaining parcels were the physically-feasible potential sites for urban agriculture in Durham. This polygon feature was then converted to points using the “Features to Points” tool in ArcToolbox under Data Management Tools. This tool uses the centroid of each parcel’s polygon to create a point.

Step 11: A Durham County roads layer was downloaded from the U.S. Census Tiger/Line website. I chose to create a new feature from this layer that included Interstates 40 and 85, and the Durham Freeway, N.C. Highway 147. This roads layer will be used to provide context for the location of the potential UA sites on the final map.

Step 12: Using the point feature, along with the City of Durham boundary feature, the Durham County boundary feature, and the roads layer I was able to create a map showing 304 Potential Sites for Urban Agriculture in Durham, NC.
APPENDIX 2: New Hope Park at Blackwood Farm Master Plan

New Hope Park at Blackwood Farm
Scheme "A"r
March 21, 2007
# APPENDIX 3: Fee Schedule

<table>
<thead>
<tr>
<th></th>
<th><strong>Durham City/County</strong></th>
<th><strong>Orange County</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Facilities (Water &amp; Sewer)</td>
<td>Durham County</td>
<td>OWASA</td>
</tr>
<tr>
<td>Meter Size</td>
<td>5/8 inch</td>
<td>5/8 inch</td>
</tr>
<tr>
<td>Frontage Charges</td>
<td>N/A</td>
<td>Water Availability Fee</td>
</tr>
<tr>
<td>Water Only</td>
<td>N/A</td>
<td>Single Family Residential ranges from $1095 - $6597</td>
</tr>
<tr>
<td>Inside City</td>
<td>$17.50/Linear Foot</td>
<td>Non-residential = $3,202</td>
</tr>
<tr>
<td>Outside City</td>
<td>$19.50/Linear Foot</td>
<td>$915</td>
</tr>
<tr>
<td>Water</td>
<td>$915</td>
<td>$199</td>
</tr>
<tr>
<td>Water Meter - pick up and city installation</td>
<td>$80</td>
<td>Water Service Installation = $2,643; Meter only = $199</td>
</tr>
</tbody>
</table>

## Water Rates

<table>
<thead>
<tr>
<th></th>
<th><strong>Durham City/County</strong></th>
<th><strong>Orange County</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation/Outdoor Use</td>
<td>$3.87 per 100 cf</td>
<td></td>
</tr>
<tr>
<td>Tier 1: 0-200 cf</td>
<td>$1.71</td>
<td>Block One: 1000-2000 gallons = $2.15</td>
</tr>
<tr>
<td>Tier 2: 200-500 cf</td>
<td>$1.82</td>
<td>Block Two: 3000-5000 = $5.22</td>
</tr>
<tr>
<td>Water Service Charge</td>
<td>$5.11</td>
<td>$12.02</td>
</tr>
<tr>
<td>Water Irrigation Service Charge</td>
<td>N/A</td>
<td>$19.25</td>
</tr>
<tr>
<td>Sedimentation &amp; Erosion</td>
<td>no plan needed if under 12,000 sqft in surface area or for ag and forestry uses</td>
<td></td>
</tr>
</tbody>
</table>

**Source**

http://www.durhamnc.gov/departments/wm/rates.cfm

**SECTION 14**

**ENGINEERING DEVELOPMENT FEES**

This section is intended to aid in the process of determining Engineering fees that may be associated with the project. Contact other departments and agencies (i.e. Planning, Building Inspections, Durham County Erosion Control, Durham County Sewer etc.) to get a listing of these fees.

I. Water and Sanitary Sewer Charges:

A. **Frontage Charges:**
   These fees are applicable when property is developed and a water and/or sanitary sewer line has not been installed by the developer or property owner across the street frontage or street right-of-way abutting the project. These fees are paid when the mains are extended for new projects. If no extension is made frontage charges are paid with the application for service.

<table>
<thead>
<tr>
<th>The current frontage charges are:</th>
<th>Water</th>
<th>Sewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside City Limits</td>
<td>$17.50/LF</td>
<td>$43.00/LF</td>
</tr>
<tr>
<td>Outside City Limits</td>
<td>$19.50/LF</td>
<td>$47.50/LF</td>
</tr>
</tbody>
</table>

B. **Capital Facilities Fees:**
   Are due prior to connection. Typically, these fees are paid with the application for the service connection. The fees below are required per Section 23-40.1 of the Ordinance and shall be in full force and effect of September 1, 2002.

The current capital facilities fees are:

<table>
<thead>
<tr>
<th>Meter Size (Inches)</th>
<th>Water</th>
<th>Sanitary Sewer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8</td>
<td>$1,451</td>
<td>$915</td>
<td>$2,366</td>
</tr>
<tr>
<td>1</td>
<td>$3,254</td>
<td>$2,286</td>
<td>$5,540</td>
</tr>
<tr>
<td>1 1/2</td>
<td>$6,258</td>
<td>$4,573</td>
<td>$10,831</td>
</tr>
<tr>
<td>2</td>
<td>$9,861</td>
<td>$7,316</td>
<td>$17,177</td>
</tr>
<tr>
<td>3</td>
<td>$21,275</td>
<td>$16,004</td>
<td>$37,279</td>
</tr>
<tr>
<td>4</td>
<td>$60,323</td>
<td>$45,726</td>
<td>$106,049</td>
</tr>
<tr>
<td>6</td>
<td>$120,394</td>
<td>$91,452</td>
<td>$211,846</td>
</tr>
<tr>
<td>8</td>
<td>$210,503</td>
<td>$160,041</td>
<td>$370,544</td>
</tr>
<tr>
<td>10</td>
<td>$330,646</td>
<td>$251,493</td>
<td>$582,139</td>
</tr>
<tr>
<td>Over 10 (per gpd)</td>
<td>$4.31/gpd</td>
<td>$3.05/gpd</td>
<td>$7.36/gpd</td>
</tr>
</tbody>
</table>

*Note: Fees are subject to change without notification*
C. Meter and Service Charges**:

1. Water Meter Actual Costs (existing service and meter box or vault)

<table>
<thead>
<tr>
<th>Meter Size (Inches)</th>
<th>Pick-Up</th>
<th>Installed by City</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8</td>
<td>N/A</td>
<td>$80.00</td>
</tr>
<tr>
<td>1</td>
<td>N/A</td>
<td>$125.00</td>
</tr>
<tr>
<td>1 1/2</td>
<td>$154.00</td>
<td>$215.00</td>
</tr>
<tr>
<td>2</td>
<td>$325.00</td>
<td>$465.00</td>
</tr>
<tr>
<td>3</td>
<td>$588.00</td>
<td>$838.00</td>
</tr>
<tr>
<td>4</td>
<td>$982.00</td>
<td>$1,232.00</td>
</tr>
<tr>
<td>6</td>
<td>$1,797.00</td>
<td>$2,197.00</td>
</tr>
<tr>
<td>8</td>
<td>$2,615.00</td>
<td>$3,015.00</td>
</tr>
<tr>
<td>10</td>
<td>$4,284.00</td>
<td>$4,734.00</td>
</tr>
<tr>
<td>12</td>
<td>$5,838.00</td>
<td>$6,288.00</td>
</tr>
</tbody>
</table>

These fees are applicable for existing services that need a meter set with new development with the developer installing the mains and services.

*Note: For infill lots and single lot Developments call Engineering Services for information on City installed Water and Sanitary Sewer Services.

II. Other Charges

A. Construction Drawing Review Fee (Paid at time of initial submittal)
   i) For plans containing Plan and Profile sheets $1,200.00
   ii) For all other plans $500.00
   iii) For plans submitted during actual Construction related to field/modifications $500.00

B. Extension Agreements License Agreement (Paid at time of application submittal) $200.00

C. Fire Flow Test Request (Paid prior to actual test) $850.00

D. Water Extension Permit* (Paid at time of permit application submittal) $450.00

E. Sewer Extension Permit* (Paid at time of permit application submittal) $450.00

F. Construction Inspection Fees (Public and Private)

| Street            | $2.00/LF |
| Water Main       | $1.00/LF |
| Sanitary Sewer Main | $1.00/LF |
| Sanitary Sewer Outfall | $1.00/LF |
APPENDIX 4: Durham’s Limited Agriculture Ordinance (City Only)

5.4.12 Limited Agriculture (City Only)
Limited agriculture shall be subject to the following regulations:

A. General

1. Permits Required
   a. A permit under Sec. 3.23, Limited Agriculture Permit (City Only), is required in order to conduct the uses designated by this section. Such uses are distinct from agricultural uses or agricultural use categories permitted under this Ordinance. The limited agriculture permit is personal to the permittee and may not be assigned.
   b. A building permit issued by the City-County Inspections Department is required for any accessory structure associated with a limited agriculture permit.

2. Permit Revocation and Removal of Items
   a. Compliance with the requirements of this Ordinance shall create a presumption that the permitted use does not create a nuisance or threat to public health or safety. The permit shall, however, be revoked if the Planning Director determines that the permitted use does create a nuisance or detriment to public health or safety.
   b. Violation of ordinance standards shall result in permit revocation under Sec. 3.23.4, Revocation, and possible enforcement under Article 15, Enforcement, including civil and criminal penalties. Misrepresentation by a permittee shall result in permit revocation or voiding under Sec. 15.3.7, Permit Revocation or Voiding.
   c. Regardless of whether an ordinance violation has occurred, the Planning Director is authorized to order immediate removal of items and structures associated with the permitted use that the Director determines create a nuisance or detriment to public health or safety.

3. Non-Commercial Use Only
   Uses authorized under a Limited Agriculture Permit shall be non-commercial only. Commercial activities are prohibited. Domestic animals authorized by a Limited Agriculture Permit shall be kept as pets or for personal use only.

4. Nuisance Prohibited
   Uses authorized under a Limited Agriculture Permit shall not create a nuisance. Uses shall be conducted in a manner that does not disturb the use or enjoyment of adjacent properties. Odor generated shall not be perceptible at the property boundaries, and noise generated shall not disturb people of reasonable sensitivity at the property boundaries. Only motion-activated lighting shall be used to light any limited agriculture area.

5. Public Health and Safety
   Uses authorized under a Limited Agriculture Permit shall not create a detriment to public health or safety.
B. Domestic Chickens
1. Purpose
The purpose of this section is to authorize and provide standards for the keeping of domesticated chickens. It is intended to enable residents to responsibly keep a small number of female chickens on a non-commercial basis while limiting the potential adverse impacts on the surrounding neighborhood.

2. Definitions
"Chicken", "Chicken Coop", and "Chicken Pen" are defined in Sec. 16.3, Defined Terms.

3. Number and Type of Chickens Allowed
The maximum number of chickens allowed is ten (10) per lot, regardless of how many dwelling units are on the lot. Only female chickens are allowed. There is no restriction on chicken breeds.

4. Housing Types Allowed to Keep Chickens
Residents of single-family houses and townhouses may keep chickens as authorized under this section. A limited agriculture permit shall not be issued for chickens at other housing types.

5. Personal Use Only
a. Eggs, chicks, adult chickens, and processed chickens shall not be sold. Chicken manure and compost using chicken manure shall not be sold or otherwise distributed.

b. Produce on which chicken manure from the permitted chickens has been used as fertilizer, or on which compost made with such manure has been used, shall not be sold.

6. Chickens Enclosed
A chicken coop and chicken pen shall be provided. Chickens shall be secured in the chicken coop during non-daylight hours. During daylight hours chickens may be located in the chicken pen and may be located outside of the pen in a securely fenced yard or chicken tractor/portable pen if supervised by an adult person.

7. Construction and Design
a. The chicken coop shall comply with the requirements of Sec. 5.4, Accessory Uses and Structures. The coop shall be enclosed with solid material on all sides and have a solid roof and door(s). The coop shall be at least 18 inches high, and provide at least 3 square feet of floor area per chicken. The coop shall provide 1 square foot of window per 15 square feet of floor area, and vents as necessary to ensure adequate ventilation. The materials for each element, e.g., walls, roof, windows and doors, shall be uniform and in harmony with the surrounding area. Doors shall be constructed so that they can shut and lock. Windows shall be constructed so they can shut. Windows and vents shall be covered with wire that is 14 1/2-gauge or less with maximum spacing of 1 inch by 1 inch. The coop shall be impermeable to rodents, wild birds, and predators, including dogs and cats.

b. The chicken pen shall be constructed of wood or metal posts and wire fencing material that is 14 1/2-gauge or less with maximum spacing, overall or along the lower portion for graduated poultry fencing, of 1 inch by 6 inches. The pen shall provide at least 10 square feet of area per chicken. The fence shall rise at least 4 feet above the ground and be buried at least 1 foot in the ground. The pen shall be covered with wire, aviary netting, or solid roofing.
8. Maintenance
The chicken coop, chicken pen, and surrounding area shall be kept clean, dry, odor-free, and in a neat and sanitary condition at all times. All manure, uneaten feed, and other trash shall be removed in a timely manner and disposed of in a sanitary manner. The permittee is subject to, and shall comply with, the requirements of Chapter 70, Utilities, Article V, Stormwater Management and Pollution Control. The permittee shall take all necessary action to reduce the attraction of predators and rodents and the potential infestation of insects and parasites. Slaughter and other processing of chickens shall be conducted in accordance with Small Flock Management Resources guidance provided by the Poultry Science Division of the North Carolina Cooperative Extension/North Carolina State University College of Agriculture and Life Sciences. Slaughter shall not be visible from any adjacent property, public area, or right-of-way. If a chicken dies from causes other than slaughter, it shall promptly be placed into a plastic bag, which shall be closed securely and disposed of with household waste.

9. Living Conditions
The chicken coop shall provide adequate security, ventilation, and shelter from moisture and extremes of temperature. The chicken pen shall provide adequate security and sun and shade. Chickens shall have access to feed and clean water at all times, and such feed and water shall be inaccessible to rodents, wild birds, and predators. Chickens shall be provided adequate bedding in the chicken coop and perches are encouraged.

10. Waste Storage and Use
a. No more than 2 cubic feet of chicken manure shall be stored, for use as unprocessed fertilizer. All other manure shall be disposed of or composted. All stored manure shall be completely contained in a waterproof container.
b. Any compost using chicken manure shall be produced in an enclosed backyard composter.

Commentary: Be aware that unprocessed chicken manure may contain pathogens that can be transmitted to produce on which it is used as fertilizer. A proper mix of materials and maintaining a temperature of at least 131 degrees Fahrenheit for at least 3 consecutive days is necessary to destroy pathogens in compost.

11. Location
Notwithstanding the location requirements of Sec. 5.4, Accessory Uses and Structures, chicken coops shall be located at least 15 feet from any property line or public right of way, and chicken pens shall be located at least 5 feet from any property line or right-of-way.
APPENDIX 5: Orange County Request for Use Form

Orange County Lands Legacy Program

Request for Use of Lands Legacy Managed Properties
for Public Purposes

I. Name of Agency Making Request / Property Requested

II. Primary Contact Person

Name(s): ____________________________________________

Phone #: ____________________________________________
Mobile #: ____________________________________________
Email: ______________________________________________

III. Reason for Request / Planned Use of Property (please be specific)

IV. Dates and Times of Day Requested

V. Number of Persons Involved In Activity (i.e., present on site)

Note: This site is not open to the public. Orange County assumes no responsibility for any injuries that occur while in use by the applicant or group. Applicants must provide copy of a valid Certificate of Insurance showing liability and worker’s compensation coverage of the sponsoring agency as it respects the proposed activities.

Authorized Signature of Applicant________________________

_____________________________________________________

_____________________________________________________

Certificate of Insurance Provided

Approved:

_____________________________________________________

_____________________________________________________

*
APPENDIX 6: Orange County License Agreement (page 1 only)

Northwest Park – Agricultural License Agreement

North Carolina
Orange County

License Agreement

This License Agreement is made effective as of this the _____ day of ________, 2008, by and between Orange County, North Carolina, a body politic and corporate, a political subdivision of the State of North Carolina, having an address of P.O. Box 8181, Hillsborough, North Carolina 27278, hereafter referred to as Licenser, and John B. Farmer of 1111 Farm Ridge Road, Cedar Grove, North Carolina 27211, hereinafter referred to as Licensee.

WITNESSETH:

WHEREAS, Licenser is the sole owner, in fee simple, of two adjacent parcels of real property bearing Orange County PIN 9887-52-0801 and PIN 9887-33-4585, and containing 143 acres more or less (the “Property”); and

WHEREAS, Licensee intends to use a portion of the Property as further described on Exhibits A and B for hay production (“Hayfield #1” and “Hayfield #2”) until such a time as the Property is needed for a county park and associated uses; and

WHEREAS, Licensee intends to use a portion of the Property as further described on Exhibits A and B for the pasturing of cattle (“the Pasture”) until such a time as the Property is needed for a county park; and

WHEREAS, the Pasture is contained within an existing fence that excludes the cattle from entering other portions of the Property; and

WHEREAS, Licenser intends to construct additional fence to exclude the cattle from accessing the pond and streams located on the Property in order to improve the water quality and streamside habitat.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and other good and valuable consideration, the receipt and legal sufficiency of which are hereby acknowledged, the parties hereto mutually agree upon the following terms, provisions, and conditions:

SECTION ONE
GRANT OF LICENSE: DESCRIPTION OF PREMISES

Licenser hereby grants to Licensee a license to occupy and use, subject to all of the terms and conditions of this Agreement, the property described on Exhibits A and B attached hereto.
SECTION TWO
LIMITATION TO DESCRIBED PURPOSE

A. The portion of the Property referred to herein as the Pasture, may be occupied and used by Licensee solely for pasturing cattle and for incidental purposes related to such purpose during the period beginning on ________________, and continuing until this Agreement is terminated as provided herein.

B. The portions of the Property referred to herein as Hayfield #1 and Hayfield #2 may be occupied and used by Licensee solely for hay production and for incidental purposes related to such purpose during the period beginning on ________________, and continuing until this Agreement is terminated or the Licensor notifies the Licensee that Hayfield #1 or Hayfield #2 will be needed for some other county use. Such notice shall be given in writing to the Licensee no less than thirty (30) days prior to the date needed for agricultural activities to cease on Hayfield #1 or Hayfield #2 or both Hayfield #1 and Hayfield #2.

C. Licensee shall at all times use their best efforts to use the Property in a manner satisfactory to Licensor. Nothing in this Agreement shall interfere with the rights of Licensor to sell or lease all or any part of the Property at any time.

SECTION THREE
PERIODIC PAYMENTS

Licensee shall pay Licensor for this license at the rate of ______ Dollars ($_______) per year payable in advance. The first payment shall be made on or before the date of the beginning of the period specified above. Subsequent payments shall be made in advance promptly on the _________________ thereafter during the continuation of this Agreement.

SECTION FOUR
TERMINATION

A. Either party may terminate this Agreement at any time, without regard to payment periods by giving written notice to the other specifying the date of termination, such notice to be given not less than ten (10) days prior to the date specified in such notice for the date of termination.

B. If Licensee shall make an assignment for the benefit of creditors, or be placed in receivership or adjudicated bankrupt, or take advantage of any bankruptcy law, Licensor may terminate this Agreement by giving written notice to Licensee, specifying the date of termination, such notice to be given not less than one (1) day prior to the date specified in such notice for the date of termination.
SECTION FIVE
APPORTIONMENT OF PAYMENTS ON TERMINATION

A. On any termination of this Agreement, Licensor shall apportion, on a yearly basis, the _____ Dollar ($___,00) fee paid in advance from and including the first day of the year during which the Agreement is terminated to and including the day on which the Agreement is terminated, and the Licensor shall refund to the Licensee the unearned portion of such fee; provided, however, that no refund shall be given if such refund due under this Section is in an amount less than _____ Dollars ($___.00).

B. On any termination of this Agreement Licensee, Licensor shall remove from the Property all cattle and any other personal property located on the Property.

C. Any termination of this Agreement, however caused, shall be entirely without prejudice to the rights of Licensor that have accrued under this Agreement prior to the date of such termination.

SECTION SIX
COMPENSATION FOR DAMAGE

Licensee further agrees that they will compensate Licensor for any and all damage that may be done to the Property in carrying out the purpose described in Section Two of this Agreement.

SECTION SEVEN
INSURANCE

Licensee agrees at all times to carry adequate liability insurance on the Property for the benefit of Licensor and Licensee as their interest may appear, in an amount of not less than Three Hundred Thousand Dollars ($300,000); and to pay the premiums for such insurance and furnish Licensor with certificates from the insurance companies for the above policy, such insurance company to be acceptable to Licensor.

It is specifically agreed that, if Licensee fails to obtain the insurance specified above, Licensor may terminate this Agreement.

SECTION EIGHT
INDEMNIFICATION OF LICENSOR

Licensee shall exercise their privileges under and pursuant to this Agreement at their own risk, and irrespective of any negligence of Licensor, Licensee shall indemnify and hold Licensor harmless from and against any and all liability for damages, costs, losses, and expenses resulting from, arising out of, or in any way connected with, the occupation, use, or any means of ingress to or egress from the Property by Licensee, or the Licensees, invitees, or guests of Licensee, or the failure on the part of Licensee to perform fully all of Licensee’s promises contained in this Agreement.
Northeast Park – Agricultural License Agreement

Licensor shall not be liable to Licensee if for any reason whatsoever Licensee’s occupation or use of the Property under and pursuant to this Agreement shall be hindered or disturbed.

SECTION NINE
INSTALLATION, MAINTENANCE AND REMOVAL OF FENCE

Licensee, and Licensee’s sole expense, shall construct and maintain a good and sufficient fence around the Pasture for the purpose set forth in Section Two in locations to be mutually agreed on by authorized representatives of the parties. Licensee shall obtain approval from Licensor as to the type and height of the fence prior to constructing the same. Licensee shall access the Pasture from property owned by Licensor. Licensor shall be provided keys to any gate(s) that are installed on the Pasture.

Licensee agrees that any such fencing will be installed in a manner as to insure that they are safe, neat and functioning at all times. Licensee will maintain, service and repair and keep the fence in good working order at all times. Licensee assumes all responsibility for the repair and proper function of the fencing.

Licensee shall remove any such fencing from the Pasture within sixty (60) days from the written notice to Licensee regarding the same. If Licensee fails to immediately remove the fence upon receipt of notice to do so from Licensor, Licensor may do so at Licensee’s expense.

SECTION TEN
NO BUILDINGS OR STRUCTURES

Licensee shall not erect any permanent buildings or other structures (other than the fencing described in Section Nine of this Agreement) on the Property, or erect or having erected or installed, permit to remain on the Property any temporary structures, fixtures, shelters, attachments or other things attached to or being on such Property and placed thereon by Licensee or the guests, invitees or Licensees of Licensee. Licensee agrees that their use of the Property will not cause or result in a violation of any Orange County Ordinance.

SECTION ELEVEN
PROTECTION OF TREES

Licensee shall not cut, mutilate, or injure or permit any of Licensee’s guests, invitees, or Licensees to cut, mutilate or injure any growing tree or shrubbery on the Property. Licensee shall not attach any fence or fencing materials to any trees or shrubbery without prior written consent of the Licensee.
SECTION TWELVE
REMOVAL OF PROPERTY

On revocation, surrender or other termination of the permission granted by this Agreement, Licensee shall quietly and peaceably surrender the Property in as good condition as such property was at the time of Licensee’s entry on the Property under this Agreement and shall remove all livestock, fixtures and equipment, and other items placed on such property by Licensee, and if Licensee shall fail to do so, Licensor shall have the right to make such removal at Licensee’s expense, the amount of which expense Licensee shall pay to Licensor on demand, and, if Licensor shall so elect, it shall have the right to take possession of and appropriate to itself without payment therefore any property of licensee, or anyone claiming under Licensee, then remaining on the Property.

SECTION THIRTEEN
NO LANDLORD-TENANT RELATIONSHIP OR PROPERTY INTEREST

It is expressly agreed and understood that this Agreement shall not operate or be construed to create the relationship of landlord and tenant between Licensor and Licensee whatsoever.

Licensee expressly agrees that they do not and shall not claim at any time any interest or estate of any kind or extent whatsoever in the Property, by virtue of the rights granted under this Agreement or Licensee’s occupancy or use under this Agreement. Licensee expressly agrees and understands that Licensor shall have the free and continual right to enter, inspect and occupy the Property at any time during the term of this Agreement subject to the terms hereof. Nothing contained herein shall require Licensor to obtain permission or notify Licensee prior to entering the Property.

SECTION FOURTEEN
MISCELLANEOUS

It is agreed that this Agreement shall be governed by, construed, and enforced in accordance with the laws of the State of North Carolina.

This Agreement shall constitute the entire Agreement between the parties and any prior understanding or representation of any kind preceding the date of this Agreement shall not be binding upon either party except to the extent incorporated in this Agreement.

Any modification of this Agreement or additional obligation assumed by either party in connection with this Agreement shall be binding only if evidenced in writing signed by each party or an authorized representative of each party.

Any notice provided for or concerning this Agreement shall be in writing and shall be deemed sufficiently given when sent by certified or registered mail if sent to the respective address of each party as set forth at the beginning of this Agreement.
Northeast Park – Agricultural License Agreement

Licensee’s privileges under this Agreement shall not be assignable by Licensee in whole or in part.

In witness whereof, each party to this agreement has caused it to be executed on the date first written above.

LICENSEE:

_________________________ (SEAL)
JOHN B. FARMER

LICENSOR:

COUNTY OF ORANGE, NORTH CAROLINA

By: _______________________
Barry Jacobs, Chair
Orange County Board of Commissioners
Northeast Park – Agricultural License Agreement

Sample/Modified

EXHIBIT A

[Description of the Pasture and Hayfields]

EXHIBIT B

[Map of the Pasture and Hayfields]
APPENDIX 7: Hillsborough 2010 Vision Zoning Map
## APPENDIX 8: Contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Position</th>
<th>Department</th>
<th>Type of Contact</th>
<th>Responded</th>
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<tbody>
<tr>
<td>Dr. Fletcher Barber, Jr.</td>
<td>Orange County</td>
<td>Director, Cooperative Extension</td>
<td>Cooperative Extension</td>
<td>In-person Group Interview</td>
<td>Y</td>
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<tr>
<td>Mike Lanier</td>
<td>Orange County</td>
<td>Area Agent, Cooperative Extension</td>
<td>Cooperative Extension</td>
<td>In-person Group Interview</td>
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<tr>
<td>Karen McAdams</td>
<td>Orange County</td>
<td>Extension Agent, Cooperative Extension</td>
<td>Cooperative Extension</td>
<td>In-person Group Interview</td>
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<tr>
<td>Michael Harvey</td>
<td>Orange County</td>
<td>Zoning Enforcement Officer Supervisor/ Planner II, Planning Department</td>
<td>Planning Department</td>
<td>In-person Interview</td>
<td>Y</td>
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<tr>
<td>Rich Shaw</td>
<td>Orange County</td>
<td>Land Conservation Manager, Environment and Resource Conservation Department</td>
<td>Environment and Resource Conservation Department</td>
<td>In-person Interview</td>
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<td>Roger Gunn</td>
<td>Orange County</td>
<td>Appraiser II, Tax Assessor's Office</td>
<td>Tax Assessor's Office</td>
<td>In-person Interview</td>
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<tr>
<td>Miriam Coleman</td>
<td>Orange County</td>
<td>GIS Project Manager II, Planning Department</td>
<td>Planning Department</td>
<td>In-person Interview</td>
<td>Y</td>
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<tr>
<td>Noah Ranells</td>
<td>Orange County</td>
<td>Ag Economic Development Coordinator, Economic Development Commission</td>
<td>Economic Development Commission</td>
<td>Email</td>
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</tr>
<tr>
<td>Pam Jones</td>
<td>Orange County</td>
<td>Director of Purchasing and Central Services, Purchasing Department</td>
<td>Purchasing Department</td>
<td>Email</td>
<td>N</td>
</tr>
<tr>
<td>Debbie Roos</td>
<td>Chatham County</td>
<td>Director, Cooperative Extension</td>
<td>Cooperative Extension</td>
<td>Email</td>
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<tr>
<td>Vicki Westbrook</td>
<td>Durham County</td>
<td>Deputy Director, Department of Water Management</td>
<td>Department of Water Management</td>
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<tr>
<td>Name</td>
<td>Role</td>
<td>Department</td>
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<td>Wendy Seddon</td>
<td>Open Space and Real Estate Coordinator, Open Space/Real Estate Division of the Engineering Department</td>
<td>Open Space/Real Estate Division of the Engineering Department</td>
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<td>Greg Schuster</td>
<td>Open Space Lands Manager, Open Space &amp; Real Estate Division of the Engineering Department</td>
<td>Open Space/Real Estate Division of the Engineering Department</td>
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<td>Jane Korest</td>
<td>Administrator, Open Space/Real Estate Division of the Engineering Department</td>
<td>Open Space/Real Estate Division of the Engineering Department</td>
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<tr>
<td>Josie Owens</td>
<td>Chair, Open Space Sub-Committee of the Durham Open Space and Trails Commission</td>
<td>Durham Open Space and Trails Commission</td>
<td>Email</td>
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<tr>
<td>Teresa Hairston</td>
<td>Revaluation Supervisor, Tax Administration</td>
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<tr>
<td>Kim Simpson</td>
<td>Tax Administrator, Tax Administration</td>
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<tr>
<td>John Read</td>
<td>Plans Examiner, Inspections Department</td>
<td>Inspections Department</td>
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<tr>
<td>Julia Mullen</td>
<td>Planner, Planning Department</td>
<td>Planning Department</td>
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<tr>
<td>Keith Luck</td>
<td>Assistant Director, Planning Department</td>
<td>Planning Department</td>
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<tr>
<td>Jessica Sanders</td>
<td>DIG Co-Coordinator and Director's Assistant</td>
<td>SEEDS</td>
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<tr>
<td>David Owens</td>
<td>Gladys Hall Coates Professor of Public Law and Government</td>
<td>School of Government</td>
<td>Email Y</td>
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</tr>
</tbody>
</table>
APPENDIX 9: Interview Questions

**Durham City-County**

**Keith Luck - Planning Department, Assistant Director**

1. What is the Urban Open Space Plan? How far along is it? Who is/will be involved in creating it? What is the process for creating a new plan in Durham?
2. What kinds of uses will it accommodate?
3. What are the criteria for selecting parcels as part of the plan?
4. How does/would UA play a role? What role would you see it playing?
5. What is the regulatory process for designating and protecting land?
6. What role do surplus properties play, if any?
7. Does the City/County currently have any agreements with community groups to use municipal land?

**Julia Mullen - Planning Department, Planner**

1. Agriculture is only defined in commercial terms. There is no mention or definition of small-scale farming or farming activities in urban areas. How are farmers markets, gardens, or community gardens dealt with?
2. How do chickens fit in?
3. Did the community or the city initiate the Limited Agriculture Ordinance?
4. Does this ordinance open up the opportunity for other types of agriculture? Bee-keeping, sustainable forestry, composting
5. Can you walk me through the regulatory process that took place to successfully pass the Limited Agriculture Ordinance?
6. What approvals were necessary? Planning Department, Planning Board, City Council, BOCC
7. How long did the process take? How long can it take?
8. What were the barriers within government and from the community regarding allowing chickens within the city?

**Kim Simpson - Tax Administration Department, Director**

1. How does the Tax Administration Department deal with surplus property?
2. What is the process for foreclosing on a property and then for selling it back to the private market?
3. How long does the process take?

**Teresa Hairston - Tax Administration Department, Revaluation Supervisor**

1. How is the Tax Administration Office structured?
2. How does the Tax Administration Department define ‘vacant’?
3. There is a field within the attribute table on Durham’s GIS parcel layer that lists the land classification of each parcel. It includes vacant, agricultural-vacant, commercial-vacant, residential-vacant, as well as other combinations of land uses with vacant. What is the difference between parcels which are vacant and those that are a particular land use + vacant? Are they all considered vacant?
4. How is a parcel reclassified from vacant to another classification?
5. Do vacant parcels generate any tax revenue if they are under private ownership? What about public?
6. What are the methods by which the County/City comes to own vacant land?
7. Do they actively try to get these parcels back into private ownership in order to generate tax revenue?
8. Is the purchase of property open to anyone?
9. How are vacant parcels viewed by the department? As a burden? As an opportunity?
10. Are you aware of any of the municipally-owned, vacant parcels being used by community groups? If so are the uses temporary? Are the parcels leased? What is the typical lease period for such an agreement?
11. If this is not currently happening, do you think the Tax Administration Department would be open to working with the community to temporarily using some of these parcels for urban agriculture?
12. Is such an arrangement legal?

Do you know who I would need to contact within the Tech Solutions or Planning Department to get the most up-to-date GIS parcel shapefile?

**Orange County**
Orange County Cooperative Extension Staff:

**Fletcher Barber, Jr. - Director**
**Mike Lanier - Extension Agent**
**Kay McAdams - Extension Agent**

1. What is your vision for urban agriculture in Orange County?
2. What role does/would the Coop. Ext. play?
3. What physical and regulatory barriers do you see with this idea? Economic? Political?
4. How does UA fit within the Coop. Ext. mission and work plan?
5. From 1976-1993 the USDA had a Urban Garden Program that was administered through county cooperative extension agencies. Did Orange County ever receive any of this funding?
6. Does Coop. Ext. currently offer any lands or assistance for UA?
7. How do you work with the OC Master Gardeners? Would you recommend I speak with them?
8. Who else should I speak with?
9. Would Coop. Ext. be able to offer expertise, soil sampling, assistance preparing soil, developing plans for the site, providing management/oversight, etc.?
10. How would you envision such an inventory being used?

What is the process for a community group coming to the county to use county land?

**Rich Shaw - Environment and Resource Conservation Department**

1. What kind of vacant land does the County own?
2. Who manages this land?
3. What is considered vacant?
4. What is allowed on the property?
5. Has the County ever entered into an agreement with a community group or private citizen to use County land for a temporary use?
6. What kind of document is used for such an agreement?

Roger Gunn - Tax Assessor’s Office, Appraiser
Same questions as were asked of Teresa Hairston

Michael Harvey - Planning Department, Zoning Enforcement Officer Supervisor/Planner Ii
1. Are there ordinances or policies in place that would allow or prevent urban ag from occurring on county-owned land?
2. Would urban agriculture be allowed on any vacant parcel from a zoning standpoint? Gardening is allowed based upon the Code of Ordinances.
3. Would a CUP or SUP be required?
4. Are there requirements for restrooms, parking, etc. for any “public” sites? Does it make a difference if the use is temporary vs. permanent?
5. Would such a land inventory be useful to the County? Does it fit within the 2008 Comprehensive Plan?
6. How would a community group go about getting approval to use public land for urban agriculture? Department approval, Planning Board, BOCC?
7. Can you walk me through the process of a text amendment?
8. Are there any ordinances, policies, plans the county has that I should read that would be applicable to this subject matter?
9. Who else within the county should I speak with?