ALL FARMS ARE NOT CREATED EQUAL: HOW HORSE FARMS CONTRIBUTE TO MULTIFUNCTIONAL LANDSCAPES

by

Danielle Louise Bolte

Under the Direction of Jack Crowley

ABSTRACT

Horse farms are a unique land use, situated at the intersection of the rural and the urban, in a perfect position to contribute to efforts of sustainability and multifunctionality and provide functional open spaces in the urban fringe. Despite this, they are poorly tracked and planned for by most government bodies, from local to national. This thesis synthesizes existing literature to examine how horse farms can contribute to the goals of sustainability and multifunctionality and how they are currently managed in planning. The author then makes proposals as to how they can be better managed in the future; the most effective and simplest method to implement in managing horse farms is likely to be overlay zones, adjusted to suit the needs and scales of the horse industry in the particular community.

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B.S., University of Alabama in Huntsville, 2012

A Thesis Submitted to the Graduate Faculty of the University of Georgia in Partial Fulfillment of the Requirements for the Degree

Master of Environmental Planning and Design

Athens, Georgia

2014

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ACKNOWLEDGEMENTS

I would like to thank Dr. Crowley and all of my committee members for their help in putting this thesis together, and in particular Mary Ann Simonds and Clay Nelson for providing their firsthand knowledge of the equestrian planning industry. I would also like to thank Sandra Korbelik of the Aiken, South Carolina, planning department for her assistance in putting together the maps for the city of Aiken and for answering my questions about the horse zones established in Aiken, and Cynthia Dietz of the Lexington, Kentucky, planning department for her assistance in understanding the measures undertaken in Lexington to plan for equestrian facilities. Finally, I would like to thank my parents and my granddad for their support as I have pursued my graduate degree.

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CHAPTER 1

INTRODUCTION

Horse farms are an increasingly common land use, especially in the developed western world. The expansion of horse keeping, both as a hobby and a profession, is increasing the influence of horse farms on the landscape and of equestrian pursuits on our social, cultural, and economic realities. At the same time, urban areas are expanding into formerly agricultural lands, causing the division of large properties that have in some cases been worked by the same family for generations. The resulting smaller parcels are often no longer economically viable for traditional agriculture, creating a functional gap in the landscape that horse farms can successfully utilize. In addition to these realities, the tenets of sustainability are having increasing influence in the world of planning, leading to discussions and plans for creating multifunctional landscapes that meet both human and ecological needs. Given the open space preserved by horse farms as well as our social and cultural connection to horses, equestrian properties have the potential to help planners meet these goals of multifunctionality and sustainability.

This thesis utilizes previous research, much of it done in other countries, to explore this connection between horsekeeping and multifunctional landscapes and maintenance of open space in peri-urban areas. Although ideally this thesis would rely on research done in the United States, very little such research exists. Second, this thesis explores current knowledge of the equine industry in the United States, including who is tracking the domestic horse industry and how. Thirdly, this thesis examines how horse farms are uniquely suited to the development of multifunctional landscapes and what benefits they can provide to society from social, economic, and ecologic points of view. Finally, this thesis

examines how horse farms are currently incorporated into local planning codes and makes proposals for their future incorporation into planning.

Literature Review

Although very little work has been done in the United States on how horse farms fit into peri-urban or even rural landscapes, the challenges and opportunities created by the expansion of horsekeeping are not unique to the United States or even to North America. Indeed, the same trends of increasing numbers of horses and horse owners can be found throughout the developed world. Enough similarities exist between the trends observed in other developed western countries and those observed in the United States to be able to safely draw conclusions from studies performed in these other countries. This thesis will review four such studies from Canada, Finland, Denmark, and Sweden.

The oldest of these four papers was completed on the development of rural Finland by Leena Bantamaki-Lahtinen and Hilkka Vehinen in 2004.[1] Their paper focused on the economic and social relationships among horse farms and the rural and urban communities. For example, they explored how horse farms support a larger agricultural economy through demands for hay and feed and through the externalization of services required to support horses, such as construction of fencing or barns. From the social perspective, they highlighted how horse farms help connect the urban and rural landscapes by bringing people, networks, money, and ideas from the urban environment to the countryside and by bringing some of the countryside into more urban spaces. They also developed the three categories of horse farms and their owners that will be relied upon throughout this thesis: the hobbyists, the lifestyle entrepreneurs, and the professionals. Their final point, which will be elaborated on throughout this thesis, is that horse farms are generally poorly incorporated into agricultural policies, which often fail to

[1] Leena Bantamaki-Lahtinen and Hilkka Vihinen. The role of equine industries in Finnish rural development: rural entrepreneurship and policy perspectives. (Paper presented at Nordic Association of Agricultural Scientists seminar 367 in Alnarp, Sweden, October 18–20, 2004).

account for the needs of the equine industry and fail to utilize its potential to help develop the rural economy and community.

The second and third of these studies were both completed in 2008 on opposite sides of the Atlantic Ocean. In Denmark, Hanna Elgaker and Bronwynne L. Wilton presented a study detailing the place of horse farms in the urban-rural fringe, what has come to be known as the peri-urban area.[2] They found several key points related to the relationship between the horse industry and society as a whole. The first of these is that interest in traditional agriculture and interest in horses tend to be inversely correlated, meaning that as interest in (and space for) traditional agriculture declines, interest, and the availability of land for, horsekeeping increases. This is good news for landscape managers seeking productive uses of formerly agricultural lands! Hanna and Bronwynne also emphasize the complexity of the horse industry, identifying the primary difference between horsekeeping and traditional agriculture as the goal of the industries; specifically, horses are generally not kept strictly for profit but instead for pleasure, recreation, and companionship. Their study also begins to develop the concept of horse farms as a potential means for environmental management, potentially providing groundwater recharge, wildlife habitat, and surface water control.

Hanna and Bronwynne highlighted the attitudes of farm owners toward environmental management as a key variable determining its success; however, their study did not attempt to determine what these attitudes might be. Fortunately, for her thesis, also completed in 2008, Bronwynne sought to determine exactly that.[3] She utilized survey methodology to confirm that the majority of the survey respondents were highly active in their communities and concerned with

[2] Hanna Elgaker and Bronwynne L. Wilton. Horse farms as a factor for development and innovation in the urban-rural fringe with examples from Europe and North America, In Proceedings from the 10th Annual Conference for Rural and Regional Development, Hanne W. Tanvig, ed. Forest and Landscape Working Papers No. 27. (Denmark: 2008).

[3] Bronwynne L. Wilton. A unique reality: exploring the role of the horse farm in the post-productivist rural landscape. (Thesis, University of Guelph, 2008).

environmental stewardship. If this result can be extrapolated to other developed western countries, it bodes well for the future ability of horse farms to contribute to environmental management. In addition to her survey, Bronwynne also presented definitions of multifunctionality which will be used in this thesis, as well as arguments for the place of horse farms physically, economically, and socially. Many of her ideas will be drawn on throughout this thesis.

The fourth and final paper this thesis will review was published in 2012 by Hanna Elisabeth Elgaker in Sweden. This paper sought specifically to deal with the influence of the equine sector in peri-urban areas and the implications for multifunctionality. This paper was particularly interesting as it explored how the equine sector crosses what are traditionally seen as boundaries between public and private space, formal and informal economies, and recreational and agricultural land use. She also points out explicitly how horse farms are situated at the intersection of the three categories of multifunctionality: production, consumption, and protection. These ideas will be expanded upon later in this thesis.

Although none of these papers explicitly addresses the equine industry in the United States, many of the same issues identified by these papers are present here as well. These include the failure of agricultural policies to include horse farms; the lack of appreciation for the economic and social impacts of small hobby farms; the lack of data available on the status of the horse industry and the distribution of the farms at national, regional, and local scales; and the lack of outreach to horse farm owners regarding environmental protection and management. The parallels between the social and economic drivers behind the expanding horse industry and the challenges introduced by it are significant and more than enough to warrant extrapolation from these studies to the management of horse farms in the United States.

How This Study is Unique and Why It is Important to Planning

From the preceding studies, it is clear that research on the horse industry to date has focused on the role of horse farms in what has been variously called the post-productive and the multifunctional landscape. What has not been addressed, and what will be addressed in this thesis, is how city, county, and regional planners can better plan for horse farms and incorporate them into their land use plans in order to benefit from their social, economic, and environmental contributions and minimize their potential negative externalities. As the equine industry continues to expand, the ability of planners to incorporate horse farms into their future land use plans will become increasingly important if they are to manage their impacts, both positive and negative. This thesis seeks to explore what these impacts are and how they can best be managed through planning.

CHAPTER 2

THE U.S. HORSE INDUSTRY

Before the equine industry can be successfully planned for, it must be understood. Unfortunately, in most zoning and land use structures, including the zoning codes of Athens, Georgia, and Lexington, Kentucky, horse farms are combined with cattle, sheep, crop, and other kinds of farms into a generic category labelled agriculture. Consolidating all types of farms in this way fails to account for the unique aspects of the horse industry and hamstrings attempts to understand the industry and its ability to contribute to goals of multifunctionality and sustainability (more on these goals later).

The U.S. Department of Agriculture, which monitors the number, size, and economic impact of farms across the country, does not even account for the majority of horse farms. According to the USDA's definition, a farm is a property that could or did sell over $1000 in agricultural products or has five or more equids,[4] which include not only horses but also donkeys, mules, and zebras. Of course, many horse farms do not produce agricultural products in the traditional sense, but rather garner income through provision of services such as lessons or boarding, and an even larger number are not run to produce an income at all but rather for the lifestyle provided by horsekeeping and the pleasure the owners derive from their horses. Many of these farms, in addition to not being run to produce an income, also contain fewer than five equids. This means that the USDA census, by their own estimation, tracks approximately half of the horse farms in the country.[5] Even so, the number of farms with five or more equids is equal to three-quarters the number of farms with beef cows, six times the number of

[4] 2005 Equine Census, United States Department of Agriculture, accessed December 29, 2013, www.aphis.usda.gov/animal_health/nahms/ equine/downloads/equine05/Equine05_dr_PartII.pdf.
[5] 2005 Equine Census

farms with milk cows, and seven times the number of farms with hogs and sheep.[6] Clearly, horse farms are a significant land use, even without accounting for all of them.

One question unanswered by these surveys is how these numbers are changing over time. Although the USDA has been monitoring agricultural production in the United States for decades, the Equine Survey did not begin until 1999, so data on trends is limited at best. By comparison, the USDA surveys the national cattle population twice a year, in January and July, and has done so since at least 1987.[7] By comparison, the reports on the equine industry are extremely recent and infrequent, making determination of actual trends difficult. However, the general shape of the growth of the horse industry can be determined from historical reports by the USDA that address how the number of horses on farms has changed over time. According to the USDA, the number of equids on farms peaked around 1920, just before the introduction of the car.[8] After the introduction of the car, when horses and other equids were no longer relied upon for transportation, the number of them present on farms decreased, only to increase in the later part of the twentieth century as horses began to be used for recreation and competition purposes.

In addition to the USDA reports, the American Horse Council began in 1995 providing reports of the horse industry in the United States on a decadal basis. Their most recent estimate, completed in 2005, found a total of 9.2 million horses in the country with a direct economic impact of $39 billion annually.[9] When indirect effects are included, the economic impact of the horse industry tops $100 billion. The industry provides 460,000 full-time equivalent jobs directly, including occupations such as veterinarians and farriers, with a total employment impact of 1.4 million full-time equivalent jobs when

[6] 2005 Equine Census.
[7] USDA. Cattle (July 2012). National Agriculture and Statistics Service, July 20, 2012. http://www.nass.usda.gov/Publications/Todays_Reports/reports/catl0712.pdf. Accessed February 28, 2014.
[8] 2005 Equine Census.
[9] American Horse Council. National Economic Impact of the Horse Industry. www.horsecouncil.org/national-economic-impact-us-horse-industry. Accessed December 29, 2013.

spending by employees and suppliers and the jobs created thereby are included. Accounting for part-time employees, horse owners, etc., this means that over 4.6 million people are involved with the horse industry in this country. Yet despite these impressive numbers and resultant tax income to all levels of government, the number and distribution of the actual farms remains unaccounted for. The Horse Council does not track individual farms but rather the overall shape of the industry, and the USDA misses as many as half of the horse farms in their survey.

Of course, these groups have taken on a nearly impossible task. The horse industry is incredibly diverse, from the individual horse owner who keeps one or two backyard pleasure horses to the large-scale training and breeding farms and even larger show and racing facilities. To account for this diversity, Leena Banatamaki-Lahtinen and Hilkka Vihinen of Finland have proposed three general categories of horse farms.[10] The first is the hobby owner, with a few backyard horses often kept as pets or for light riding. In this case, the farm is supported wholly by an outside income and the horses are kept purely for recreational purposes. The second category is the lifestyle entrepreneur, who may have a few horses in training or boarded with them in addition to their private horses. Although these farms may bring in some income, the primary driver for maintaining the farm is the rural lifestyle afforded by it and therefore these farms are still largely supported by outside incomes. Finally, the third type of farm is the professional farm, which includes large boarding, training, and show facilities. Many of these facilities have high turnover rates as far as the individual horses on the property and/or highly transient horse populations in contrast to the more stable equine populations of smaller facilities. Professional facilities also differ from the other two categories in that they are supported primarily by the horse-related activities that occur there.

[10] Elgaker and Wilton, "Horse farms as a factor for development."

Each of these types of farms creates different externalities, ranging from the possibility of loose animals, odor, or dust contamination, to light pollution adjacent to large show or racing facilities. At smaller scales, these issues may not be as apparent since there are fewer horses and therefore less waste and less likelihood of loose animals. However, smaller facilities face other challenges such as pasture management and the related control of soil and water quality, especially if they allow pastures to become overgrazed due to stocking densities above the carrying capacity of the pasture. As the facilities get larger, pasture and waste management can become full-time jobs, requiring teams of tractors to keep down weeds, applications of fertilizers and reseeding, and composting or removal of the manure off-site. Runoff and water quality issues also increase as the size of buildings and parking areas, and therefore impervious surfaces, increases. Research into and application of best management practices can help mitigate many of these impacts, but as will be discussed more completely later, these practices are not well researched or distributed to farm owners for implementation.

Each of these categories also has different needs with regard to planning. Roads capable of handling large trailers, for example, would be much more necessary to a professional facility than to a hobby farm. While this diversity within the industry creates a self-supporting network, it makes tracking and understanding the industry as a whole extremely difficult, and makes planning for it even harder. Some cities have made attempts to incorporate these farms into their planning and zoning codes; their efforts range from single zones to chapter of their comprehensive plane and will be examined in more detail later. For now, it is important to appreciate the scope and diversity of the industry and resultant difficulties in understanding it as a whole.

CHAPTER 3

MULTIFUNCTIONALITY AND SUSTAINABILITY

In addition to understanding the shape and distribution of the equine industry in the United States, planners must also be aware of how horse farms can help contribute to the goal of sustainability that has been enshrined at nearly every level of government as one worthy of striving toward. Sustainability is most consistently defined as meeting the needs of the present without compromising the ability of future generations to meet their needs, and is considered to be a balancing of the three pillars of economy, environment, and society. While this definition has been internationally accepted, critics have often pointed to the difficulty of implementing this abstract definition. How, for example, do we ensure that future generations can meet their needs, or even determine what those needs might be? New concepts have been needed and new practices developed to address these operational concerns. One way in which these have been addressed is through the concept of multifunctionality.

Like sustainability, multifunctionality exists at the intersection of three goals: production, ecological protection, and community development. [11] Production refers to the base of multifunctional agriculture, which is traditional large-scale agriculture that contributes to meeting the food and fiber and other material needs of society. Ecological protection refers to maintaining habitat integrity and the functioning of the natural systems that our cultural systems are based on. Finally, community development refers to the cultural heritage of the landscape and the people's connection to it and its forms, such as traditional fencing types. Multifunctional agriculture, then, as an operational form of sustainability, combines a land-use land-cover strategy with the utilization of diverse ecosystems to

[11] Elgaker. "The new equine sector."

meet human needs across generations.[12] At a more practical level, multifunctionality is a means to preserve open space by giving that open space value and activity. By framing the preservation of open space in terms of multifunctional landscapes, the "vacant" properties become not just areas waiting for development but areas contributing to the economy, the landscape, and the community.

The application of this concept on a regional scale requires an understanding and accounting of temporal and spatial variability in both natural and human systems. Horse farms are a particularly interesting land use for planners because they exist quite firmly in the intersection between these systems and indeed at the center of the three pillars of multifunctionality and sustainability, even more so than traditional forms of agriculture.[13] Horse farms are situated in this intersection due to the many urban-rural connections that support them, from the small farm owners who support their hobbies with urban-based jobs to the boarding barns whose business relies on the urban residents whose horses populate their facilities. This allows horse farms to provide a sort of bridge between urban and rural areas and communities while also protecting necessary habitat and ecosystem services and contributing to the local economy. In the remainder of this chapter, the contributions that horse farms can make to the social, economic, and environmental aspects of the landscape will be examined in more detail.

Social Contributions

Horses have been part of human culture essentially since man first walked the Earth. Originally seen as a source of food, horses later came to be partners in work and transportation and, even more recently, in recreation and competition. This long-term social partnership with horses is still present in our society today, with horses generally viewed positively by the urban population, which has a somewhat romantic view of the horse supported by Hollywood depictions of white knights and cowboys

[12] Nicholas Jordan and Keith Douglass Warner. "Enhancing the Multifunctionality of US Agriculture," *BioScience* 60 (January 2010): 60–66.
[13] Elgaker, "The new equine sector."

riding off into the sunset.[14] This positive public image of rural and agricultural areas can help support the rest of the agricultural community by reducing public opposition to support for the agricultural industry.[15]

In addition, horse farms provide a sort of crossroads for the people and ideas from urban and rural areas to meet and learn from each other. Horse farms that operate as businesses for boarding or training tend to serve clients who live and/or work in more urban areas, just as owners of smaller private farms tend to maintain off-farm jobs. At the same time, some larger competition-based facilities like racetracks tend to be developed in more urban areas, inserting a taste of the rural landscape into the urban life. The presence of farms creates a flow of people, money, and ideas between the urban and rural areas, bringing the urban to the country and vice versa. This flow further reinforces the social and cultural connections between the two areas and the generally positive image that people tend to have of horsekeeping and rural areas.

In addition, as urban and peri-urban areas are expanding and taking over traditionally agricultural lands, horse farms are becoming an important way to fill gaps in the landscape left by abandoned farms or fragments of once larger properties that are now too small to operate as traditional agricultural farms. By providing a productive use of these non-agricultural lands, one which is economically viable enough to preserve the farm as open space to be enjoyed culturally and aesthetically by the public, horse farms can help maintain the integrity of the landscape as well as draw new people into rural areas.[16]

In many areas of the country, horses are also considered an important part of the cultural heritage of the community, particularly in areas like Lexington, Kentucky, which has a strong tradition of

[14] Bantamaki-Lahtinen and Vihinen, "The role of equine industries in Finnish rural development."
[15] Bantamaki-Lahtinen and Vihinen, "The role of equine industries in Finnish rural development."
[16] Wilton, "A Unique Reality."

horsekeeping. In these areas in particular, the preservation of the landscape associated with horsekeeping is culturally important and the aesthetic value of horse farms becomes an important consideration in planning and design. A particularly good example of this aesthetic and cultural value can be seen in the case of Paris Pike (U.S. 68), a federal highway in Kentucky connecting the cities of Lexington and Paris. When the Department of Transportation proposed widening the road to a traditional four-lane highway separated by a forty-foot median, the community filed a civil suit against the department, citing the impact to the historic character of the landscape, which included many traditionally laid out horse farms with stone fences and large trees.[17] The result was a memorandum of agreement among the parties for a new vision of the roadway, which was turned over to the landscape architects at Jones and Jones to redesign the corridor in line with this vision. The outcome is a highway that flows with the land and fits with the historic and cultural context of the landscape, complete with its many historic horse farms.

Economic Contributions

From an economic perspective, the continued growth of the equine industry offers increased income to local, state, and federal governments through property taxes, sales taxes on goods purchased, and in some cases income taxes, especially for professional farms. In addition, the competition aspect of horse ownership can be a major source of revenue to local governments, local businesses, and to farm owners, especially at large shows which draw non-competitor spectators. Large horse shows generally last anywhere from two to ten days and can generate tens of millions in revenue for local communities through competitor purchases of lodging, fuel, food, and other necessities, including services to run the show such as veterinarians, farriers, and EMTs. Examples include the Tennessee Walking Horse Celebration held in Shelbyville, Tennessee, that generates $38 million worth

[17] "Paris Lexington Road Paris to Lexington, Kentucky," ASLA Press Release 2002. Accessed January 31, 2014. http://www.asla.org/meetings/awards/awds02/parislexroad.html.

of revenue over ten days, as well as the fifteen major equine events at the Oklahoma City, Oklahoma, fairgrounds that support 17,000 full-time jobs and provide $182 million in income for the city and the surrounding community.[18]

Of course, not every town can have large shows like this, but as fuel prices continue to rise it is conceivable that local shows will become more popular with competitors, providing support for more local-scale equestrian competition facilities. These facilities will in turn support their local economies benefiting the society as a whole, as well as providing a customer base for services such as veterinarians and farriers.

In addition to competition impacts, tourism can have a significant impact on the local economy. Areas such as Lexington, Kentucky, draw people from around the nation and even the world to tour their famous horse farms, including the state-run Kentucky Horse Park. Similarly, as will be discussed in more detail later, Wellington, Florida, is seeking to brand its equestrian district in order to draw tourists to the city. While both of these cities also host international competitions that draw their own share of tourists, other cities could develop tourism based on the unique aspects of the horse industry in their area. For example, a new Clydesdale breeding farm recently opened in the Athens, Georgia, area that is planning to draw tourists based on the unique breed of their horses.

Beyond direct economic benefits to the community, the presence of horse farms also helps stabilize the rest of the agricultural sector by providing a stable market for farmers engaged in producing hay and other feedstuffs. These farmers are generally able to establish repeat customers, especially in the hay market, which tends to decrease sensitivity to commodity price changes resulting in a more stable income for the farmer.[19] Since few horse farms grow their own feed, most of these production

[18] A.A. Armstrong, J.P. Kayser, and J.G. Gardner. "The Beneficial Effects of Equine Events on the Local Economy," *Journal of Equine Veterinary Science* 31 (2011): 230.
[19] Elgaker, "The new equine sector."

services are externalized, in addition to many maintenance functions such as bush hogging, arena building, and barn and fencing construction. This externalization of services contributes to the sustainability of the rest of the agricultural sector.[20]

Smaller horse farms may have a stronger indirect impact in this sense than larger farms do. For instance, the presence of many smaller farms helps provide the support and the customer base necessary for larger farms to remain viable. The viability of larger farms, with their concurrently larger demands for feed, hay, bedding, and other services, such as fencing, signage and other forms of advertising, in turn provides the stability necessary for the sustainability of the agricultural sector. These small farms, of course, also pay local taxes and shop at local businesses, particularly agriculture and horse oriented ones, further supporting the local economy.[21] Unfortunately, the small farms are the most likely to be overlooked in planning and in industry surveys, despite their importance to the health of the industry.

Ecological Contributions

Finally, from an ecological standpoint, horse farms can help maintain much-needed open space for habitat provision and other ecosystem services. Unlike many other livestock operations, horse farms tend to utilize water troughs and fence off natural water bodies, protecting their banks from erosion, although admittedly this is often done to prevent illness in the horses rather than out of environmental concerns. Regardless of the motive, properly placed horse farms as a land use could contribute to watershed protection and prevention of water quality issues better than other agricultural uses of land due to this protection of natural water bodies.

Grazing, when properly managed, can also help maintain biodiversity and manage natural pastureland, particularly on natural rangelands in the western states. In these instances, grazing can

[20] Wilton, "A Unique Reality."
[21] Elgaker, "The new equine sector."

actually help maintain the ecosystem and reduce flammable brush loads with less political or social backlash than other options such as burning.[22] As discussed earlier, the presence of horses in a landscape is often perceived favorably by the public due to our long social history with them. When the fact that over 90 percent of the equine operations allow access to pasture[23] is taken into consideration, the potential impacts of grazing, and the amount of open grassland maintained as a result, becomes apparent. When pastures are managed properly, they maintain at least 70 percent vegetative cover year-round, reducing runoff and soil erosion, especially when compared to traditional annual crop production where the fields would lie fallow with no vegetation for part of the year.[24]

These open spaces, which are generally not disturbed by the machinery or chemicals present in crop-based agriculture, also provide habitat for many species of wildlife. Horse farms often leave large parts of the property in their natural state, modified only by the grazing of the horses on the property, the addition of perimeter fencing, and the occasional ride through the area. As a result, deer, turkey, raccoons, birds, and other wildlife can find viable habitats on the property.

The ecological contributions made by horse farms are especially beneficial. Horse farms often exist at the urban-rural interface where open land may be most scarce. Especially on the outskirts of larger cities, which statistically have less available open space than smaller cities,[25] horse farms can help maintain vital open areas for human and ecological health.

[22] Mark W. Brunson and Lynn Huntsinger. Synthesis Paper: "Ranching as a Conservation Strategy: Can Old Ranchers Save the New West?" *Rangeland Ecology and Management* 61, 2 (March 2008): 137–147.
[23] Rebecca C. Bott, et al. "Production and Environmental Implications of Equine Grazing," *Journal of Equine Veterinary Science* 33 (2013): 1032.
[24] Bott, et al., "Production and Environmental Implications of Equine Grazing."
[25] Elgaker and Wilton, "Horse Farms as a factor for development."

CHAPTER 4

HORSE FARMS IN CURRENT PLANNING

The ways in which horse farms are addressed in current planning and zoning codes varies widely, from treating horse farms as an undifferentiated component of agriculture to devoting an entire section of a comprehensive plan to the protection of the equestrian way of life. At the less involved end of this spectrum, horse farms are zoned in the same way as other agricultural pursuits, despite their exclusion from most agricultural policies. Even in the self-proclaimed horse capital of the world, Lexington, Kentucky, horse farms are not zoned or planned for separately from other agricultural uses. Instead, uses such as horse farms and racetracks are permitted in multiple zones including agriculture-rural zones, agriculture-market zones, and neighborhood business zones. No individual standards are established for the design of horse farms outside of the general requirements for properties in floodplains and similar situations. The same is true of Athens-Clarke County, and it is for this reason that these two cities will be used as case studies later in this thesis.

By contrast, the island town of Brookhaven, New York, has established a specific horse farm residence district. Although the district is used in only a few widely scattered locations, the standards associated with the zone indicate that the municipality has given some consideration to good horsekeeping practices and to how horse farms can best be good neighbors. The complete text of these standards can be seen in Appendix 1. The limits imposed include a minimum property size of 10 acres and a maximum density of two horses per acre as well as standards governing the amount of stall space available per horse. In the interest of the farms being considered good neighbors, the zoning code also establishes a 150-foot buffer from any property line for manure, feed, and any other substance that,

"causes or creates any noxious or offensive odors or dust or which causes or may cause the presence of or attract any vermin, rodents, or other animals." In addition, the barns must be placed at least 75 feet from adjacent property lines, and the design of the proposed facility must be reviewed by the planning board, which may require additional setbacks for specific elements of the facility, including barns, fencing, and arenas. Perhaps the most interesting requirement of the zoning code, however, is the requirement for all corrals, meadows, and other open areas to be graded to prevent runoff onto adjacent properties or into freshwater or tidal wetlands. One of the more interesting features of this statute is the requirement to ensure grading of meadows, which implies not only built open spaces but natural open spaces as well, to prevent runoff onto adjacent properties.[26]

A review of Brookhaven's zoning map, seen in Figure 1, demonstrates just how scattered this land use is. The red circles indicate the three locations on the eastern edge of the town where this district is employed. The history of this distribution would be interesting to know, but would require further research. Are these the remnants of a formerly larger equestrian community, or are these more recent uses of now agriculturally non-viable land? Regardless, the properties that fall under this zoning are invariably adjacent to residential districts, making the emphasis on setbacks and manure management logical. Ensuring that the horse farms in the city are good neighbors should reduce the number of complaints the city government has to deal with while also protecting the environment and ensuring adequate space for the horses living on these properties.

[26] Article XV: HF Horse Farm Residence District, Town of Brookhaven, New York, accessed January 25, 2014, http://ecode360.com/8597684.

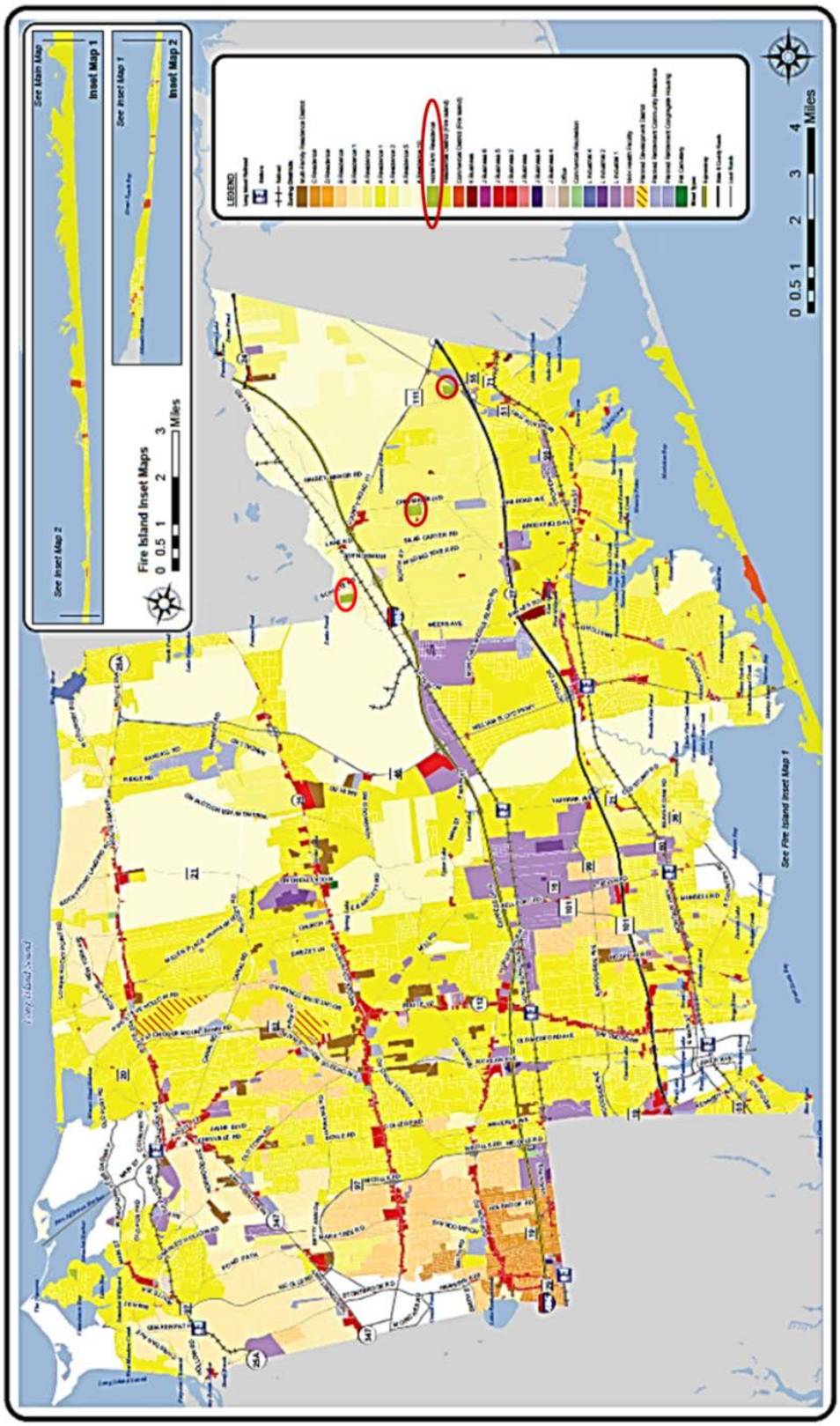

Figure 1 Zoning map of Brookhaven, New York

With a more nuanced approach to planning for horse farms, Aiken, South Carolina, has multiple zones dedicated to horse-specific uses, as one would expect of one of the equestrians' winter playgrounds. Two of these zones are residential zones, while the third is a special use Horse District designated for professional facilities. The full text of the relevant sections of the zoning code is available in Appendix 2. The first of the residential zones is the Single-Family Horse district, which is established to provide low-density residential development on lots of at least 1 acre; the zoning forbids use of these properties for commercial purposes. However, the zoning does allow for three horses on this first acre with an additional horse allowed for each extra half acre of land. By comparison, the Single-Family Stable district requires lots of at least 3 acres and does allow commercial activity on the property, with no restrictions on the number of horses allowed on the property. Despite the high density of horses allowed on these lots, both zones are considered primarily single family residential.

The much smaller lot sizes as compared to Brookhaven's zoning code deserve some attention, especially given that most standards for horsekeeping suggest having at least 1 acre of available land per horse for grazing purposes. These smaller lot sizes suggest a heavier reliance on hay and grain products and less reliance on grazing as part of the resident horses' diets. Consequences of this may include less grass cover on the properties since the horses will graze the available forage to the ground with little opportunity to rotate pastures for them to regrow. This lack of grass cover in turn could lead to greater runoff and erosion issues. On such small lots, issues of manure, odor, and dust management also become more important as the neighbors are necessarily closer to the horse facilities and therefore more aware of these externalities. The high density allowed on these properties makes these externalities even more apparent. As a result, Aiken has established more detailed standards of horse care and facility design than Brookhaven. For example, their zoning code includes standards for the use

of lime in stalls and on manure piles to control odor; the frequency of cleaning of paddocks and stable areas; the storage of feed; watering of arenas and other exercise areas to reduce dust; and even veterinary care of the horses on the property, including a requirement to remove sick horses from the property when deemed necessary by a City-selected licensed veterinarian. Due to the small lot sizes, the numerical setbacks provided in Brookhaven's zoning code are illogical in Aiken. Instead, the zoning code requires that the horse facilities be located closer to the dwelling on the property than to buildings on adjacent properties. Given the small lot sizes and high equine density allowed by Aiken's zoning code, standards such as these are necessary to reduce complaints to the city and maintain these horse farms as good neighbors.

The third horse-related district is the special use Horse District. Professional horse properties are limited to this special purpose zone, including competition facilities, polo fields, and horse training businesses. These facilities are subject to the same restrictions on care and management as the residential zones, but do not have restrictions on lot sizes or number of horses on the property.

Compared to Brookhaven, these districts are used much more widely in Aiken and are more likely to be clustered together, as can be seen in Figure 2, although they are still generally adjacent to residential areas. Clustering the farms is another way to help minimize bad neighbor complaints since fellow horse owners are much less likely to be annoyed by the odors or dust associated with horses. The importance of horses in Aiken is indicated both by the existence of the varied zones and by their central location, in particular the locations of the Horse Districts and RSS zones, which are situated just outside downtown off the main highway, possibly for better access for large trailers. By comparison, the few horse properties in Brookhaven were scattered toward the edge of town.

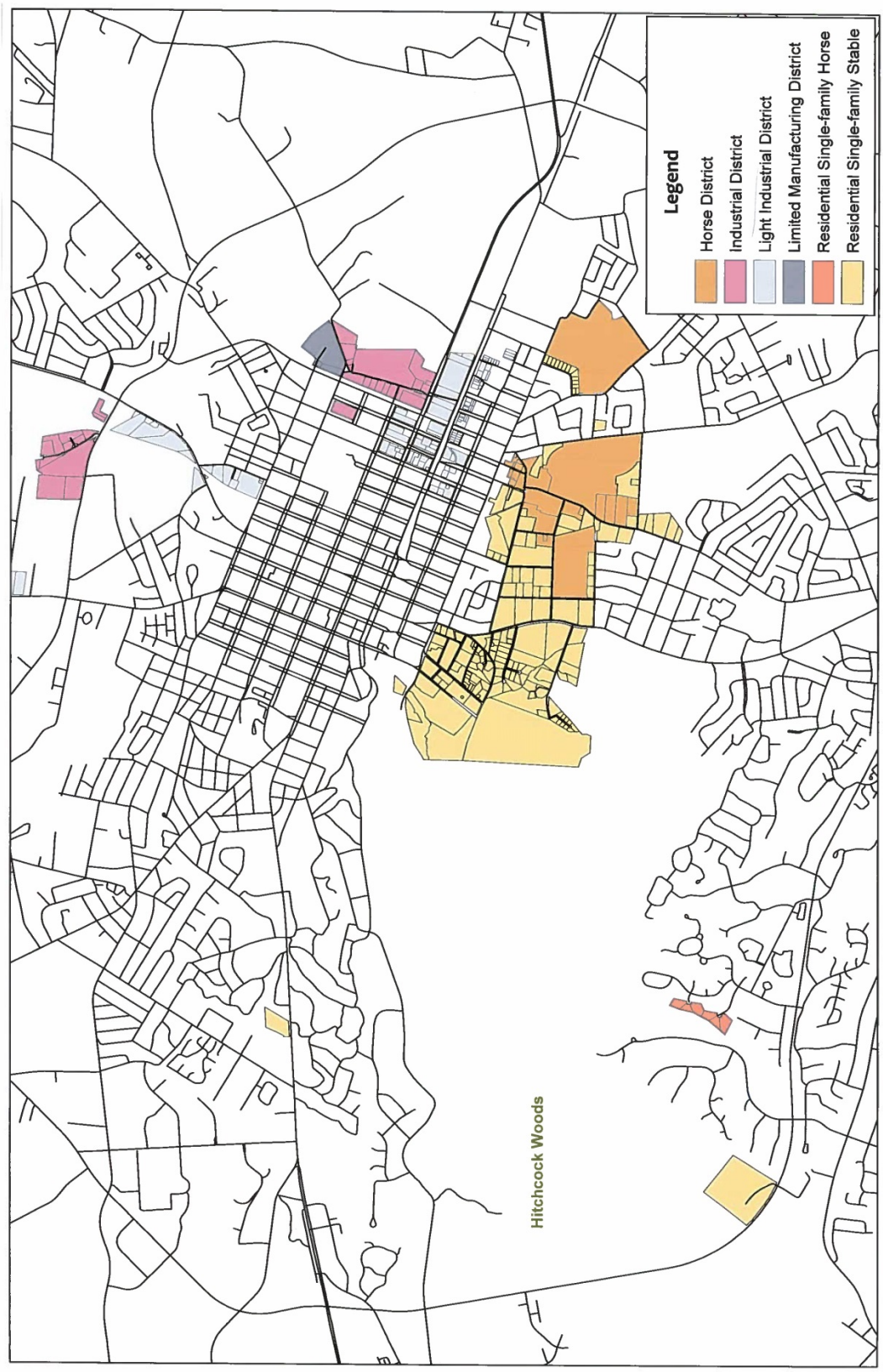

Figure 2 Zones allowing horses by right in Aiken, South Carolina

A final approach, and in many ways the most intensive, that has been taken to incorporating horse farms into planning is the Equestrian Overlay Zone established by Wellington, Florida, which merits its own chapter in their comprehensive plan. This chapter is reproduced in Appendix 3. In this chapter, the city establishes the purpose of the Equestrian Preservation Element as, "ensur[ing] the preservation and protection of the neighborhoods which comprise this area, the equestrian industry and the rural lifestyles which exist in the Equestrian Preserve." The city establishes its responsibilities in preserving and protecting this area including encouraging the creation of equestrian trails and managing traffic to allow safe passage along them; maintaining open space through cluster development or other zoning techniques; and establishing appropriate development regulations to maintain the rural lifestyle in this area. Wellington is the only one of these three case cities to have established a plan for equestrian circulation within the city limits; this plan can be seen in Figure 3.

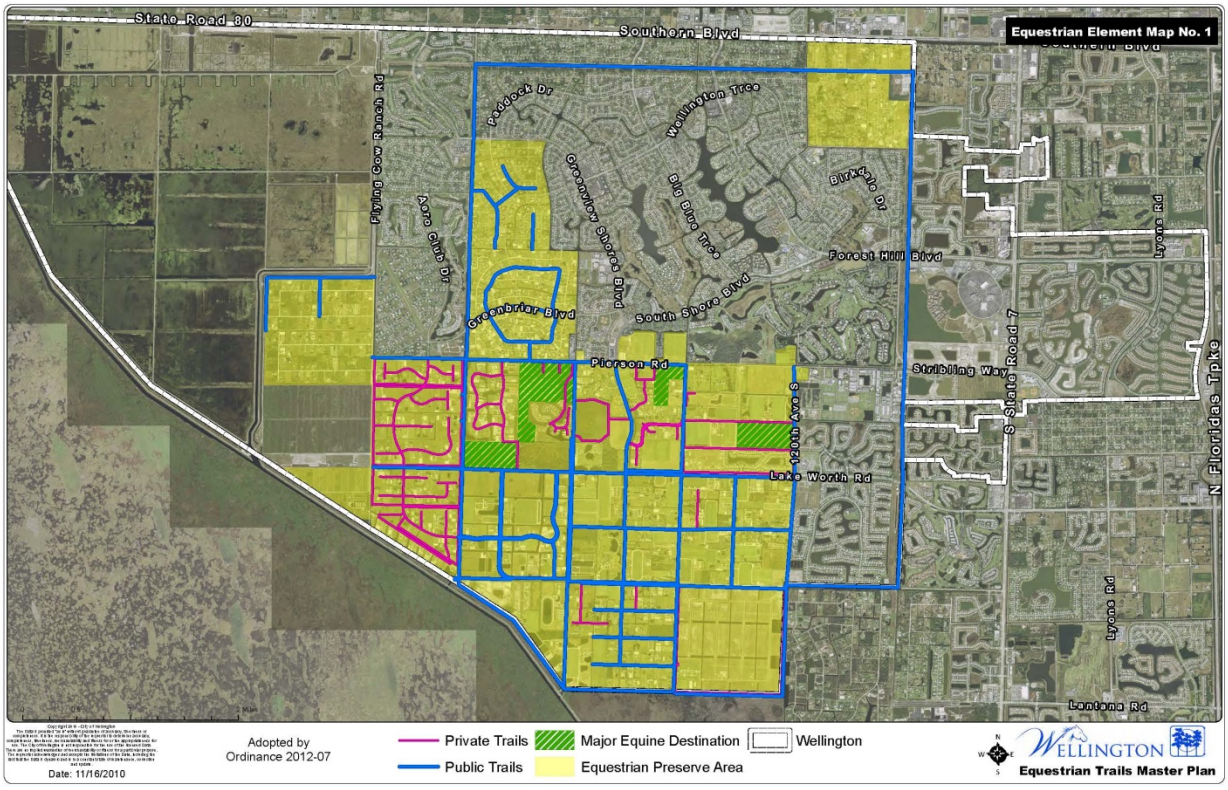

Figure 3 Equestrian circulation plan for Wellington, Florida

Rather than modifying the zoning code itself to create this equestrian preserve, Wellington chose to create an overlay zone that permitted horses to be housed in specific areas of the city, displayed in yellow on their zoning map in Figure 4. Like the Brookhaven zoning regulations, this overlay zone establishes setbacks for principal structures of 100 feet from the front and rear lot lines and 50 feet from the side lot lines. However, rather than establishing minimum acreages for horse properties, Wellington's code establishes minimum width and depth requirements, which have the same effect. A lot meeting the minimum 300-foot width and 300-foot depth requirements would also be at least 2 acres. Other unique requirements of Wellington's code include specific setbacks for dressage walls, indicative of its preeminent status in the dressage world, and requirements on the type of fencing to be used that would seem to indicate a desire to increase the aesthetic appeal of the district and enhance its separate identity. In fact, part of the city's comprehensive plan for the district is to encourage tourism of the area and utilize signage, statues, and other visual clues to create a cohesive equestrian district. Wellington's vision for their equestrian district is in this way far ahead of those of the other two cities examined here; they are looking not only at how to make the horse farms in their city good neighbors, but how to utilize the equestrian community to benefit the rest of the city.

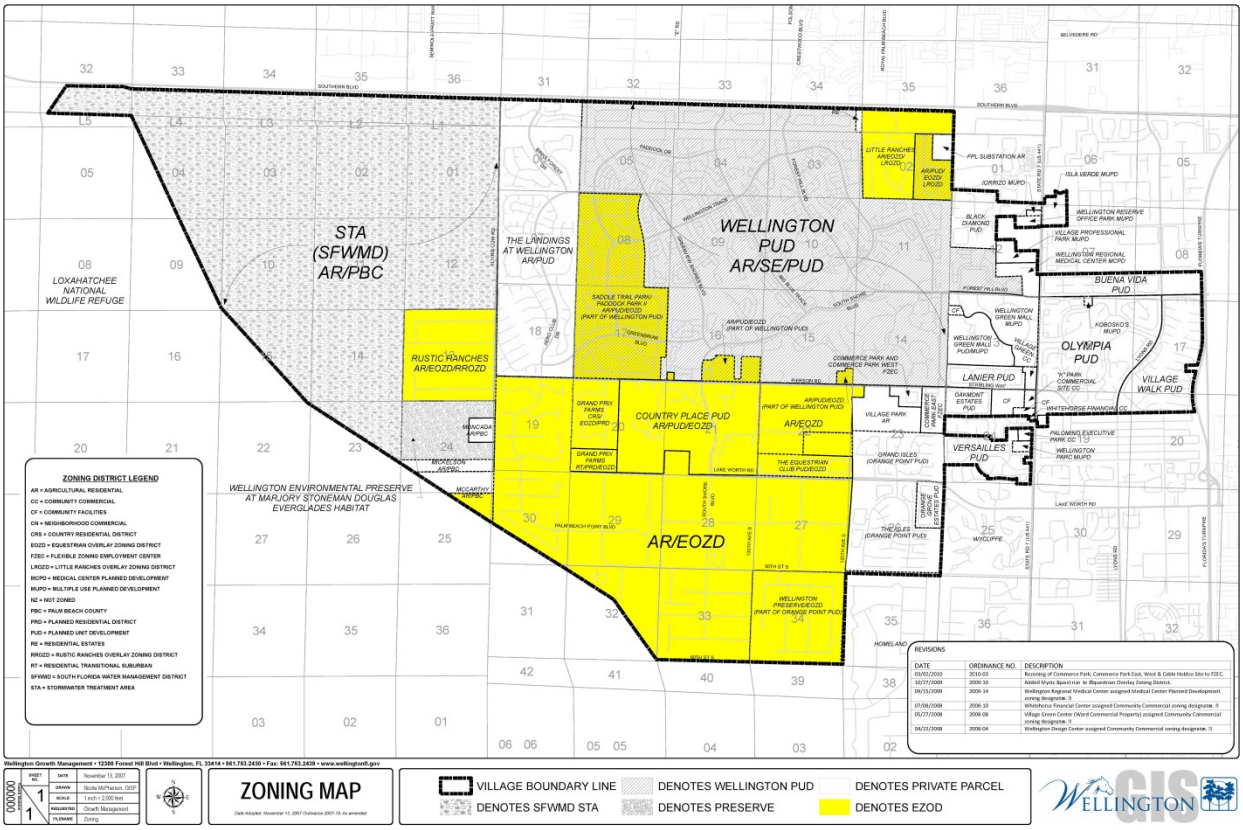

Figure 4 Zoning map of Wellington, Florida

The cities reviewed here have offered a glimpse into the variety of approaches taken to date in planning for horse farms and incorporating them into the landscape, from planning for them along with traditional agriculture to devoting an entire section of the comprehensive plan to the equestrian district. While this variety is good in a larger sense, with each city functioning as a sort of testing ground for different ideas and methods, at a small scale the lack of data informing these plans may make them no more than best guess approaches. None of these cities maintain publicly available maps of where the actual farms are located as opposed to the zones in which they are allowed, nor do they take into consideration the size of the existing farms. Establishing minimum lot sizes does not account for the different impacts that the largest facilities have. Similarly, although local governments typically have a good idea of the economic and possibly the environmental impacts of industries within their boundaries, the concurrent impacts of horse farms are not well understood. Generally, the economic

impact is tracked at either the state level, similar to what the American Horse Council does, or for individual properties, such as the examples given earlier for horse show facilities in Shelbyville, Tennessee, and Oklahoma City, Oklahoma. The question then becomes how we can better understand the impact that horsekeeping has on the local community and the best way to plan for and encourage the benefits they provide while minimizing negative impacts. Possible answers to this question will be explored in the rest of this thesis.

CHAPTER 5

INCORPORATING HORSE FARMS INTO PLANNING

The previous chapter demonstrated the variability in how horse farms are addressed in current zoning codes. What this chapter seeks to do is compare methods for incorporating horse farms into planning, including not only the zoning code itself but also conservation easements and overlay zones. As we saw in the case of Lexington, for areas in which horse farms are not explicitly addressed in the zoning code they are often classified as agriculture. While horse farms are still agricultural in that they require land and some of the same inputs and produce some of the same outputs, this thesis has shown that a horse farm is significantly different from traditional agriculture as far as its place in the community and its contributions to the landscape. Therefore, the development of land use plans would be better served by measures to differentiate horse farms from other agricultural uses.

One non-zoning approach that has been used to protect some horse farms is conservation easements, which can be used on a case-by-case basis to protect specific properties from development. This approach has been used to protect some particularly large and/or historic farms in rapidly developing areas, such as northern Virginia. The use of easements is limited, however, in that they must be applied one farm at a time and are only likely to be applied to large or historic farms. Small farms, which are arguably the backbone of the equestrian industry and provide needed stability to the local agricultural industry, would likely not be protected by easements. Easements can also imply less control over the properties by the local governments since the easement is usually an agreement between the landowner and a third party such as a land trust. This lack of control could become an issue as urban areas expand and more people come into contact with pre-existing horse farms. However, owners of

larger farms may benefit from placing their farms under conservation easements; at least some land trusts include working farms as a type of landscape they are seeking to protect (see for example the Athens Land Trust). By identifying their farm as one that will not be subdivided or developed and placing it under a conservation easement, the farm owner receives benefits such as tax breaks while the community receives the benefits of the open space.

The combined governments of Lexington, Kentucky, and Fayette County have also taken a non-zoning approach to planning for horse farms, although unlike conservation easements their approach is more holistic and applicable to all of the farms in the community. Measures to support the horse industry in the Lexington area include the establishment of an urban service boundary and concurrent recommendations for compact growth, infill, and redevelopment; the establishment of Core Agricultural Lands outside this urban service boundary with a minimum 40-acre lot size; and recognition of the importance of the equine industry to the continued growth of their community and economy through measures such as public surveys, economic studies, and the creation of National Register districts, Scenic Byways, and historic and corridor overlay zones.[27] All of these measures are geared toward maintaining current open spaces and restricting development that may threaten existing farms. To help build support for maintaining this open space and develop awareness of the benefits of the rural character, the Greenway Master Plan and Greenspace Plan also recommend enticing more people into the rural areas, although the community is divided on whether bringing more people into agricultural areas will ruin their character or help save them from development. This holistic approach to planning for horse farms within the larger agricultural context is based on the underlying knowledge of the importance of the equestrian element to the community and to the local economy; without this knowledge, holistic plans like this one are unlikely to provide the necessary protection and stability for horse farms in other areas of the country.

[27]Cindy Deitz, e-mail message to author, March 24, 2014.

Given the limitations of measures such as conservation easements that must be applied case-by-case, and holistic planning measures that rely on pre-existing recognition of the value of horse farms, the best solution to planning for horse farms is likely to be modification of the zoning code. For the inclusion of horse farms in planning and zoning to be effective, this modification must take into account the broad scope of the horse industry, from small hobby-type farms with one or two horses to professional facilities designed to host hundreds of horses for competitions. The best way to capture this variety is by establishing three different zones, similar to the system that Aiken has in place. The first zone would be agricultural/residential and would include the small farms that typically house only the farm owner's horses. The second zone would be agricultural/residential/commercial and would include basic boarding stables and small training facilities, while the final zone would cover the large-scale professional and competition facilities.

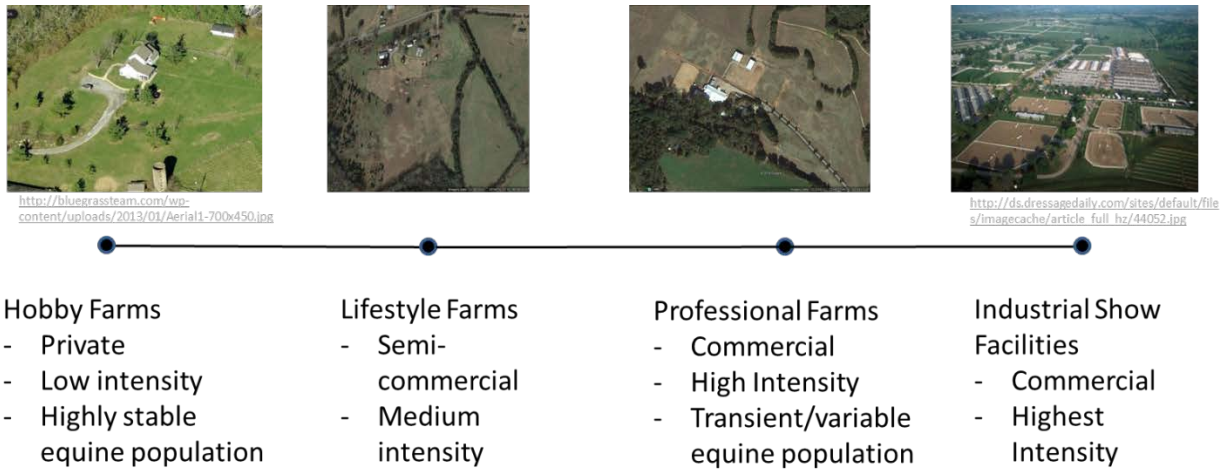

Figure 5 Spectrum of intensity in the equine industry

The division between the categories would likely need to be based on the number of horses on the property or, for professional facilities, the number anticipated during show season. Distinctions could also be made based on the primary source of economic support for the facility. For example,

farms supported wholly by outside income, as would likely be the case with hobby farms; or supported solely by farm income, as is likely the case with professional facilities, or some percentage in between; or by equine population density, which would impact the anticipated externalities such as odor and dust. Five horses on 5 acres will certainly be more evident to the neighbors than five horses on 50 acres, although how the horses are kept certainly influences the attendant externalities. An example of how these divisions might work is provided in Table 1. In addition, traffic counts may be a consideration in establishing these intensity zones. Private hobby farms will likely have only the owners or their friends coming and going, with little more traffic than a typical residence, while professional farms may have dozens of trips per day, and large show facilities may have hundreds. Obviously the number of trips impacts the road surface, requiring appropriate maintenance by the city or county; by classifying the intensity of use based in part on number of trips per day, the municipality may be able to better plan for road maintenance expenses.

Table 1 Sample standards for horse farm classification

Classification	Percentage of Income Obtained from the Farm	Number of Horses	Equine Population Density	Traffic Count (Trips per Day)
Hobby farm/residential	<10	<5	<1 per acre	<5
Lifestyle farm/commercial	<50	<15	1-2 per acre	<20
Professional farm	>50	>15	>2 per acre	>20

It may seem that there is a large category of farms that fall under the category of professional, from 20-stall boarding facilities to large show complexes. In some areas of the country, this category may need to be further subdivided, creating a fourth category of intensity addressing the largest show facilities, especially those in urban areas or those that operate strictly as show facilities and not as traditional farms. The impacts of these facilities are greater per area than any other classification of

farm, and many of the benefits associated earlier with horse farms may be largely absent due to large areas of impervious surfaces such as barn roofs and parking lots. Facilities falling into this category may need to be addressed similarly to industrial or traditional sports facilities rather than to agriculture or residential uses.

Given earlier discussions on how horse farms can be used to maintain open space on the edges of urban areas, it may seem odd that the proposed classification is not based on farm size. There are a few reasons for this: one, it is not the size of the farm that determines its role in the local economy or the intensity of its use; two, the size of the farm does not correlate directly with the externalities produced by it in the same way the number of horses or their density would; and three, variations in how the horses are kept equate to different space requirements for various breeds, disciplines, individuals, etc., that would not be easily addressed by classifying the farms by size. Instead, by classifying the farms by the number of horses and their density, these zones seek to address the actual externalities created by the proportional quantities of feed, waste, etc., per animal and the perceived externalities resulting from numbers of horses in a space such as odor, pasture quality, and attending aesthetics.

A simpler way to implement this type of plan is to adopt the overlay zone method used by Wellington. Although they utilize only the single residential overlay zone, the concept could be expanded to include overlays for the three categories previously discussed. This would allow more flexibility in planning and would not require changing the entire zoning code, a choice most attractive to local officials. This method is likely to be the most spatially and cost effective since it allows greater flexibility than traditional zones and does not require a revamp of the entire code but rather an amendment to it.

CHAPTER 6

DEVELOPMENT OF OVERLAY ZONES

This chapter will expand on the proposed divisions among classifications of horse farms made in the previous chapter as well as address the management of negative externalities and the promotion of environmentally and socially beneficial contributions of horse farms. The three divisions proposed in the previous chapter were an agriculture/residential zone; an agriculture/residential/commercial zone; and a zone for professional facilities. Each of these zones targets one of the categories of horse farms introduced earlier in this thesis and, therefore, must address the specific needs and externalities of that type of farm. This chapter will examine these needs and externalities and ways in which overlay zones can potentially address them.

The agriculture/residential zone is geared toward private farms, those on which the horses belong to the owner of the property. The horses in question may be used for recreation, competition, or may even be retired pasture ornaments, but are generally stocked at a low density and supported by income earned off-site. Given these characteristics, the needs of this type of farm are relatively small. They need good basic roads, which the county, city, and state are already responsible for providing; they need to be located close enough to the urban center for the owner to readily obtain and retain an off-site job; and they need to be located far enough away from that same urban center that the farmette lifestyle the owner is seeking is maintained. Generally, this balance occurs around 30 to 45 minutes outside the city; close enough to commute, but far enough to be away from the pressures of urban or even suburban living. This is also generally the space where land is most affordable, an important consideration for any new farm owner.

The externalities of this type of farm are also relatively small. Possible side effects include odors from manure buildup; loose animals; noise pollution from equipment such as tractors used to maintain the farm; and potential impacts on water quality depending on how manure is managed. Measures to manage these externalities through zoning would include restrictions on how close manure piles may be placed to property lines or water sources; clarification of liability for any damage done by loose animals; and possibly regulations regarding fencing height or construction to minimize the likelihood of the horses escaping.

The importance of these side effects can also be managed through the location of these farmettes. If these small farms are clustered so that their neighbors are primarily other small horse farms, externalities such as those above will be less troublesome and more understood than if the farm is located next to a subdivision. Clustering these small farms could also allow the implementation of measures, such as composting, that benefit from economies of scale, especially if the cluster was treated as a sort of equestrian cooperative neighborhood, a type of grouping that would fit the overlay zoning process very well.

The second zone, which is agriculture, residential, and commercial, covers farms that are often slightly larger than those in the first zone and which are home to horses owned by people other than the owner, either through boarding or training. These facilities have some of the same needs of those in the previous category, such as well-maintained access roads, but often need to be located closer to the urban center where their clients live. Proximity to an urban center is a highly marketable attribute for a boarding facility in particular, whose clients will be anticipating making the trip multiple times a week. Strictly training facilities may be able to handle being further from the urban center since their clients may not be as hands on as those who are boarding their horse for their own use.

Since these facilities are generally larger and have more horses than the facilities in the first category, the externalities associated with them may also be more intrusive to neighboring properties. These types of facilities also typically have established riding arenas, which bring with them the additional externality of dust, especially during dry summer months. In addition to dust, these facilities may be more likely to have lights on their arenas, especially boarding facilities which cater to horse owners with full-time jobs who may need lights to have the opportunity to ride. These lights are typically large and bright to avoid shadows in the arena that may spook the horses, so light pollution becomes a very real possibility, especially if the arena is situated close to property lines. Manure management also becomes a larger issue with these facilities as they have more horses and, therefore, more manure to deal with.

Addressing these externalities through zoning would include restrictions on proximity of manure piles to water bodies and property lines, as in the previous zone, although with the larger quantities involved the distance may need to be larger to ensure adequate separation and resultant dissipation of the odor before reaching neighbors' properties and adequate distance for filtration of excess nutrients from runoff before it reaches surface waters. Light and dust pollution may be addressed through similar limitations on the proximity of riding arenas to property lines or through restrictions on how late facilities can keep their arena lights on. Options for dealing with dust include encouragement of proper footing maintenance such as watering or encouragement of alternative footings such as the manmade fibers or rubber that produce less dust than traditional sand arenas.

The final zone, which covers professional facilities, must account for the much larger size and larger number of horses involved in these operations. These facilities also rely much more heavily on the city, county, and state for road systems capable of handling large trailers, even tractor trailers. Given their large size, these facilities are often located outside of the city limits, sometimes even further away

than the hobby farms in the first zone; however, there are many instances of facilities this large in urban areas, especially facilities like racetracks which rely on an urban clientele. Regardless, professional facilities oriented toward competition rely on the community for lodging, food, and other services for their competitors, including in some cases EMT presence on the grounds during the competition.

Depending on the location of these facilities, the externalities may be either easier or more difficult to deal with than those of the farms in the other zones. If these facilities are located far away from urban or suburban neighbors and are large enough to internalize the manure, dust, etc. produced by their activities, such as Pine Top Farm outside of Thomson, Georgia, seen in Figure 3 below, then management of these externalities becomes quite simple. However, when these facilities are located in urban areas, like the Calsonic Arena in Shelbyville, Tennessee in Figure 3, then the same quantities of manure, dust, light, etc. pose a significant management challenge. In these cases, regulations on how manure is handled become paramount, and setbacks from neighboring property lines may be impractical or ineffective. Therefore, measures such as composting or movement of the manure off-site may become necessary. Fortunately, these larger facilities often operate at the scale at which composting becomes economically viable, so establishment of such a system may be more feasible for these facilities than for the smaller facilities in the other zones.

Figure 6 Comparison between rural (top) and urban (bottom) professional facilities

CHAPTER 7

APPLICATION OF OVERLAY ZONES

This chapter will examine how overlay zones could be applied to two case studies: Athens-Clarke County, and Lexington, Kentucky which currently do not specifically address horse farms in their zoning codes, as expanded on in Chapter 5.

As explained earlier, one of the missing pieces of information for applying overlay zones is the current distribution and size of horse farms in the applicable regions. In an attempt to begin to bridge this knowledge gap, internet searches using the term 'horse boarding' were used to identify professional horse facilities in the study areas. Although this search in no way reveals the total number of horse farms in these areas, it likely does identify a large fraction of the professional facilities given our current internet-driven society in which having a business website is almost mandatory. However, some facilities, such as the Kentucky Horse Park, would not be identified by this search if they are strictly competition facilities and do not offer boarding. This is felt to be an acceptable shortfall of the identification process since these types of facilities are supported by the professional facilities that would be identified by this search method.

Once the facilities were identified, information was collected on the farm's location, the acreage, if it was provided, and the number of stalls on the facility. The number of stalls was then used as a proxy for the size of the facility, although the relationship between number of stalls and size and impact of the facility is not perfect. This measure does not account for the density at which the horses are stocked, nor does it account for horses kept on the property but not stalled. Many facilities,

especially in Athens, where the weather is more appropriate to it, offer pasture board as well as stall board, and therefore using the number of stalls as a proxy for facility size potentially underestimates the size of the facilities. Despite these limitations, the number of stalls on each of the facilities was in most cases the most readily available information related to their size and should provide a reasonable estimate of the relative, if not absolute, size of the facilities.

In order to map the distribution of the farms, their physical addresses were converted to latitude and longitude using a website (http://www.latlong.net/convert-address-to-lat-long.html) designed for the purpose. These lat-long coordinates were then imported to ArcGIS and displayed on top of aerial images of the Athens and Lexington regions. The resulting maps are shown in Figure 5 below. The symbols for the farms are proportional to the number of stalls at the facility and are the same scale on both maps.

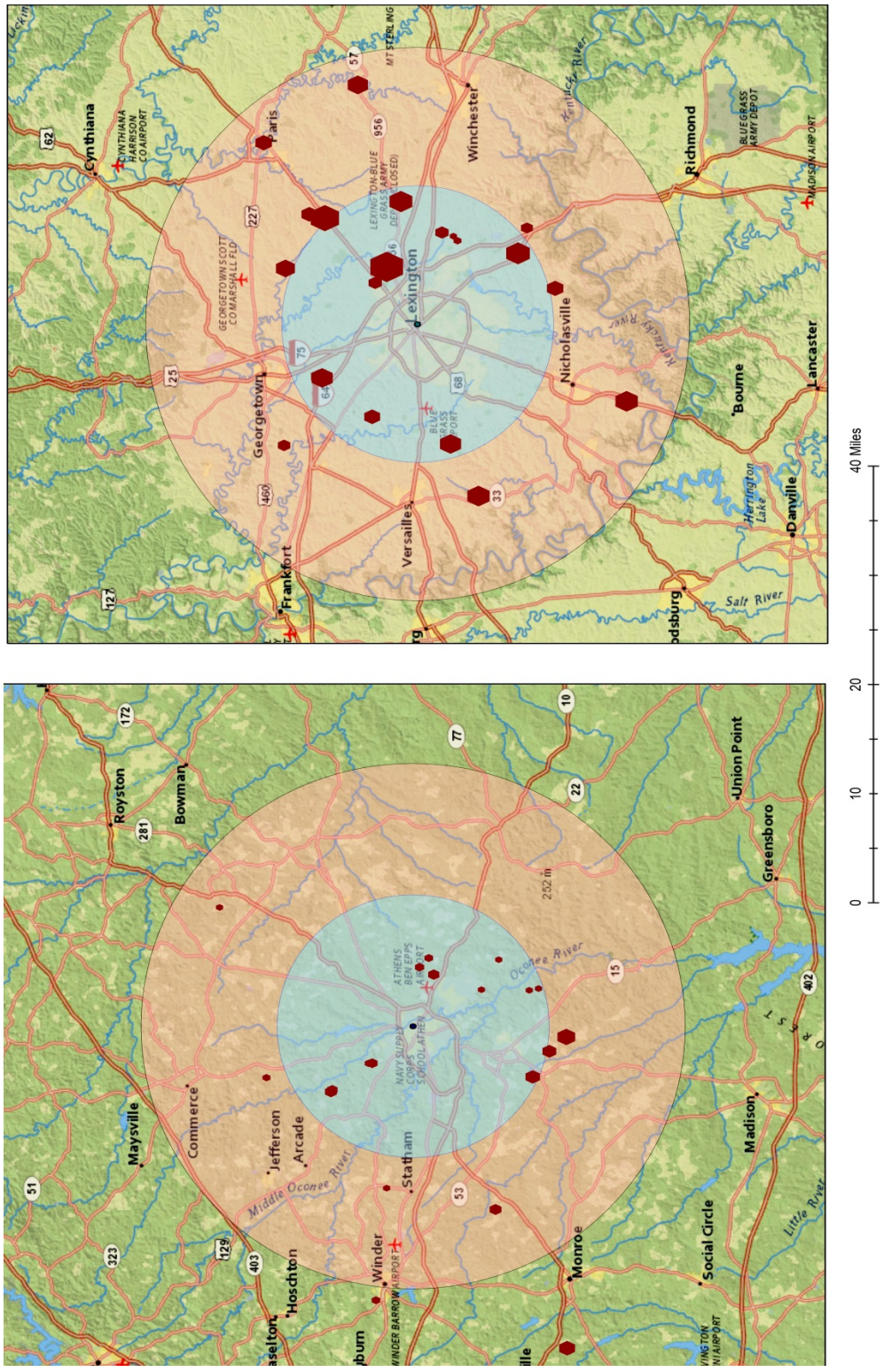

Figure 7 Distribution and relative size of horse farms around Athens (below) and Lexington (above)

From these maps it is apparent that most of the professional farms considered to be in these areas lie within twenty miles of the city center, as shown by the larger red ring. The inner blue ring shows a distance of ten miles from the city center, and it is within this radius that the larger farms tend to lie, although they are typically toward the outer edge of this radius where the land required for these facilities is available. This trend is especially visible in Lexington, which is home to larger facilities than is Athens.

In both of these regions, horses are included in the agricultural zone. In both the current land use map and the future land use map of Athens-Clarke County, equestrian pursuits are classified as a rural activity, which they largely are. The Athens area in particular does not have any significant equestrian facilities in an urban setting, so the classification of equestrian activity as rural is logical and appropriate for the area. Rural land use is relegated to the edges of the county in an effort to maintain separation between the county and its neighbors and avoid the proliferation of suburban development across the area. The inclusion of horse farms in this area demonstrates perfectly how they can be used to maintain open space in a productive manner. Two specific areas in the county are already home to several professional farms: Jefferson River Road in the northwest corner of the county, and the Winterville area on the east edge of the county. Applying the overlay zone to these types of areas would allow the county better control over both the positive and negative impacts resulting from these facilities. In Athens-Clarke County's case, however, most of the horse farms in the area are outside of its boundaries, as seen in Figure 6, so the neighboring counties would need to implement this type of zoning overlay. Oconee County does not have zoning specific to horse farms either, despite hosting some of the larger horse facilities in the area.

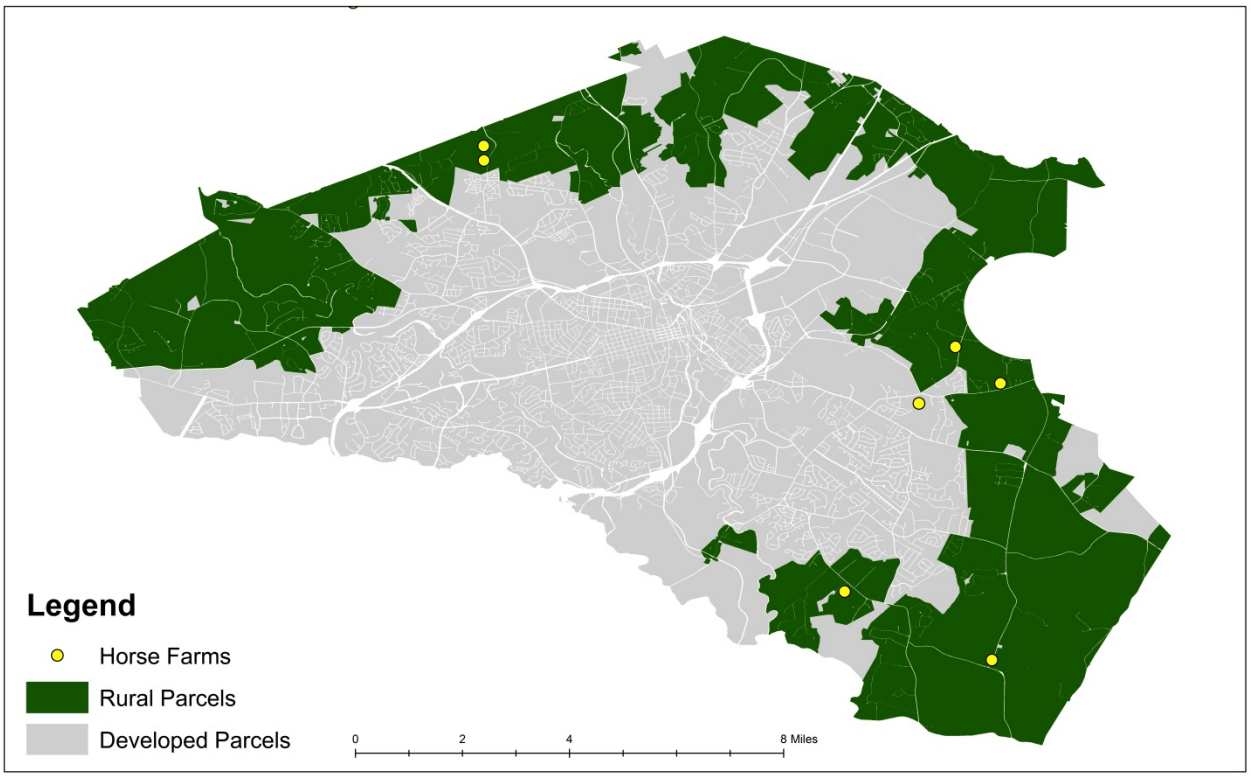

Figure 8 Locations of Athens professional horse farms relative to planned green belt

Figure 9 Location of farms in Athens relative to county boundaries

Like Athens-Clarke County, Lexington also has a plan to concentrate their urban development in order to preserve what they have designated Core Agricultural and Rural Lands (CARL) with the intent of maintaining their worldwide renown for prime agricultural land. Although part of this renown is certainly due to their status as the horse capital of the world and the many nationally and probably internationally famous breeding and competition facilities (including, for example, Claiborne Farm and the Kentucky Horse Park), equestrian use is not mentioned explicitly in their plan. Instead, the rural lands are referred to simply as agricultural. The extent of these lands can be seen in Figure 7 below.

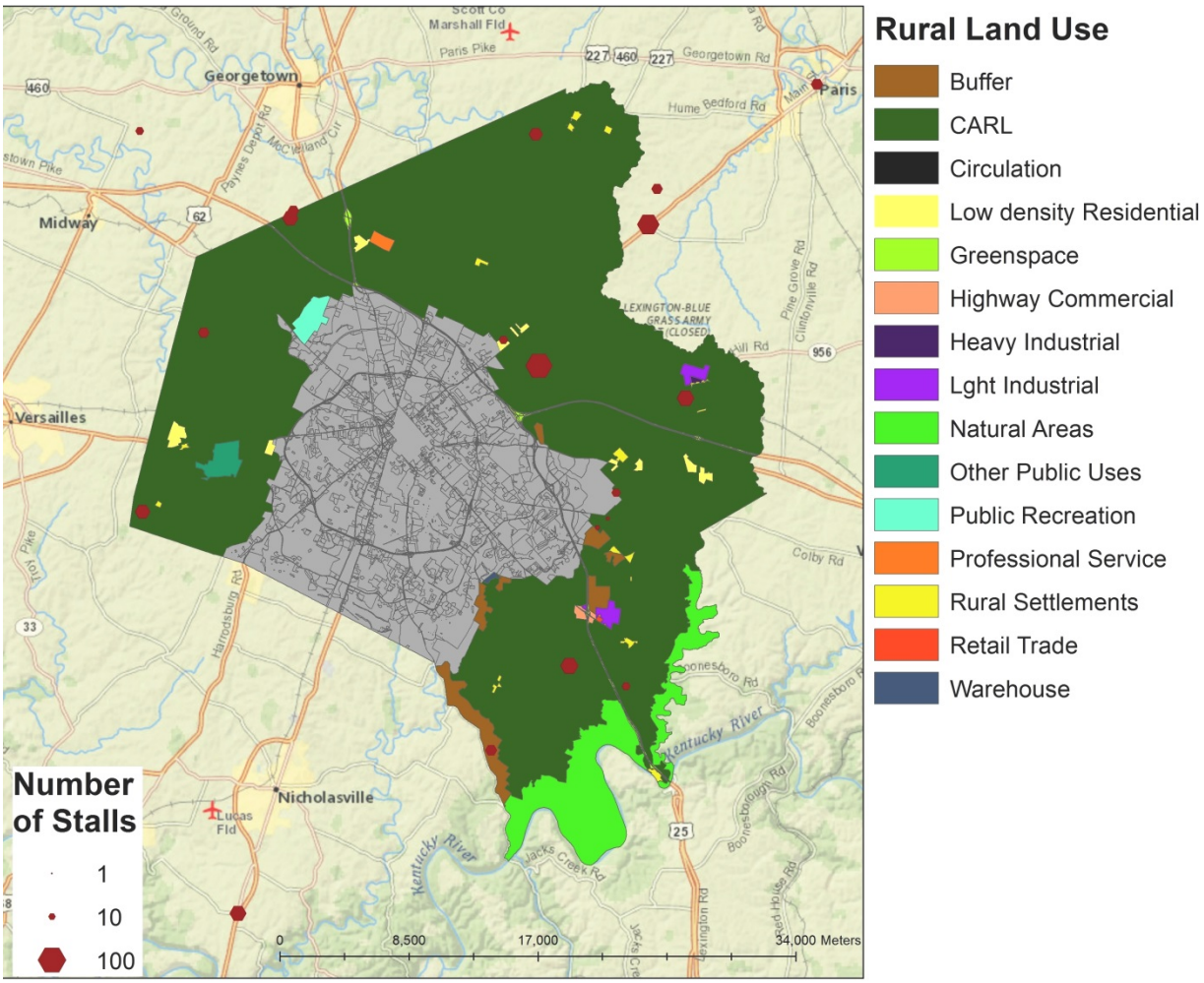

Figure 10 Location of Lexington horse farms relative to rural land use plan

Despite the lack of explicit zoning for horse farms, the planning department in Lexington-Fayette County does recognize the importance of horses to their community and has implemented measures outside of zoning to help preserve the horse culture. Among these measures are maintenance of an urban service boundary to preserve open space; dedicated Greenspace and Rural Land Management Plans; utilization of infill and compact development; and the establishment of a purchase of development rights program.[28] The goal of all of these programs is to maintain the open space necessary for the survival of the equine industry in Lexington.

While these measures are certainly a step in the right direction as far as providing protection for existing farms, the establishment of overlay zones like those proposed in this thesis would offer the city-county government more control and help increase awareness of the importance of horse farms to the region. One distinction Lexington has made in their plans that Athens has not is based on parcel size. Lexington has established buffer areas between their urban core and the surrounding CARL; in the buffer zone, parcels may be subdivided down to 10 acres, while in the CARL, parcels must be at least 40 acres. If these zones were integrated with the proposed overlay zones, the buffer zone would correspond to the agriculture/residential zone where private farms are likely to be found, on smaller acreages close to the city, while the CARL area would represent professional farms, where indeed most of the largest professional farms already exist. The proposed mid-intensity overlay zone is somewhat lost in Lexington's current land use plan, but could be applied within the buffer zone as well to provide the desired access to the urban center. The provision of horsekeeping services in this buffer provides the desired transition between the dense urban development and the CARL by maintaining productive open space while facilitating communication between the urban and agricultural areas.

[28] Cindy Deitz, e-mail message to author, March 24, 2014.

CHAPTER 8

ENVIRONMENTAL EDUCATION AND PROTECTION

In addition to spatial planning, the horse industry will also need to be included in environmental protection efforts, not only because of the increasing amount of land under the control of horse owners but also because of potential conflicts with their new urban neighbors. One of the main problems in addressing the environmental impacts of horse farms is their lack of inclusion in traditional agricultural policy. While properly managed pasture creates benefits for the horse owner, the land owner, the surrounding community, and the environment, best management practices (BMPs) regarding pasture management are often not well understood or not utilized by the land managers. Despite evidence that horse farm owners are interested in protecting the environment,[29] they are generally not included in conservation outreach programs common in other types of agricultural land uses; as a result, the owners often are unaware of what BMPs are with regard to farm management and environmental protection. With the amount of land used for horses rapidly increasing—the USDA reported an increase from 11 to 22 million acres in just 5 years from 2002 to 2007[30]—this lack of awareness and information has the potential to become a serious environmental problem.

The question, then, is how to correct this oversight. The inclusion of horse farms in traditional agricultural outreach and conservation programs would seem to be a simple solution, but these programs are not targeted to and generally not relevant to horsekeeping. Part of the reason for this is a lack of horse-specific management knowledge regarding nutrient values, forage preferences, etc., that

[29] Wilton, "A Unique Reality."
[30] Linda S. Prokopy, et al. "Equine Farm Operators: An Underserved Target Audience for Conservation Practice Outreach?" *Journal of Equine Veterinary Science* 31 (2011): 447.

would allow BMPs to be further developed, while the other part is the general emphasis on traditional agriculture over the specialized land use that is horsekeeping. The first step, therefore, in fixing this issue is research into BMPs for horses. While there are BMPs that are understood within the community, these practices are often not backed by appropriate research. For example, although it is understood that it is good management practice to rotate pastures to avoid overgrazing, the appropriate way to rotate pastures is less well understood.[31] The challenge is both to better define good management practices and to distribute them to the owners of the properties. Linda S. Prokopy found that relative to other livestock magazines very little information is published in equestrian magazines regarding good environmental practices, and what is published is overwhelmingly advertisements rather than guidelines for implementation.[32] With limited information coming to them, horse farm owners have little chance of successfully implementing BMPs like pasture rotation or proper manure management.

If our first step is research and education, what can be done to encourage horse farm owners to implement the resulting policies? The current thinking seems to be that encouraging ecosystem service protection in agriculture will require some form of payment for environmental services, possibly coupled with penalty fees for environmental degradation. The most important question in implementing this type of program is which ecosystem services to track for payment or fee; C. Raudsepp-Hearne, et al. have addressed this problem in their article on ecosystem service bundles. They found that certain ecosystem services tend to be clumped spatially, and that provision of one of these services has a positive correlation with provision of the others.[33] The implication for landscape management is that one or two targeted services can be tracked and payments or fees distributed appropriately rather than requiring all ecosystem services to be tracked, reducing the time and paperwork necessary.

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[31] Linda S. Prokopy, Rebecca Perry-Hill, and Adam P. Reimer. "Equine Farm Operators: An Underserved Target Audience for Conservation Practice Outreach?" *Journal for Equine Veterinary Science* 31 (2011): 447–455.
[32] Prokopy. "Equine Farm Operators: An Underserved Target Audience for Conservation Practice Outreach?"
[33] C. Hearne-Raudsepp, G.D. Peterson, E.M. Bennett, and Harold A. Mooney. "Ecosystem Service Bundles for Analyzing Trade-offs in Diverse Landscapes," *Proceedings of the National Academy of Science of the United States of America* 107, 11 (Mar 2010): 5242–5247.

The selection of the target service then becomes essential since the entire system will hinge on tracking that one service. Gren, et al., argue that this service must have a low marginal provision cost (i.e., it can be protected or provided relatively easily); a high multifunctional production rate (i.e., it correlates positively with many other desired ecosystem services); linkages with other landscape components; and high unit values (i.e., providing a relatively small amount of that service produces a relatively large benefit).[34] Only by selecting an ecosystem attribute that can be easily tracked, reasonably well protected, and that will have the desired level of impact on the environment, can payments for ecosystem services be effective.

The other main issue to be addressed is the amount of the payment and/or fee to be established. Since the main purpose of the payment/fee is to encourage a desired land use, the amount must be enough to encourage the desired use and discourage the polluting use. The amount required will depend on the services and profits involved, including such considerations as the ease of changing the land use and the potential loss of income or use of the property incurred by the farmer. If the payment is not high enough to compensate for the costs of changing the land use, or for the income lost by discontinuing the polluting use, it will not be effective. However, payments that are too high will unnecessarily drain the resources of local governments and could have other unintended consequences if too much of the targeted service is provided as a result. The goal of these programs should be ecological balance and diversity (multifunctionality) of land use, not domination of the landscape by a single use.

However, even if all of the above issues are successfully addressed, the final issue is one of scale. The most common models of PES are systems such as wetland banking that require large tracts of land, something that few horse farms have available, especially in the peri-urban zone. For payments to be

[34] Ing-Marie Gren, Lisa Svensson, Magnus Carlsson, and Kevin Bishop. "Policy design for a multifunctional landscape," *Regulating Environmental Change* 10 (2010): 339–348.

effective therefore, they would need to be scaled down to the farm level, which presents another set of challenges that would need to be addressed by policymakers.

In addition to this carrot and stick type of approach, it has also been suggested that farm owners, especially of smaller farms, may need additional backing to implement desired management strategies. Examples include relatively expensive processes such as installing dry lots or tile drainage systems that may be beyond the capabilities of the average small farm owner. While tax credits help, if the business does not have the initial capital available to install the desired scheme, it is likely that the improvements will not happen or will happen halfway; that is, instead of installing a proper dry lot with solid footing and good drainage, a section of the pasture may be set aside as a sacrifice lot and turned to mud within a season. While this will protect a large chunk of the pasture, there will likely be more issues related to water quality and soil erosion with this setup than with a correctly established dry lot.

Figure 11 Comparison between a sacrifice lot (left) and a correctly established dry lot (right)

What has not been addressed in research to date is how to provide the financial backing necessary for these types of improvements to be implemented. Since many of the potential environmental impacts, such as soil erosion and water quality issues, are felt off-site, their mitigation will also benefit the community and the environment outside of the individual property. The external

negative effects can encourage the community to take measures to address the source of the problem, while the internal positive effects to the farm environment can encourage the farm owner to make changes to their property management. However, unless the community and the property owner place the same values on the same aspects of the environment and the services provided by it, the measures taken will not please both parties. The government then must provide the necessary incentives or backing as needed for socially acceptable farm maintenance to be implemented.[35]

Of course, in order to know when the incentives are necessary and what measures need to be taken, the government will need to know where the farms are located, how many horses they have and at what density, the farm environment and layout, and what management is already practiced by the owner. Without this knowledge, advice given to the farm owner may be redundant at best or irrelevant at worst. Collecting this type of data and helping implement BMPs on individual farms would require site visits and site-specific management plans, which in turn would require a consultant specific to the planning and management of horse farms.

Although county extension agents may perform some of these functions, like most agricultural services, county extension agents are not well-versed in the unique aspects and issues related to horse farms. With most of their training in traditional agriculture forms, their recommendations for horse owners are likely to be less effective than expected or possibly completely irrelevant. However, the county extension agent's office may be a good location for an advisor specific to horse farm planning. Such an advisor could help design the layouts of new facilities, renovate existing ones, and develop appropriate management plans for the specific area.

The alternative approach to making implementation of BMPs more affordable is to improve the practices themselves through research into the most cost-effective means of implementation. Even so,

[35] Gren, et al., "Policy design."

some measures, such as composting, will still suffer economy of scale issues. In these cases, clustering smaller farms may provide the opportunity to group environmentally friendly services.

CHAPTER 9

IMPLEMENTATION STRATEGIES AND CHALLENGES

All of the measures recommended in this thesis, from overlay zones to the use of BMPs, require implementation to be effective. One of the major boundaries to implementation is a lack of education, both within the equestrian industry and within the governments that are attempting to regulate it. Many organizations are working to educate horse owners in environmentally sensitive farm management, including Horses for Clean Water, a program run by horse owners for horse owners to help spread currently understood BMPs, from composting to mud removal, through fact sheets, seminars, and tours of demonstration farms. Although this program is primarily based in the Pacific Northwest, many of its educational materials are available through their website, giving them a national and even global reach. In addition, the Equestrian Land Conservation Resource has become a powerful force at the national level for educating people both within and outside of the industry regarding planning issues, economic impacts, and best management practices. Many of the resources from these organizations and others like them are available online, as are uniquely online resources like My Horse University and thehorse.com, both of which provide educational articles, webinars, and even classes on environmentally friendly horsekeeping.

What we must ask ourselves is why, with all of these available resources, so few horse owners seem to be aware of or to practice BMPs. Admittedly, as referenced earlier in this thesis, some of these practices, like pasture rotation and management, do need to be researched further, but others, such as composting and mud control, are well established. Therefore, we need to look not at the existence of these practices but in how they are being distributed to horse owners in order to increase their

implementation. While online resources are valuable, they are only effective if horse owners know to look for them. In order to reach a wider audience, traditional media forms should be better utilized, including the numerous equestrian publications ranging from breed and sport specific magazines to books and educational pamphlets. National magazines and books can provide overall strategies, such as composting, that are nearly universally applicable, but these should be supplemented by educational pamphlets created in concert with local extension agents, soil and water conservation districts, and departments of agriculture, among others, to address BMPs specific to a region. This is a necessary next step in effectively distributing and implementing BMPs that will allow these resources to be available to a wider population, including those who do not have Internet access or who are not proficient on a computer, and ensure that the practices implemented are appropriate to the local conditions.

In addition to educating horse owners on good management practices, we must also educate local and regional governments on the benefits that can be garnered from including horse farms in their plans. These benefits have been enumerated in other sections of this thesis, but helping local and regional governments understand them and how they can help achieve the goals of economic growth, environmental protection, and community that planning departments nationwide strive for, is the challenge. Targeted publications, such as white papers and executive summaries, specifically geared toward government officials and planning departments could help this process. These publications should address planning for horse farms in terms of the economic and social benefits provided in order to address their primary concerns and emphasize the contributions the farms can make toward them.

Finally, implementation of measures such as locally appropriate overlay zones and best management practices will require cooperation between the governments and the horse industry. On the government side, this will include involvement by local and regional planning agencies, Departments of Agriculture, Community and Economic Development groups, and Soil and Water Conservation

Districts. However, the groups or individuals who should be designated to speak for the equine industry are less clear. The industry itself, as noted earlier, is diverse and not easily categorized or well structured. While there are national organizations within the industry, they are typically related to specific breeds or disciplines, such as the American Quarter Horse Association or the United States Eventing Association, which obviously cannot speak of the entire equine industry. However, many of the same organizations seeking to educate horse owners cut across these breed and discipline boundaries, from Horses for Clean Water to the Equestrian Land Conservation Resource, and these organizations may provide the best partners for local and regional governments seeking to better incorporate horse farms into their plans. However, local and regional governments should not neglect the national equestrian organizations or their local and regional counterparts, like the Georgia Dressage and Combined Training Association, a regional association related to the national United States Dressage Federation and United States Eventing Association. These organizations have the potential to reach more horse owners than some of the education-based organizations, and at a regional level, can help the local and regional governments understand the characteristics of their local equine industry and, therefore, what types of farms and activities they need to plan for and how these facilities can best be incorporated into their comprehensive plans.

CHAPTER 10

CONCLUSION

This thesis has explored the research to date on the role of the expanding equine industry in the developed world. Research from Europe and Canada has confirmed that horse farms have a role to play in establishing multifunctional landscapes, an operational process for the achievement of sustainability. Given the current lack of knowledge about the true size and distribution of the equine industry here in the United States, at national, regional, and local levels, it is unsurprising that municipalities have adopted many different approaches to addressing the horse farms in their communities. These approaches range from considering horse farms as an agricultural use like any other to developing multiple zones devoted to different intensities of equestrian use. Of these approaches, overlay zones appear to be the most effective means for amending existing zoning codes to account for the diversity and uniqueness of horse farms as a land use. The diversity of the farms can best be accounted for by developing overlay zones based on the three categories of horse farms established by Leena Bantamaki-Lahtinen and Hilkka Vihinen: the hobby farm, the lifestyle farm, and the professional farm.

The implementation of these zones will require partnership with organizations and groups both within and outside of the local and regional government structure. Interested parties within the government may include the Department of Agriculture, Soil and Water Conservation Districts, and Economic and Community Development committees. These groups will benefit from working with others outside the government with a stronger background in the horse industry and its possibilities, including groups such as Horses for Clean Water, the Equestrian Land Conservation Resource, and the assorted state Horse Councils.

In addition to measures to better incorporate horse farms into planning and zoning, efforts to incorporate horse farms into existing educational outreach and agricultural conservation programs need to be expanded. The lack of research into BMPs for horsekeeping and the lack of distribution of what we do know prevents horse farms from contributing as much as they otherwise might to environmental protection and ecosystem management. Therefore, further research into BMPs for horsekeeping should be completed, as well as research into the most cost-effective means of implementing these practices. In addition, in order to facilitate adoption of these practices, consideration needs to be given to providing incentives or possibly financial backing to large and small farm owners alike. Ideally, this research would result in our ability to create targeted site-specific management plans that provide the full range of ecological, economic, and social benefits that horse farms are capable of.

As horse farms are brought to the awareness of local governments and come into increasing contact with expanding development, the need to design and manage them appropriately will become imperative to avoid conflicts with neighbors and with governments and environmental groups. This need can be met by educating horse farm owners and managers and ensuring outreach efforts are targeted toward this underserved but growing population. Horse farm owners and operators should also be included in future agriculture policy in such a way as to ensure their cooperation in improving the environment without unduly burdening them with reporting requirements not pertinent to their operations. It will be especially important to ensure that the small hobby farms are not legislated out of existence since they provide the backbone of the industry. Quite likely this will require a separate structure of fees and reporting than that required by traditional agriculture, but the growth of horse farms as a land use makes this separate accounting system increasingly necessary if we are to adequately plan for and manage multifunctional landscapes.

Finally, although this thesis has explored how horse farms are different from traditional agricultural uses, it is important to remember that landscapes must be managed holistically. Therefore, future research should address how horse farms can be managed as a part of the whole landscape and integrated with both agricultural and non-agricultural uses. The attempts that Lexington, Wellington, and other areas of the country are making to develop multi-use trails throughout equestrian areas are a step in the right direction in integrating horses into the community, but as was briefly mentioned in the case of Lexington, there are concerns on the part of the residents and private farm owners in bringing people to these rural areas and the impact this may have on their character. Balancing the needs of the equestrian industry with those of the larger community is the challenge for the future. This is made particularly difficult by the general lack of organization within the equestrian industry, which relies on no single organization to speak for it. Instead, there are a myriad of organizations grouped around the different disciplines, breeds, and geographic areas involved, making coordination between local governments and the equine industry complicated at best.

If local governments are to successfully account for and manage the horse farms in their jurisdictions, first, they must know what farms are in their jurisdiction, their size, and their effects on the environment; second, they must work with both governmental and non-governmental organizations to establish an effective plan for distributing and managing these farms; and third, they must pursue adaptive management strategies that allow them to evaluate the success of their plans and adjust them accordingly. In addition, the equine industry must bear some of the responsibility for contributing to a well-functioning landscape, including the distribution and implementation of good management practices, and must demonstrate a willingness to work with local governments on issues such as public access trails. Developing horse zones in accordance with the shape of the local industry and with the cooperation of local horse farm owners will ensure that the community and the farm owners reap the maximum benefit to be provided by the equestrian industry and its component properties.

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APPENDIX 1

SELECTED SECTIONS OF BROOKHAVEN, NEW YORK, ZONING CODE

§ 85-151 Permitted uses.

Permitted uses are as follows:

A. All principal uses permitted in the A Residence District. In the event that any part of an A Residence 1 District or A Residence 2 District abuts the HF Horse Farm Residence District, the more restrictive requirements of said abutting district shall control the development of the permitted principal uses in the HF Horse Farm Residence District.

B. Horse farms.

C. Accessory uses permitted in the A Residence District.

D. Other customary accessory uses, structures and buildings, provided that such uses are clearly incidental to the principal use. Except with regard to construction on property principally used for agriculture, any accessory building shall be located on the same lot with the principal building, and no accessory building shall be constructed on a lot until the construction the main building has actually been commenced, and no accessory building shall be used unless the main building on the lot is completed and used.

E. Uses authorized by special permit from the Board of Appeals are those uses permitted by special permit in the A Residence District and the following:

(1) Suitable housing accommodations for full-time farm employees and their families. The application for said housing accommodations shall state the number of units required and the type of housing to be constructed. All such special permits shall be valid for a period not to exceed two years.

F. Uses authorized by the Planning Board as follows: horse shows, special equine events and other equine uses which require a temporary increase in the permissible number of horses per acre. Such use approvals shall be valid for specified periods of time and may not exceed a period of one year. The Planning Board may place such conditions as it may deem advisable on any such use approvals.

§ 85-152 Standards for horse farms.

A. There shall be located on the subject premises one principal single-family dwelling which shall be the full-time residence of the owner of the property, the full-time operator of the business conducted on the premises or the full-time residence of a watchman, caretaker or other employee of the principal business.

B. The minimum lot size shall be 10 acres.

C. No more than two horses shall be permitted per acre of land or part thereof. However, in the event that the owner of the premises files a soil and water conservation plan, the Planning Board may increase the number of permitted horses per acre with a limit of a total of no more than five horses per acre or part thereof. Dependent foals shall not be counted in arriving at the total permitted number of horses. The soil and water conservation plan shall be submitted to the Planning Board as part of the site plan review process. For the purposes of this article, "soil and water conservation plan" shall be defined as a document containing proposals for the conservation of soil and water resources, which provides an orderly method for landowners and occupiers to follow in limiting soil erosion and reducing the amount of pollutants entering into surface water, groundwater or other lands with the Town.

D. Manure or any other material or substance which causes or creates any noxious or offensive odors or dust or which causes or may cause the presence of or attract any vermin, rodents or other animals shall be stored in such a manner as shall be approved by the Department of Planning, Environment and Development at least 150 feet from any property line.

E. There shall be at least 110 square feet of stable area for each horse.

F. Where the rental of horses is to be one of the uses, the applicant must demonstrate proximate access to suitable trails or areas for the use of horses.

G. Any corrals, meadows or open areas shall be graded in such a manner that stormwater runoff will not drain onto lands of adjacent property owners, nor shall said stormwater runoff drain into or cause to affect any freshwater or tidal wetlands as defined within Chapter 81 of the Code of the Town of Brookhaven.

H. No structure used for the housing, harboring or stabling of horses may be placed closer than 75 feet to any adjacent property line.

I. As part of the site plan review powers the Planning Board may also require adequate setbacks, screening and/or fencing for any buildings or structures located on the premises or for any corrals, runs, tracks or other open areas used by horses so that there is minimal impact on adjacent property owners. All such buildings, structures, corrals, runs, tracks or other areas shall be maintained in a neat and clean manner.

§ 85-153 Site plan review.

Site plan review and approval is required.

§ 85-154 Exemptions from standards.

In the event that any parcel of property consisting of five or more acres is changed in zone to the HF Horse Farm Residence District, all those uses permitted and as are regulated within the HF Zoning District shall be permitted on said parcel although such parcel does not meet the width and area requirements for such district, provided that the front yard, side yard, rear yard, building area and lot area requirements in effect immediately prior to inclusion within the HF Zoning District are met. In addition, said parcel must have been in single and separate ownership at the time of its inclusion within the HF Zoning District. Proof of single and separate ownership shall be submitted in such form as is required by this chapter.

APPENDIX 2

SELECTED SECTIONS OF AIKEN, SOUTH CAROLINA, ZONING CODE

2.2.2. SINGLE-FAMILY/HORSE (RSH) DISTRICT

The Residential Single-Family/Horse (RSH) District provides for low-density residential neighborhoods on lots of at least one acre by prohibiting multifamily residential, commercial, industrial, and any other incompatible use of land, while allowing horses and stables that are not used for commercial purposes on single-family lots as an accessory use by right. This District shall be applied only to areas annexed to the City after April 11, 1988.

2.2.3. SINGLE-FAMILY/STABLE (RSS) DISTRICT

The Residential Single-Family/Stable (RSS) District provides for low-density residential uses on large lots of at least three acres by prohibiting multifamily residential, commercial, industrial, and any other incompatible use of land, while allowing for open spaces suitable for horse pleasure stables and for single-family residential properties on which horses are kept.

2.3.2. HORSE (HD) DISTRICT

The Horse (HD) District provides for the protection and creation of open spaces and facilities necessary for horse-training businesses, polo, and other equestrian activities, and prohibits land uses incompatible with such activities.

3.2.3. HORSE-RELATED

1. Characteristics. Uses and facilities related to both commercial and pleasure use of horses.

2. Examples. Commercial or pleasure stables; keeping of horses in paddocks; special equestrian facilities such as polo fields, horse show areas, dressage areas, racing tracks, and training facilities; repair of leather goods and tack; equine hospitals and surgical facilities; farriers; and riding or driving schools.

3. Accessory Uses. Offices; stables; tack rooms; trailer parking areas; storage containers for manure piles and feed; and storage of equipment, trailers, and carriages. Accessory apartments (3.4.1) are accessory uses subject to additional regulations.

3.3.20. STABLE, COMMERCIAL

A commercial stable allowed in accordance with the Use Tables in Chapter 3, Article 1 must comply with 3.3.21.C and D.

3.3.21. STABLE, PLEASURE

A pleasure stable allowed in accordance with the Use Tables in Chapter 3, Article 1, must comply with the following. These provisions are intended to cover the keeping of horses, whether in enclosed stables or in open paddocks. See the standards in 8.1.11 for nonconforming stables in the RSS District. See the standards in 8.1.12 for horses on nonconforming lots.

A. Required Area

The lot shall have a minimum area of one acre and a minimum width of 100 feet. Nonconforming lots of less than one acre may request permission for a pleasure stable through the special exception process in accordance with 6.2.18.

B. Number of Horses Allowed

1. There are no restrictions on the number of horses allowed in the RSS and HD Districts.

2. On a lot on which horses are allowed by special exception, a maximum of two horses are allowed on the first acre, with one horse allowed for each additional one-half acre.

3. In the RSH District, three horses are allowed on the first acre, with one horse allowed for each additional one-half acre.

C. Maintenance

The following standards shall apply to all stables, lots, and the horses thereon.

1. The lot must be designed and maintained to drain so as to prevent ponding and propagation of insects.

2. The lot must be designed and maintained so as to prevent the pollution by drainage of adjacent streams and other water bodies.

3. The premises must be maintained in a sanitary condition by such means as the proper use of lime in stalls and on manure piles. (Ord. 09252000D)

4. In residential zoning districts, the premises must be maintained by keeping manure piles in covered containers at least 50 feet from any dwelling or any pool, patio, or other recreational structure on an adjoining lot. Covered containers shall not be required in RSH, RSS, and HD districts. (Ord. 07112011A)

5. Except in the RSS and HD Districts, horses must be stabled and otherwise kept in areas on the premises that are no closer to the dwellings, buildings, accessory buildings, and recreational structures on adjoining lots than they are to the dwelling on the premises.

6. All manure must be removed from paddocks and stable areas at least twice weekly so as to prevent propagation of flies and creation of odors. All manure containers will be emptied properly at least once per week. (Ord. 09252000D)

7. All grain on the lot must be stored in rodent-proof containers.

8. All feed spillage on the lot must be promptly removed so as to prevent attraction of flies, rodents, and birds, and creation of odors.

9. The exercise and training areas on the lot should be dampened as necessary to prevent dust. (Ord. 09252000D)

10. Prompt veterinary care and services must be provided for sick horses, and such horses shall be removed promptly when deemed necessary by a licensed veterinarian selected by the City.

11. Turnouts and paddocks must be kept in sanitary condition and free from odor.

D. Complaints

Complaints regarding a lot not maintained in compliance with the foregoing provisions shall be filed with the Zoning Official. Violation of these provisions may result in revocation of a special exception approval for the pleasure stable.

APPENDIX 3

SELECTED SECTIONS OF WELLINGTON, FLORIDA, COMPREHENSIVE PLAN

EQUESTRIAN PRESERVATION ELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL 1.0 The goal of this element is to ensure the preservation and protection of the neighborhoods which comprise this area, the equestrian industry and the rural lifestyles which exist in the Equestrian Preserve.

Objective 1.1 The Village of Wellington has adopted the Equestrian Overlay Zoning District (EOZD) to implement the Equestrian Preserve Area established within the Future Land Use Map. The EOZD includes several sub-areas to address the unique characteristics of the neighborhoods in the Equestrian Preserve Area. Among the purposes and intent of the EOZD is to:

(1) Provide for and encourage the creation of conservation easements to retain open space and paths for equestrian trails;

(2) Provide for the preservation of greenspace through the use of cluster development, open space zoning or other innovative planning techniques designed to maximize the preservation of open space and the agricultural, rural and equestrian character of the Equestrian Preserve, while maintaining the overall density in the Equestrian Preserve;

(3) Provide for the limited commercial uses which support the equestrian industry;

(4) Provide for the preservation of the rural lifestyles and land uses which exist in the overlay area while ensuring compatibility of land uses; and

(5) Establish site development regulations that recognize the characteristics of equestrian and similar uses and structures.

The density and intensity measures within the EOZD are consistent with the Comprehensive Plan. Wellington Council has created an Equestrian Preserve Committee (EPC) to provide advisory recommendations on land use applications in the Equestrian Preservation Area (EPA). Proposed changes to the EOZD shall be reviewed by the EPC prior to further action by the Planning Zoning and Adjustment Board (PZAB).

Policy 1.1.1 Wellington shall regularly review the EOZD with respect to changes that would be beneficial to the equestrian industry. Wellington shall adopt any changes into the Land Development Regulations upon approval by the Equestrian Preservation Committee, the PZAB and Wellington Council. Among items to be reviewed:

(1) Elimination of DRC review for any barn/stable on property greater than 5 acres;

(2) Retention of “cluster development” provisions;

(3) Retention, deletion or addition of permitted and conditional uses within the EOZD; and

(4) Definition for private non-commercial equestrian events.

CIRCULATION MAP

Objective 1.2 The Village of Wellington has adopted as part of its Comprehensive Plan, a Future Equestrian Circulation Map. The objective of this map is to provide a plan for the creation of separation of vehicular and equestrian traffic to the greatest extent possible to ensure the safety of both motorists

and equestrians. This objective shall be made measurable by its implementing policies and by creation of an equestrian transportation system in accordance herewith through the implementation of capital improvement projects and other actions by the Wellington Council.

Policy 1.2.1 The Future Equestrian Circulation Map will be used by Wellington to program capital improvement projects that improve the safety of equestrians and pedestrians in the Equestrian Preservation Area. Proposed changes to the Equestrian Circulation Map or the capital improvement projects program may be initiated by the EPC, subject to ultimate approval by the Wellington Council.

Policy 1.2.2 Wellington shall construct safe and controlled equestrian crossings along South Shore Boulevard, Pierson Road, Lake Worth Road and at other intersections of equestrian trails and roadways identified on the Future Equestrian Circulation Map and as provided in the Capital Improvements Element.

Policy1.2.3 Wellington shall install signs at all entrances to the Equestrian Preserve and periodically throughout the area to inform drivers of their responsibilities within the Equestrian Preserve.

Policy 1.2.4 Wellington shall acquire equestrian trail easements where necessary as identified on the Future Equestrian Circulation Map and as provided for in the Capital Improvement Element.

Policy 1.2.5 Wellington will pursue access to the Big Blue Forest, Loxahatchee National Wildlife Refugee, Section 24, Section 34 and other appropriate areas for equestrian trail riding purposes.

Policy 1.2.6 By February 2010, Wellington shall complete a review and report on the location of existing equestrian trails, an analysis of existing and recommended improvements and a prioritization prepared in conjunction with the EPC, for future installation of improvements. Wellington shall, to the extent practical, utilize in-house public works and engineering resources to achieve these reviews.

Policy 1.2.7 By February 2010, Wellington shall review and generate a report analyzing existing or potential plans for enhanced equestrian crossings and intersections at South Shore Boulevard and Pierson Road, South Shore Boulevard and Lake Worth Road, South Road, and any others identified by the Equestrian Preservation Committee. Wellington shall, to the extent practical, utilize in-house public works and engineering resources to achieve these reviews, although specific equestrian engineering expertise may be necessary.

TRAFFIC CONTROL

Objective 1.3 The Village of Wellington shall, to the extent feasible, limit the impacts of vehicular traffic within the Equestrian Preserve Area. Wellington shall control traffic volume, speed and type within the Equestrian Preserve to limit the negative impacts of high volume, high speed and through traffic on the Equestrian Preserve. This objective shall be made measurable by its implementing policies and by limiting vehicular speed on rural roads, installation of signage, road design features, implementation of capital improvement projects and other actions of the Wellington Council. Traffic calming measures shall also be used to discourage traffic and to limit the type and speed of the traffic.

Policy 1.3.1 Wellington will maintain and update the traffic-calming plan for all roadways in the Equestrian Preserve. This plan shall:

(1) Provide for the design and construction of the Mall Bypass Road (as depicted on the Future Transportation Map) as an alternative route to minimize traffic through the Equestrian Preserve Area;

(2) Provide for safe equestrian crossings at all identified points of vehicular and equestrian conflict. Particular attention shall be paid to the intersection of South Shore and Pierson Road and Lake Worth Road and South Shore Boulevard and generally along Pierson Road;

(3) Provide for a reduction in speed through the installation of traffic circles, speed humps, four-way stop signs or other traffic calming measures as deemed appropriate by the Wellington Engineer.

Policy 1.3.2 By February 2010, Wellington shall conduct an analysis of all traffic calming installations such as roundabouts, speed tables and retention of dirt roads, within the EPA. Wellington shall work with the EPC to identify other types of improvements or installations that may be needed. Wellington shall identify areas and locations where additional improvements may be needed. Wellington shall, to the extent practical, utilize in-house public works and engineering resources to achieve these reviews and improvements.

Policy 1.3.3 Unpaved local streets in the area shall not be paved without Wellington first receiving a petition in the manner specified in Part IV, Chapter 163 of the Florida Statutes from the majority of the effected landowners requesting the road to be paved. Said paving shall be paid for by special assessments levied against the adjoining properties if deemed appropriate by the Wellington Council.

Policy 1.3.4 Roadways within the Equestrian Preserve shall be maintained as two-lane facilities. Adopted levels of service for these roadways shall be Level of Service E.

Policy 1.3.5 No through connections from State Road 80 to State Road 7 shall be made via 50th, Lake Worth Road, Pierson Road, Flying Cow or any other roadway in the Equestrian Preserve.

Policy 1.3.6 Wellington shall maintain the signalization improvements that have been installed at the intersection of Fairlane Farms Road and Forest Hill Boulevard.

IDENTITY PROGRAM

Objective 1.4 The Village of Wellington shall develop a program to promote Wellington's equestrian identity. This objective shall be made measurable by its implementing policies. A signage program has been developed and implemented by Wellington to help identify the equestrian areas in Wellington.

Policy 1.4.1 This program shall at a minimum:

(1) Work with the Tourism Development Council, the Chamber of Commerce and local service organizations to promote equestrian related visitation, and events within the community;

(2) Provide an equestrian overview as part of information provided to new residents;

(3) Develop and promote the utilization of the trail system;

(4) Promote integration of the equestrian community into the overall community through the schools, special events and informational brochures;

(5) Develop a program to mark the entrances to the equestrian community through the use of special landscaping, signs, sculpture, monuments or other works of art.

Policy 1.4.2 By February 2010, Wellington shall, in conjunction with the Equestrian Preservation Committee, establish a system of branding to enhance the equestrian identity of Equestrian Preserve Area. The branding shall include, but not be limited to public art, private property regulations, specific plantings, and way finding signage.

Objective 1.5 By February 2010, Wellington shall initiate a study to identify, define, assess, and document specific economic benefits and other advantages of the equestrian industry to the Village of Wellington. The study shall include, but not be limited to, employment, real estate values, open space and quality of life benefits.