Smart Sprawl: An Examination of Successful Conservation Development Ordinances and Practices and Recommendations for Central Texas

by

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Dedication

I'd first like to thank those who provided their valuable insight to this study, particularly Steven Brown, Pat Hagman, Ann Hutchinson, Steven Kopelman, Michelle MaCauley, and David Sweet. Their cooperation and perceptions were vital in the success of this report. My professional report advisors, Robert Paterson and Terry Kahn, also played a critical role in the completion of this report. I am grateful for their confidence, academic guidance, and distinct perspectives. I'd also like to thank Charles and Sarah for encouraging me to return to school to pursue my interests and their continued support throughout my graduate studies. They taught me a lot over the years, and I will always appreciate their confidence and support. Above all, I thank my family for not only their help in proof-reading this report, but also for their unending love and encouragement in all my endeavors. They are each a role model to me, and I strive to make them proud in everything I do. I especially thank Craig for his constant support and love that has sustained me over the past two years. I hope I can always show him the same patience and understanding that he has shown me.

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Abstract

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The University of Texas at Austin, 2008

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This report is not intended to argue how sprawl is to be stopped. Infill development is too limited to support the growth cities are expecting, and with a market of buyers who desire to live outside of the city and own a little piece of the country, can there *really* be an end to sprawl? Rather, this report identifies a method of sprawling smartly: conservation development. As an alternative to conventional subdivision, conservation subdivision developments perpetually preserve a significant portion—usually half—of the development site as open space. This report examines the conservation subdivision ordinances that municipalities have adopted as an alternative or, in some cases, to replace conventional subdivision regulations, and the strategies they exercise that affect a change in the way we sprawl.

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Chapter 1: Introduction, Chapter Outline, and Methodology

INTRODUCTION

> *The less of our landscape there is to save, the better our chances of saving it. It is a shame we have to lose so much land to learn the lesson, but desecration does seem a prerequisite for action.*
>
> -William Whyte, *The Last Landscape*

A Booming Population and Land Consumptive Patterns—A Bad Combination

It's impossible to separate discussions of population growth and development patterns. When a community faces population growth, the first question is often where to put it. Unfortunately, cities across the nation have a poor track record of accommodating growth in a way that has the lightest impact on the land. According to the US Department of Housing and Urban Development (HUD), between 1970 and 1980, 95% of national growth in metropolitan areas occurred in suburbs.[1] A study by Alexander von Hoffman of building activity between 1991 and 1998 showed that 80% of new housing construction took place in the suburbs.[2] Essentially, we sprawled.

What is this threat—sprawl—that accompanies growth? A definition proposed by David Soule describes sprawl as a

> low density auto-dependent land development taking place on the edges of urban centers, often "leapfrogging" away from current denser development nodes, to transform open, undeveloped land, into single-family residential subdivisions and campus-style commercial office parks and diffuse retail uses.[3]

However, the important question isn't so much as what sprawl *is*, but rather what sprawl *does*. Sprawl contributes to many vices of today's urban environment, including

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[1] HUD, 1999, p. ii.
[2] Brookings Institution, 1999, p. 1.
[3] Soule, 2006, p. 3.

traffic congestion, pollution, land consumption, damaged natural resources, etc. This report addresses just one of them: the consumption of land.

Based on our current development practices, we consume land for development at a higher rate than our population is growing. The Sierra Club points to several studies that support the argument that the rate of land consumption is outpacing population growth[4]:

- Professor Rolf Pendall of Cornell University examined growth trends in the 1980s in 282 cities and concluded that population growth explained about 31% of land growth. He also found that among cities that experienced no population growth, urbanized land still increased by an average of 18%.
- David Rusk studied 213 urbanized areas and discovered that between 1960 and 1990, population increased by 47% while urbanized land increased 107%, which resulted in a decrease of overall density by 28%.
- The US Department of Housing and Urban Development collected data for its 2000 State of Cities report and discovered that between 1994 and 1997 urban areas expanded twice as fast as population.

Fears of unchecked suburban growth and continued loss of natural resources has led to a movement to preserve open space and rural communities. While developers work to find sites for new subdivisions to house the growing population of cities, environmentalists and preservationists work to protect land and rural communities from disappearing under houses and accompanying streets, driveways, and manicured lawns. The natural landscape provides a variety of services that are necessary to the sustainability of our society, including climate regulation, clean air and water, and food

[4] SierraClub.org, *New Research on Population, Suburban Sprawl, and Smart Growth*.

production, among others. So how can we justify disturbing and eliminating the landscape at the cost of losing these services and contributing to environmental decline?

By 2050, the US Census Bureau projects our population to reach nearly 420 million, an increase of 138.4 million people.[5] Can we accommodate this growth in a more sustainable form of development that can preserve, even *use*, the disappearing natural resources? This report is not intended to argue how sprawl is to be stopped. Rather, it identifies a method of sprawling smartly. This paper examines a regulatory tool that attempts to combine the efforts of both—conservation development ordinances—and identifies the strategies that make the tool most effective in changing the way we sprawl.

METHODOLOGY

First, the report will explore the need for greenfield development and how current subdivision regulations and development patterns are failing. A literature review of conservation subdivision practices will then illustrate how conservation subdivision design (CSD) offers a strong solution to the effect of sprawl in consuming up valuable, resourceful open space.

Then three municipalities will be selected to evaluate their procedures to determine the best practices for implementing CSD in their community. These municipalities have achieved multiple conservation subdivisions as an alternative to conventional subdivision, and they illustrate a variety of strategies to encourage conservation development among the development community. The selected CD ordinances to be evaluated include: London Grove Township in Chester County,

[5] U.S. Census Bureau, 2004, Population Total.

Pennsylvania; Fulton County, Georgia; and Hamburg Township in Livingston County, Michigan.

The conservation subdivision ordinances adopted in Central Texas will then be evaluated on how well they measure up to the literatures' suggestions and the tools they use to encourage use of the ordinance. Drawing conclusions from these case studies, the report finally speculates on what city and county planners in Central Texas need to do to respond to sprawl's attempt to consume more and more land, resources, and rural communities.

REPORT OUTLINE

Chapter 1 includes a brief description of the problem and how the report will be organized, including methodology and report outline. Chapter 2 discusses the failure of conventional subdivision practices, the need for greenfield development, and establish how CSD is an alternative to reduce land consumption. Chapter 3 identifies three examples of jurisdictions that have conservation subdivision ordinances that establish open space requirements *and* have realized multiple conservation subdivisions built. It will analyze the ordinances to determine how they are encouraging developers to build conservation subdivisions. Chapter 4 discusses development pressures in Central Texas. It will analyze the conservation subdivision ordinances that have been adopted in the region and how well they encourage CSD or set open space requirements. Chapter 5 closes with conclusions based on the case studies and offers recommendations to planners in Central Texas to address the threat of sprawl in consuming land through CSD.

Chapter 2: An Alternative to Conventional Subdivisions

> *Is this the countryside, the green belt—or rather the greed belt, where the farmer sells land rather than crops, where the developer takes the public resource of the city's hinterland and subdivides to create a private profit and a public cost?*
>
> -Ian McHarg, *Design With Nature*

THE FAILURE OF CONVENTIONAL SUBDIVISIONS

The type of development that causes what we normally associate with suburban sprawl is conventional subdivision, which converts our natural resources to "bland, unproductive suburban lawns, streets, and parking lots."[6] (Arendt, 1999, p. 1). Under conventional subdivision practices, every acre of buildable land is zoned to be developed in some form – house lot, street, office building, shopping mall, etc. According to Arendt, "that is because most townships and counties have adopted zoning ordinances whose principal purpose is to set rules for the orderly conversion of natural lands into developed properties."[7] There's very little thought given to the preservation of open space. As developers maximize the number of homes they can build on a property to make a profit, they create a more fragmented landscape.

The conventional subdivision was born out of people's desire to flee the dirty, crime-ridden center cities. During the industrial revolution of the late 19th century, city centers became home to factories and industries, population flocked *to* and grew rapidly in cities, and the lack of regulations led to filthy environments, poor living conditions, and disease and poverty flourished. Ebenezer Howard's Garden City advocated a community where the town met the country, and promised greener communities without

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[6] Arendt, 1999, p. 1.
[7] Ibid., p. xvii.

the disease and crime. The first mass exodus from the city centers occurred with the advent of the streetcar in the first part of the 20th century to what is today called streetcar suburbs. For the most part, these surburbs are now deemed "central" as the breadth of the whole city has spread out so far from the original city center. The automobile, expanding technology, and Federal economic recovery policies lead to the second phase of suburban flight, particularly after World War II. The car gave people the freedom to live further from city centers than the streetcar, and the homebuilding industry adopted technological advances in mass production. Following World War II, Federal policies to revive the economy also encouraged urban dispersal.[8] The Federal Housing Administration and Veteran Administration were established to expand homeownership opportunities to more Americans by guaranteeing mortgages. These mortgages were aimed solely at new single-family homes, which prompted an expansion in the housing industry. These policies, coupled with the growth of auto use, led to the interstate highway program, which then advanced and today continues to fuel suburban growth and sprawl.

Single-family housing isn't the only culprit of sprawl. Today, we increasingly see multifamily projects leapfrogging out to the suburbs. We tend to not think of it as sprawl because of its higher density, and the land consumption per unit is certainly less. But if done inappropriately, multifamily housing can also irresponsibly consume vast amounts of land.

As early as the late 1960s, just a couple decades after post-WWII housing took off, planners and environmentalists began identifying the negative impacts of the growing suburbs. William Whyte identified the caricature-nature of postwar expansion: "we were using five acres to do the work of one, and the result was not only bad economics but bad

[8] Duany, Plater-Zyberk, and Speck, 2000, p. 7.

aesthetics."[9] Additionally, in *Design With Nature*, Ian McHarg powerfully criticizes the hideous nature of sprawl:

> You can tell when you have reached the edge of the countryside for there are many emblems—the cadavers of old trees piled in untidy heaps at the edge of the razed deserts, the magnificent machines for land despoliation, for felling forests, filling marshes, culverting streams, and sterilizing farmland, making thick brown sediments of the creeks.[10]

In addition to the costs of natural resource losses as discussed above, sprawl adds to the expense of serving these communities. As development moves farther from the city and spread out over larger portions of the land, municipalities have the expenses of extending infrastructure and resources—including water, sewer, and roads—to each living or retail unit. According to research conducted by the Transportation Research Board (TRB), if traditional development were to continue, between 2000 and 2025 developers and local governments nationally will spend more than $190 billion to provide necessary water and sewer infrastructure, and the United States will need to spend more than $927 billion to provide an additional 2 million lane miles of local roads.[11] This would result in a national "annual fiscal impact deficit of $43.8 billion by 2025."[12]

Simply put, sprawl costs cities and taxpayers more than the revenue they generate in tax dollars. The American Farmland Trust (AFT) estimates that it costs cities $1.19 to provide public services to residential land uses for every $1 of revenue they generate.[13] Therefore, the costs to service the new suburban developments would end up being paid by existing residents through increased taxes and fees. As discussed on Smartergrowth.net, "each new unit in a poorly-planned development demands more

[9] Whyte, 1968, p. 2.
[10] McHarg, 1971, p. 22.
[11] TRB, 2000. p. 9, 11.
[12] Ibid., p. 13.
[13] AFT, 2007, p. 2.

resources than are received in taxes, and the burden of those costs are passed on to residents in the form of higher taxes."[14]

And finally, as discussed earlier, conventional subdivision development has detrimental impacts on our natural resources. The US Department of Agriculture (USDA) reported that between 1997 and 2001 the pace of development was 2.2 million acres per year, the same rate reported between 1992 and 1997.[15] Of the 9 million acres developed, 46% came from forest land, 20% from cropland, and 16% from pastureland.[16] Because of sprawl, we are not just losing land; we're losing habitats for wildlife, farm and ranch land, protection for plants and animals, natural water quality buffers, wetlands, prevention of and protection from floods, and all together natural land to enjoy and recreate. Additionally, the more we build, and the more we asphalt over the ground, there is a decrease in the amount of rainwater that can absorb into the ground. This not only create the potential for flooding, but polluted runoff also drains directly into the streams and contributes to water contamination.[17]

Part of what give rural communities their character is the land and topography, but as urbanization comes sprawling out into the rural and semi-rural areas, the land is cleared, graded, and paved over to accommodate conventional subdivisions and sprawl. Gradually, residents of these communities witness "the gradual transformation of their once-distinctive communities into bland, formless, suburban agglomerations of subdivisions and shopping centers."[18]

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[14] Smartergrowth.net, para. 5.
[15] USDA, 2003, p. 1.
[16] Ibid.
[17] Smartergrowth.net, para. 7.
[18] Arendt, 1994, p. xix.

THE NEED FOR GREENFIELD DEVELOPMENT

But why not establish policies that focus growth in the urbanized areas? Many organizations endorse infill development as the preferred alternative to sprawl. That's all well and good, but infill cannot accommodate all of the demand for new housing, and experts estimate that 50% to 70% of the growth will need to be accommodated in greenfield locations.[19] Moreover, infill strategies, according to Jim Heid, "cannot happen fast enough or in great enough numbers to make much of a difference."[20] In an interview in *Metropolis*, John Norquist further emphasized the need to address development on the edge and not just infill:

> Most of the development in the United States, 90 percent or something like that, is new development on the edge. If we ignore that and just concentrate on infill, the edge city will never repair itself…. It would be a mistake for people who care about cities and urban design to assume that any greenfield development is bad—because it's going to happen, and if it doesn't improve it will overwhelm whatever infill we are doing in the cities.[21]

There are several additional challenges of infill development that can be better addressed by greenfield development. The potential to create large-scaled developments that can efficiently accommodate growth is best served by greenfield development. On the other hand, infill development typically involves small parcels of land, and if you're lucky enough to find several in an area to develop a substantial amount of housing, it may involve several landowners and assembly and entitlement may take years to achieve.[22] Studies also show that "infill development in central cities and older suburbs is proceeding too slowly to significantly offset the need for outlying growth."[23]

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[19] Corrigan, et. al., 2004, p. iv-v.
[20] Heid, 2004, p. 1.
[21] John Norquist. As cited in Heid, 2004, p. 2.
[22] Heid, 2004, p. 2.
[23] Don Priest, *Planned Communities and the Smart Growth Movement*. As cited in Heid, 2004, p. 3.

Municipalities and planning organizations need to face this reality about population growth. If efforts are focused solely on infill and toward urbanized areas, then ignored land development on the fringe will happen uncontrolled. Fringe communities are in a prime position to advance efforts to preserve natural resources; the key, therefore, is improving the development on the fringe to work *with* sprawl to create subdivisions that celebrate open space rather than simply consume it.

CONSERVATION SUBDIVISION DESIGN: A SMART WAY TO SPRAWL

Jim Heid identifies three prerequisites for good greenfield development: green infrastructure, mobility and access, and livability and lifestyle choices. This report focuses on green infrastructure, and the role land plays in offering answers as to where to develop. In the middle of the 20th century, at the height of suburban migration, McHarg and Whyte both suggested forms of development that accounted for environmental features. McHarg called it design with nature; Whyte called it cluster development; today it has been re-popularized as conservation subdivision design by Randall Arendt. While Arendt wasn't the first to suggest conservation development as a preferred method for greenfield development, he is accredited for finally establishing a method for municipalities to regulate greenfield development to take the conservation development form.

Essentially, conservation development is a type of planned unit development that emphasizes significant land preservation. According to Arendt, conservation development is a residential development where "half or more of the buildable land is designated as undivided permanent open space."[24] The key concept is that conservation

[24] Arendt, 1999, p. 6.

development goes beyond preserving the *inherently* unbuildable areas, such as steep slopes, flood plains, and wetlands, and encourages additional preservation. It aspires to help developers and local governments recognize that additional features are worthy of preservation as well, including woodlands, meadows, scenic views, and historic or cultural features.[25] The Lady Bird Johnson Wildflower Center defines conservation development as one that "seeks to reduce its ecological footprint by preserving significant, contiguous open spaces amid groups of clustered homes and supporting the sustainable use of invaluable resources."[26]

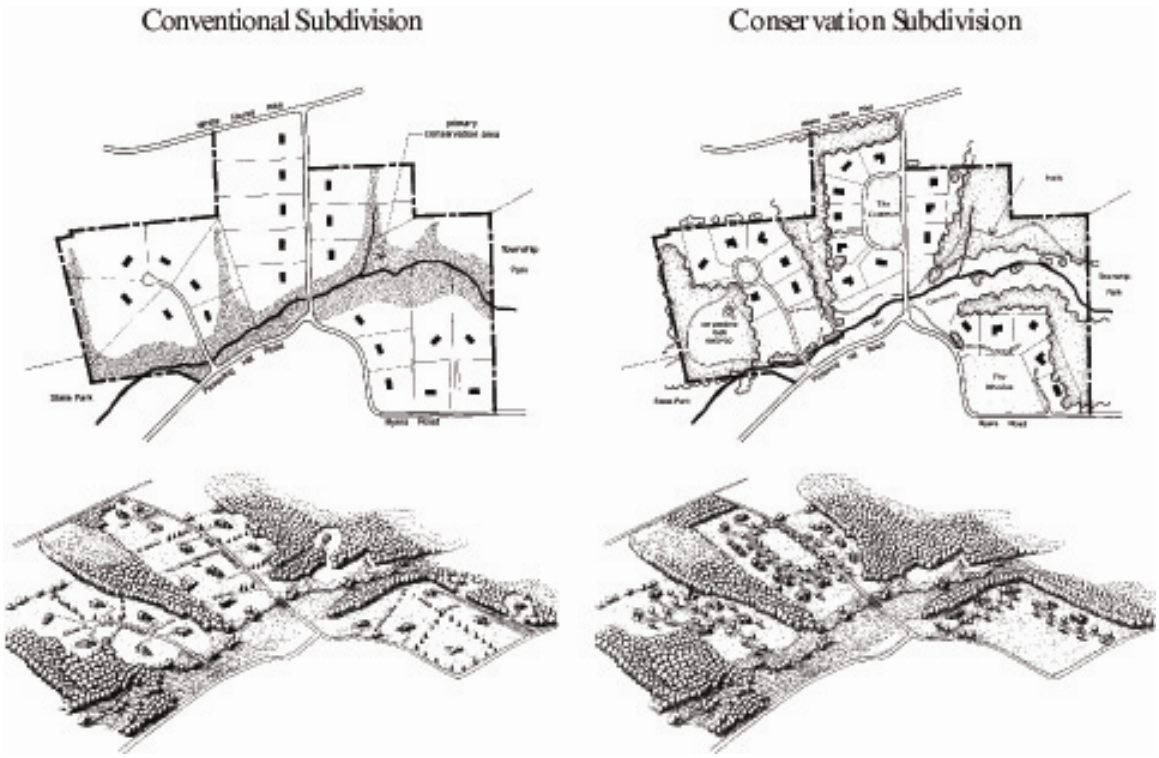

Figure 2.1 Diagram illustrating difference in subdivision design between conventional subdivision and conservation subdivision[27]

[25] Arendt, 1996, p. 2.
[26] Wildflower Center, 2006, p. 1.
[27] NLT, 2000, pp. 2, 7.

Arendt identifies several ecological, social, and economic benefits of conservation design. Conservation design protects environmental assets and natural habitats from encroachment, enabling the environment to continue functioning as it should. By limiting impervious cover across the site, water quality is protected against polluted rainwater runoff. Conservation design also promotes the creation of a network of greenways across subdivisions, enabling the continued travel of wildlife that conventional subdivision often impedes. Socially, Arendt argues that conservation subdivisions create an environment where people are more likely to be outdoors where they can get better acquainted with one another. As opposed to being "reduced to an asphalt street system" the open space is the public realm, offering places to walk, play, and gather.[28] Recreation is also promoted through the inclusion of trails throughout the subdivision. Additionally, conservation subdivisions can further efforts to create a community-wide greenway/trail system by ensuring that the open spaces of each subdivision connect. And finally, several can enjoy the economic benefits of conservation development: developers can realize economic benefits due to lower infrastructure costs and premiums for access to open space; buyers can enjoy faster appreciation of their homes, as shown by studies that compared property values in conservation and conventional subdivisions; and local governments can benefit from conservation subdivisions by reducing their demand for new parkland when it is incorporated into the subdivisions.[29]

There are two essential steps in preparing your community and regulations for conservation developments. The first step is to update the comprehensive plan, which also involves a community audit. The community audit educates residents, developers,

[28] Arendt, 1996, p. 3.
[29] Arendt, 1999, pp. 79-90.

and local officials of the realities of current development trends and leads to a unified vision and collaborative policy that everyone can stand behind. This process will also help the regulation changes stand up against those who feel threatened by the requirements and attempt to repeal the policies. In addition to updating the comprehensive plan, local governments should also create or update open space plans, trail plans, or natural inventory maps. These will serve as valuable tools in helping local officials and developers decide where to locate preservation areas in each development. This not only helps promote the creation of a open space network, but also averts battles over open space decisions for each development that comes through, which could hinder the process.

The second step is to modify zoning and subdivision regulations to allow conservation subdivision. Unlike conventional subdivisions being all about the residential lot, conservation subdivision is not *all* about the open space—it's about the merging of the two ideas: conservation *and* development. In order to ensure implementation of conservation developments in its communities, regulations should ensure quality open space preservation while at the same time provide flexibility in site design. However, current subdivision regulations are too mundane, and rather than attempt to inspire creative subdivision design, they simply dictate street requirements, stormwater management, and lot design regulations.

Communities have differing opinions on what constitutes sufficient land conservation, in terms of share of the total property. Arendt advocates for at least 50% of the property be conserved, with none of it coming from primary conservation areas (i.e. net tract area, which is described in detail below). The Wildflower Center recommends 40% to 60% with no more than half of it being drawn from primary conservation areas.[30]

[30] Wildflower Center, 2006, p. 9.

In addition to the quantity, it's also important to set standards for the *quality* of the open space. This includes whether any of the open space requirements can be met with the primary conservation areas, utility easements, or golf courses and other recreation areas.[31]

In addition to articulating open space requirements, Arendt recommends a number of adjustments to the subdivision process to facilitate a simpler and more streamlined review process.[32] For one, municipalities should require a detailed site analysis for each development that inventories the environmental features of the site. This not only ensures that the most suitable preservation areas are identified but also supports efforts to create a network of open spaces across several subdivisions.

Another flaw common in traditional subdivision regulations is that they don't require that local planning commissioners or planning officials conduct a site visit. In order to truly understand the assets a property has, local officials need to see and experience the property. It also provides an opportunity for the developer and local officials to collaborate on the potential site design in order to achieve the goals of both parties.

Detailed site plans, often called preliminary plans, are also typical of conventional subdivision regulations, which are really unnecessary. They're expensive and timely to create, and when required at the early stage of planning and review, precludes flexibility of design, which is key to conservation development.

Arendt developed a four-step process beginning with identification of the conservation areas.[33] This is one of the primary differences between conservation subdivision and conventional subdivision, which begins with subdividing the lots. Step one involves not only identifying the primary conservation areas, which are those that are

[31] Arendt, 1999, p. 11.
[32] Arendt, n.d., p. 1.
[33] Arendt, 1999, pp. 65-71.

inherently unbuildable, such as floodprone areas, steep slopes, or wetlands, but also identifying the secondary conservation areas, which are those other environmentally sensitive or culturally unique areas that are often overlooked. It's important to differentiate between the primary and secondary conservation areas because minimum open space requirements typically don't count primary conservation areas due to their unbuildable nature. This step also justifies the need for the natural resource inventory or site analysis.

The second step is to then locate the housing sites based on maximizing views and access to environmental assets as well as where they will have the least impact on the land. By identifying house sites before streets and lot lines, the developer can be more flexible in site design to obtain these goals. Step three aligns the streets and trails, and finally the lot lines are drawn. This process ensures that priorities are given to the natural resources and that the development is not treated as happening *to* the property, but rather *with* it.

A very important component in ensuring use of the conservation development ordinance is accounting for development that could occur in preservation areas. Open space doesn't come at the expense of lost dwelling unit entitlements or decline in gross density. Rather open space preservation is achieved through the reduction of lot sizes and increase in net density. This respects private property rights and the need to accommodate an increasing population. Arendt advocates a process called density-neutral, where the same number of dwelling units are allowed that would have been permitted in a conventional subdivision.[34] This allows developers to "retain their profit potential."[35] This is determined by creating a yield plan, which identifies the number of

[34] Arendt, 1996, p. 6.
[35] Wildflower Center, n.d., p. 4.

units that could be built conventionally based on the underlying zoning. Primary areas should be taken out of the yield plan equation, since they are unbuildable anyway.

Table 2.1 is a sample calculation to determine open space area and remaining developable acreage. Because open space requirements in this calculation are based on the adjusted acreage, a total of 60% of the parcel is eventually preserved in open space when the ordinance only requires 50%. Additionally, density would be determined based on the adjusted tract acreage as well.

Table 2.1 Example of Greenway Calculation[36]

Total Tract Area	**50 acres**
Primary Conservation Areas	10 acres
Adjusted Tract Area (ATA)	40 acres
Minimum Greenway Requirements	**30 acres**
Primary Conservation Areas (land unsuitable for development)	10 acres
Secondary Conservation Areas (50% of ATA)	20 acres
Development Area (50% of ATA)	**20 acres**

The process described above is a brief overview of the key concepts that help make conservation development successfully implemented a community. An analysis of three case studies will show how municipalities execute their conservation development ordinance and the various strategies they utilize to promote the practice of conservation development.

[36] Arendt, 1999, p. 186.

Chapter 3: Successful Conservation Development Ordinances

> *Put quite simply, this may well be our last chance. If we do not get it right this time it will be impossible for all practical purposes, for our children or grandchildren to recreate any functional semblance of the natural world in our communities.*
>
> -Randall Arendt, *Conservation Design for Subdivisions*

CASE STUDY 1: LONDON GROVE TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

The Natural Lands Trust (NLT) has played a significant role in promoting land conservation in developments in the Pennsylvania countryside. With a belief that "conservation and growth are both vital to healthy communities and that there can be an appropriate balance between them," NLT has taken on a significant role in advocating conservation development.[37] Not only does the organization acquire land for preservation as a typical conservancy does, the NLT's Growing Greener Program also directly promotes conservation subdivision design as a method for land preservation. They provide education and consulting services to government officials and land developers about regulating for and implementing conservation subdivisions.

One tool NLT offers is a model conservation subdivision ordinance, known as the Growing Greener: Conservation by Design ordinance, as well as consulting services on implementing the ordinance. Since beginning the Growing Greener Program in 1998, they have worked with approximately 30 municipalities in 12 counties to establish a conservation subdivision ordinance, including the London Grove Township, which adopted a version of the Natural Lands Trust model Growing Greener ordinance in June 2001.[38]

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[37] NLT, n.d., para. 5.
[38] NLT, 2008.

London Grove is located in the southern sector of Chester County, approximately 40 miles west of Philadelphia. Route 1 bisects the township, and accessibility and proximity to Philadelphia via Route 1 has fueled growth in London Grove, which in more recent years has increased significantly. Table 3.1 shows population growth in the township since 1930. Decennial population growth has increased significantly since 1990. The 1990s experienced a period of unprecedented growth, increasing in population by 1,343 between 1990 and 2000. Between 2000 and 2006, the township experienced a population growth of 1,222 persons. Additionally, since 2004, the area has seen an increase in annual population growth. Prior to 2004 the township saw growth of fewer than 100 persons per year, but since then over 200 persons annually have moved to the region.

Table 3.1 Population Growth in London Grove Township

Decennial Growth, 1930-2000

Year	Population[39]	Absolute Change	% Growth	Chester Co Population[40]	Absolute Change	Capture Rate
1930	1,484	-		126,629	-	-
1940	1,666	182	12.26%	135,626	8,997	2.02%
1950	1,844	178	10.68%	159,141	23,515	0.76%
1960	2,734	890	48.26%	210,608	51,467	1.73%
1970	3,109	375	13.72%	277,746	67,138	0.56%
1980	3,531	422	13.57%	316,660	38,914	1.08%
1990	3,922	391	11.07%	376,396	59,736	0.65%
2000	5,265	1,343	34.24%	433,501	57,105	2.35%
2006	6,487	1,222	23.21%	482,112	48,611	2.51%

[39] Delaware Valley Regional Planning Commission, 2006, Appendix A, p. 6.
[40] Ibid., p. 5.

Table 3.1 continued

Annual Growth, 2000-2006

Year	Population[41]	Absolute Change	% Growth	Chester Co Population[42]	Absolute Change	Capture Rate
2000	5,265	-	-	433,501	-	-
2001	5,364	99	1.88%	442,418	8,917	1.11%
2002	5,447	83	1.55%	449,977	7,559	1.10%
2003	5,518	71	1.30%	457,477	7,500	0.95%
2004	5,742	224	4.06%	465,761	8,284	2.70%
2005	6,237	495	8.62%	473,723	7,962	6.22%
2006	6,487	250	4.01%	482,112	8,389	2.98%

Over time, the township has captured an increasing share of Chester County's population growth. Between 1930 and 1990, the township captured an average of 0.98% of the population growth in the county; however, between 1991 and 2006, the township captured an average of 2.4% of the county's growth.

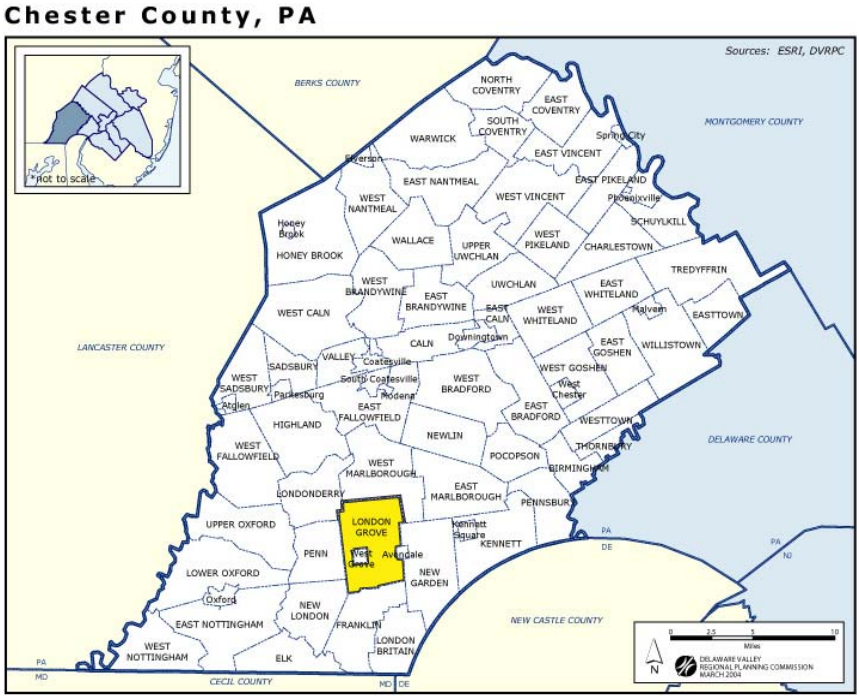

Figure 3.1 London Grove Township[43]

[41] Delaware Valley Regional Planning Commission, 2007, Table 5, p. 12.
[42] Ibid., p. 11.
[43] Delaware Valley Regional Planning Commission, 2004a.

Land use planning in London Grove is strongly consistent with Chester County's Comprehensive Plan.[44] In 1996 the county adopted a comprehensive plan, *Landscapes*, with a vision to "preserve and enhance the unique character of Chester County landscapes by concentrating on growth in the most appropriate areas."[45] The plan defines four landscapes—natural, rural, urban, and suburban—with goals and policies to guide development and the future of each landscape. Additionally, Chester County created the Vision Partnership Program (VPP) following the adoption of *Landscapes*, a program that provides financial and technical assistance to municipalities to update their local plans and ordinances.[46] This is particularly important since, for the most part, the townships lack their own resources. Consequently, the townships land use plan mirrors the county's, and zoning is established to implement the goals and policies in the county plan to maintain a rural landscape north of Route 1.

[44] London Grove Township, 2008, p. 3-3-13.
[45] Chester County, 1996, Livable Landscapes.
[46] Chester County, 2007, para. 2.

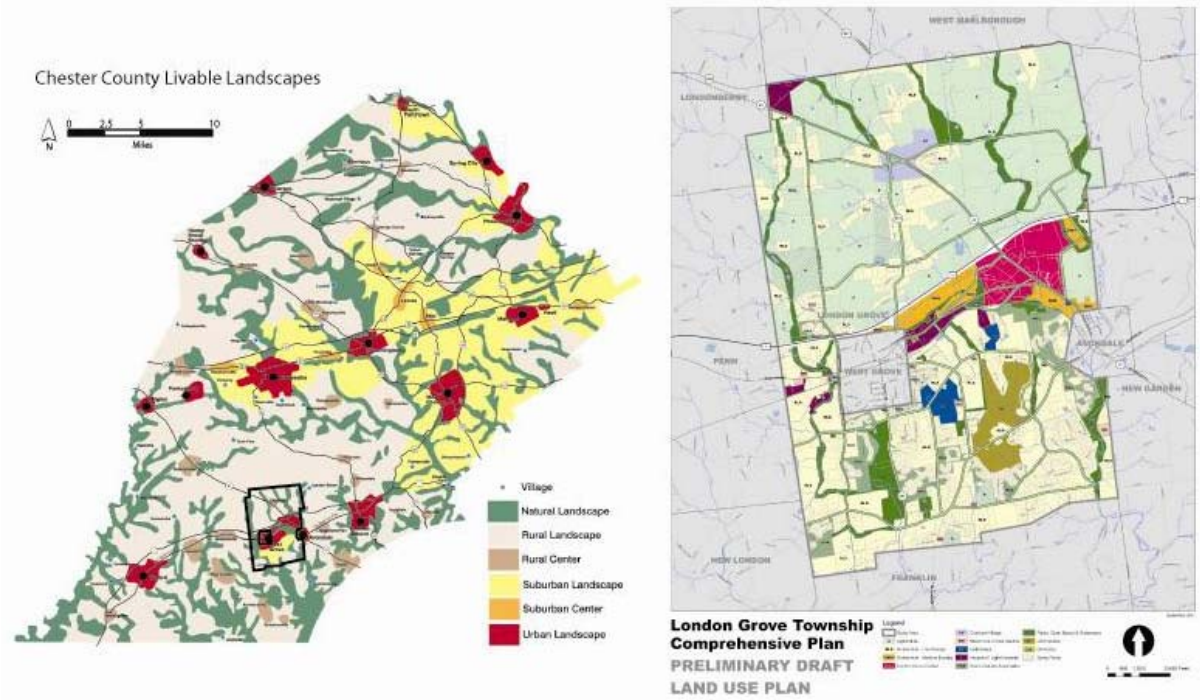

Figure 3.2 Chester County Livable Landscapes Map[47] and London Grove Land Use Plan[48]

The township's comprehensive plan reinforces the desire to preserve open space and agriculture and at the same time accommodate future growth by concentrating development in the urban landscapes, or various centers. One growth management technique the township employs is a service boundary to manage growth north of Route 1. The township will not extend sewer and water services north of Route 1 into the rural and natural landscapes.

The zoning established by the township also reflects the goals and policies of the county and township's plans. In order to control development patterns and ensure preservation of land, the township identified the area north of Route 1 as an Agriculture

[47] Chester County, 1996, Livable Landscapes, Figure 1: Landscapes.
[48] London Grove, 2007.

Preservation (A-P) district, with 10 acre zoning, and more intense districts south of Route 1.

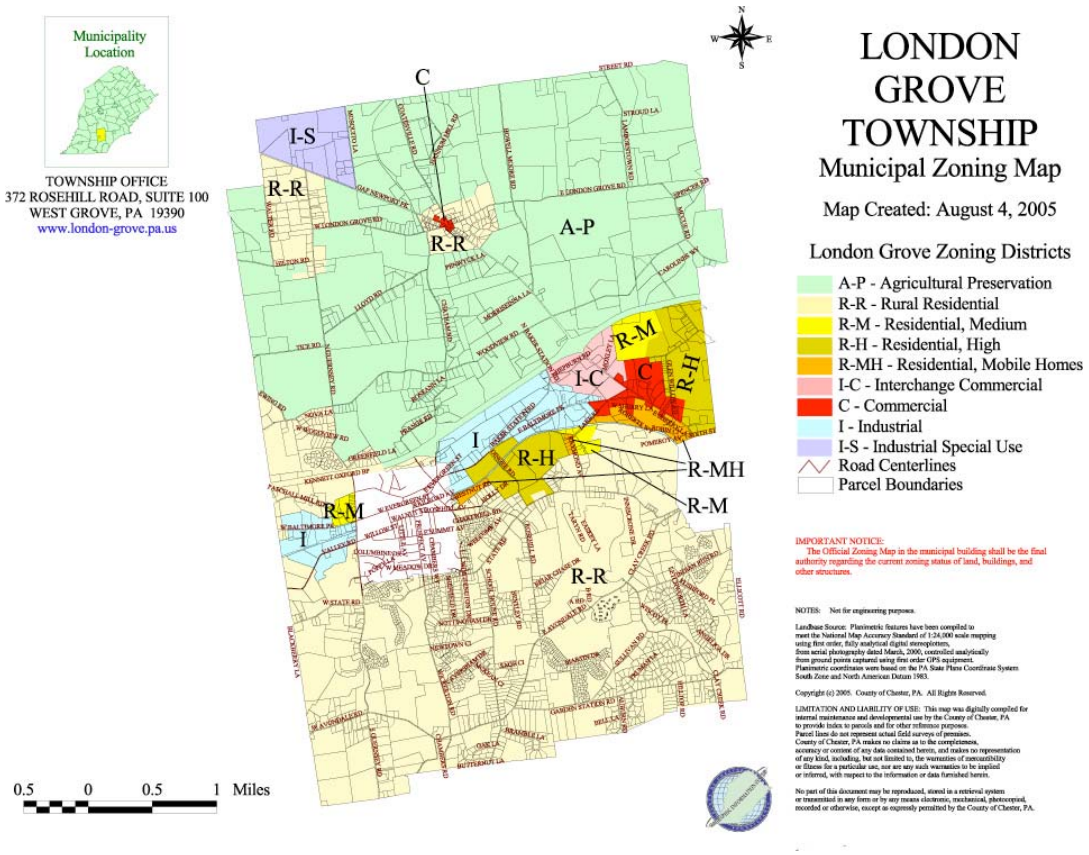

Figure 3.3 Zoning Districts in the London Grove Township[49]

The township's conservation subdivision option (Growing Greener ordinance) is allowed by right in the Rural Residential (R-R) district. The conservation subdivision ordinance requires that 50% of the net—or adjusted—acreage of the site be open space. The township calculates dwelling units based on a yield plan of 1 unit per acre, and does not have any additional density bonuses. The incentive, instead, is in the approval process. In addition to making the conservation subdivision option by right, they've also made conventional subdivision a conditional use, which is a longer, more costly process.

[49] Chester County, 2005.

Also, land owners and developers must show that the conventional subdivision has less of an impact on the environment than a conservation subdivision. By making requirements for conventional subdivisions tougher, the township has had no problems getting developers to do conservation subdivision design. [50]

Despite the township's desire to maintain a rural and agricultural district to the north of Route 1 as well, the conservation subdivision option is not available in the A-P district. This decision is partially influenced by the fact that uses in this district must use well and septic for their water and wastewater needs, affecting the ultimate minimum lot size. The municipality considers the idea of clustering of lots under the conservation design option as incompatible with their service policy of not providing water and sewer. Additionally, the London Grove Zoning Hearing Board wishes for the district to become a true agriculture district with 25 or 30 acre zoning, and they see cluster development or conservation development as a hindrance to this true agriculture district.[51] Rather, the township has worked with Chester County in preserving the farm land through its Agriculture Preservation Program. Approximately 222.05 acres of farmland in London Grove have been preserved with an agricultural easement.[52]

Since adopting the Growing Greener ordinance, the township has approved eight conservation subdivisions, preserving approximately 495 acres, or nearly 65% of the gross tract acreage involved. Additionally, a number of other conservation subdivisions have been submitted to the township for approval. Table 3.2 lists the approved conservation subdivisions that have been recorded with the County Recorder of Deeds.

[50] Based on a conversation with Steve Brown, London Grove Township Manager, March 26, 2008.
[51] Ibid.
[52] Chester County, 2008, p. 2-3.

Table 3.2 Approved Conservation Subdivisions[53]

Subdivision Name	Approval Date	Total Acres	Open Space (Ac)	% Open Space	Developed (Acres)	Total Lots	Net Density
Medford Meadows	Nov-01	148.3	81.6	55.01%	66.7	94	1.41
London Croft	Dec-01	67.1	45.0	67.06%	22.1	48	2.17
Lamborn Hunt	May-02	148.6	100.5	67.63%	48.1	106	2.20
Hillford Terrace	Jun-04	63.9	43.5	68.00%	20.5	50	2.44
Stonecroft	Mar-04	48.6	39.1	80.45%	9.5	33	3.48
Hills of London Grove	Jan-05	172.2	116.6	67.71%	55.6	132	2.37
Fox Chase	Apr-04	66.2	43.7	66.08%	22.5	48	2.14
Briarlea	Apr-05	48.5	24.8	51.09%	23.7	42	1.77
		763.3	494.7	64.81%	268.6	553	2.06

As discussed earlier in this report, open space plans and resource inventory plans for the community support efforts to implement a greenway network and can help guide development decisions pertaining to location of open space. In London Grove, the subdivisions have been instrumental in realizing the township's Greenway Plan. The Greenway Plan identifies sensitive natural areas, and the township's Comprehensive Trails and Greenways Plan defines greenways as "linear open space areas that function as integral components of the natural landscape."[54] Figure 3.4 illustrates how subdivisions' open spaces are often located in conjunction with the Greenway Plan. With the exception of one subdivision, all subdivisions that are adjacent to open space align the subdivisions open space with the Greenway Plan to ensure connectivity and implementation of the plan.

[53] Chester County Recorder of Deeds, 2008.
[54] London Grove Township, 2006, p. 18.

Figure 3.4 Approved Conservation Subdivisions Overlaid on the Greenway Plan

The Greenways Plan doesn't mandate public access to the open space areas; in fact, public access might not be suitable to minimize disturbance of the areas.[55] The township does, though, mandate that for open space that is not proposed for agricultural use 10% of it be designed for active recreational uses and "to accommodate pedestrian pathways and trails to be available for general public use in order to ensure the potential for a contiguous open space network throughout the township."[56] In relation to the Greenways Plan, the Trails and Greenways Plan states that "the prospect of a trail will be a subject of discussion with the landowner. Not all pieces of the intended greenway corridors will be suitable or necessary for trail use."[57]

Regional and State Support

Land conservation planning is definitely not a local effort in London Grove, or any township in the Pennsylvania countryside. In addition to efforts by NLT, the idea of conservation subdivision design has been heavily advocated by the Brandywine Conservancy, another land trust active in the township, the state's Growing Greener Program, the Delaware Valley Regional Planning Commission (DVRPC), and other conservancies and alliances in the region. Their efforts have been successful as proven by the significant amount of land preserved by both public efforts as well as private initiatives.

Since the inception of the NLT's Growing Greener Program, conservation developments have preserved approximately 2,022 acres, accounting for an average of 62% of the gross tract area, in communities that adopted the Growing Greener ordinance.[58] Beginning in 1999, the state has committed funds toward improving

[55] London Grove Township, 2006, p. 17.
[56] London Grove Township, 2001, Article VI, Section 617.4 and Section 617.9.
[57] London Grove Township, 2006, p. 17.
[58] Pickering, 2007, July 5, p. 2.

environmental health in Pennsylvania through two programs called Growing Greener and Growing Greener II. The first Growing Greener program saw an investment of $1.2 billion, but in light of a tough economy, funding of the program declined. The second program has committed $625 million. Counties can apply for grants among four state departments—Department of Agriculture, Community and Economic Development, Conservation and Natural Resources, and Environmental Protection—that allocate funds depending on the project.

While Chester County and area land trusts have used Growing Greener grants for large preservation and conservation areas, they have not pursued these grants to acquire open space easements in conservation developments. According to Steve Brown, open space easements are typically maintained by homeowner associations (HOA) because, frankly, land trusts and the township don't want them. The management of the open space areas, particularly the storm water management aspect of the easements, is expensive and not something the land trusts or township wants to take on.[59]

Additionally, the DVRPC has tracked land preservation in their planning area, illustrating the success of these conservation efforts. Table 3.3 shows acres of land preservation in these counties as of December 2004. In Chester County, 10.61% of the total acreage is privately protected by, among other property owners, land trusts and HOAs.

[59] Based on a conversation with Steve Brown, London Grove Township Manager, March 26, 2008.

Table 3.3 Publicly and Privately Owned Protected Open Space[60]

	Publicly Owned Lands							Privately Owned Lands			
County	Federal	State	County	Municipal	Total Protected Public Open Space	Protected Public Open Space as a Percent of Total Area	Public Protected Acreage per 1000 People	Preserved Farmland	Land Trusts or Privately Protected	Total Protected Private Open Space	Protected Private Open Space as Percent of Total Area
Bucks	0	12,880	8,322	10,363	31,565	8.12%	52.8	8,014	7,617	15,631	4.02%
Chester	1,290	7,105	5,792	7,714	21,901	4.53%	47.9	20,688	30,660	51,348	10.61%
Delaware	726	2,683	844	5,197	9,450	8.02%	17.2	208	2,289	2,497	2.12%
Montgomery	1,964	4,475	5,770	11,031	23,240	7.52%	31.2	6,183	3,606	9,789	3.17%
Philadelphia	365	282	8,126	1,360	10,133	11.72%	6.7	0	531	531	0.61%
PA TOTAL	**4,345**	**27,425**	**28,854**	**35,665**	**96,289**	**6.95%**	**24.8**	**35,093**	**44,703**	**79,796**	**5.76%**
Burlington	4,001	140,036	2,658	9,512	156,207	30.34%	345.6	18,321	2,841	21,162	4.11%
Camden	0	18,845	2,640	4,050	25,535	17.95%	51	118	9	127	0.09%
Gloucester	0	5,400	1,706	4,058	11,164	5.37%	43.1	8,865	423	9,288	4.46%
Mercer	0	4,283	8,311	8,158	20,752	14,36%	54.7	4,676	2,079	6,755	4.67%
NJ TOTAL	**4,001**	**168,564**	**15,297**	**25,778**	**213,640**	**21.16%**	**131.4**	**31,980**	**5,352**	**37,332**	**3.70%**
REGION	**8,346**	**195,989**	**44,151**	**61,443**	**309,929**	**12.94%**	**55.2**	**67,073**	**50,055**	**117,128**	**4.89%**

While the tools and support of the regional planning commission and alliances have helped advocate land conservation broadly among municipalities and developers in the Pennsylvania countryside, the generalized scale of these efforts have not proven detailed enough to ensure preservation of the quality environmental attributes of London Grove. Currently, the township is in the process of strengthening its preservation efforts and has teamed up with the Brandywine Conservancy to create natural resource preservation regulations to protect their woodlands and other significant natural areas. This process has lead to the creation of resource maps identifying woodlands, riparian areas, and other natural resources that will be useful toward London Grove's efforts to promote superior conservation subdivisions.

[60] Delaware Valley Regional Planning Commission, 2004b.

CASE STUDY 2: HAMBURG TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

Open space planning was spearheaded by Livingston County when, in 1990, county planning officials invited Arendt to give an informational talk on conservation subdivision design to local officials. Additionally, according to Arendt, the county created a build-out map of the fast growing, southeast portion of the county showing how future development patterns would unfold under the then current zoning as well as published a variety of manuals on open space planning that providing design guidelines for conservation subdivisions, examples, and model language for ordinances.[61] This drove local governments into action.

The population in Hamburg Township grew from 13,080 persons in 1990 to 20,627 in 2000, a 57.7% population growth.[62] The township accounted for 18.3% of the growth in Livingston County.[63] The township is located in proximity to Detroit (approximately 45 miles northwest) and two transportation routes (Interstate 96, between Detroit and Lansing, & Interstate 75, which goes through Ann Arbor and Cincinnati, OH), which have contributed to growth in the township. With growth and development pressures building, fears of losing its rural character and turning into sprawl prompted the region to explore tools to ensure development did not occur unchecked and consume the area's natural resources.

[61] Arendt, 1999, p. 87.
[62] U.S. Census Bureau, Census 1990, 2000 SF1 data, Total Population, Hamburg Township.
[63] Ibid., Livingston County, 1990—115,645; 2000—156,951.

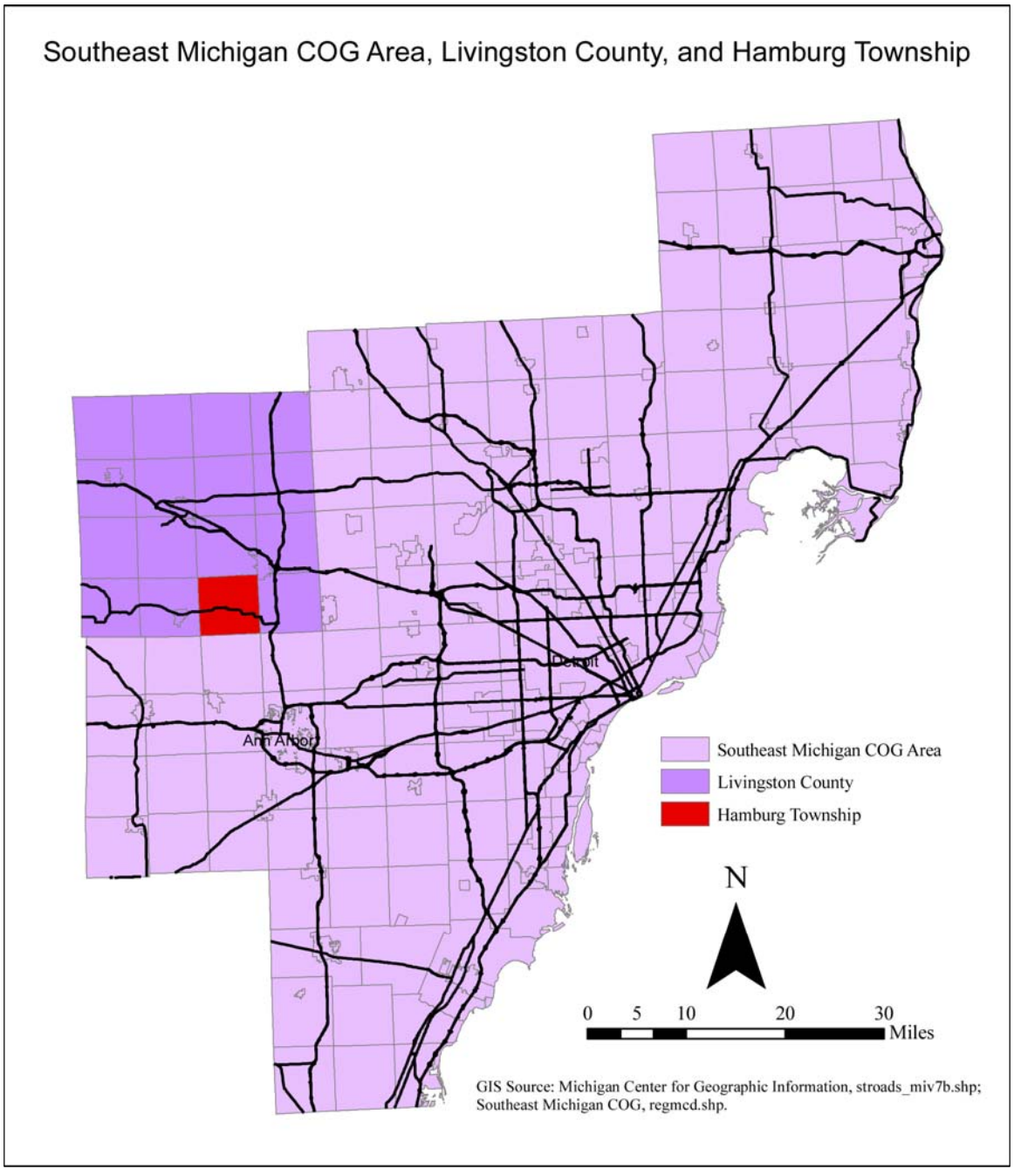

Figure 3.5 Hamburg Township's location in SE Michigan COG area and Livingston County

In 1992, the Hamburg Township adopted an Open Space Community ordinance to give land developers an alternative to conventional subdivisions while preserving natural resources. The ordinance is an option in six residential zoning districts, and it requires that at least 40% of the gross area be protected open space, with options for lower percentages for lower density development. There are very few stipulations regarding what can be counted as open space. Simply put, the open space is anything that is not devoted to any sort of development (residential unit, road, parking lot, commercial, etc); however, the ordinance does stipulate that 25% of the open space must be exclusive of wetlands and accessible to the residents of the community. This 25% can also not include golf course fairways or private roads.

As mentioned, the open space ordinance is not mandated, therefore, flexibility has been an important component in generating developer interest in using the ordinance. Arendt discusses Hamburg's ordinance in *Growing Greener*, and at the time, there were no density incentives to use the open space option. Rather, developer interests, according to Arendt, were generated through flexibility in design criteria "as an alternative to the excessive and outdated standards for public streets adopted by the County Road Commission."[64] The conventional subdivision must follow the standards set by the County Road Commission, which Arendt describes as highway-style. On the other hand, the open space option allows for street standards to use the more reasonable standards Hamburg has established for private roads.

Today, the situation with roads is still the same; however, the ordinance offers both flexibility in the number and design of residential lots and a density bonus to encourage land conservation. Hamburg uses a calculation similar to a yield plan—called a parallel plan—to determine the maximum number of lots allowed. An open space

[64] Arendt, 1999, p. 87.

community is allowed in single-family residential districts in both rural and urban areas of the township. For each underlying zoning district, a minimum lot size is used to calculate the maximum number of lots. As an incentive to use the open space option (and disincentive to go the conventional subdivision route), the ordinance sets smaller lot sizes for the parallel plan than what is allowed conventionally. Table 3.4 illustrates the difference and reduction in lot sizes.

Table 3.4 Hamburg Township Lot Size Differences, Conventional Subdivision vs. Open Space Parallel Plan

Underlying Zoning District	Minimum Lot Area (Conventional)[65]	Parallel Plan Minimum Lot Size[66]	% Reduction
RAA	87,120	60,000	31.1%
RA	43,560	30,000	31.1%
RB	10,000	7,000	30.0%
NR	43,560	30,000	31.1%
WFR	43,560	30,000	31.1%
VR	14,000	10,000	28.6%
		Average Reduction:	30.9%

Once the max number of dwelling units is determined, the typical site plan review process is followed to determine lot design, and "the Planning Commission may grant specific departures from the requirements of the Zoning Ordinance as part of the approval process to encourage flexibility and creativity."[67]

Additionally, the ordinance also offers a density bonus up to 15% when the applicant can demonstrate "design excellence in the open space community."[68] These requirements include using public sewer and utilizing a high level of cluster to preserve a minimum of 60% of the area as open space. Also, depending on the size of the site, the

[65] Hamburg Township, 2001, p. 49a-49b.
[66] Hamburg Township, 2000, p. 5.
[67] Ibid., p. 6.
[68] Ibid., p. 12.

ordinance allows and sets design standards for multifamily and commercial uses. In terms of management of the open space, local conservancies don't get involved with the developments, and they're typically managed by the homeowners' association. The township's experience with open space management has been that it is sufficiently self-regulated in that the residents will notify the township if there is an inappropriate activity occurring in the open space.[69]

According to the Hamburg Township Planning and Zoning Department, a significant share of the subdivisions submitted and approved in the township are conservation subdivisions. Since 1992, approximately 41 conservation subdivisions have been approved by the planning department, and only two conventional subdivisions were approved. The two conventional subdivisions were small parcels with few lots (see Table 3.5). Within the 41 conservation subdivisions, approximately 1,490 residential units were built, and approximately 1,003 acres of open space was preserved, accounting for about 53% of the acreage involved. Table 3.5 shows the subdivision activity since 1992.

[69] Based on a conversation with Patrick Hagman, Planner with Hamburg Township, on March 24, 2008.

Table 3.5 Subdivision Activity, Hamburg Township, 1992-2008[70]

Subdivision Name	Approval Date	Total Acres	Open Space (Acres)	% Open Space	Developed (Acres)*	Total Lots	Net Density (dua)*
BASS RIDGE	Sep-96	71.71	46.74	65.2%	24.97	39	1.805
BASSWOOD	Nov-96	12.37	5.17	41.8%	7.20	11	1.657
BRECKENRIDGE	Oct-94	69.00	23.08	33.4%	45.92	64	1.742
BROOKVIEW	Jun-94	18.48	11.21	60.7%	7.27	16	2.481
CAMPBELL MILLS	Nov-04	20.44	9.69	47.4%	10.75	21	2.589
CAROGA FORREST ESTATES	Sep-99	57.51	32.66	56.8%	24.85	20	0.939
CHILSON ACRES	Aug-97	5.75	1.77	30.8%	3.98	5	1.656
COBBLESTONE CREEK	Jan-96	62.28	21.71	34.9%	40.57	59	1.760
CONSTITUTION PLACE	Sep-96	21.06	7.46	35.4%	13.60	13	1.225
DELANEY RIDGE	Jan-07	10.02	2.55	25.4%	7.47	6	1.200
DUNLAVYS MSL ESTATES	Oct-95	23.01	7.25	31.5%	15.76	12	0.880
FOREST COVE	Oct-03	8.12	3.44	42.4%	4.68	5	1.393
GREEN MEADOWS	Jun-97	18.72	7.26	38.8%	11.46	13	1.336
HAY CREEK**	Dec-98	76.79	25.74	33.5%	51.06	81	2.033
HAY CREEK MEADOWS**	Jul-03	31.69	30.03	94.8%	1.66	24	34.539
HAY CREEK, VILLAGE COURT**	Jul-03	8.62	4.83	56.0%	3.79	20	8.012
HIDDEN VALLEY ESTATES	Jun-96	49.68	20.09	40.4%	29.59	41	1.945
HILLSIDE LAKES OF BRIGHTON	Apr-93	73.72	55.11	74.8%	18.61	57	3.961
HUNTERS POINTE	Jun-93	54.85	26.56	48.4%	28.29	45	1.869
INDIAN HILLS	May-01	10.02	4.31	43.0%	5.71	10	1.985
KNOLLWOOD HILLS	Oct-93	34.34	14.37	41.9%	19.97	37	2.262
MAPLE RUN	Jul-03	7.69	3.56	46.3%	4.13	9	2.945
MOHICAN RIDGE	Jan-98	16.43	7.99	48.6%	8.44	16	2.189
MYSTIC RIDGE ESTATES	Dec-02	259.94	188.81	72.6%	71.12	157	2.355
ORCHARD VILLAGE	Nov-96	29.59	10.38	35.1%	19.22	38	2.495
PARKS EDGE	Nov-02	10.24	4.64	45.3%	5.61	10	2.289
PARTRIDGE POINTE	Dec-97	33.45	16.20	48.4%	17.25	30	2.177
PINE CREEK BLUFFS	Aug-03	122.07	55.80	45.7%	66.27	88	1.418
RIVER COURT***	Sep-04	5.25	1.82	34.7%	3.43	16	6.181
RIVER PARK***	Dec-96	60.19	32.32	53.7%	27.87	69	3.131
RIVER RUN	Aug-00	42.54	16.56	38.9%	25.98	36	1.679
SETTERS POINTE	Sep-98	58.56	31.04	53.0%	27.52	63	2.792
SOLITUDE POINTE	Apr-96	73.76	44.71	60.6%	29.05	49	2.095
SPENCER WOODS	Nov-98	28.50	10.89	38.2%	17.61	29	2.026
STONEGATE	Jun-96	89.49	39.78	44.5%	49.71	58	1.384
SUMMER PARK	May-97	4.00	2.35	58.8%	1.65	20	33.508
TALL SHADOWS	Aug-96	20.13	9.67	48.0%	10.46	20	2.238
TEAHEN MEADOWS	Jun-94	24.44	9.43	38.6%	15.01	25	1.926
WESTHAVEN ESTATES	Aug-96	10.07	3.51	34.9%	6.56	12	2.288

[70] Based on review of subdivision plats recorded with Livingston County. Livingston County, 2008.

Table 3.5 continued

Subdivision Name	Approval Date	Total Acres	Open Space (Acres)	% Open Space	Developed (Acres)*	Total Lots	Net Density*
WINANS WOODS	Nov-97	83.63	33.92	40.6%	49.70	65	1.574
WOODLANDS, THE	Nov-05	184.08	118.78	64.5%	65.31	81	1.405
		1,902.23	1003.20	52.7%	899.03	1490	1.983
Conventional Subdivisions							
CRYSTAL CREST SITE	Jul-96	9.59	-	0.0%	9.59	8	0.834
DEER ACRES	Apr-95	10.01	-	0.0%	10.01	6	0.599

*Developed acres includes roads, net density calculated based on lot area only
**Sections within Hay Creek subdivision
***Sections within River Park subdivision
All area calculations based on GIS shapefiles obtained from Livingston County GIS

Regional and State Support

Open space and natural resource preservation in the southeast portion of Michigan is further supported by regional and state initiatives that promote the success of open space communities in Hamburg. Additionally, the Greenways Initiative, which has been supported by the Southeast Michigan Council of Governments and Livingston County (among other counties and jurisdictions), has successfully promoted the planning for and creation of linear greenways throughout the region. The *Southeast Livingston Greenways Plan and Report* was completed in 2000 as the county and region recognized that growth pressures were building in the southeast quadrant of Livingston County. The initiative's goals and approach are very similar to the approach Arendt outlines for conservation developments. The plan tries to address how to "continue to develop without destroying the rural character, natural features, and quality of life" in the southeast portion of Livingston County.[71] Additionally, the approach the initiative takes is to identify primary and secondary conservation areas to build the greenway network. Utilizing similar languages and goals makes the greenway initiative easily integrated with efforts of conservation subdivision ordinances and conservation developments.

[71] Cox & Vaughn, 2000, p. 3

Regional efforts have also been helpful in land conservation by helping to identify those lands that are ideal for preserving. Making this information more accessible to developers and local officials facilitates the preservation of open space in new developments. For example, the Greenways Initiative has created a greenway plan for several counties, including Livingston County, and has mapped potential greenways. Developers and local officials can then use these plans to identify where open spaces should occur within new developments.

Figure 3.7 illustrates how many subdivisions approved in Hamburg Township take into consideration the conservation corridors identified in the Southeast Living Greenways Initiative for where to site their open space in their conservation development. Most subdivisions consider the location of the conservation corridors in locating open space areas within the development, but in a few cases, development is located in the corridor, interrupting corridor connectivity.

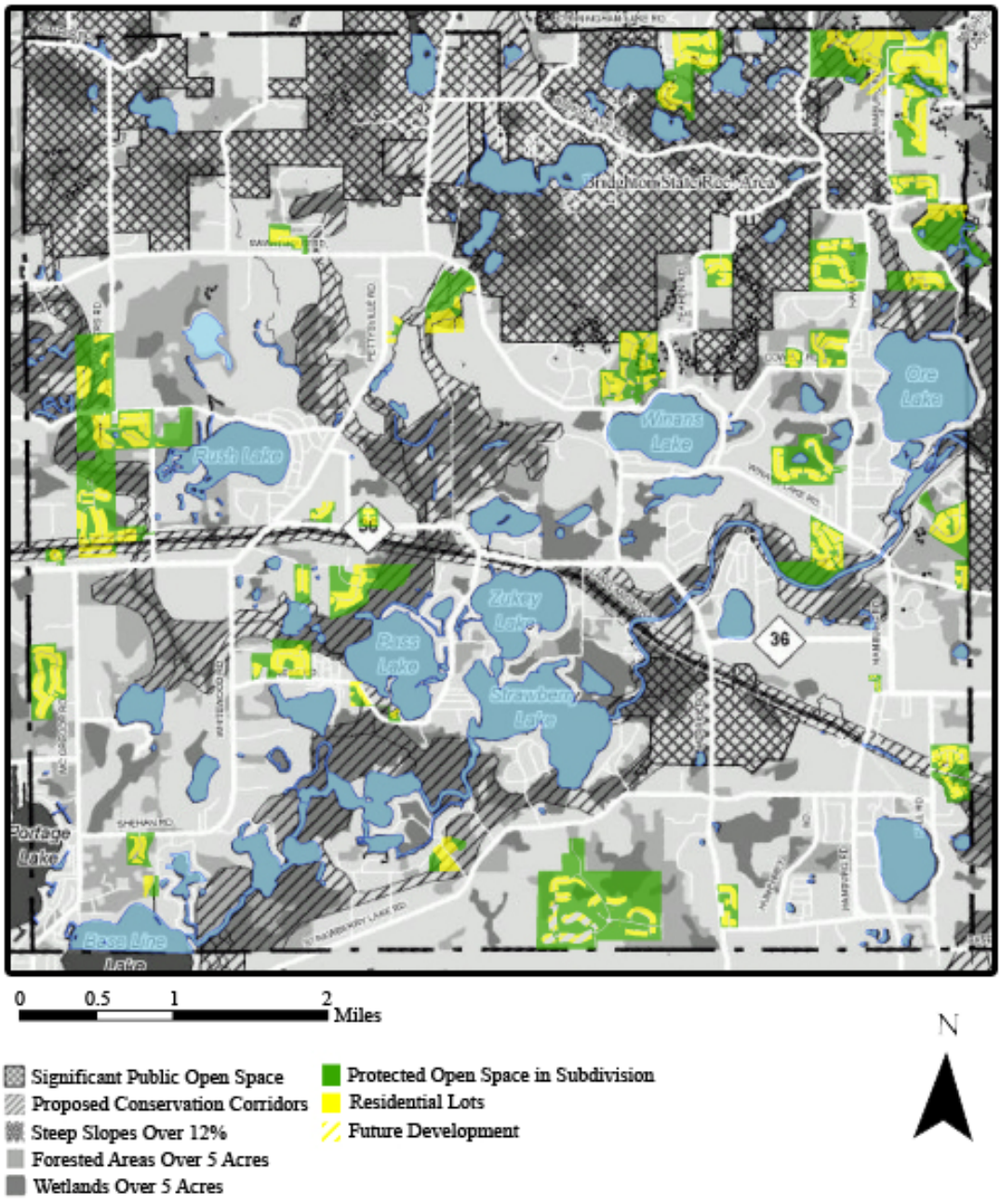

Figure 3.6 Approved Conservation Subdivisions[72] and Hamburg Township Conservation Corridors[73]

[72] Livingston County GIS, 2008, hamburg_subs.shp and hamburg_parcels.shp.
[73] Cox & Vaughn, 2000, p. 18.

Finally, state assistance through the Michigan Department of Natural Resources (MDNR) has made the township's course to land conservation easier. Although it has not been utilized for land conservation in conservation developments, the resource is available to do so. According to the MDNR, grants are available through the Land and Water Conservation Fund (which is actually federal dollars given to states for distribution) and the Michigan Natural Resources Trust Fund.

The resources provided by both the state as well as the regional and county planning organizations can be very useful in conservation development. Establishing priorities for open space preservation, such as the Greenways Initiative Plan, creates the foundation from which local officials and developers can identify which parts of a development to preserve.

CASE STUDY 3: CHATTAHOOCHEE HILL COUNTRY, FULTON COUNTY, GEORGIA

Atlanta, Georgia is possibly the most criticized metropolitan area for sprawling into and consuming its natural resources. It's often used as the poster child of sprawl, with smart growth and anti-sprawl advocates using trends in the metro area to exemplify the land consumptive patterns occurring across the nation. So it's really no wonder that the region would be at the forefront of researching and encouraging new, smart patterns for development to alleviate sprawl. Additionally, land conservation planning efforts are further supported by regional and state programs to bring greenspace planning to the forefront. Fulton County has a number of tools and a very creative framework in place to ensure conservation subdivision development in the Chattahoochee Hill Country community.

Fulton County is located in the middle of the 28-county Atlanta MSA and is bisected by the City of Atlanta. Based on the Atlanta Regional Commission (ARC) 2007 population estimates, between 2000 and 2007, Fulton County population increased from 816,006 persons to 933,600, which accounted for 19.6% of the population growth in the 10-county "core" area.[74] The most recent ARC population forecast expects that an additional 2.2 million residents will be added by 2030.[75] Additionally, it's expected that Fulton County will continue its strong growth, reaching a population of 1,146,000 by 2030.[76]

[74] Atlanta Regional Commission, 2008a.
[75] Atlanta Regional Commission, 2006b.
[76] Atlanta Regional Commission, 2006c.

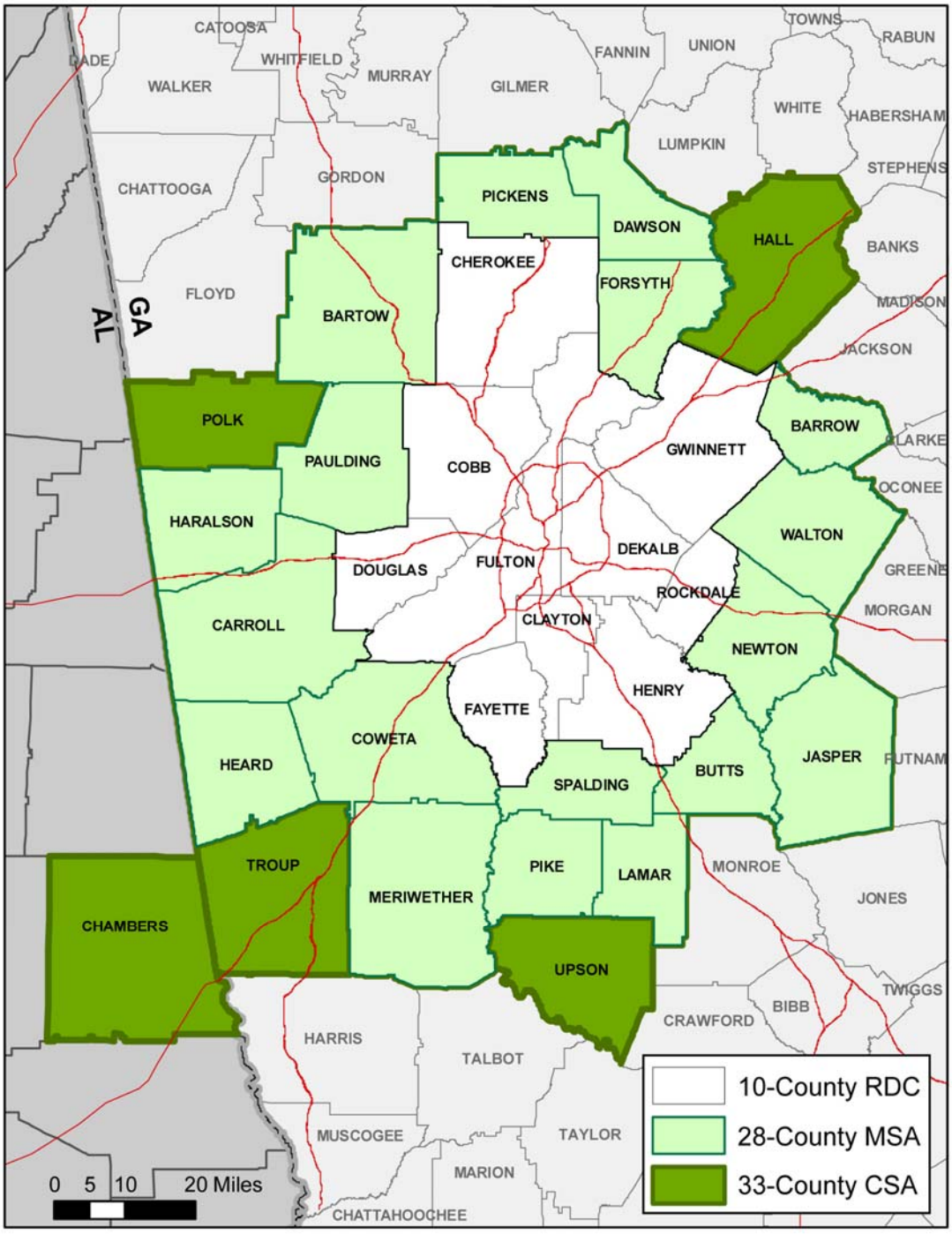

Figure 3.7 Atlanta Region US Census Bureau Statistical Areas[77]

[77] Atlanta Regional Commission, 2008d.

Moreover, based on the ARC LandPro dataset, Fulton County led the region in land conversion from agricultural or forest between 2003 and 2005, converting nearly 14,400 acres, or 7,200 acres per year. During this two-year period, developable land was consumed at a rate of 11.8% while population grew only 4.1%.[78]

In 2004 Fulton County adopted an ordinance for a conservation subdivision option to be allowed by right for certain residential zoning districts. The option requires that at least 40% of the total acreage is permanently protected as open space and provides stipulations on what constitutes that open space (primary and conservation areas). Additionally, to ensure that the conserved open space does not consist solely of the inherently unsuitable for development, it allows the developer to count only 50% of the primary conservation areas as open space. While this is more lenient than Arendt's model, it is more exacting than other ordinances in the Atlanta region. The pay off, however, is the authorization for denser development. The county doesn't exercise a true density neutral program, where the same number of lots is allowed on a smaller portion of land. Rather than ask developers to create a yield plan, which they feel would deter developers from using the ordinance, they simply calculate maximum dwelling units based on the allowed density of 80% of the developable area. The 20% reduction is for roads and other easements. Additionally, the ordinance has an option for density bonuses: when more than 40% of the total acreage of the project is designated as open space, the maximum number of residential units is calculated based on the density for 95% of the net buildable area.[79]

Unfortunately, Fulton County hasn't seen very much development activity under this ordinance. One possible explanation could be the slowing housing market. Another

[78] Atlanta Regional Commission Land Pro, 2007a, Table 2.
[79] Fulton County, 2004, pp. 5-6.

reason could be because there isn't enough of an incentive for doing a conservation development instead of a conventional subdivision. Michelle MaCauley, Principal Planner of the Fulton County Planning Department, suggests that this might be due to the newness of the ordinance and the developers' belief that the market won't accept this type of development and lenders' reluctance to finance it. The Planning Department has also heard comments that the calculations and ordinance are tedious.

Probably the biggest hindrance is the hassle of approving a conservation subdivision, particularly in the AG district where the land is zoned for 1-acre lots (which happens to be the zoning of all the remaining undeveloped land in unincorporated Fulton County). In order to do a conservation subdivision and still maximize the number of lots built on the developable area based on the yield plan, the developer would need to obtain a zoning modification to allow smaller lots, as indicated by Section 4.2.3 and 4.2.4 of the county Zoning Ordinance. Essentially a rezoning or a modification to the zoning requirements is necessary to use the option to its fullest economic potential, and at that point the developer would rather rezone to a CUP or PUD that allow for more flexibility. These inherent conflicts among the zoning provisions, subdivision regulations, district regulations, and conservation subdivision option dissuade developers from utilizing the conservation subdivision option.[80]

In addition to the optional conservation subdivision ordinance, the county has also adopted a mandatory conservation subdivision ordinance—the first in Georgia—to be implemented over the Chattahoochee Hill Country (CHC) community, a 40,000-acre area of south Fulton County. The CHC community is located in the southwest portion of Fulton County, most closely defined as the South Fulton superdistrict. Proximity to the City of Atlanta has contributed to the growth in the area. Population in this superdistrict

[80] Based on a conversation with Michelle MaCauley, Fulton County Planner, March 26, 2008.

increased from 19,074 persons to 38,612 persons between 2000 and 2007. The 19,538 population increase captured 16.6% of the growth in Fulton County in the same time frame.[81]

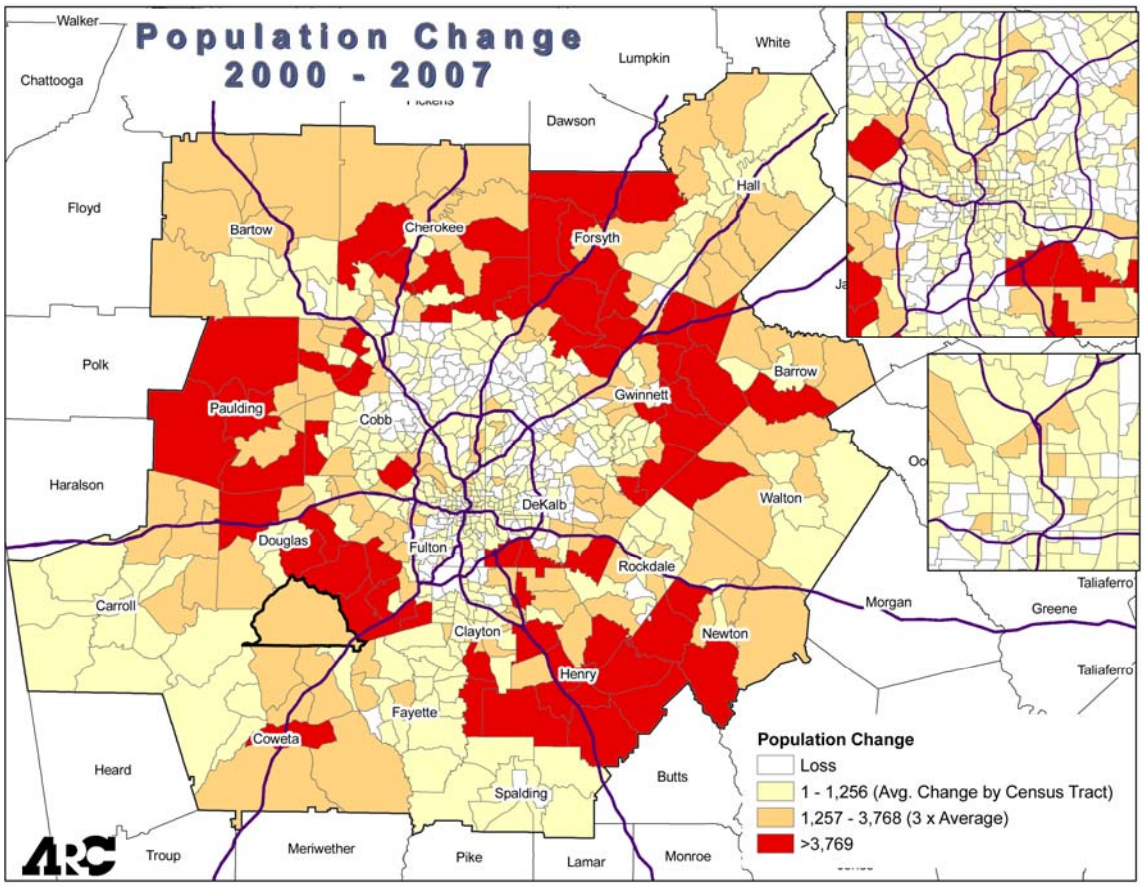

Figure 3.8 Population Change in the Atlanta Region illustrates growing development pressures on the urban fringe, including south Fulton County[82]

With growth pressures mounting, residents in the CHC community organized to preserve the natural resources of the area in the face of looming development. The residents and The Nature Conservancy partnered to form the Chattahoochee Hill Country Alliance (CHCA), which developed a master plan for the region to serve as a guide for

[81] Atlanta Regional Commission, 2008b.
[82] Atlanta Regional Commission, 2008c.

future development in the region (Fig. 3.10). The plan clusters development in villages on 20% of the land, leaving 80% of it as green space.[83] In 2002 the county adopted the land use plan and created an overlay district that creates a system of villages and hamlets in which to direct development in order to protect a higher portion of natural areas in the district.

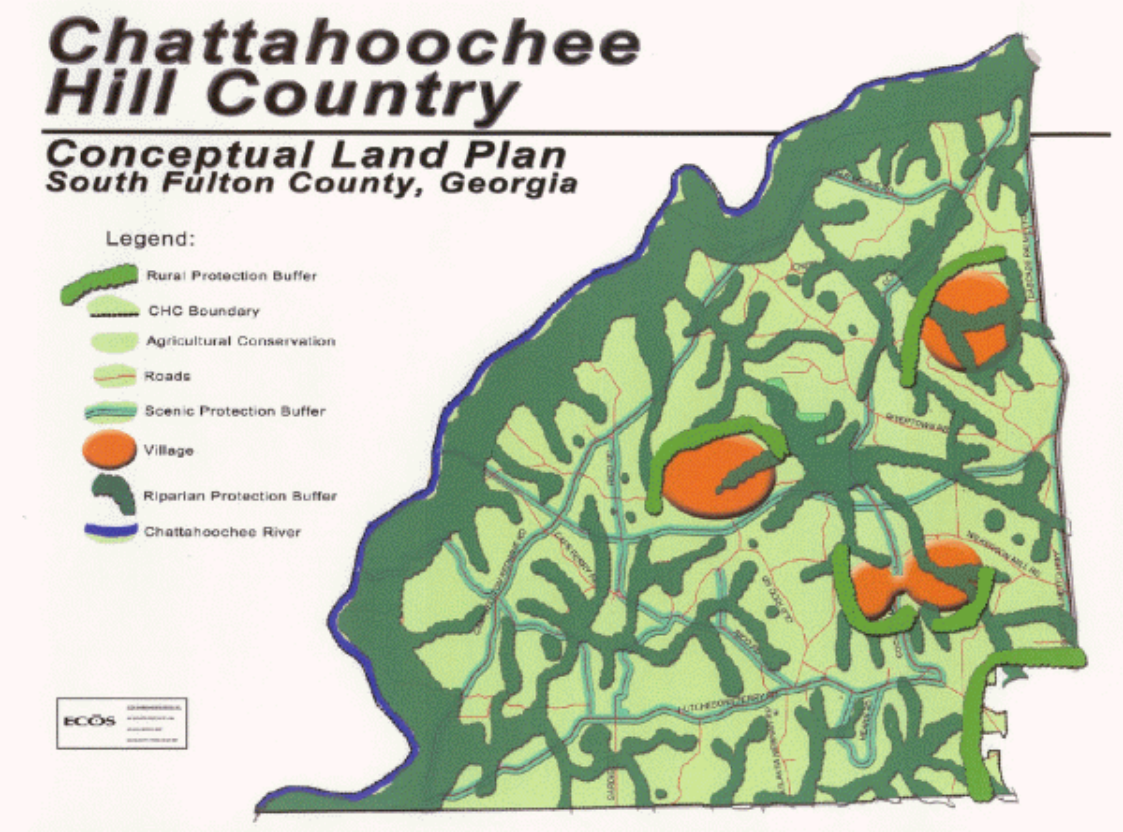

Figure 3.9 Chattahoochee Hill Country Master Plan[84]

Since then the county has adopted tools to implement the plan, such as the mandatory conservation subdivision ordinance as well as the first Transfer of Development Rights Ordinance in the state to help guide development toward the villages and hamlets and ensure land conservation. A second group was also formed to help

[83] Raines, 2005, October 5, para. 5.
[84] CHCA & CHCC, Master Plan.

implement the plan: the Chattahoochee Hill Country Conservancy (CHCC). According to the CHC website, the Alliance's role focuses primarily on educating the local residents and working with the county government to implement the CHC standards while the Conservancy "is the active piece that performs the day to day objectives of implementing the many projects taking place around the Hill Country including the greenspace plans and implementation of the TDR program."[85] Using the existing policies, landowners in the CHC community can develop their property in one of three ways: a conservation development, a village, or a hamlet. Either way, perpetual preservation of land is involved.

The conservation subdivision ordinance for the CHC is very similar to that offered over the whole county with the exception that the CHC conservation development ordinance is much more rewarding. While the maximum density calculation for the county-wide option considers only 80%-95% of the net buildable area, the maximum density in the CHC area is calculated using the whole net buildable area, and if at least 60% of the site is preserved as open space, then the developer can calculate density based on the *total* acreage of the property (including primary conservation areas). This is a strong incentive to developers to preserve a significant amount of land over the 40% minimum.

The effort of the residents of the Chattahoochee Hill Country and The Nature Conservancy, and the tools offered by Fulton County to implement their goals to protect the land has clearly influenced development in the southern portion of Fulton County. Two residential subdivisions have been approved under the conservation development ordinance, both recently and by the same developer. Bear Creek Crossroads is a 252.8 acre subdivision, of which 189.79 acres (66.3%) is preserved greenspace, with an

[85] CHCA & CHCC, CHCA History, para. 6.

additional 18.46 acres of common space area. The developer plans to build 253 units on 44.55 acres, yielding an average density of 5.7 dwelling units per acre (dua) Just down the road from Bear Creek Crossroads is Petersburg, a 107.61 acre parcel of which 78.55 acres are preserved as primary and secondary conservation areas. The developer proposes 107 dwelling units to be built on 29.06 acres, achieving a density of 3.7 dua. In both cases, the developer opted to preserve more than 60% open space in order to qualify for the density bonus.

The other option for land development in the CHC Overlay is to rezone to Mixed Use (MIX) for a village or Community Unit Plan (CUP) for a hamlet provided by the CHC Overlay District. The primary difference is that only residential uses can be built under the conservation development ordinance, while the CHC Overlay districts allow for mixed uses. The maximum allowable density for the hamlets district is the same as the existing Agriculture district (1 dwelling unit per acre), and the developer may not use TDR to gain more density. It also requires 60% open space to ensure land preservation. On the other hand, the MIX district for villages allows for 14 dwelling units per acre. This rezoning is conditional on utilizing TDR to obtain the additional density.

Two subdivisions, both of which succeed as conservation subdivisions because they preserve a significant amount of open space, have been approved under the Overlay and TDR ordinances. The Serenbe subdivision is a 900-acre hamlet (CUP), of which 254 acres will ultimately be developed, leaving over 70% of the site as open space.[86] Approximately 220 homes will be built when complete, plus commercial space. The Serenbe subdivision was built following the hamlet guidelines of the CHC Overlay district, before either conservation subdivision ordinance existed. Additionally, the

[86] Raines, 2005, October 5, para. 8.

subdivision has approximately 15 acres of working farmland, an equestrian stable, athletic fields, and trails throughout the subdivision.

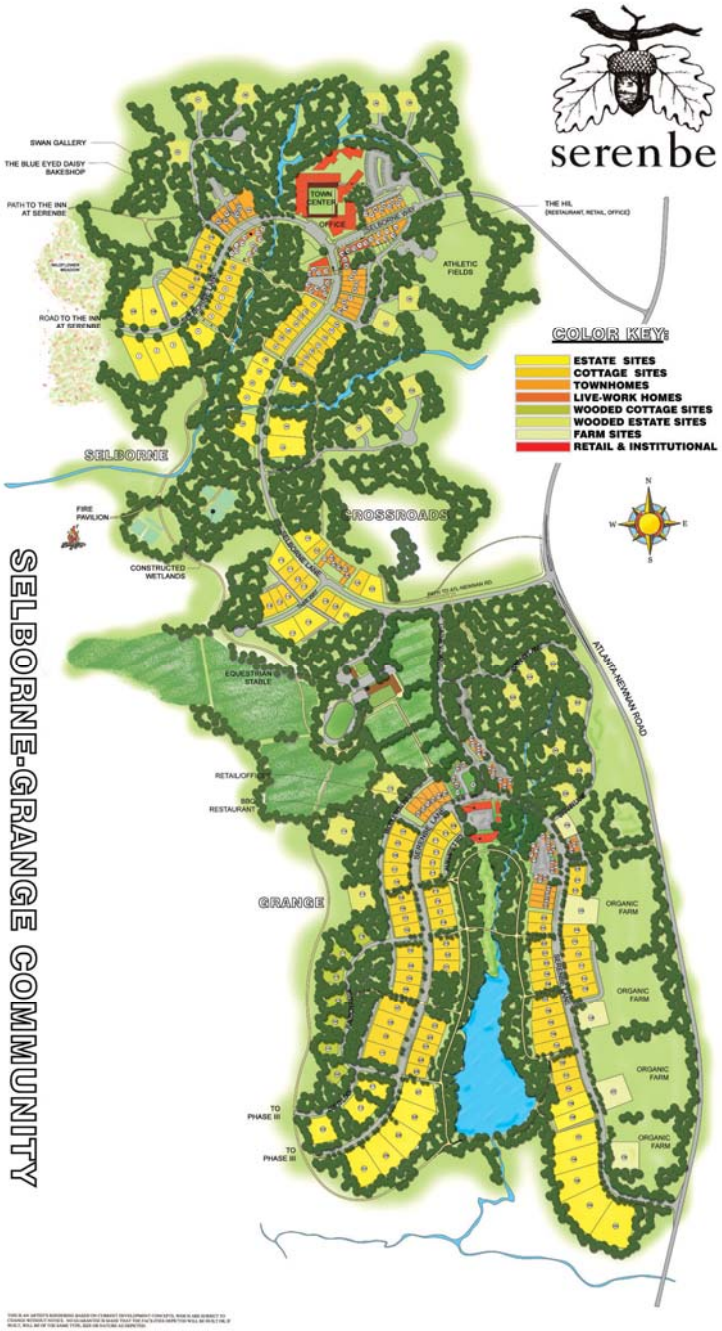

Figure 3.10 Site plan for Serenbe Community[87]

[87] Serenbe, Serenbe/Grange Community Map.

In comparison, Steven Kopelman of the CHCA criticized the two subdivisions approved under the conservation subdivision as feeling and looking like sprawl with the greenspace treated as an afterthought and simply looking like undeveloped areas. Serenbe, on the other hand, was praised for going above and beyond to achieve a sustainable and quality development that fits into the rural character. In fact, Kopelman indicated that you didn't even know the development was there because the conservation areas were so well planned and were the dominant feature of the subdivision.[88]

Figure 3.11 Aerial view of Serenbe Community[89]

More recently, the county approved Friendship Village, a 2,000-acre subdivision in the CHC area. The development has been rezoned to MIX (village) and utilizes TDRs

[88] Based on a conversation with Steven Kopelman, CHCA, April 8, 2008.
[89] Serenbe, October 2007, picture number 14.

to intensify development and protect a large portion of open space. Development plans call for approximately 1 million square feet of commercial space and 6,000 residential units on about 40% of the land, leaving 1,200 acres permanently protected.[90] Additionally, the preserved acreage, 75% of which is developable, will be used for active/passive preservation areas, wildlife corridors, and wildlife preservation areas, illustrating the intent to keep the preservation area in its natural state.[91] The county planning commission approved the rezoning in May 2007, and since then Minerva has been working on finalizing the development plans.

Figure 3.12 Friendship Village site plan[92]

[90] Bennett, 2007, May 3, para. 3.
[91] Chatt Hills Organizing Committee, 2007, p. 3.
[92] SEC Planning Consultants, 2007. Provided courtesy of Minerva, the project developer.

In 2007, most of the CHC area incorporated and adopted the regulations that Fulton County already had in place. This incorporation has led to concerns over both the amount of regulation as well as the capability to exercise more prescriptive regulations to control development. MaCauley suspects there will be pressure to relieve those standards to make development easier now that the area is financially independent and responsible to provide water, sewer, and other public services.[93] On the other hand, Kopelman suggested that incorporation has provided an opportunity to significantly analyze the ordinances to ensure the type of development that they want. He indicated the need for conservation subdivision needs to be tightened up considerably so that the development outcome isn't simply sprawl on smaller lots.[94]

Regional and State Support

State and regional efforts add to Fulton County's efforts to preserve land and advocate for more conserving practices of development. The Atlanta Regional Commission (ARC) has been very active in promoting tools for greenspace planning and preserving. In 2001, the ARC with the University of Georgia Institute of Ecology (now Odum School of Ecology) created a sort guidebook for implementing conservation subdivision ordinances as part of its Quality Growth Toolkit. The guidebook had a detailed explanation of the process, noting things that worked and ones that didn't, discussed a couple case studies of adopted ordinances in the Atlanta region, and provided a model ordinance.

In 2004, the ARC teamed up with the Georgia Conservancy and Trust for Public Lands (TPL) to host a meeting of greenspace stakeholders to set priorities for the three groups in greenspace planning for the near future. The stakeholders requested that the

[93] Based on a conversation with Michelle MaCauley, Fulton County Principal Planner, March 20, 2008.
[94] Based on a conversation with Steven Kopelman, CHCA, April 8, 2008.

ARC become more involved with coordinating greenspace efforts in the region. In response to this request, the ARC, Georgia Conservancy, and TPL created three tools to strengthen greenspace planning and conservation in the region. They assembled the Green Infrastructure Toolkit, which could be used by local governments in the region to assist them in greenspace planning; created an inventory and database of protected lands throughout the region; and generated a green infrastructure priorities map that identifies areas that have conservation value. The intent of these tools is to establish a foundation for greenspace planning in the region and assist local governments with their preservation efforts.

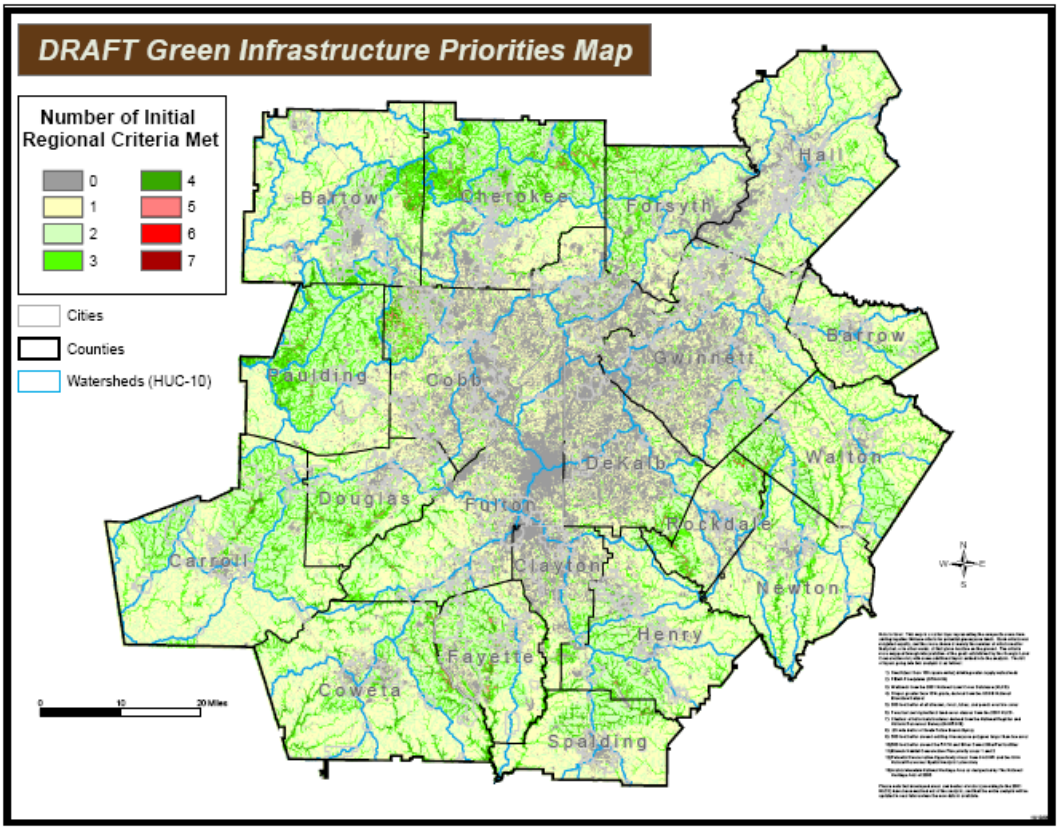

Figure 3.13 The Green Infrastructure Priorities Map identifies areas in the Atlanta Region that has preservation value[95]

[95] Atlanta Regional Commission. 2006a.

With the assistance of the ARC in educating and offering tools to planning officials, all the counties in the Atlanta region have adopted some sort of conservation subdivision ordinance. Some are very weak, while others are stronger; still it illustrates that the ARC's efforts are impacting the way counties use their land use regulatory powers to influence development patterns to promote land conservation. The influence of the ARC is most apparent in the significant decrease in land consumption in the region. Based on the ARC LandPro datasets, between 2003 and 2005, 111,791 acres were converted to some sort of development from agriculture or forest, but between 2005 and 2007, conversion decreased by 72% to 31,265 acres.[96]

Additionally, the state has a track record of providing financial support toward land conservation. Since 2000 the state has enacted, cut, and amended two very different land conservation programs. In 2000, Governor Roy Barnes created the Community Greenspace Program with the goal of preserving 20% of Georgia's land.[97] The program introduced the idea of green infrastructure to the state, recognizing that greenspace "should be considered as part of the necessary infrastructure for a community's development, as are roads, water supply, and sewage."[98] Statewide, the Community Greenspace Program was able to preserve approximately 9,000 acres, helping to preserve 8% of the state's land.[99]

However, the program was short lived, and in 2003, funding for the program was cut by Governor Sonny Perdue. In 2005, Governor Perdue passed a new act amending the Community Greenspace Program and creating the Georgia Land Conservation Program (GLCP). Major changes include extending the program to all Georgia counties

[96] Atlanta Regional Commission Land Pro, 2007b, Table 3.
[97] Shelton, 2004 August 15, para. 29.
[98] Georgia Department of Natural Resources, Community Greenspace Program, Program Description.
[99] Shelton, 2004, August 15, para. 28.

as well as to private individuals or organizations; creating a competitive land grant program; and eliminating the 20% land conservation goal.[100] The changes have been both criticized and praised. By extending the program to all counties, rural communities and governments now have a mechanism of protecting undeveloped land ahead of future development. Additionally, it encourages private land owners and developers to preserve their land, rather than putting the burden solely on counties and cities to acquire land. According to Tavia McCuean of The Nature Conservancy, private and public partnerships have become popular in Georgia to save important lands, and Perdue's conservation plan will make these projects easier to achieve.[101] Critics argue, however, that most of the land will stay in private hands, precluding the opportunity of public access of the land and worry that by de-emphasizing the urban counties, the faster growing counties won't get money quick enough to beat development.[102]

Despite conservation funds now being available to all counties in Georgia and not just urban counties, fewer are applying for and receiving grants, possibly due to the tougher requirements under the GLCP. Under the Community Greenspace Program, eligible counties and cities just had to show that they had a goal of land conservation and mapped inventory of acquisition goals. Then the municipality would receive a check that they had two years to spend. But under the competitive grant program of the GLCP, governments submit specific projects and have certain criteria they have to meet. Additionally, it's expected by the GLCP that the counties will be contributing to the land acquisition as well, and many counties don't have the funds to do that.[103]

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[100] Whalin, 2005, pp. 192-194.
[101] Shelton, 2005, January 26, para. 17.
[102] Ibid., paras. 8, 17.
[103] Based on a conversation with Michelle MaCauley, Fulton County Principal Planner, March 20, 2008.

The program's funds are indirectly available to private land owners and developers, and could be a useful tool to local and county governments to leverage conservation developments. However, Fulton County has failed to take advantage of this assistance. The inconsistency in the state's role and efforts to preserve open space, in addition to the tougher requirements and time and effort necessary, are probably partially to blame in dissuading many jurisdictions from participating. According to the county, the difficult process and expectation to match funds has discouraged the county from applying for grants, and they have no plans right now to apply for any grants.[104]

Despite the tougher requirements and fewer counties participating, the program seems to be doing well. Since its inception in 2005, the program has granted just over $58 million and through grants, low interest loans, and donations, approximately 61,731 acres across the state have been permanently protected. Table 3.6 lists the projects that have received either grants or low interest loans from the program for their protection. Figure 3.14 illustrates the counties that received grants from the Community Greenspace Program and those that have received grants from the GLCP. A few urban counties are still actively pursuing and receiving grants, however, a significant share is being awarded to rural counties.

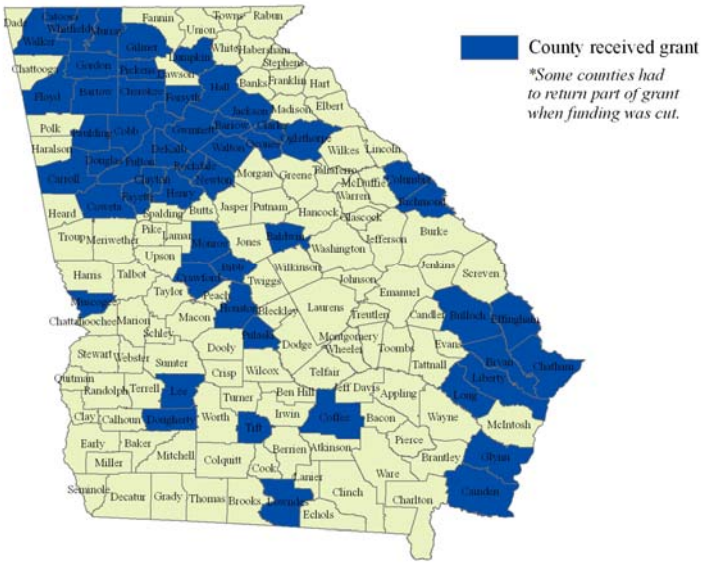
[104] Based on a conversation with Michelle MaCauley, Fulton County Principal Planner, March 20, 2008.

Table 3.6 Georgia Land Conservation Program: Projects Endorsed by the Land Conservation Council, 2005-2007

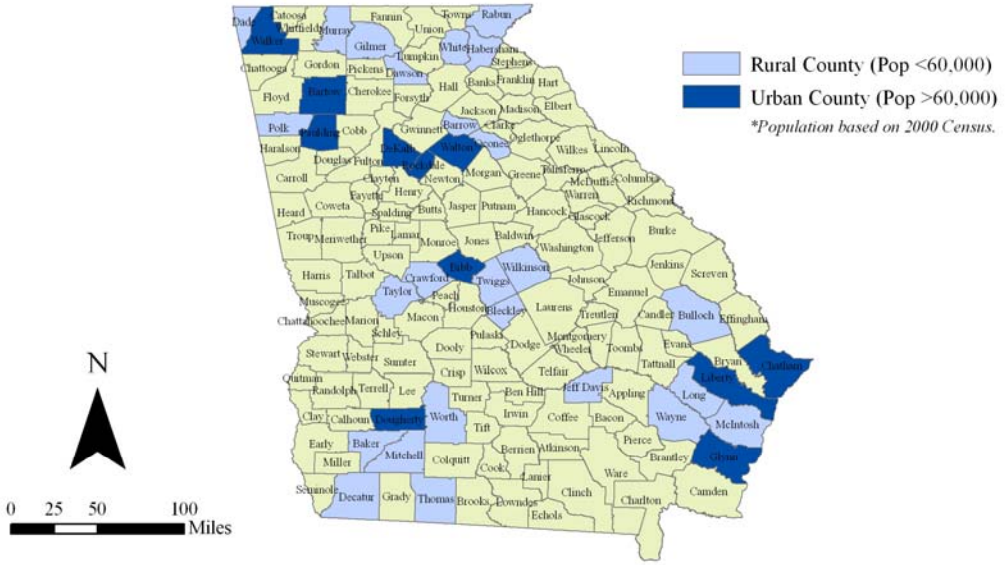
Project Name/Type	Acquisition Type	Project Location	Acreage	Appraised Fair Market Value of Project	Amount Awarded by Program	Award Type	Other Project Funding Sources/Partners
Albemarle Plantation	Conservation Easement	Worth County	387		$0	Full Donation	Private Landowner
Arabia Mountain National Heritage Area	Fee title & Conservation Easement	Rockdale County	151	$2,865,000	$900,000	Grant	Rockdale County, City of Atlanta, Monastery of the Holy Spirit; Gwinnett Open Land Trust
Ball's Ferry	Fee title	Wilkinson County	540	$1,021,000	$53,680	Grant	Wilkinson County; National Park Service
Butler Farm	Conservation Easement	Mitchell County	1,500		$0	Full Donation	Private landowner
Cartecay River	Fee title	Gilmer County	5	$100,000	$40,000	Grant	GA Wetland Trust Fund, private landowner, Mountain Conservation Trust
Cathead Creek	Fee title	McIntosh County	752	$1,700,000	$0	Full Donation	The Nature Conservancy
Charlane Plantation	Conservation Easement	Twiggs County	300	$500,000	$0	Full Donation	Private landowner, The Conservation Fund
Clayhole/Penholoway Swamps	Fee title	Wayne and Glynn Counties	10,079	$13,441,739	$4,623,735	Grant	U.S. Fish and Wildlife Service grants; The Nature Conservancy; Ducks Unlimited, Wild Turkey Federation
Cloudland Canyon	Fee title	Matthews and Dade Counties	3	$78,000	$45,000	Grant	National Park Service
Crockford Pigeon Mountain	Fee title	Walker County	64	$4,646,000	$2,000,000	Grant	Private landowner
Crockford Pigeon Mountain WMA	Fee title	Walker County	490	$1,000,000	$500,000	Grant	Private Foundation; Department of Transportation
Dawson Forest	Fee title	Dawson County	1,072	$5,800,000	$2,000,000	Grant	The Nature Conservancy; Private Foundation
Dawson Forest	Fee title	Dawson County	10	$86,787	$86,787	Grant	
Flat Tub/Broxton Rocks	Fee title	Jeff Davis County	3,597	$4,599,000	$518,985	Grant	U.S. Forest Service Forest Legacy Program; The Nature Conservancy
Fort Barrington	Conservation Easement	McIntosh County	1,356	$3,050,000	$490,000	Grant	Private Landowner, GA Wetlands Trust Fund, The Nature Conservancy
Fort Barrington	Fee title	McIntosh County	4,162	$9,000,000	$2,062,969	Grant	U.S. Fish and Wildlife Service, National Oceanographic and Atmospheric Administration, The Nature Conservancy, Private Landowner, Department of Defense
Fort Stewart Bufferlands		Liberty County	201	$1,020,000	$300,000	Grant	DOD/Fort Stewart, Georgia Land Trust
Fred Fletcher Memorial Park		Bulloch County	29	$815,000	$10,000	Grant	Private landowner, Bulloch County
Goode Farm	Conservation Easement	Bartow County	100	$350,000	$66,000	Grant	Bartow County; US Department of Agriculture; private landowner
Gordon Lee Mansion	Fee title	Walker County	7	$3,400,000	$365,000	Grant & Low Interest Loan	City of Chickamauga, Private Foundations, Private landowner
Holly Creek	Conservation Easement	Murray County	67	$1,100,000	$0	Full Donation	U.S. Fish and Wildlife Service grants; The Nature Conservancy
Intrenchment Creek	Fee title	DeKalb County	140	$840,000	$75,000	Grant	DeKalb County; Private Foundation
Mitchell Farm	Conservation Easement	Oconee County	190	$1,536,000	$467,000	Grant	Oconee County; US Department of Agriculture; Private landowner
North Marsh	Fee title	Glynn County	21	$4,000,000	$750,000	Grant & Low Interest Loan	Glynn County, St Simons Land Trust, private landowner
Ocmulgee Shawnee	Fee title	Twiggs and Bleckley Counties	1,683	$3,273,900	$1,643,366	Grant	Private Foundation
Panola Mountain	Fee title	Rockdale County	91	$1,925,000	$0		National Park Service; The Conservation Fund
Panola Mountain	Fee title	Rockdale County	202	$3,000,000	$313,000	Grant	The Conservation Fund, Georgia Wetland Trust Fund, Private Foundation, National Park Service
Paulding Forest	Fee title	Paulding/Polk Counties	6,865	$45,866,156	$15,177,320	Grant	Paulding County, Polk County, U.S. Fish and Wildlife Service, U.S. Forest Service, Private Foundations
River Creek	Fee title	Thomas County	2,411	$9,500,000	$2,466,896	Grant	U.S. Fish and Wildlife Service grants; The Conservation Fund; Private landowner
River Creek/Sellers Farm	Fee title	Thomas County	155	$1,135,000	$373,131	Grant	U.S. Fish and Wildlife Service, Private Landowner, The Conservation Fund
Savannah River Estuary	Fee title	Chatham County	14	$400,000	$206,460	Grant	City of Tybee Island, Chatham County
Silver Lake	Fee title	Decatur County	8,430	$38,600,000	$17,500,000	Grant	U.S. Fish and Wildlife Service, Private Foundations, U.S. Forest Service, The Conservation Fund, Decatur County
South River	Fee title	Rockdale County	10	$231,500	$0	Low Interest Loan	Rockdale County
South River	Fee title	Rockdale County	5	$750,000	$0	Low Interest Loan	Rockdale County
Statham Spring	Fee title	Barrow County	20	$434,000	$299,000	Grant & Low Interest Loan	City of Statham
Tallulah Gorge	Conservation Easement	Rabun and Habersham Counties	2,268		$0	Full Donation	Private Landowner
Tarva Plantation	Conservation Easement	Dougherty, Baker Counties	4,968		$0	Full Donation	Private landowner
Taylor County Natural Area	Fee title	Taylor County	884	$1,415,000	$0		U.S. Fish and Wildlife Service grants; Private Foundation; Private landowner
Thaxton Farm	Fee title	Crawford County	35	$180,000	$165,000	Grant	City of Roberta, private landowner
Tobesofkee Creek	Fee title	Bibb County	379	$939,200	$517,000	Grant & Low Interest Loan	Bibb County, private landowner
Townsend Tract	Fee title & Conservation Easement	Long and McIntosh Counties	6,722	$6,670,000	$2,450,000	Grant	U.S. Forest Service Forest Legacy Program; The Nature Conservancy; Private Foundation
Townsend WMA	Fee title	Long County	202	$400,000	$97,881	Grant	The Nature Conservancy, U.S. Fish and Wildlife Service
Turtle Shoals Plantation	Conservation Easement	Dougherty County	800		$0	Full Donation	Private landowner
Upper Chattahoochee River	Fee title & Conservation Easement	White County	204	$4,710,000	$1,486,107	Grant	The Trust for Public Land; Georgia Wetland Trust Fund
Wiley Farm	Conservation Easement	Walton County	160	$1,280,000	$120,000	Grant	U.S. Department of Agriculture, private landowner, Athens Land Trust
		Total/Average:	61,731		$58,169,317		

Source: Georgia Land Conservation Program, Endorsed Projects, 2005-2007, http://glcp.georgia.gov/00/channel_title/0,2094,82613131_82971431,00.html

Counties Awarded Grant from Community Greenspace Program



Counties Awarded Grant from Georgia Land Conservation Program



Source: ESRI Census 2000 TIGER/Line Data; Georgia GIS Clearinghouse; 2000 Census Bureau

Figure 3.14 Map of Counties Participating in Community Greenspace Program and Georgia Land Conservation Program

SUMMARY

Attempts to control sprawl and recognition of the values of natural landscapes and open space has been a conversation that has been going on for nearly half of a century now. These three communities exemplify a variety of strategies that have been successful in ensuring *smart sprawl*.

London Grove and Chester County illustrate excellent intergovernmental cooperation, which can help strengthen local efforts. Additionally, the township has experienced success of its conservation ordinance by making it more difficult to develop conventionally. They recognize that it's not enough to just incentivize conservation development; they have to make sprawl difficult. They do this by making conventional, cookie-cutter subdivision of land a conditional use and requiring the developer or land owner to prove that conventional subdivision has a lighter impact on the environment. This strategy has proven very valuable to the township.

Hamburg Township in Michigan also has the support of the county and regional planning efforts to help advocate conservation development practices. The Regional Greenway Initiative has provided a useful tool in conservation subdivision development as illustrated in Figure 4.6. The strongest bonus to developing using the townships open space ordinance is the option to construct smaller roads. The flexibility of the ordinance is reflected by the variety of open space subdivisions that have been approved. A number of subdivisions have accomplished a share of open space significantly more than the 40% minimum, probably to take advantage of the density increase. At the same time, quite a few have also opted for a density decrease to qualify with just 30% common open space. Additionally, two subdivisions, Hay Creek Meadows and Mystic Ridge, have used the multifamily option to incorporate attached townhome/garden home style units. These

recent developments indicate market acceptance of higher density housing in this relatively rural area as the area becomes more urbanized and as people accept the higher density in return for greater open space conservation. Overall the township has experienced a success rate of 95% conservation development of all residential subdivisions approved and approximately 1,000 acres of permanently preserved land (52.7% of the total acreage involved).

Fulton County has experienced the greatest level of challenge in experiencing conservation subdivision acceptance, not by the market, but by the developers. Despite efforts of the Atlanta Regional Commission to inform developers about the economic benefits of conservation development, the region has seen a relative slow acceptance. However, a few conservation subdivision in the Chattahoochee Hill Country have been approved, two under the conservation subdivision ordinance, and one as a hamlet under the overlay ordinance, and one as a village, utilizing transfer of development rights. The latter has yet to be constructed. Unfortunately, the conservation subdivision ordinance's failure to prescribe design guidelines in the layout of the open space has resulted in a poor subdivision design, described as sprawl with smaller lots.[105]

A key component to successful conservation subdivision implementation is having a ecological priorities or green infrastructure map. Regions in all three case studies discussed earlier had resource inventory map that help identify developable and undevelopable land. According to Corrigan, "green infrastructure helps provide a framework for growth by identifying the places that should not be built on, putting a stop to the project-by-project battles that developers face over open space and the environment."[106] Fulton County's inventory map is rather new, but in Hamburg and

[105] Based on a conversation with Steven Kopelman, CHCA, April 8, 2008.
[106] Corrigan, 2004, p. 6.

London Grove the inventory maps have proven to be a useful tool in making decisions as to where development should occur.

Finally, while bottom-up planning proved to be a key element in generating resident and (slight) developer support for conservation development in the Chattahoochee Hill Country, state and regional efforts have also played a significant role in open space planning and conservation development. Environmental planning cannot happen independently. Nature knows no boundaries; rivers carve, prairie lands spread, and wildlife migrates across jurisdictional boundaries, and the decisions individual municipalities make regarding development and land use can impact the environmental assets of neighboring jurisdictions. Hence, the value of having unified vision, goals, and policies to ensure maximum preservation of natural resources is indispensible.

Table 3.7 Summary of Case Studies

	London Grove Chester Co. Pennsylvania	**Hamburg Livingston Co. Michigan**	**Fulton Co. Georgia**
Ordinances	Conservation Subdivision Ordinance	Open Space Community Ordinance	Optional Conservation Subdivision Ordinance; Mandatory Conservation Subdivision Ordinance; Villages/Hamlets Overlay; Transfer of Development Rights
Date Ordinance Passed	2001	1992	2005
Number of Conservation Subdivisions Approved	8	41	3 (does not include Friendship Village)
Acres Preserved	494.7	1,003.2	914.3
Incentive to Developers	Conservation subdivision is allowed by right, conventional subdivision is conditional.	Density bonus for significant preservation, relaxed road requirements from county standards.	Density bonus for significant preservation
Challenges	Option not offered in Agriculture area, rather extremely low zoning (10 dua) to encourage agriculture use.	Lax requirements on open space quality.	Difficult and confusing process; developers and lenders don't recognize benefits and market for conservation development, more appealing rezoning options; not *truly* by right.
Open Space Access by Public	Except for agricultural use, 10% of required community open space designed for active recreation use; Open space shall be designed to accommodate trails for general public use.[107]	Requires that 25% be accessible to residents of the open space community.	Does not explicitly dictate, however indicates that public access is desired through requirement that open space connect to other public spaces and easements.
Level of Accomplishing Regional Green Networking Goals	High	Medium	N/A

[107] See London Grove Township, 2006 Trails and Greenways Plan and London Grove Township Subdivision & Land Development Ordinance Amendments, Section 616: Trails.

Chapter 4: Conclusion and Recommendations for Central Texas

GROWTH IN CENTRAL TEXAS

Over the past few decades, Central Texas has seen enormous growth in population and land conversion. Between 1990 and 2000, population in the 5-county Austin MSA grew by nearly 60% from 781,572 to 1,249,763. In 2006, the population was estimated to be 1,506,425 persons.[108] Additionally, projections expect that 2.4 million *more* people will live in the region by 2040.[109] While the Central Texas region can be described as a much larger area, this report defines the Austin MSA as the Central Texas region.

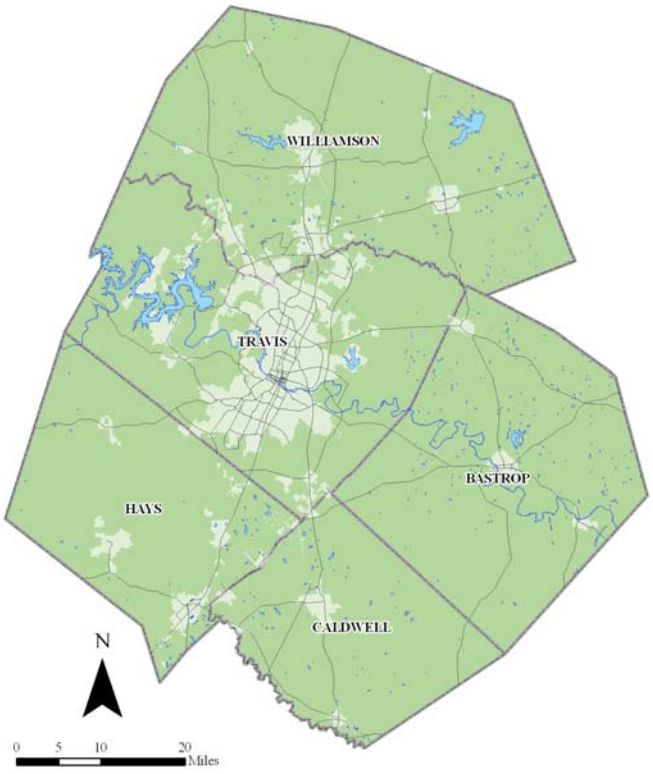


Figure 4.1 Austin MSA

[108] U.S. Census Bureau, 1990, 2000 SF1 data, Total Population, Households, Austin MSA.
[109] CAPCOG, 2007.

According to the Capital Area Metropolitan Planning Organization (CAMPO) much of the growth that occurred between 1980 and 2000 was absorbed on the urban fringe. Figure 4.2 illustrates the conversion of undeveloped land to urban land between 1983 through 2000. According to CAMPO's Regional Growth Concept report, the growth resulted in a loss of farm and rangeland, and if the trend continues, the area "will be almost entirely converted to urban use by 2010."[110]

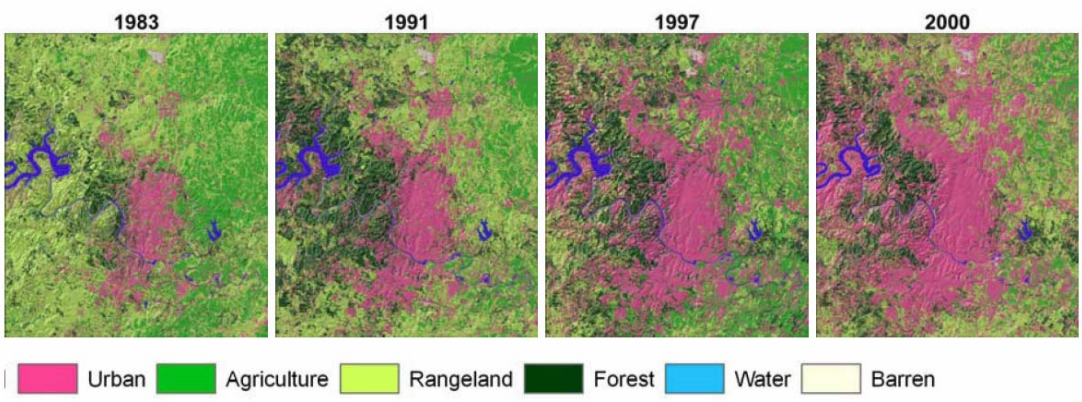


Figure 4.2 Land Conversion in the Central Texas region, 1983-2000[111]

In 2001 Envision Central Texas (ECT) was established to help create a regional vision and plan for growth of Central Texas. Since then, ECT has played a very valuable role in the vision and planning process, including gathering public and community input, hosting public workshops, and establishing the regional vision.

During the visioning process, ECT established four growth scenarios, A-D, Scenario A representing a continuation of our current development trends and Scenario D representing the most concentrated pattern, with growth focused in existing communities. Using these scenarios and considering public preferences to accommodate the growth while at the same time preserving the environmental and neighborhood attributes of

[110] USGS, *Landscape changes in the Austin, TX region.* As illustrated in the CAMPO Preferred Growth Concept report, p. 2.
[111] Ibid.

Austin, ECT created a preferred scenario that built off the more concentrated scenarios C and D. The vision identifies seven goals to support the preferred scenario, one of which is the "protection of our environment and natural resources so that we will have the open space, parks, and trails that people cherish, preserve our ecologically sensitive land and ensure sustainable clean water and air for future generations."[112]

In 2005 ECT established committees to identify and develop tools to implement the vision, and they continue to host summits and workshops to educate the planners, developers, employers, and residents of growth related issues. Additionally, ECT with the UT School of Architecture and Center for Sustainable Development has established a Quality Growth Toolkit to provide information on tools that community planners and developers can utilize to realize the regional goals and vision. One of these tools identified by the toolkit is cluster development, another term for conservation subdivision design.

The Lady Bird Johnson Wildflower Center has been a more integral player in promoting conservation development directly. In 2006 the Wildflower Center hosted a symposium on conservation development to advance the concept, and the center has also published two papers to educate the public, government officials, developers, and land planners on the concept and best practices.

Local governments are gradually responding to these efforts by making changes to their regulatory ordinances to include conservation development. As discussed by Arendt the problem with realizing land preservation in developments is the lack of ability to do so because of current regulations. Many of the Central Texas municipalities still exercise conventional zoning and subdivision ordinances, which do not address preserving the natural landscapes of undeveloped land. Typically, efforts to include open

[112] ECT, 2008, p. 2.

space conservation are approved under planned unit development (PUD) zoning, which offers the most flexibility to developers to determine densities and allocation of land uses on their property, but fails to specifically require substantial preservation or address the quality of open space. Currently, only three jurisdictions in the Central Texas area have adopted conservation development ordinances, all of which are voluntary: Travis County, and the Cities of Georgetown and Dripping Springs.

Before we start this analysis, it's important to note that the State of Texas grants very little regulatory power to counties and municipalities to exercise subdivision regulations in the unincorporated county and extraterritorial jurisdictions. According to Chapter 212 and Chapter 232 of the Texas Local Government Code, counties and municipalities (in its ETJ) "shall not regulate…the number of residential units that can be built per acre of land."[113] This makes using the yield plan calculation or density bonuses futile since these entities cannot regulate the lot size or density under standard subdivision regulations. However, if the governing body can relate the regulation to the health, safety, morals, and general welfare, then certain regulations can be applied. Because of this, counties and municipalities have been able to regulate lot sizes for buildings that use private septic or that are over areas watersheds to prevent groundwater contamination. The jurisdictions discussed here have used this power differently to regulate lot requirements. For example, Georgetown simply states that "all structures must be so located on lots or parcels as to provide safe and convenient access for servicing, fire protection, and the required on-site parking."[114] On the other hand, Dripping Springs actually regulates the lot size in its ETJ as part of its Water Quality Protection Program to prevent ground water contamination. Whether governments

[113] Texas, State of, Texas Local Government Code, §212.003 and §232.101.
[114] Georgetown, City of, 2008b, Section 6.01.040.C

decide to regulate lot size (and essentially density) has the potential to affect the benefits of clustering development.

ANALYSIS OF CENTRAL TEXAS CONSERVATION DEVELOPMENT ORDINANCES

City of Dripping Springs

Dripping Springs is located in northern Hays County and is touted as the "Gateway to the Hill Country." It's situated in one of the hilliest areas of the Central Texas region and offers rare views of the landscape. Additionally, Onion Creek and several tributaries have carved their way through the hills, providing not only an environmental asset to be cherished, but also a clue to the potential of an increase in flash flooding as more development covers the permeable landscape.

While the US Census Bureau's population estimate for Dripping Springs in 2000 is 1,548, the city's the city's comprehensive plan estimates that there were nearly 20,000 people residing in the city's ETJ. The potential for growth in Dripping Springs is substantial because of its proximity to Austin and strategic location along a major thoroughfare, US Hwy 290 West, that connects the two cities.

In 2005 Dripping Springs passed the first conservation subdivision ordinance in Central Texas in order to protect its rural character and preserve the scenic views of the hill country.[115] The optional regulation requires that 40% of the total tract area be conserved as undeveloped open space, which is prescriptive enough to ensure quality preservation and management of open space, but not so elaborate that it becomes convoluted.

The ordinance does not use a yield plan, but rather significantly reduces the minimum lot size in conservation developments, particularly for those that are on centralized septic, and identifies the maximum density based on the net acreage (total acreage minus the inherently unbuildable areas). Additionally, in order to allow

[115] Dripping Springs, City of, 2005, p. 6.

flexibility in the design and layout of the lots the ordinance permits lot averaging, where the lot size can be reduced below the minimum size, provided that the amount it is reduced is added to another lot.

Table 4.1 Minimum Lot Sizes, Conventional vs. Conservation Subdivision

District		Conventional	CSD private septic	CSD central sewer
Centralized Sewer	AG, Agriculture	2 acres	-	5,000 sf
	SF-1, Single-Family Low Density	1 acre	-	5,000 sf
	SF-2, Single-family Mod. Density	1/2 acre	-	5,000 sf
City Limits on private septic		32,670 sf (3/4 ac)	30,000 sf	-
ETJ, public sewer		0.75-1.5 acres	-	5,000 sf
ETJ, private septic		1.5-2.0 acres	30,000 sf	-

Only one conservation subdivision has been proposed in the Dripping Springs ETJ; however, it was approved before the conservation subdivision ordinance was passed, and the developer and city entered into a development agreement to plan the subdivision. The Headwaters at Barton Creek is a 1,509.68-acre property with a proposal for 993.56 acres of preserved open space (66%) with the remaining 516.12 acres accommodating commercial and 1,005 homes. The developer proposes smaller lots to maximize the number of homes to be built. Because Dripping Springs does not have public water or sewer, the developer is creating a municipal utility district including an onsite water treatment facility and water from the Lower Colorado River Authority.

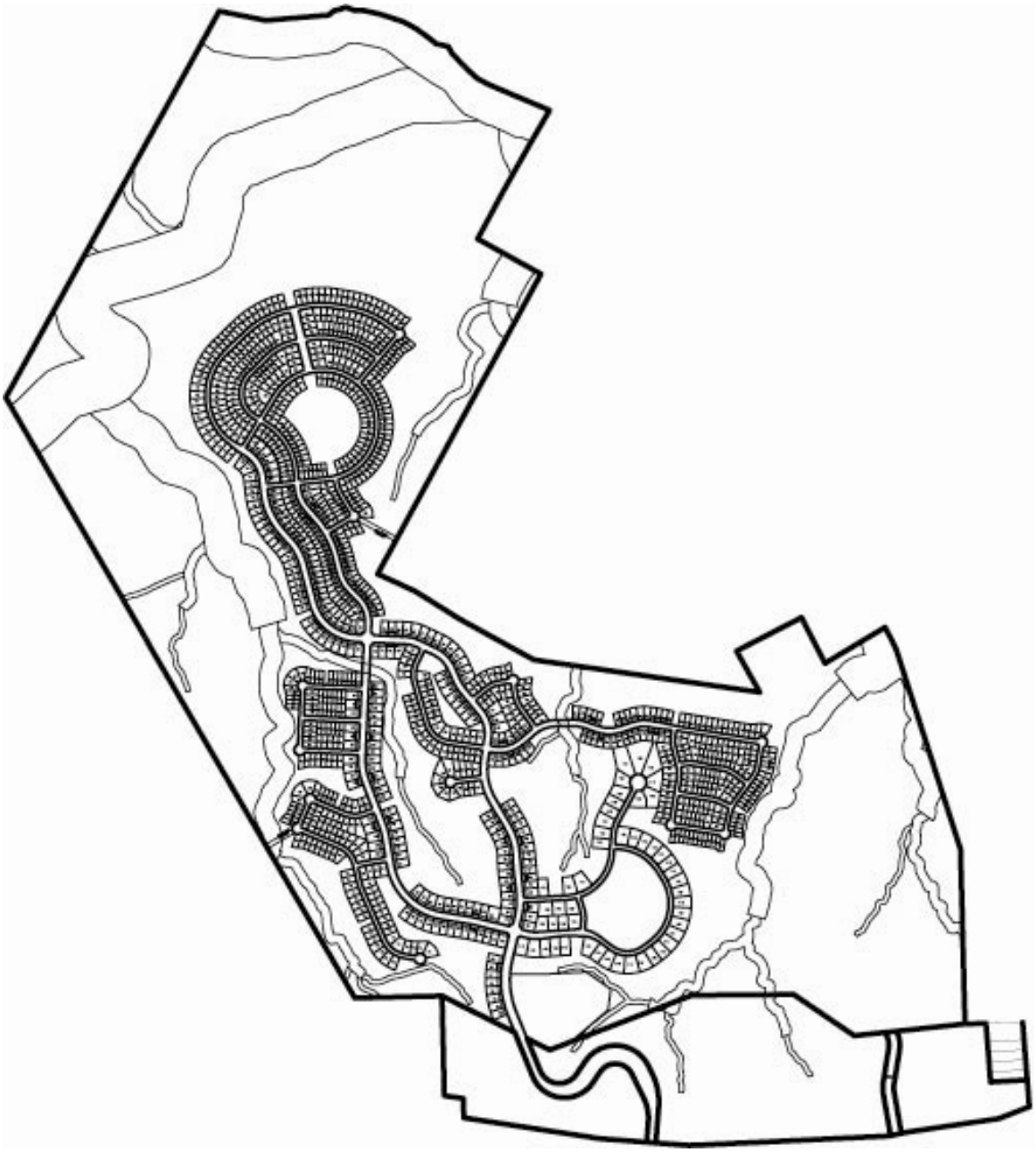


Figure 4.4 Conceptual Plan of Headwaters at Barton Creek[116]

[116] Hanrahan-Pritchard Engineering, Inc., 2007. Provided courtesy of Momark, the project developer.

Travis County

In addition to nearly one million people, Travis County is home to the Texas State Capitol and economic center of the Austin MSA. The county has captured the largest share of growth in the MSA since 1990. Between 1990 and 2000, population grew 40.9% from 576,407 persons to 812,280, capturing approximately 50.4% of the growth in the MSA. The estimated current (2006) population is just under one million. Based on CAPCOG's population forecast, Travis County is expected to capture a significant share of the growth of the Austin MSA, growing to approximately 1,680,000 by 2040.

Travis County offers a myriad of landscapes to be conserved. To the west of the urbanized area of Austin is the hilly terrain and Lake Travis. Much of this area also sits over the Edwards Aquifer, which is the drinking supply of many communities between Austin and San Antonio. On the east side of the county is an abundance of farmland as well as the Blacklands Prairie, a rare prairie of wildflowers.

In December 2006, the county adopted a conservation development ordinance to be used in unincorporated areas of the county outside of municipal ETJs. The option is allowed conditionally for both residential and commercial developments in the county.[117] Additionally, the developer must enter into a development agreement with the county in addition to the other documents (ecological assessment, land plan, etc.) typical of conservation development ordinances. The ordinance has very strong and very prescriptive requirements for the design of the conservation areas. For example, for residential developments, 50% of the total tract acreage must be conserved and that at

[117] Section 82.209 defines requirements regarding storm water quality, riparian corridors, and environment impacts of a development. Section 82.210 of the Interim Rules of the *Travis County Standards for Construction of Streets and Drainage in Subdivisions* states that in order to qualify as a conservation development, the owner must obtain a waiver of Section 82.209 by demonstrating that "the development will achieve greater overall benefits to the health, safety, morals, and general welfare of the general public and a higher level of safe, orderly, and healthful development than would be achieved under Section 82.209." (Travis County TNR, 2005, p. 15).

least 75% of the significant ecological features on the site be protected, but the primary conservation areas can only count toward up to 50% of the creditable acreage, that is acreage of open space that meets the minimum requirements.[118] The option is also available for commercial developments, for which there are lessened open space requirements.

Because the State of Texas grants counties very little regulatory power for land development, Travis can't use lot sizes or density incentives to encourage developers to use the option. Rather, the county offers process and financial incentives to developers and landowners to entice them to use the option. For example, conservation developments are exempt from several application and review fees as well as the park land dedication. The financial incentives include a payment for up to 40 years (depending on the size of the property) for keeping property undeveloped and under an agricultural or wildlife tax valuation; an ecological assessment reimbursement to refund developers for preparation of these documents; and an open space management grant to help cover costs for managing the preservation area. Payments of the latter two would only be available for the sooner of the first five years or first five projects given incentives, indicating that the incentives are to jump start developer interest in and use of the option. Additionally, the county lessened street requirements in terms of right-of-way and pavement widths for conservation developments compared to those required of conventional subdivisions, from which developers can benefit in infrastructure savings.

Another incentive, or at least a flexibility to spur use, is the authorization to transfer creditable conservation areas and impervious cover up to a certain point. This concept is similar to the transfer of development rights, which has been successful in

[118] Travis County Transportation and Natural Resources, 2006, Sections 82.226(a)(1) and 82.227(b)(1).

inspiring creative and innovative subdivision design in the Chattahoochee Hill Country area in Fulton County.

In the near year and a half that the option has been available, no conservation developments have been approved under the ordinance, although a few have been brought to the table.[119] Whether this is a function of the market or the exhaustive standards of the ordinance is unknown. While the ordinance tries to be prescriptive in its requirements, approval is also strongly process driven in that the Executive Manager (the approving officer) has the discretion to require adjustments to the design of a conservation area.[120] This may complicate the process further, discouraging use of the option.

[119] Based on a conversation with Anna Bowlyn, Travis County Planner, April 14, 2008.
[120] Travis County Transportation and Natural Resources, 2006, Section 82.224.

City of Georgetown

Fifteen to 20 years ago, Georgetown probably looked a lot like Dripping Springs in terms of size and population. Located 30 miles north of Austin, time has transformed the quiet rural college community of retirees and move-up buyer families to a typical suburban bedroom community. In 1990, Georgetown had a population of 14,842. By 2000 population nearly doubled to 28,339, and in 2006 the population was estimated at 41,226.[121] Between 2000 and 2006, Georgetown has captured approximately 12.4% of the growth in Williamson County. The most recent population estimate (April 2008) is 47,791.[122] Because of its proximity to Austin and access via Interstate 35, as well as abundance of undeveloped land, development pressures are expected to continue. CAMPO's population projection expects that Williamson County's growth rate will increase over the next 30 years and by 2040 have a population of 1,228,500.[123] Georgetown also projects growth will increase at a faster rate and by 2015 will have a population of 83,840.

In its efforts to preserve its natural resources and maintain a high quality of life in the face of immense growth, Georgetown adopted an optional conservation subdivision ordinance in March 2008 to be available to all properties in the city limits and ETJ. Overall, Georgetown's ordinance is the weakest in terms of open space requirements. It requires that only 35% of the total tract area be protected open space. Additionally, it counts the primary conservation areas, including the floodplain, wetlands, and critical habitats, in that 35%, which precludes conservation of areas that aren't already inherently unbuildable. Given the right property, a development could qualify as a conservation

[121] U.S. Census Bureau, Census 1990, 2000 SF1 data, Total Population, Georgetown city; Georgetown, City of, 2008b, March 2006.
[122] Georgetown, City of, 2008a, April 2008.
[123] CAPCOG, 2007.

subdivision by "preserving" the land that shouldn't be built on to begin with. Georgetown only asks developers to consider secondary conservation areas if "necessary or desired."[124] This really goes against the purpose of a conservation subdivision, which is to preserve land *in addition to* the primary conservation areas.

Additionally, like Dripping Springs' ordinance, Georgetown's does not use a yield plan and instead reduces the lot size for some residential lots. However, the reduction is minimal, and it is possible that this could preclude the ability to build more units in a conservation subdivision than if the developer subdivided conventionally. It also seems to rule out the possibility of preserving more than 35%, since for one, there is no density bonus if a developer does so, and secondly, with the rigid lot size, a developer would only lose lots by preserving more. The ordinance does provide for an increase in impervious cover in conservation subdivisions, but that only benefits multifamily developments where the number of units on the lot is flexible and can be influenced by the amount of land that can be developed. For single-family, two-family, and quads, the number of units is already set, so all it allows is a larger unit. Georgetown's ordinance does, however, explicitly allow reduced street standards than those of required in conventional subdivisions, from which developers can experience substantial savings in infrastructure costs.

[124] Georgetown, City of, 2008b, p. 6.

Table 4.2 Georgetown Lot Size and Impervious Cover Limitations, Conventional vs. Conservation Subdivisions

Zoning District	Conventional		Conservation	
	lot size	impervious cover	lot size	impervious cover
Conventional1	1 acre	40%	1 acre	25%
Conventional2	10,000 sf	45%	10,000 sf	55%
Conventional3	5,500 sf	45%	4,000 sf	55%
Zero Lot Line	5,500 sf	-	4,500 sf	65%
Two-Family	7,000 sf	45%	5,000 sf	55%
Townhouse	12,000 sf	50%	12,000 sf	65%
Quad (four-plex)	10,000 sf	50%	10,000 sf	65%
Apartment	12,000 sf	50%	12,000 sf	65%

Table 4.3 Road Pavement Width Standards, Conventional vs. Conservation Subdivision

	Alley	Residential Lane	Local Street	Residential Collector	Major Collector	Minor Arterial	Major Arterial
Conventional Subdivision	15'	21'	28'	37'	45'	82'	106'
Conservation Subdivision	15'	20'	26'	33'	44'	48'	48-72'

Georgetown does go above and beyond the efforts of Dripping Springs and Travis County in its attempt to influence a more sustainable conservation subdivision by offering an impervious cover bonus for green building design. If all buildings in the subdivision meet the LEED certified requirements or NAHB Green Building Guidelines, then the development can receive a bonus of 55% impervious cover.[125] It indicates the municipality's understanding that our efforts to alleviate the negative effects of development cannot solely be achieved by conservation subdivision development; it's

[125] Georgetown, City of, 2008b, Section 11.06.040.B.

also about the buildings themselves. If developers take advantage of this bonus, Georgetown can benefit from having much more superior and sustainable subdivisions.

There is one conservation subdivision that just began construction of its first phase in Georgetown. Like Dripping Springs, it also was approved as a development agreement between the developer, ABG Development, and the city. However, the city was able to use the experience with this development to frame the principles of the conservation subdivision ordinance. The subdivision, Water Oak at San Gabriel, is approximately 1,900 acres, with 35-40% of the tract preserved as parks, trails, and community open space. Approximately 100 acres will be used for commercial and mixed-use and 4,000 residential units will be clustered throughout the site.[126]

[126] Galo Properties.

Figure 4.5 Conceptual drawing of Water Oak at San Gabriel[127]

[127] Galo Properties, Brochure.

SUMMARY

Conservation development, while practiced for decades in other states, is finally catching on in Central Texas. While three communities, Dripping Springs, Travis County, and Georgetown, have adopted conservation development ordinances, the footprint of these regulations is quite limited. Figure 4.3 illustrates that there is still a significant portion of Central Texas that is susceptible to conventional subdivision and sprawl. And this doesn't even include the significant amount of natural resources beyond the scope of the Austin MSA and this study.

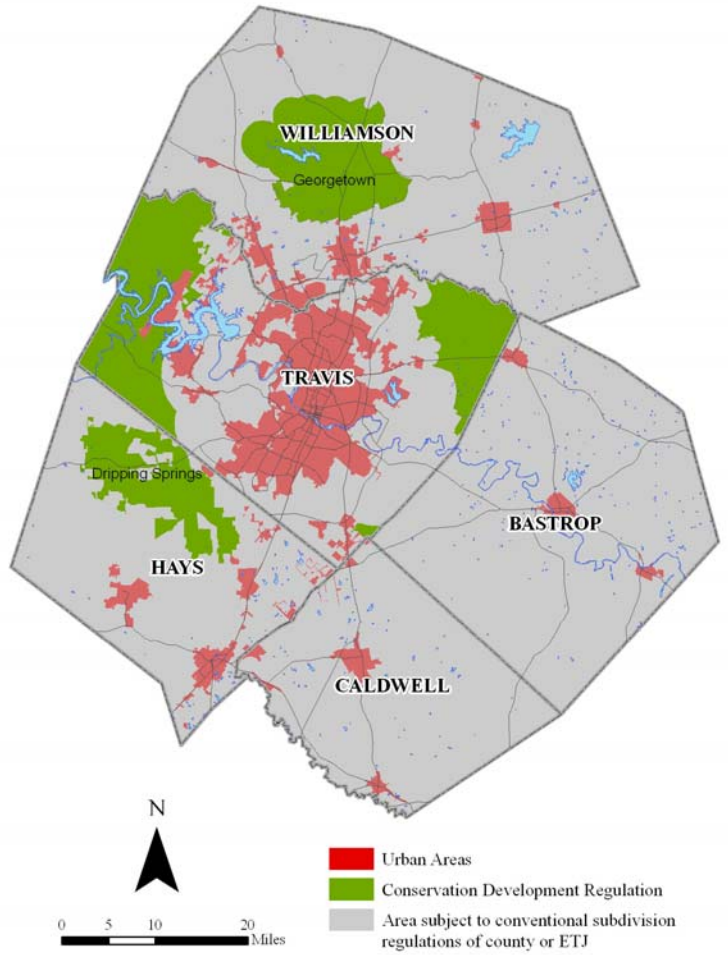


Figure 4.3 Areas regulated by conservation development ordinances

Dripping Springs has probably the strongest potential for realizing conservation developments in its community by appealing to developers through the clarity and simplicity of the ordinance language and significant lot size reductions and design flexibility that assure that conservation developments will yield the same number of, if not more, lots than conventional subdivision. Additionally, the ordinance is primed to ensure quality open space preservation. Not only does the ordinance require a site analysis and conceptual plan, both of which advocate thoughtful consideration of the environmental assets of the site, but it also requires that the developer and city staff visit the site to conduct a property walk so that the city is familiar with the site and its attributes as well as the developer's ideas and goals. Moreover, while it only requires 40% open space, the ordinance provides density bonuses in exchange for more preservation areas, which worked well in the Chattahoochee Hill Country area.

Travis County soon followed Dripping Springs in establishing a conservation ordinance. It has the highest open space requirement but the ordinance requirements are long-winded and full of legal jargon, which may dissuade use of the ordinance. Because the county cannot regulate lot sizes or density, Travis County utilizes financial and process incentives to entice development. However, it seems that the bigger issue is uncertainty of market acceptance of the subdivision. According to Hank Smith of the Home Builders Association of Greater Austin, "few developers have expressed interest, because the idea is untested…the question is whether there are enough people who want to pay extra to live in these developments."[128]

Georgetown adopted the most recent conservation subdivision ordinance, and unfortunately, it's the weakest. Not only does it only require 35% of the gross tract area be open space, but primary conservation areas can account for up to all of the open space

[128] Toohey, 2006, December 20, paras. 14-15.

requirement and fails to promote additional conservation areas beyond this. There is no density bonus beyond this, and even the reduced lot sizes in exchange for open space are weak, potentially causing a loss of lots compared to conventional subdivision. It's ironic that over time, the ordinances would become weaker, which is probably a function of the lack of development activity under the previously adopted ordinances.

In support of its preservation agenda, Travis County has taken the additional steps to provide tools that can be used to implement conservation developments. The county convened with the Trust for Public Land to create *The Travis County Greenprint for Growth*. Greenprinting utilizes GIS to identify undeveloped areas that have the highest conservation benefit based on community goals and is a tool that "helps local governments and communities make informed decisions about land conservation priorities."[129] The Greenprint inventories natural resources, which were then weighted by importance according to community goals to produce a priorities map. Based on priorities for water quality and quantity, recreation, rare and sensitive environmental features, and cultural resources, the greenprint identified overall conservation priorities.

The conservation subdivision ordinances in Central Texas do have a strong notable component: they provide the opportunity to incorporate commercial and mixed use components in conservation subdivisions. A common criticism against conservation subdivisions is that they "rarely incorporate mixed-use elements…residents remain dependent on automobiles for travel to grocery stores, schools, and restaurants."[130] In Fulton County, the conservation development ordinance was only allowed in residential zoning districts, and in Hamburg Township and London Grove, the ordinance was available for zoning districts allowed commercial, but none of the developments

[129] Trust for Public Land, 2006, p. 5.
[130] Wildflower Center, n.d., p. 13.

incorporated commercial into the subdivision. The conservation subdivision ordinances here in Central Texas, however, are available in all districts, creating the potential to realize more superior subdivisions that achieve other smart growth goals such as walkability and supporting transportation options. Fulton County's hamlets and villages overlay in the Chattahoochee Hill Country area allows mix of uses, and exemplifies the capability of achieving much more superior conservation developments.

Chapter 5: Conclusions and Recommendations for Central Texas

Walter Busby of ABG Development (developer of Water Oak at San Gabriel) indicated to Kate Harrington of the Austin Business Journal that "with the cluster design of conservation building, developers end up paying for land that doesn't see development and doesn't yield a profit."[131] This indicates a significant flaw in the ordinance if developers feel that they're actually *losing* profit with conservation subdivision design. And it's a strong case against Travis County's and Georgetown's ordinances. According to Travis County Commissioner Gerald Daugherty, as reported by Marty Toohey in the Austin American-Statesman, "most developers are driven by return on investment, and return on investment generally equates to how many units you can legally put on the land."[132] The yield plan promoted by Arendt, at least attempts to ensure the same number of lots are built when transitioning from conventional design to conservation design. But with Georgetown's slight lot size reduction, there is the potential for developers to lose lots, and the question then becomes whether the premium for the open space is enough to pay for the lost development? One could argue the same for Dripping Springs, but their lot reduction is so significant that it's not likely that developers would lose units.

This all relates to the overarching obstacle to Central Texas governments' abilities to exercise a strong conservation development ordinance as discussed above: weak subdivision powers and the lack of authority to regulate density and lot size in the ETJ and unincorporated county, particularly since it's these areas that are in the most need of land conserving practices. For developers, the goal is the bottom line. It's not an *absolute* truth that open space is a premium, although there are pretty strong cases that

[131] Harrington, 2006, November 3, para. 10.
[132] Toohey, 2006, December 20, para. 13.

support it. But being able to build and sell more dwelling units does yield more profit. While earlier discussions illustrated Georgetown's and Dripping Springs' trade off of reduced lot sizes for conserving open space, it really is pointless in the ETJ where there is no minimum lot size. Without this power, jurisdictions have little leverage to entice developers to use the conservation subdivision ordinance over conventional subdivision.

The Wildflower Center argues that county law interpretations indicate that counties "have more regulatory authority than most are currently exercising."[133] The Wildflower Center also points out that Water Code Statute 16.315, which essentially gives cities and counties authority to regulate land use to prevent flooding, "could provide significantly greater authority to counties in regulating development," particularly as it pertains to land conservation.[134]

In the end, however, the ambiguity of authority gives way to a *perceived* lack of authority by county governments and within ETJs, restricting local governments' ability to encourage conservation development. The case studies discussed in Chapter 3 all portray examples where State policy and actions support conservation efforts, and authority for open space preservation and conservation development is clearly defined. Texas lawmakers need to take these steps in recognizing the need for land conservation, defining conservation development, and establishing a clear regulatory framework within which local governments can promote conservation development.

[133] Wildflower Center, n.d., p. 24.
[134] Ibid.

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Vita

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