# Conservation *and* Development? Effectively Packaging Land Protection Tools to Preserve Farmland and Manage Growth

A thesis

submitted by

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**Abstract:**

Farmland loss due to sprawl is a significant problem in the United States. At the same time, land conservation is considered with high regard. These competing efforts, however, often result in piecemeal pockets of protected land that often further issues of sprawl by creating leapfrog and scattered development. There are a variety of regulatory and non regulatory tools and techniques available to landowners, organizations, and communities to combat the conversion of farmland and to steer community growth. These land conservation tools are most effective when bundled together in carefully designed strategies so that the strength of one tool may compensate for the weakness of another. Each conservation strategy, i.e. bundle of tools, should be tailored to a community's specific needs, stakeholder interests, goals, and plan. In doing so, a community is able to achieve both healthy farmland conservation and sustainable growth management.

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# Conservation *and* Development? Effectively Packaging Land Protection Tools to Preserve Farmland and Manage Growth

## Chapter 1: Introduction

> "Growth for the sake of growth is the ideology of the cancer cell."
> -Edward Abbey

"Growth" has long been the mantra in American politics and planning. From the days of manifest destiny and the literary advice of "Go west, young man," to today's heavily weighted measure of our national economic health being quantified on the notion of growth (Economics and Statistics Administration, United States Department of Commerce, 2011), we have a preoccupation with ever increasing "growth." As a direct result of our focus on physical growth, we have become a spread out, suburban society, heavily reliant on automobiles and inexpensive gas, with the preoccupation that each person should be the master of some bit of private land.

At the same time, somewhat paradoxically, the concept of land conservation has long been considered in a positive light in the United States. From the creation of the first national parks in the 19th century (National Park Service, 2010), to the establishment of the Trustees of Reservations as the nation's first land trust in 1891 (Daniels and Bowers, 1997, and The Trustees of Reservations, 2010), to the ramping up of conservation efforts in the 1980's as a backlash to the Reagan administration's slashing of environmental programs (Daniels and Lapping, 2005, p. 317), land conservation has endured in creating permanence in the American landscape. As urban areas spread further out, more and more efforts are made to conserve the lands being threatened.

The land conservation movement has exploded in the past fifteen years. From 2000 to 2005, for example, the total acres conserved by local, state, and national land trusts doubled to a total of 37 million (Land Trust Alliance, 2005), and that is simply acreage protected by land trust actions. But as will be discussed further in this paper, not all land preservation is necessarily ideal; conservation for the sake of conservation is ineffective in promoting quality development.

The term "Smart Growth" became increasingly popular after Maryland used the term in its 1997 legislation aimed at managing urban growth and limiting sprawl in the state (Daniels and Lapping, 2005, p. 316). The term came to embody the idea that land conservation and growth can coexist harmoniously, and one does not necessarily injure the other. However, smart growth as executed in Maryland and elsewhere is not a magic bullet. Smart growth has become a catch phrase that no one—planners, developers, politicians—wants to be on the wrong side of despite their often differing motivations for employing the term. Because, after all, what is the opposite of smart growth? (Daniels and Lapping, 2005, and Richardson and Micklow, 2007)

This thesis is not an examination of smart growth efforts around the United States but rather endeavors to place land conservation in the most strategic position to positively influence quality, affordable, and most importantly, sustainable development. Historically, farmland preservation has not been cited as a central driving force in "smart growth" planning or other growth management programs. I argue in this thesis that indeed it can be a primary ingredient in good

growth management, preserving not only finite quality farmland, but also successfully encouraging quality development in the places in which it should be.

This thesis seeks to show that intelligently protecting farmland with a variety of land conservation techniques is one of the most effective strategies for not only preserving the land for future generations of farmers, but also contributes to healthy urban growth and development elsewhere. Much of the land conservation efforts in the United States today result in a piecemeal collection of protected lands. This raises the assessed value of farmers' properties, initiates farm and non-farm confrontations, injures farm-support industries and ultimately leads to further sprawl with leap-frog developments that are more costly to municipalities than the status quo (Daniels and Bowers, 1997, and Daniels and Lapping, 2005). This is not sustainable and it is not smart growth management.

This thesis does not take a myopic approach to the issue of farmland preservation; that is, it will neither focus solely on one municipality or state's efforts nor delve deeply into a small handful of in-depth case studies. As such, it is not meant to be viewed as a specific policy recommendation. Rather, this exercise is meant to provide a general introduction to the tools, techniques, and strategies that can be employed in farmland preservation efforts in the United States—an introductory "guidebook" of sorts. However, these tools should not be examined on a stand-alone basis. Farmland preservation efforts do not exist in a void and should be considered with a whole-hog approach both with regards to one another as well as comprehensive community planning. Thus, the depth provided in this thesis is the exploration of the role that each of these tools,

techniques, and strategies can play with regards to one another in the effort of conserving farmland and encouraging growth where it fits best. It is one thing to know what the tools are, it is another to know how best to use them.

Additionally, before delving into this thesis, it is pertinent to address the relevance of the information and ideas herein given the present condition of the United States' economic health. While this project focuses on farmland loss as a result of rapid growth and explores land conservation strategies as a means to promote sustainable development patterns, the fact is there is currently little rapid growth from which to protect farmland. I would argue, however, that given the cyclical nature of the national and global economies, the downturn of the past few years will not last, recovery will gain momentum, and economic expansion and accompanying physical growth will once again be relevant. Just like the Great Depression was followed by unparalleled prosperity (Jackson, 1985) and the Savings and Loan Crisis of the 1980s (Federal Deposit Insurance Corporation, 2011) was followed by tremendous economic health in the 1990s, the current recession will also be behind us at some point. According to the Federal Open Market Committee of the Board of Governors of the Federal Reserve System (January 25-26, 2011), "Projections for the next three years indicated that they expect a sustained recovery in real economic activity, marked by a step-up in the rate of increase in real gross domestic product (GDP) in 2011 followed by further modest acceleration in 2012 and 2013." Economic recovery is coming, and with it, like economic expansions of the past, there will be both speculative pressure and actual growth pressure on undeveloped lands. As such, the information

provided in this thesis will be relevant and important in the effort to protect working land and responsibly manage growth.

Chapter 2 begins with a discussion of sprawl in the United States. First the chapter explores what constitutes urban or suburban sprawl as there are many competing definitions and theories. Next the thesis addresses the many causes of sprawl from leap-frog and single use development, poor accessibility, and a lack of truly public space, to the American regulatory environment and community economics.

Chapter 3 is an introductory guide to several of the tools and techniques available in the effort to preserve land in the United States. This chapter will outline the mechanics of private, non-profit, and public land protection tools, examining defeasible estates, conservation easements, purchase and transfer of development rights programs, urban growth boundaries, methods of zoning for agriculture, designated farm districts and right to farm legislation. Each subsection ends with a discussion of why each tool operating on a standalone basis fails to adequately protect farmland and/or manage growth.

Chapter 4 addresses how to properly assemble effective farmland protection packages based on the specific needs of a community. The thesis poses three hypothetical community growth environments: a vibrant farming community with little development pressure, a suburban community with some working farmland that is experiencing heavy growth pressure, and a community that is largely built out that is interested in preserving its last open space and/or working lands. For each scenario, a land protection package will be assembled

and examined. This chapter will address how properly to approach planning a farmland protection strategy as well as why the tools should be used concurrently and in support of one another rather than on a haphazard or standalone basis.

Chapter 5 will wrap up the discussion by summarizing what has been said, outlining key components to land conservation not addressed here, a look to future scholarship, and a brief discussion regarding a major issue that is integral to farmland preservation; the future of the act of farming itself.

## Chapter 2: Sprawl and the Loss of Farmland

"Little boxes on the hillside,
Little boxes made of ticky-tacky,
Little boxes, little boxes,
Little boxes, all the same.
There's a green one and a pink one
And a blue and a yellow one
And they're all made out of ticky-tacky
And they all look just the same."

-Malvina Reynolds, made famous by Pete Seeger

*Sprawl: What is it?*

The phenomenon known commonly as "urban sprawl" or "suburban sprawl" has been defined in many ways by many different groups with each definition seemingly serving its particular group's interest well. But is there a single widely accepted definition of sprawl on which the majority of stakeholders can agree? Oliver Gillham (2002), in *The Limitless City*, attempts to tease out the factors consistently included in definitions of sprawl, by examining said definitions from a variety of organizational sources including The Heritage Foundation, Reason Public Policy Institute, National Trust for Historic Preservation, Commonwealth of Massachusetts Executive Office of Environmental Affairs, U.S. Environmental Protection Agency, Sierra Club, and the Natural Resources Defense Council (Gillham, 2002, p. 4). Gillham (2002, p.4) and Reid Ewing, a Professor at Florida International University and an architect of Florida's statewide growth management plan, posited the following six factors and indicators as consistently associated with sprawl: Leapfrog or scattered development, commercial strip development, low density, large expanses of

single-use development, poor accessibility, and a lack of functional (that is, publicly accessible and utilized) open space.

Leapfrog development is the type that can be seen on the furthest urban fringes; the newest suburban or exurban development. It is the type of development that, as the name suggests, "leaps" over intervening green-fields including farmland, forestland, or any other type of undeveloped open space. According to Gillham (2002, p. 4), the result is a "haphazard patchwork, widely spread apart and seeming to consume far more land than contiguous developments."

Edward T. McMahon (2011) of the Urban Land Institute explains commercial strip development as "a linear pattern of retail businesses strung along major roadways characterized by massive parking lots, big signs, box-like buildings and a total dependence on automobiles for access and circulation." There is little pedestrian orientation to these types of developments. Commercial strips lack the "park once" environment of traditional town centers and main street shopping areas where one can leave the car parked in one place while all shopping or outing needs are met (McMahon, 2011).

Low density development is that which lies on the spectrum between dense urban development and very rural areas. Developments with low density are characterized by relatively few people per acre or square mile (compared to older, inner suburbs or urban centers), and low floor area ratios—the ratio between the square footage of a building and the square footage of the parcel or lot on which it resides (Gillham, 2002, p. 5-6). Low density and leapfrog

development are two major contributors of sprawl-induced auto-dependency and aggressive land consumption (Gillham, 2002, p. 5).

Wide-spread single-use development can also be a symptom of sprawl. There is a long history in the United States of separating land uses that to explain in depth would be beyond the scope of this project. However, as mixed-use development has in recent years been considered the ideal type of development, it casts a glaring light on the sheer volume of single use developments that have been constructed in the United States in the past seventy-five years. "Formalized through zoning and subdivision by-laws," (Gillham, 2002, p. 7) housing on individual lots separated from commercial and industrial land uses often by long, or at least not walkable, distances, has greatly contributed to what we identify as sprawl.

Poor accessibility, typified by automobile dominance, is another characteristic of sprawl, and one often linked closely with single-use development. Accessibility can be measured by examining and measuring typical trip lengths, average trip times, vehicle miles travelled, and vehicle-hours travelled required to get from home to other, somewhat ordinary, destinations. Sprawling communities often possess higher measures of these factors than their urban—or simply not sprawling—counterparts. Limited walkability as well as poor pedestrian, transit, and bicycle infrastructure are also indicators of poor accessibility. (Gillham, 2002, p. 7)

The sixth and last common indicator of sprawl outlined by Gillham and Ewing is a lack of public open space. Given the open and spread-out nature of

sprawling developments, it almost seems surprising there might be a lack of public open space. In fact, there is usually plenty of open space. The open space in sprawling suburban developments, however, is rarely public. Almost all of the land in such developments is privately owned with varying amounts of public accessibility. Sprawl creates, as Gillham (2002, p. 7-8) notes, "an unbroken fabric of privately owned land divided only by public roads. The major civic open spaces, parks and commons that grace many older urban-core areas can be few to nonexistent in much of the nation's post-war suburban world."

*Creating Sprawl*

While the aforementioned six characteristics are useful in identifying and explaining sprawl, there is more to sprawl than can be immediately observed in its physical form. Gillham (2002, p. 8) outlines several other factors, or as he refers to them, "essential ingredients," that have not only contributed to the initial creation of suburbanization, but have also created a cycle of sprawl that continues to feed and promote more of it. These factors include a prevailing American attitude that prioritizes the private ownership of land, an abundance of cheap and available land, widespread ownership of automobiles and a far reaching network of roads, and a regulatory environment that shapes a built environment that can largely be described as sprawling (Gillham, 2002, p. 23, Daniels 1999 and Kelly, 2004). Each of these will be briefly outlined now, along with an explanation of how community economics have contributed to urban sprawl in the United States.

From the time the first Europeans arrived in the new world, Americans have closely linked personal success with land ownership (Gillham, 2002, p. 9). Land ownership has since been a central component to the "American Dream" and remains so to this day. According to Gillham (2002, p. 8-9), about 70 percent of the land in the United States is privately held, and more than two-thirds of Americans own their own homes. It is often the largest investment people make in their lives, thus a huge industry has been built around the buying, selling, and development of land—the action to which the greatest increase in property value can be attributed. Undeveloped—or underdeveloped—land simply does not retain nearly the value of that same land as if it were developed. Aiding the voracious consumption and development of land is the relatively low cost of it on the outskirts of urban markets and beyond. Basically, to simplify the equation and assume cities have tall buildings due to the expensive land beneath them, then suburbs have almost exclusively low-rise and spread out buildings due to the cheap land beneath them. It is largely for these reasons, "the private ownership of [cheap] land and the huge, almost liquid, market for it" (Gillham, 2002, p. 9), that sprawl has become so ubiquitous in the United States.

While the very survival of sprawl is in fact reliant on the above two factors, "land and market forces alone could not establish the low-density membrane that characterizes sprawl" (Gillham, 2002, p. 9-11). Perhaps the first cause of sprawl that often comes to mind is the American reliance—and embrace—of automobiles. The government's subsidization over the past 60 years has made cars commonly affordable and roads widespread, commonplace, and

drivable. As a result, "automobiles and roads have redefined the so-called agglomeration or clustering, allowing business and residents alike to scatter widely" (Gillham, 2002, p. 23). As the popularity and widespread use of cars propels spread out development, spread out development thus requires the use of cars, ruling out other modes of transportation, and feeding a seemingly never-ending cycle of far-reaching development and auto-dependency (Daniels, 1999, p. 22-25).

Another major factor contributing to sprawl is the regulatory environment of codes and standards, spanning several fields (planning, engineering, architecture, landscape architecture, surveying, etc.) that has brought the condition of the built environment of the United States to where it is today. There are a myriad of guidelines and standards for each field that have been refined again and again, and when compiled together and put into action, spit out the landscape we have come to recognize as distinctly "American." Oliver Gillham (2002, p. 15) summarizes this well:

> These works set forth guidelines for minimum roadway widths, street patterns, parking layouts, lot grading, and many other items, right down to steps, curbing, and residential swimming pools. Although the patterns established by the genetic code can be very hard to make out from the monotony and chaos we see on the ground, they are very much a part of the suburban world around us. It is this genetic code that forms the pattern that we can see from the air, and it is this same compendium of rules, regulations, and standards that makes sprawl development in Georgia look just like sprawl development in California or New Jersey.

Community economics have also, somewhat unwittingly, provided the framework for sprawling suburban development. As mentioned earlier, the economy of the United States—from the national down to the local level—relies

heavily on the new growth and development associated with suburban expansion (Pollard, 2000, p. 281). Oftentimes communities operating on a shoestring budget or those facing full blown budget crises make the decision to permit new development in the effort to expand and strengthen their tax bases (American Farmland Trust, 1997, p. 8). The easiest lands to develop happen to be prime farmland, thus they are often the first to fall to these developmental, municipal-revenue raising ventures. This is a short sighted plan for a variety of reasons that will be addressed in the next section.

Simply encouraging new development in order to strengthen a municipal tax base is not the only problem; there is a problem with municipal tax structures themselves. As Beatley (2000) and Pollard (2000) outline, American municipal tax structures, particularly when it comes to school funding, tend to pit towns against one another in an effort to build their tax bases and increase revenues, resulting in rampant land speculation and haphazard development. The inter-town competition causes municipalities to designate as much land for development as possible so as to take advantage of any development opportunities that may arise. According to Pollard (2000, p. 255), this leads to lax developer-friendly zoning, greenfield development, and ultimately farmland loss.

And what happens when all of this development occurs? The municipality is burdened with providing new infrastructure and services to the ever-spreading developments. This will more often than not—in perhaps the biggest irony associated with American development patterns—end up straining municipal budgets, leading to more efforts to expand revenues and strengthen municipal tax

bases. It is precisely this cycle that has contributed heavily to suburban sprawl and farmland loss in the United States, and contributed to property tax revolts such as California's Proposition 13 and Massachusetts's Proposition 2 ½, which have opened an entirely new array of concerns with regards to raising municipal revenues. (Pollard, 2000)

*Sprawl: What it means for farmland*

Given that sprawl is happening and it is a problem, what does it specifically mean for farmland? Between 2002 and 2007, despite a net increase in the total number of farms, the United States experienced a net loss of over 7 million acres of farmland (United States Department of Agriculture, 2009, "The 2007 Census of Agriculture Report" and United States Department of Agriculture, 2009, "Summary Report: 2007 National Resources Inventory"). This includes all types of working farmland, not just "prime farmland." Less than one third of all farmland in the U.S. is considered "Prime" in nature (Daniels and Bowers, 1997, p. 8)—that is, the most fertile, flat, and productive land to farm. Of this type of farmland—arguably the most important—the United States lost nearly 2.3 million acres between 2002 and 2007 (United States Department of Agriculture, 2009, "Summary Report: 2007 National Resources Inventory"). According to Daniels and Bowers (1997, p. 8), "Because prime farmland is level to gently sloping and is well drained, it is also the cheapest land to develop for houses, offices, and factories." It is flat, cleared, and easily workable. With the exception of soil fertility, the same basic reasons that prime farmland is good for farming are the

same reasons it is attractive to developers. Developers also target farmland because as nearby land is converted from farmland, and farm support industries find themselves on unstable financial footing, the act of farming becomes more expensive. The rise in property values (and thus taxes), coupled with increased operation costs, can push a large landowner to consider selling. As the American Farmland Trust (1997, p. 11) notes, "Expensive land […] increases opportunity costs [for farmers]: Selling lots for development is generally more lucrative than raising crops or livestock."

Additionally, unlike brownfield sites—often the type of urban infill sites that go ignored—farmlands and other greenfield sites require little to no expensive environmental remediation in the development process. In fact, the EPA's explanation of the brownfield concept specifically mentions that the redevelopment of a brownfield site eases the pressure off of potential greenfield sites: "Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning and reinvesting in these properties protects the environment, reduces blight, and takes development pressure off green spaces and working lands" (Environmental Protection Agency, 2010). The insinuation by the EPA being that the development of greenfield sites should be kept to a minimum, particularly where brownfield sites are available. For these reasons, as our metropolitan areas continue to grow and spiral outwards, nearby greenfields, particularly prime farmland, are the first to go.

According to the American Farmland Trust (AFT) (1997, p. 3) considerably more than half of all American agricultural production takes place in counties in and adjacent to urban areas (Figure 1). For example, 85 percent of American-produced fruits and vegetables, 79 percent of American dairy products, and close to half of our meat and grain come from these areas (American Farmland Trust, 1997, p. 3). What AFT terms "urban-influenced counties[1]" account for 56 percent of American gross agricultural sales and over 90 percent of our specialty crops (American Farmland Trust, 1997, p. 3). The alarming information associated with these figures is that population growth in these high-producing agricultural counties outpaces the national growth average by greater than two to one (American Farmland Trust, 1997, p. 4). The fact that so much food production takes place near population centers is probably a good thing, particularly if there is a solid local distribution of the food. However, the sprawling tendency of American growth and development patterns threatens the future of the working farmlands in these regions.

[1] "Urban-influenced is defined as being in either a standard metropolitan statistical area or in an adjacent county with at least 25 people per square mile. These findings are presented in a "Farming on the Edge" map of at risk, urban-influenced counties, published by American Farmland Trust in 1993 and developed by AFT and the Social Science Research Center at Northern Illinois University" (American Farmland Trust, 1997, p. 3).

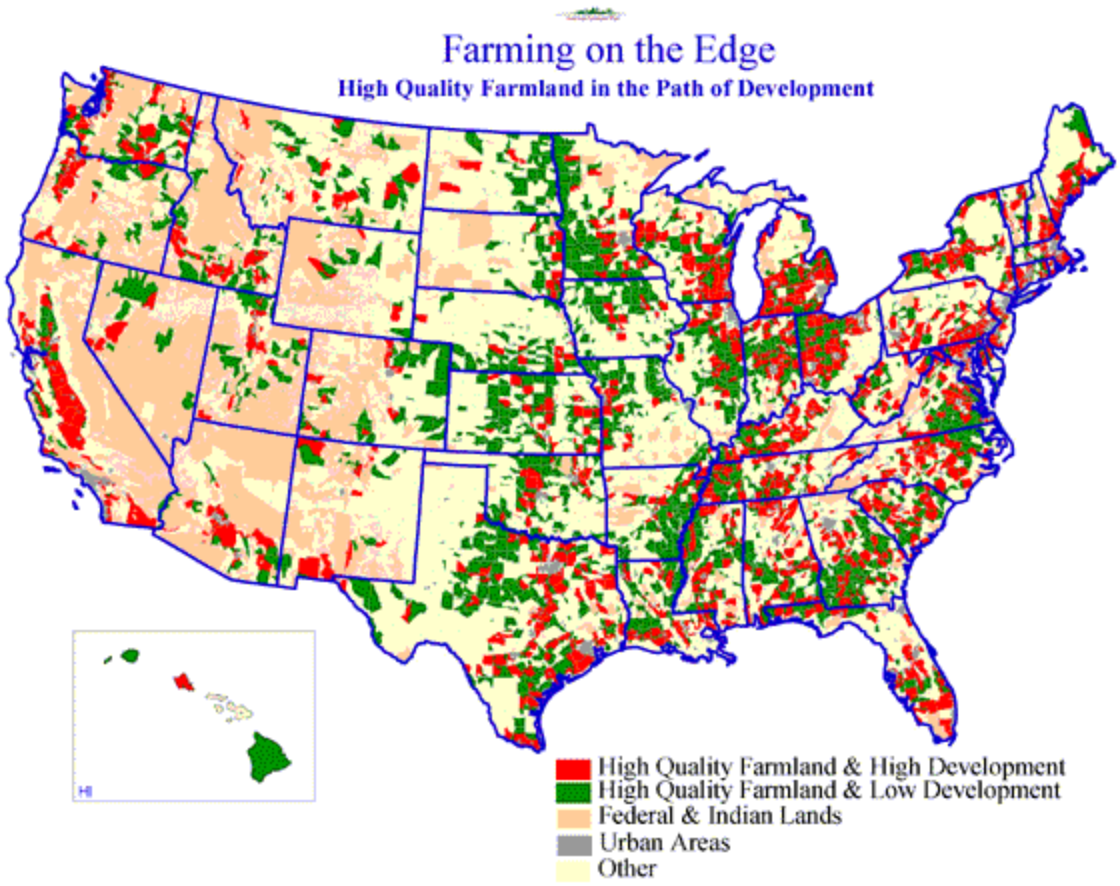


Figure 1: Source: American Farmland Trust, 2010

As aforementioned, less than one third of America's roughly 1.3 billion acres of farmland is classified as prime farmland. According to the USDA (2009, "Summary Report: 2007 National Resources Inventory"), the United States lost 13.8 million acres of prime farmland between 1982 and 2007, translating to an average annual loss of 552,000 acres per year. When examined by itself, that number seems like a lot, but when compared to the total amount of American prime farmland, we are not in any immediate danger of running out of this type of land. However, we cannot simply assume that because there is a large supply of prime farmland remaining in the United States that farmland loss is not a problem.

According to the United States Census Bureau (2008), the American population is expected to grow by as much as 50 percent in the next half century, requiring a much larger food supply than exists today. As has already been discussed, much of our existing growth patterns tend to favor spreading outwards into greenfield lands rather than increasing density and infill development, and prime farmlands are of particular susceptibility to conversion. This does not bode well for much of that remaining prime farmland, particularly with such a huge percentage of it residing in the aforementioned "urban-influenced counties" (American Farmland Trust, 1997, p. 3). Without careful foresight, the threat of our population growth outpacing our food production infrastructure is real.

*Farmland: Why save it?*

Given that the United States is losing a substantial amount of farmland every year, yet we do not seem to be approaching a serious food crisis (that is, in the United States) in the near future, why is it important to protect American working lands and other undeveloped open spaces? There are a variety of reasons, several of which will be discussed in this section. Perhaps the most important reason, however, and a central idea of this thesis, is that protecting farmland and open space in a strategically planned manner can indeed improve the overall developed environment by actively steering growth and development towards where it should be and away from where it is important not to be. But before that is fully discussed, it is important to understand the supporting reasons that farmland protection is so important to American communities.

The first and most macro-level reason to preserve farmland is related to food production and the health of the national economy. Nearly 18 percent of American civilian jobs and close to 16 percent of the gross domestic product (GDP) are linked to the agriculture industry (American Farmland Trust, 1997, p. 5). Protecting working lands, and more importantly the best working lands, is paramount to sustaining these figures. And the work will be there. Domestically, the population is expected to grow by close to 50 percent in the next 40 years (United States Census Bureau, 2008). The global population is growing by more than 88 million people per decade (American Farmland Trust, 1997). Given that all of this population growth is occurring at a time in which American farmlands are on the decline, economically speaking a change must be made in order to take advantage of the growing global need for food products as well as to feed the growing number of American mouths. The United States produces half of the world's grain exports. If we wish to continue being the world leader in agricultural products, we need to preserve the most important tool in that production: our farmland.

While national and international food security and economics are important considerations in determining the importance of preserving American working lands, there are several more reasons—on a more localized scale—to value the preservation of farmland and in fact encourage more of it. These reasons include the preservation of natural resources, investments in community infrastructure, maintaining affordable farmland to keep farmers farming,

decreasing farm and non-farm conflict, and lastly, to maintain a high quality of life not only in farming communities but in all communities.

One reason to protect farmland is that by protecting it, we protect natural resources. This might sound somewhat counterintuitive based on the widely known negative environmental impacts that accompany conventional large-scale or industrial farming. But it is also important to note that land development has far more long term environmentally negative effects from storm water runoff and air and ground pollution than do agricultural operations (American Farmland Trust, 1997, p. 6). To combat the negative impacts farm operations have on the environment, the U.S. government has included more and more land and resource conservation elements in the federal Farm Bill since 1985. Some of these provisions include the Conservation Reserve Program, focusing on erosion prevention, and the Wetlands Reserve Program, focusing on the restoration and conservation of wetlands through conservation easements (American Farmland Trust, 1997, p. 7). Granted, the best form of resource protection is to not alter the environment in the first place. However, given the choice between full built-out land development and farmland development, farmlands, particularly well managed ones, are much less environmentally impactful. The American Farmland Trust (1997, p. 7) summarizes this idea well in *Saving American Farmland: What Works*: "According to the USDA, it is hard to overestimate the importance of the non-market goods and services that agriculture provides. Well-managed farmland protects soil and water resources and can prevent flooding. It absorbs and filters wastewater and provided groundwater recharge. New energy crops even have the

potential to replace fossil fuels. From wetland management to on-farm composting for municipalities, farmers are finding ways to improve environmental quality."

Another reason to support farmland preservation is that it is an investment in community infrastructure. Studies conducted by the American Farmland Trust have shown that farmlands, as well as forest and other open undeveloped lands, create a tax surplus in their respective communities. To put it another way: they "more than pay for the municipal services they require" (American Farmland Trust, 1997, p. 7). This is in stark contrast to residential land uses which the studies found to consistently require more in services than their taxes would actually cover (Figure 2) (American Farmland Trust, 1997, p. 8).

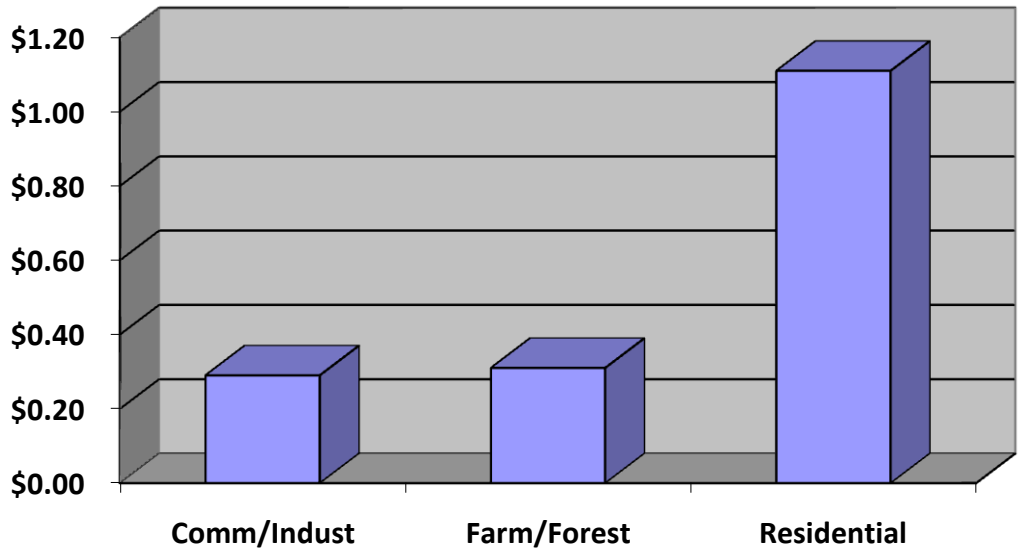


Figure 2: "Median cost—per dollar of revenue raised—to provide public services to different land uses." (American Farmland Trust, 1997, p. 8)

Converting previously undeveloped lands to residential development in an effort to raise municipal revenues does not work on a consistent basis. It is a short-sighted solution to local fiscal woes that will, in most circumstances, inevitably lead to further budgetary problems. Not only do farms pay for themselves in terms of municipal services, but they contribute heavily to a local economy by creating jobs, feeding various farm support industries and secondary industries (such as farm goods processing), and in some cases, tourism (American Farmland Trust, 1997, p. 7).

Growth can indeed provide housing and municipal revenues in the short term, and probably support a certain amount of new jobs in the community, but as previously stated, it is often an unsustainable type of growth. Higher population densities, in addition to requiring higher levels of municipal services, also tend to raise land prices presenting farmers with a new series of challenges as well as new opportunity costs. According to the American Farmland Trust (1997, p. 12), "High land costs make it difficult for new farmers to enter agriculture or for existing producers to buy or rent land to expand operations. Inflated land values make it too expensive for farmers to compete in agricultural markets. Transferring land from one generation to the next also becomes difficult" with higher land values, a concept which will be discussed in further detail in the next chapter.

Another major problem that farmers encounter in the face of oncoming development is the increased likelihood of farm/non-farm conflict. Agriculture, despite its often romanticized and bucolic reputation, is often a loud and stinky business with long hours of operation and odd elements. As property values rise,

and large parcels of land are subdivided to create suburban housing, farms become surrounded by neighbors who may not understand the unpleasantness of various farming activities, and who will often complain and sometimes sue. According to the American Farmland Trust (1997, p.13), "Complaints can lead to new ordinances that restrict agricultural practices. Agricultural production costs [inevitably] rise as losses due to trespassing, pilfering, harassment of livestock, and vandalism increase," all of which contribute to the difficulty of sustaining farming as a viable profession. (Daniels, 1999, p. 150-151)

All of these are reasons to protect farmland and the act of farming in America's agricultural communities. There is an almost inevitable downward spiral that exists for farms once the land becomes threatened by development. Tom Daniels (1999, p. 151) describes this process that farmers face as the "impermanence syndrome." In describing the impermanence syndrome Daniels (1999, p. 151) states that "farmers and ranchers lose their commitment to agriculture in the face of persistent development pressures."

Proximity to urban areas itself is not always a problem and can be a major benefit to the business of farming. But unplanned growth, the rapid rise of property values, and the increase of conflicts between farms and their neighbors often lead to the eventual extinction of farms in an area, much to the detriment of that community's economic and cultural foundations.

In order to avoid this end for one of America's cornerstone professions and cultural centerpieces, actions must be taken. Installing pro-farming public policies is key. It will not be enough to simply state that working land and

undeveloped lands need to be protected, and it will not be enough to simply employ one or two types of protection efforts. Through a deliberate strategy a variety of tools must be employed, in a system of checks and balances, in order to successfully preserve working lands, open space, and in turn play a role in growth management efforts. Before discussing the packaging of land protection efforts, though, we must first understand the options in place for landowners and communities, that is both the private and public tools available, to protect both valuable land resources and the act of farming itself.

## Chapter 3: Farmland Preservation: Tools and Techniques

In order to construct an effective land conservation strategy that curbs sprawl and protects working lands, natural resources and open space, one must first understand the available tools and techniques. This chapter outlines the major players in land conservation, beginning with purely private techniques (defeasible estates), to the strategies that require private landowners to work with public and non-profit entities to some degree (conservation easements, purchase of development rights programs, and transfer of development rights programs), and ending with the purely public strategies for farmland or other land conservation (urban growth boundaries, agricultural zoning techniques, and right-to-farm districts). Each of these strategies has been used with varying degrees of success in farmland preservation efforts in the United States.

It is important to remember that the intent of this thesis is to present the tools as parts of coordinated land conservation and growth management packages. While the bundling of the tools and techniques will be addressed in the next chapter, each tool's individual drawbacks or weaknesses will be discussed in the following sections of this chapter.

This chapter is meant to provide an introduction to the most commonly employed farmland preservation techniques. This list is not a comprehensive compilation of all the preservation strategies available. Nor is it completely exhaustive in exploring the benefits and drawbacks of each tool. It is instead meant to set the table for the following chapters which will discuss the effectiveness of various approaches to farmland preservation and its role in growth management. Entire books could be and have been written about various

land preservation techniques, so to do so here would be both redundant and beyond the scope of this thesis.

It is also important to note that the tools discussed in this chapter are not all widely and equally available by any municipality or landowner. They each require their own state-level enabling legislation and, as it goes, have not all be "enabled" to the same degree in every state. What can be done in Portland, Oregon can not necessarily be done identically in Portland, Maine. This thesis intentionally does not take a myopic approach to land conservation efforts, but instead is meant to investigate which strategies have worked, and which strategies have not worked in curbing sprawl, conserving farmland, and promoting quality growth. Lessons can be learned from other regions no matter what a community's legislative limitations may be.

## Private Action Strategies

### *Defeasible Estates*

The most common way real estate is owned in the United States is through the form of ownership known as "fee simple" or "fee simple absolute." If one owns land in fee simple, he or she has absolute control over that property, less encumbrances or conditions constraining the use of the real property. This control is subject to reasonable limitations imposed by government, such as found in zoning and land use regulations and government's power to tax real property. This is the type of land ownership most Americans are familiar with. As the great majority of private property in the United States is owned in fee simple, and part of that ownership includes the right to convey the property to another individual

or entity by will or inheritance, it is the most logical starting point for discussing land preservation at the private level.

Perhaps the easiest manner in which a landowner may preserve any type of land is through the use of defeasible estates. There are three types of defeasible estates: fee simple determinable, fee simple subject to a condition subsequent, and fee simple subject to an executory limitation. Existing in contrast to fee simple absolute estates, defeasible estates are subject to provisions that could cause premature ending to the estate. Each type of defeasible estate is explained below.

An estate in fee simple determinable is established when land is conveyed (passed to another entity) creating an estate in fee simple that could automatically expire at a stated time or for a stated reason (American Law Institute, 2001, p. 13). Simply put, a property conveyance could include a clause that states a conditional ownership of the land based on a future action or event occurring. An example of fee simple determinable in terms of land conservation: An estate owner could convey her property to another individual so long as all abutting properties remain undeveloped. Thus, if a neighboring property is subsequently developed, the ownership of said land reverts back to the original owner (who, in the interest of land conservation, will preserve the land in perpetuity via a conservation easement).

An estate in fee simple subject to a condition subsequent is similar to fee simple determinable, only the estate does not automatically expire with a given event. Rather, the conveyor (or the conveyor's successors in interest) has the power/option to take action and terminate the estate given that the stated event has

occurred (American Law Institute, 2001, p. 14). The correlation to land conservation is obvious with regards to estates in fee simple subject to a condition subsequent. If a landowner conveys her land to another with the stipulation that the new owner not develop the land, and then the new owner begins the process of development, the original owner retains the right to re-enter and regain control of the land.

An estate in fee simple subject to an executory limitation is similar to the two previous examples of defeasible estates, except that upon the occurrence of the stated event, the estate will be prematurely divested to a third party, one that is neither the original conveyor nor the original conveyor's successor in interest (American Law Institute, 2001, p. 14). The following is a real-world example of an estate in fee simple subject to an executory limitation in action:

> Holcomb Farm (formerly Broad Hill Farm), in Granby, CT, was owned by the Holcomb family for several generations. Siblings Tudor and Laura Holcomb lived on the 100+ acre property their whole lives, farming a variety of goods from tobacco to apples. When Laura passed away, and with no heirs to which to bequeath the property, Tudor willed the estate in fee simple subject to an executory limitation to the University of Connecticut to be used for agricultural research. The will stated that if the property was unused for ten years after his death, then fee title should be passed to the town of Granby to be used for educational purposes. After ten years, the University had done nothing with the land and the title was transferred to the Town of Granby. Now the property is home to the Holcomb Farm Learning Center, many hiking trails abutting other conservation land, and the Holcomb Farm CSA, a non-profit diversified vegetable farm.

As evidenced by these examples, defeasible estates in the proper context could be employed as effective land conservation tools. Without seeking an explicit land conservation technique such as a conservation easement, a

landowner can effectively dictate, perhaps even long after their own life, what takes place on their property. For example, a landowner could simply state in the conveyance, or by will, that the transfer of the property goes to a buyer or chosen entity so long as no new development occurs on the land. If the new owner in fee simple chooses to breach that requirement, the original owner, or the successors in interest, will have the option of terminating the estate. That is an example of an estate in fee simple subject to a condition subsequent, but a perhaps even more effective method to preserve land would be to divest the property upon the stated infraction (in this case, new development) to a third party such as a land conservation organization, who will then most likely carry out the original owner's desires to preserve the land. Defeasible estates can be effective land preservation tools that, unlike many other techniques, require few outside resources.

*Drawbacks: Defeasible Estates*

The inclusion of defeasible estates in the land conservation conversation is important because they are perhaps the most easily instituted perpetual control one can exercise over one's land. In terms of community or regional growth management, however, the drawbacks are many. Defeasible estates allow landowners to dictate what will happen with their land long after they are gone. But their control ends there: with their own land. The use of this power extends no further than one's own realm and has no real impact on the development or execution of a comprehensive plan to manage a community's growth. Defeasible

estates have their place but, as will be examined more in depth with the discussion of conservation easements, should be employed sparingly and thoughtfully due to their (often) perpetual nature. Unfortunately, the employment of defeasible estates is generally motivated by individual interests; unlike comprehensive community planning.

## Private/Non-profit/Semi-Public Action Strategies

### *Conservation Easements*

The conservation easement is a commonly used tool in land conservation. Conservation easements are appealing because they keep properties in private hands and on the tax rolls, typically benefit the public at large, run with the land (that is, remain on the deed despite changes in ownership), and give the responsibility for maintaining and enforcing the easement to an outside entity. They were first used by the Trustees of Reservations to protect parks designed by Frederick Law Olmstead in and around Boston and have rapidly increased in popularity throughout the past few decades (Daniels and Lapping, 2005). The Land Trust Alliance—a national association of land trusts—stated that, as of 2007, 6.2 million acres have been protected under permanent land preservation agreements (Land Choices, 2007). Between 1988 and 2003, "the amount of acreage that land trusts protected using easements increased by an amazing 1,624 percent [and] the number of land trusts more than doubled from 743 to 1,537" (Byers and Ponte, 2005, p.9). According to Jay Espy of the Maine Coast Heritage Trust, "Conservation easements are the best tool we have to protect the scenic,

natural, and recreation values of the land and still retain some of its economic value" (Byers and Ponte, 2005, p. 10).

A conservation easement is a restriction that a landowner places on part of or all of a property, limiting or prohibiting development in order to preserve the natural or historical characteristics of the land, usually in perpetuity. The easement itself is generally sold or donated to an entity (such as a land trust) that acts as a fiduciary and is responsible for ensuring that the terms of the easement are upheld, while the normal property maintenance remains with the landowner. One of the benefits of conservation easements is their flexibility; they can be tailored to meet the requirements of the property—structural, scenic, agricultural, working-forest, trail, etc—the landowner, or the easement holding entity. Elizabeth Byers and Karin Marchetti Ponte (2005, p. 14) outline this well in *The Conservation Easement Handbook*:

> To understand the easement concept, think of owning land as holding a bundle of rights. A landowner may sell or give away the whole bundle of rights, or just one or two of those rights. The rights given away, sold, or otherwise transferred to the easement holder may include, for example, the right to construct buildings, to subdivide the land, to restrict access, or to harvest timber. By selling or donating a conservation easement, a landowner retains some rights and gives up others by deeding them to a qualified holder. The specific rights a property owner gives up and retains when granting a conservation easement are spelled out in each easement document.

So who is a qualified holder of a conservation easement? Public agencies and non-profit organizations involved in conservation and historic preservation are qualified easement holding entities. For the purpose of the donor receiving an income tax deduction, the easement holding entity must either be a governmental

unit (as described in Internal Revenue Code (IRC) §170(b)(1)(A)(v)) or an IRC §501(c)(3) non-profit that meets specific public support requirements, which most land trusts and preservation organizations do (Cornell University Law School Legal Information Institute, 2011). Conservation easement statutes vary from state to state. For example, Massachusetts statute requires local and state approval for deed restrictions held by charitable organizations; many other states do not (Massachusetts General Law, 2011). Regardless of the variances by state, the aforementioned qualifications are a good guideline nonetheless. In general, the IRS requires any recipient organizations such as land trusts to demonstrate a "commitment to protect the conservation purposes of the donation and have the resources to enforce the restrictions" (Byers and Ponte, 2005, pp.18-22 and Cornell University Law School Legal Information Institute, 2011). The fiduciary responsibility of the easement holder usually entails regular visits to the property and strict record-keeping comparing current property conditions to those of the baseline, that is, the original condition at the time the easement was granted (Byers and Ponte, 2005, pp. 18-22).

In addition to simple outright sale of a property, there are several donative options for conveying land for conservation purposes such as an outright gift, bargain sale of the property, charitable remainder trust, and a charitable gift annuity, all of which have associated tax benefits and convey property to reliable conservation organizations (Lenburg, 2002). Conservation easements are usually conveyed from grantor to grantee through a charitable donation or bargain sale, through both of which the grantor keeps fee title to the land and still reaps

significant conservation and tax benefits. To qualify as a tax deductible charitable gift, a donated or bargain sold conservation easement must be in perpetuity and conveyed exclusively for conservation purposes. According to Byers and Ponte (2005, p. 23) and the U.S. Code (Cornell University Law School Legal Information Institute, 2011):

> Internal Revenue Code §170(h) generally defines *conservation purposes* to include:
>
> - The preservation of land areas for outdoor recreation by, or the education of, the general public.
> - The protection of relatively natural habitats of fish, wildlife, or plants, or similar ecosystems.
> - The preservation of open space—including farmland and forestland—for the scenic enjoyment of the general public, or pursuant to a clearly delineated governmental conservation policy; in either case, such open-space preservation must yield a significant public benefit.
> - The preservation of a historically important land area or a certified historic structure.

Possible tax benefits associated with the donation or bargain sale of conservation easements typically fall into three categories: income taxes, property taxes, and estate taxes. The value of the conservation easement is determined by the "difference between the property's fair market value (the 'before' value) and its value as restricted by the easement (the 'after' value)" (American Farmland Trust, 2006, and Lindstrom, 2008, p. 128). These values are determined by a qualified appraiser. Put simply, one is entitled to an income tax deduction—as a charitable contribution—of this differential value, up to 30% of one's income in the year in which the easement was donated or sold. In addition, the grantor is permitted to "'carry forward' [any] unused portion of his conservation easement deduction for future tax years" (Lindstrom, 2008, p. 101). If one is selling an

easement at a bargain rate instead of donating it, one is eligible to claim an income tax deduction "equal to the difference between the easement's appraised value and its actual sales price" (American Farmland Trust, 2006). In some cases, there are even more generous tax benefits available specifically to farmers and the conservation of agricultural land (Lindstrom, 2008). This is an abbreviated introduction to the tax benefits of land conservation. It is important to note that the tax system is not only complicated but also constantly evolving and prone to modifications, so any land conservation program implementation should begin with an up to date examination of the tax code.

In addition to income tax benefits, the conveyance of a conservation easement generally means property tax savings as well. The common rule of thumb with property taxes is they equal the appraised fair market (highest and best use) value of the property multiplied by the local tax rate, which varies widely from place to place. The property tax savings are based on the property's assessment and associated taxes prior to the placement of the easement, compared with the assessment after the placement of the easement, which is generally considerably lower. The state or municipality, local zoning and land use laws, and the aforementioned property assessment all influence the amount saved on property taxes with a conservation easement in place. Another major factor is whether or not property taxes in one's state or municipality are levied on current use practices for the land. According to Stephen J. Small (2002, p. 68), one major rule always stands, and that is "a conservation easement will never never never increase the value of the land restricted by the easement."

The third tax often considered when placing a conservation easement on a property is the estate tax. The Economic Growth and Tax Relief Act of 2001 phased out the estate tax for the past decade, but called for it to be reinstated in 2011 with a $1 million exemption and ceiling tax rate of 55% (Byers and Ponte, 2005, p.24). According to the Internal Revenue Service (2011), "The 2010 Tax Relief Act retroactively reinstates the estate tax for estates of decedents dying in 2010 and provides for an applicable exclusion amount of $5,000,000 and a maximum tax rate of 35 percent" among other provisions. The estate tax, which, like the property tax, is levied at fair market value, can often be prohibitive for heirs interested in keeping the inherited property. Often they must sell the land simply to pay the estate tax. Byers and Ponte (2005, p.24) outline the benefits of a conservation easement with regards to estate planning:

> A conservation easement donated during the life of the landowner, by will, or by the agreement of the estate and its heirs (and before the estate taxes are due—a 'post-mortem' election) may reduce the estate tax liability. The value of the estate will be reduced by the value of the easement, and estate taxes will be imposed (if at all) only on the restricted value of the land passed on to heirs. […] Under the 1997 Taxpayer Relief Act, which added IRC §2031(c), if the land is subject to a qualifying conservation easement—one that meets the requirements of [the aforementioned] IRC §170(h)—and meets other requirements, an additional 40 percent of the land's restricted value can be excluded from the estate valuation, up to $500,000.

For large, valuable properties, conservation easements established in the life of the landowner, by will, or through post-mortem donation by the heirs, can be significant money-saving tools in estate tax planning. Proper planning can often mean the difference between heirs being able to save the property versus being forced to sell it. It is important to note, however, that the estate tax has been a

much-discussed item in American politics in recent years and adjustments to the current estate tax plans are always a possibility.

These are much abbreviated versions of the income, property, and estate tax benefits conferred to a landowner associated with the donation or bargain sale of a conservation easement. It should be noted that each individual easement agreement is different, and depending on the property, the needs of the donor, or the state or municipality in which the easement is granted, different tax strategies could be implemented and the subsequent savings will vary. The Internal Revenue Service has very detailed codes associated with conservation easement tax benefits, and as noted before, should always be consulted for up to date information prior to implementing any land conservation programs.

In summation, conservation easements are beneficial in many ways. They allow the land to remain in the hands of private landowners while being adequately supervised by a reliable, interested party. They allow the landowners to receive several forms of tax benefits including income, property and estate taxes, which often mean the difference between keeping and being forced to sell the property. Conservation easements are often implemented at little or no cost to local government. Granted, lower tax payments mean less revenue for a town, but if the alternative is a densely developed subdivision on the parcel, often the increased municipal costs associated with that development will outweigh the increased tax revenue. Some possible negatives associated with conservation easements are that often local governments have little control over which areas are protected (unless, of course, they are directly involved in the easement

purchase), which can influence comprehensive planning initiatives, and that despite the good tax incentives in place to protect land, in some cases the tax savings might not add up to adequate compensation for some landowners. This is why some property owners, despite the desire to preserve their land, sell to developers in the end (1000 Friends of Minnesota, 2008). The role of conservation easements with regards to overall municipal planning and land conservation efforts will be discussed later in this thesis.

*Drawbacks: Conservation Easements*

As aforementioned, conservation easements are commonly used in land conservation in the United States. They are widely and still increasingly used to protect parcels of farm, forest, open, and many other types of land in perpetuity. They are an extremely valuable tool in the land conservation toolbox, but like any of the tools, they should be utilized with care and much deliberation, particularly due to their perpetual nature.

Jesse Richardson (2006), Associate Professor of Urban Affairs and Planning at Virginia Tech University, offers a concise critical analysis of the use of conservation easements in his article, "Conservation easements: smart growth or sprawl promotion?" In the article, Richardson asserts that land trusts, local governments, and other organizations place conservation easements on parcels of land regardless of whether or not those parcels are actually quality candidates for preservation, believing that as much land should be conserved as quickly as possible. The strategy, seemingly, is quantity over quality, or as he puts it, "gross conservation benefit" over "net conservation benefit" (Richardson, 2006, p. 4).

Additionally, conservation easements often promote sprawl by pushing inevitable development to other communities—thus ignoring the critical mass of conserved land necessary for growth management efforts. Towns have also been known to use conservation easements to negatively influence the placement of affordable housing within certain jurisdictions (Richardson, 2006, p. 4). As is evident, employing conservation easements in smart growth or growth management efforts is anything but efficiently effective.

In contrast, Richardson believes that the implementation of conservation easements should be tied closely to local planning efforts. Planning, he states, "is a dynamic process. Planning tools are […] generally adaptable so that planners may meet future changes in conditions" (Richardson, 2006, p. 5). The perpetual nature of conservation easements therefore presents a major challenge to local, regional, and statewide planning efforts in that they are often counterproductive to adaptive, evolving planning. Richardson (2006) notes that some states have attempted to address this by requiring easements to be consistent with local comprehensive plans and also allowing the "trading" of old easements that have outlived their usefulness or primary purpose for "an easement of equal value (market and conservation) on another parcel. However, these provisions are rarely, if ever, utilized" (Richardson, 2006, p. 5).

Conservation easements are a highly effective tool in land preservation and most conservation efforts in the United States would be lost without the power this tool provides. But, perhaps even more so than the other tools here

discussed, conservation easements should be implemented judiciously and deliberately.

*Purchase of Development Rights*

In addition to and perhaps building on the establishment of conservation easements, the purchase and transfer of development rights are tools that can be employed in the practice of land conservation. They are often, but by no means exclusively, used in the preservation of agricultural land.

Purchase of development rights programs (PDR) are closely related to the establishment of conservation easements and generally use the same mechanism for the purpose of preserving land. In fact, depending on the location within the United States, the terms can be and are often used interchangeably. The two concepts are presented separately in this thesis in order to differentiate between a landowner placing a conservation restriction on her property in order to preserve the land, and that same landowner participating in a PDR program sponsored by another entity such as the local government. While the mechanism for preservation is the same (retiring the development rights of a property), the motives often differ, and the actions can have rather different consequences based on outside factors (local planning, differing motives, etc.).

Under a purchase of development rights program—also known as a "purchase of agricultural conservation easement" program (PACE) when used specifically for preserving farmland (American Farmland Trust, 1997, p. 83)—a landowner sells the right to develop on a property to either a public agency or, in

some cases, a land conservation organization (such as trusts or preservation organizations capable of holding conservation easements). If in fact the purchasing entity is an organization other than the local government, ideally there will be a dialogue between that organization and the local planning body. This will be examined more closely later. After relinquishing the property's development rights, the landowner retains all other rights to the land. The purchasing entity, usually a local governing body, then retires the right to develop that parcel permanently, thus extinguishing the possibility of development on the parcel. A conservation easement is often placed on the parcel after the development rights have been sold, and the property is monitored, much like a conservation easement, "to ensure that development does not occur" (Byers and Ponte, 2005, p. 240).

Participating in a PDR program provides many of the same benefits to the landowner as donating or selling a conservation easement. For example, the land is preserved in perpetuity but remains in the hands of a private landowner, thus on the tax rolls. The landowner is also compensated for the development rights and, like the donation or sale of conservation easements, the landowner will probably see reductions in their property and estate taxes as well. As local municipalities are often the purchasers of development rights, they are able to play a larger role in deciding which properties are preserved and which are not, which is not often the case with individually enacted conservation easements. Ideally, this limits the creation of piecemeal conservation lands and allows the conservation to be a part of a larger, carefully predetermined plan, and in the case of agricultural

preservation, allows for large contiguous swaths of protected farmland. The selection of which lands to conserve will be addressed later in this thesis. The primary drawback to a PDR program, of course, is that the purchase of development rights can often be quite expensive for a local unit of government. (Daniels and Bowers, 1997)

The American Farmland Trust (1997. p.83) provides a good overview of the mechanics and benefits of a PDR program (here referred to as a PACE program) employed to preserve agricultural land:

- PACE prevents non-agricultural development that would effectively foreclose the possibility of farming. Because such development often conflicts with neighboring agricultural operations, PACE helps protect their economic viability as well.
- Removing the development potential from farmland generally reduces its future market value. This may help facilitate farm transfer to the children of farmers and make the land more affordable to beginning farmers and other who want to buy it for agricultural purposes. The reduction in market value may also reduce property taxes and help prevent them from rising.
- PACE provides landowners with liquid capital that can enhance the economic viability of the individual farming operations and help perpetuate family tenure on the land. For example, the proceeds from selling agricultural conservation easements may be used to reduce debt, expand or modernize farm operations, invest for retirement or settle estates. The reinvestment of PACE funds in equipment, livestock and other farm inputs also stimulates local agricultural economies.
- PACE gives communities a way to share the costs of protecting farmland with landowners. Non-farmers have a stake in the continuation of agriculture for a variety of reasons, including keeping locally grown food available and maintaining scenic and historic landscapes, open space, watersheds and wildlife habitat. PACE allows them to "buy into" the protection of farming and be assured that they are receiving something of lasting value. Landowners are given a financially competitive alternative to development as a means of cashing in a fair percentage of the equity of their land.

*Drawbacks: Purchase of Development Rights*

Purchase of Development Rights (PDR) programs have many of the same perceived weaknesses associated with conservation easements such as difficulties in preserving critical masses of farmland—thus risking leap-frog development—and the potential risks associated with perpetual preservation. But unlike the implementation of conservation easements which are often driven by private non-profit interests, PDR programs are largely public in nature. Because of this, PDR programs face the challenge of having to spend tax-payer money, and often large amounts of it, in preservation efforts, adding a political—and expensive—dimension to the program. Additionally, PDR programs often take a very long time to become established and utilized properly, thus limiting their ability to provide timely land preservation in the face of rapidly increasing development (Daniels and Bowers, 1997, p. 169).

*Transfer of Development Rights*

Transfer of development rights (TDR) is similar to purchase of development rights, but takes the concept one step further. Instead of extinguishing the development rights after purchase, a transfer of development rights program—usually created by a local zoning ordinance—instead merely relocates the rights to another area. The concept "uses market forces to simultaneously promote conservation in high value natural, agricultural, and open space areas while encouraging smart growth in developed and developing sections of a community" (1000 Friends of Minnesota, 2008). It is the involvement of the

private market that makes a TDR program distinct from a PDR program (American Farmland Trust, 1997, p. 121).

According to Tom Daniels and Deborah Bowers (1997, p. 174) in *Holding Our Ground: Protecting America's Farms and Farmlands*, each successful TDR program has four basic elements:

1. A designated preservation zone, usually called the sending area from which the development potential is sent away or transferred.
2. A designated growth area, usually called the receiving area, to which development rights are transferred.
3. A pool of development rights (from the sending area) that is legally severable from the land.
4. A procedure by which development rights are transferred from one property to another.

The mechanics of transfer of development rights begin with a municipality establishing "sending" areas targeted for conservation and "receiving" areas targeted for denser development. Property owners in the sending zone are able to sell their development rights—or allocated credits—to developers, or sometimes the community, who in turn take the rights and apply them to development in the receiving zone, usually a town center area. Applying the purchased development rights "generally allows the owner to build at a higher density than ordinarily permitted by the base zoning" (American Farmland Trust, 1997, p. 121). Most often in return for selling their development credits, a landowner must agree to place a conservation easement on their property.

There are many benefits to the transfer of development rights concept. The transfer allows the land to be permanently protected from development while remaining in private hands and on tax rolls. Not only is the landowner

compensated for the sale of development rights, but he or she also receives estate and property tax benefits similar to those provided to conservation easement grantors. These financial benefits can be especially important for a farmer to afford to remain on her land and continue the act of farming, particularly in areas susceptible to growth pressure. Transfer of development rights programs are usually operated at a low cost to the local government because they utilize free market mechanisms (American Farmland Trust 1997, p. 121 and Pennsylvania Land Trust Association, 2010). With the proper administrative guidance, the market—particularly in high development pressure areas—will spur both land conservation and smart urban growth in their respective target areas.

There are some drawbacks to any TDR program, perhaps most notably are the challenging and complex administrative requirements associated with implementing the program. Some questions that need to be addressed include: "What type of transfers should be permitted? Should the TDR program be mandatory or voluntary? Which agricultural areas should be protected? How should development rights be allocated? Where should development be transferred, and at what densities? Should all transactions be made on the open market, or should the local government buy and sell development rights through a TDR bank?" (American Farmland Trust, 1997, p. 126). Because of these important questions and challenges, TDR requires a thorough comprehensive planning effort by the local government, and even then, especially due to their private elements, they are often subject to the ups and downs of the real estate market. Daniels and Bowers (1997, p. 171) note the difficulties in establishing a

TDR program: “Next to establishing effective agricultural zoning on the urban fringe and the political struggles that involves, TDR is the most difficult farmland preservation technique to establish. And, once adopted, it is the least likely to be used effectively because of the large amounts of land involved and because few localities devote the time or expertise to do the necessary community-wide planning.”

A TDR program must find the right mix of political support (Daniels and Bowers, 1997, p. 171 and Pennsylvania Land Trust Association, 2010) and proper planning, as well as incentives for both the sellers (to sell development rights instead of building lots—something not always easy with farmers who are land rich and cash poor) and buyers (to purchase development rights instead of build in the standard capacity) in order to be successful (American Farmland Trust, 1997, p. 126). As a summary, Daniels and Bowers (1997, p. 177) outline the following nine conditions of a TDR program that acts as both an effective land preservation and growth management tool—the descriptions are paraphrased and abbreviated:

1. *Simplicity*: Simple to understand and administer.
2. *Growth Management*: Create more efficient growth patterns through quality comprehensive planning.
3. *Growth Pressure*: The expectation of long-term growth is essential. TDR programs are not effective in entirely rural areas.
4. *Adequate Incentives*: Both buyers and sellers need incentives to take action.
5. *Receiving Area Strategy*: Appropriate planning for the receiving area is a must both before and after the TDR program is implemented. Can the area handle the increased density?
6. *Political Leadership*: Political leaders must be fully engaged to get the program off the ground and running successfully.
7. *Public Support*: Without it, the program is a dead end.
8. *A well-trained planning staff*: Staff skilled in both planning and public relations are essential.

9. *A TDR bank*: This is a government agency that purchases and sells TDRs. This is not essential but is helpful. It will help keep the program afloat during periods of slow economic growth. It will also be easier for developers to purchase credits from one central source than various individual landowners.

This has been a rudimentary introduction to the TDR concept. Further along in this thesis when packaging farmland preservation tools into comprehensive strategies is examined, the TDR concept will be explored further with an emphasis on how to employ it effectively in conjunction with other tools and techniques to achieve farmland preservation and sustainable growth.

*Drawbacks: Transfer of Development Rights*

The primary hurdle in a successful Transfer of Development Rights (TDR) program is effective implementation. Such programs require a significant amount of preliminary planning, which in turn costs a significant amount of money, which requires a significant amount of political will (American Farmland Trust, 1997, p. 139). In short, the challenges with getting a TDR program off the ground are significant. Even once implemented, many TDR programs that have gotten off the drawing board have simply sat idle and unused for years (American Farmland Trust, 1997).

In addition to the challenges presented in implementing a Transfer of Development Rights program, the concept is not always appropriate for specific types of conservation. For example, even if the program is successfully up and running and a certain region of farmland is being protected permanently, that alone does not guarantee the future of farming in that area. More tools are needed

to encourage the act of farming—not simply the preservation of farmland. This will be further explained in the proceeding chapter.

## *Public Action Strategies*

### *Urban Growth Boundaries*

As explained in an earlier chapter, sprawl is incredibly costly to government at all levels, perhaps most so to local governments. In instances of the conversion of greenfields (which loosely include both undeveloped open space and farmland) to residential property, more often than not the newly built development costs the community more in the short and long term than no development at all (American Farmland Trust, 1997, p. 8). Transportation, environmental impact, infrastructure, loss of open space, and abandoned urban properties are some of the larger areas of concern associated with sprawl. One strategy to curb further sprawl is to limit the amount of public investment in infrastructure reaching out to the suburbs and instead focus more on concentrated infill development. This can be done with the implementation of an Urban Growth Boundary (UGB) or Urban Service Area.

According to Daniels and Bowers (1997, p. 136), quoting a Planners Advisory Report from the American Planning Association, urban growth boundaries aim "to contain urban development within planned urban areas where basic services such as sewers, water facilities, and police and fire protection, can be economically provided" and "to provide for an orderly and efficient transition from rural to urban land use" (Oregon Department of Land Conservation and

Development, 1988, 13). UGBs can take the form of a very rigid, permanent boundary (such as the green zone surrounding Boulder, CO) or a phased growth plan (like that around Portland, OR) (Kelly, 2004, p. 54). The phased growth version relies on a "series of concentric boundaries, with growth gradually moving out through them, thus facilitating the gradual expansion of public facilities" (Kelly, 2004, p. 54).

The UGB concept is a farmland conservation planning technique that relies heavily on other tools. For example, the growth boundary is much less significant if the lands surrounding the designated urban growth area are not down-zoned considerably to further discourage growth and leapfrog development (Daniels and Bowers, 1997, p. 138). This down-zoning outside of the boundary should be coupled with appropriate and adequate up-zoning within the boundary line. This bundling of conservation efforts will be expanded upon considerably later in this thesis.

Prior to establishing an urban growth boundary, three important studies should be undertaken:

1. A projection of population growth, housing needs, and land needs for residential, commercial, industrial, and public spaces and buildings. This is the kind of projection and determination of land needs made in a community comprehensive plan.
2. An inventory of public facilities, their capacity, and the projected needs. This is simply a capital improvements program.
3. An estimate of a twenty-year supply of buildable land, taking into consideration topography, land needs, availability of public facilities, and a "market factor" of 10 to 15 percent additional land. The market factor is a margin of safety to make sure that land supplies are not constrained. (Daniels and Bowers, 1997, p. 138)

These studies inform planners of the region's present and future infrastructure needs so that an appropriate boundary may be established. The UGB plan should be revisited on a frequent basis, "at least every five years" (Daniels and Bowers, 1997, p. 138), to assess the need for possible adjustment or expansion based on market demands and other factors such as real estate prices. Without the proper preparation and careful placement of the boundary, UGBs run the risk of stifling growth, not restricting it enough or even promoting sprawl by pushing development further out.

There are several concerns often raised about urban growth boundaries. First, Eric Damian Kelly in *Managing Community Growth* (2004, p. 160) cites that growth boundaries have the potential to put growth pressure on environmentally sensitive areas within the growth boundary. Areas such as steep slopes, wetlands or floodplains would potentially become more susceptible to development. Adequate planning would need to be undertaken to prevent this from happening. Continuing along the same path is the concern of potential development pressure on existing urban green spaces or the prevention of creating new urban green spaces. With a premium placed on lands within the boundary, infill development will be heavily encouraged and green space potentially sparser (Erickson, 2006, p. 5). Infill development might also trouble certain residential constituencies who have become accustomed to a certain level of density and who might oppose an increase.

Perhaps one of the most common arguments against UGBs is their potential to inflate housing and land prices. The argument suggests that with a

constant housing supply, by decreasing the amount of land available for development, thus decreasing supply, prices for the remaining land will increase in value. Nelson et al. (2002) in a discussion paper written for the Brookings Institution, dispute this assertion by pointing out that housing supplies are in fact elastic in nature, and that if the housing stock can adjust—e.g. smaller houses on smaller lots—then prices will remain relatively stable. The authors also point out that housing prices are affected by a wide variety of factors, land availability being only one of them. Factors such as employment levels, salary levels, housing types, and regional mobility all contribute to housing and land prices.

Imperative for a successful UGB program is implementation at the regional level. Whether this is through a city-county planning partnership or a regional level government or planning entity, an UGB needs relatively large scale planning and enforcement. Marshall (2000) notes that localized UGB efforts without regional cooperation such as that in Boulder, Colorado, result in limiting the enacting community's growth, and simply push development in a leap-frog fashion beyond the boundary into other communities. This results in people working in Boulder, living elsewhere, and commuting through the city sanctioned green-zone—the growth boundary. To illustrate this, Kelly (2004, p. 231) notes: "From a local perspective, an urban growth boundary may serve its real purposes. If what Boulder wanted was a firm urban edge and a community surrounded by a greenbelt, it got exactly what it sought. If what it wanted was to stop sprawl, it simply traded leapfrog sprawl for the continuous sprawl that it probably

precluded." Regional planning and enforcement is a must for a successful urban growth boundary program.

*Drawbacks: Urban Growth Boundaries*

Urban Growth Boundaries "hold considerable promise as tools to organize the location of urban-style development" (Daniels and Bowers, 1997, p. 144). Aside from the difficulties in implementing growth boundaries—which require much multi-jurisdictional cooperation—growth boundaries do little to dictate the type of development on either side of the boundary line. Yes, an Urban Growth Boundary can be a powerful tool in dictating where growth and development occurs and where a rural countryside remains, but as for what type of development occurs on the urban side, and what type of land preservation occurs on the rural side, Growth Boundaries do little. An Urban Growth Boundary is an excellent supporting actor in the effort to preserve farmland, but not as the main attraction.

*Agricultural Zoning*

Land, with some exceptions such as Houston, TX (City of Houston, 2011), is something that is or can be controlled at the local level through zoning. This power lends itself well to the efforts of farmland preservation. According to Daniels and Bowers (1997, p. 105-106), "Zoning is the most widely applied land-use control in the United States" and "agricultural zoning is the most common land-use technique for limiting the development of farmland." Agricultural zoning

is inexpensive to implement, flexible over time, can quickly protect large swaths of land (Daniels and Bowers, 1997, p. 106), and provides predictability in the landscape which benefits landowners, developers, and local government planners.

While agricultural zoning ordinances vary widely from place to place in the uses they both allow and prohibit, they all generally aim to "stabilize the agricultural land base" (American Farmland Trust, 1997, p. 49) of their respective communities. This is usually done by identifying areas where farming is the chief land-use, soil is of a high quality for farming, and the local community wishes to protect its agricultural economy for future generations by limiting residential density and the potential for land speculation.

The American Farmland Trust (1997, p. 50) outlines the following benefits and potential drawbacks of agricultural zoning—here referred to as "agricultural protection zoning" (APZ):

*Benefits*

1. APZ is an inexpensive way to protect large areas of agricultural land.
2. By separating farms from non-agricultural land uses, APZ reduced the likelihood of conflicts between farmers and non-farming neighbors.
3. APZ helps prevent suburban sprawl and reduces infrastructure costs.
4. Compared to PACE and TDR programs, APZ can be implemented relatively quickly.
5. APZ is easy to explain to the public because most landowners are familiar with zoning.
6. APZ is flexible. If economic conditions change, the zoning can be modified as necessary.

*Potential Drawbacks*

1. APZ is not permanent. Rezoning or comprehensive up-zoning can open up large areas of agricultural land for development.
2. APZ generally reduces land values, which decrease farmers' equity in land. For this reason, farmers sometimes oppose APZ, making it difficult to enact.

3. APZ may be difficult to monitor and enforce on a day-to-day basis.
4. County APZ ordinances do not protect agricultural land against annexation by municipalities.

In order for agricultural zoning to be successfully implemented without the danger of legal challenges, the zoning should pass several tests. The following legal test explanations are pulled from Daniels and Bowers' (1997, p. 107-108) *Holding Our Ground: Protecting America's Farms and Farmland*. First, the zoning must serve a public purpose. As zoning is an exercise of government's police powers to protect the health, safety, and welfare of a community, the ordinance must serve the general public if it is to be protected from challenges. Provided there is legislation at some level citing the importance of protecting farmland, this should be easily planned for. Secondly, the zoning should be based on and agree completely with a community's comprehensive plan. This obviously relies on the fact that the community has adopted a comprehensive plan. Agricultural zoning can be implemented without a comprehensive plan, however, it is much more likely to survive a court challenge if the zoning is a piece of a larger plan. The third important component to implementing valid agricultural zoning is to be sure the action does not result in the taking of private property. This is most easily avoided by ensuring the zoning is applied to currently or recently farmed land. Similarly to the last provision, the zoning must be "reasonable" in nature, meaning that it does not remove all of the economic use of a given property. Some states have legislation that dictates a particular threshold that if surpassed (i.e. if a property's value or economic potential is reduced by a certain percentage) a taking has occurred. This will depend on particular states, as

most states maintain that as long as any economic value remains, no taking has occurred as a result of a zoning change. Lastly, the implementation of zoning of any kind must pass the equal protections test, meaning that the ordinance cannot be used to exclude certain people and must be applied fairly and consistently to all people. Provided agricultural zoning passes all of these tests, the ordinances should stand in the case of a legal challenge. (Daniels and Bowers, 1997, p. 107-108)

Perhaps prior to being concerned whether or not a zoning ordinance can withstand legal challenges would be deciding which type of agricultural zoning would be most appropriate for a given community based on the following four factors: "1) the number and size of farms; 2) the number and size of parcels in the agricultural area; 3) the limits the community wants to place on the number of nonfarm dwellings and nonfarm uses in farming areas; and 4) the local political and legal realities" (Daniels and Bowers, 1997, p. 115). Once these factors have been considered, a community generally adopts one of the following types of agricultural zoning—all of which include provisions for farm and town support activities such as stores, farm support businesses, schools, etc.

*Large Minimum Lot Size*

Large minimum lot size zoning is the most common form of agricultural zoning. As the name suggests, it stipulates a minimum size of a parcel on which a dwelling unit may be built, with the intention of creating minimum lot sizes large enough to price out residential buyers. When determining what size to mandate as

the minimum, the community's development goals and farming attributes need to be considered. For example, minimum lot sizes of five acres are small enough that they could contribute to sprawl by encouraging rural estates. Most farms require substantially larger parcels to be economically viable. Ranches often require hundreds of acres of pastureland. (Daniels and Bowers, 1997, p. 117)

*Sliding Scale Agricultural Zoning*

A sliding scale approach can be employed in agricultural zoning. According to Daniels and Bowers (1997, p. 118), in sliding scale zoning "the number of development units allowed is based on the parcel size with allowed density […] decreasing per acre as the size of the parcel increases. Smaller tracts will have a higher percentage of land developed than will larger tracts. The sliding scale approach reflects recognition that there are small tracts of land in the agricultural zone that are difficult to farm profitably and have basically passed out of the farmland market into the residential market." The sliding scale approach is generally more appropriate than large minimum lot size zoning for areas that are not exclusively large parcel farms.

*Fixed-Area based Allocation*

This type of zoning allows a landowner to create a certain number of small lots on a parcel based on the larger parcel's size by allocating building rights. For example, if the zoning permitted one lot per 25 acres and a landowner owned a 100 acre parcel, they would be permitted under the zoning to create four lots on

that property. However, the catch in this type of zoning is that the newly created lots generally, and should always for the sake of farmland preservation, have a maximum size such as two acres. Thus, on that 100 acre parcel, four two-acre parcels could be created leaving 92 acres of land untouched, presumably for the use of farming. (Daniels and Bowers, 1997, p. 116, 118-119 and Kruft, 2001)

*Agricultural Buffer Zones*

Buffer zones created between working farmland and adjacent non-farm properties are intended to reduce the risk of farm and non-farm conflict, primarily nuisance suits. Buffer zones can take many different forms such as that of a requirement that all non-farm dwellings must be placed no closer than 100 feet of the working farmland, or perhaps a forested zone must be created between farm and non-farm land. Buffer zones can also take the form of easements. For example, according to Daniels and Bowers (1997, p. 120), "Fremont County, Idaho, has come up with an innovation called *resource easements* to reduce if not eliminate complaints from non farmers who move into agricultural areas. Owners of new non-farm parcels must record an easement with the county recorder of deeds that recognizes that farming activities may conflict with residential life. The easement goes on the landowner's deed and runs with the land." In short, the easement (and other farm buffer zone measures) greatly limits the ability for neighbors of farmland to complain about the normal, at times somewhat offensive, activities of commercial farming.

*Cluster/Open Space Zoning*

"Cluster zoning," also known as "open space zoning," is a zoning strategy that seeks to maximize open space on a piece of land by requiring that dwelling parcels be grouped together and of a reasonably small maximum size (Freeman and Bell, 2011). Clustering has been used in states that do not expressly permit agricultural zoning, and in many states that do in an effort to create open space buffers between dwellings and neighboring farm activities or even to promote farming on the remaining open space (Daniels and Bowers, 1997, p. 123). Cluster zoning is regarded as a strategy to preserve open space while still maintaining a piece of land's economic value. Its use as a farmland preservation tool, however, has been less well received. Daniels and Bowers (1997, p. 123) outline the shortcomings of cluster zoning:

> In general, cluster zoning makes sense in a suburban setting where there is little farming and the goal is to preserve some open space. But in farming areas, cluster zoning can lead to serious conflicts between farmers and nonfarm neighbors. The danger is that excessive use of clustering in farming areas can simply produce clustered sprawl. Clustering homes in an agricultural district doesn't curb development or restrict growth there, it just changes the way it looks. Clustering merely tinkers with the form of development, and cluster advocates overlook the fact that the function of clustering is often to put more houses in the country side.

As evidenced, clustering has its uses, but is not often best employed in the effort to preserve farmland.

Agricultural zoning can be an effective strategy to preserve farmland. Like any land-use control, however, it should be employed with caution and deliberation, as landowners can be wary of any governmental efforts to dictate what happens on their property, particularly concerning its value. Community

input is an important component to any zoning change, and should be an integral part of the entire planning process. Agricultural zoning only has a place in communities that value farmland, have a sizable remaining quantity of it, and see a long-term future for agriculture in that area. Communities under heavy development pressure, more often than not, are beyond the capacity for having effective agricultural zoning. Nonetheless, as we will see in the next chapters, agricultural zoning can play an important role in farmland protection packages that also aim to promote quality urban growth and development

*Agriculture/Right-to-Farm Districts (Right to Farm Legislation)*

All fifty states have some sort of right-to-farm legislation on the books, the purpose of which are to protect the act of farming by discouraging nuisance suits against farmers and to protect farmers from anti-nuisance ordinances (American Farmland Trust, 1997, p. 169). In addition to the states' legislation, more and more county and local governments are enacting right-to-farm laws and districts to reinforce the act of farming as a valued resource (American Farmland Trust, 1997, p. 169). Right-to-farm districts are rarely used as the sole farmland preservation measure, but are often used as an important supplemental piece in comprehensive preservation strategies.

*Drawbacks: Agricultural Zoning and Right-to-farm Districts*

Agricultural Zoning and Right to Farm Districts not only need one another, but also need other protection tools to be utilized successfully. Zoning

can be modified or completely changed based on a community's leadership. If the aim of the zoning is to protect the act of farming as well as the land needed to farm, then other protections must be enacted to ensure the future of both. Right to Farm Districts support Agricultural Zoning and vice versa; neither of them are necessarily long term and both can be inappropriately applied. For example, if an area is under threat of imminent development, creating an Agricultural Zoning District or a Right to Farm District in support of agriculture might seem misplaced—farmers could interpret that as a taking regarding the value of their land (American Farmland Trust, 1997, p. 69). Further, poorly executed agricultural zoning has the potential to encourage sprawl. As Richardson and Micklow (2007, p. 8) note, "Large lot [agricultural] zoning is supposed to restrict minimum lot size to be too large for residential use, but the minimum amount necessary to conduct agricultural operations. However, often times the lot sizes are too large for development but too small to sustain a farm. The resulting pattern of extremely low-density residential development makes the land unusable for farming or forestry—a practice referred to as 'rural sprawl.'" Misused agricultural zoning risks simply changing the pattern of sprawl rather than preventing it and ultimately fails to conserve working land. Like Urban Growth Boundaries, these tools can be critically important support tools in a farmland protection package; but neither should be the focal point of such an effort.

All of these farmland preservation measures bring something unique to the land conservation table. Each of them has potential to protect farmland from conversion. Each of them also has potential to be counterproductive in that if used

improperly, they could end up expediting the conversion process, promoting further sprawl or, at a minimum, doing nothing. To be used in the most effective fashion, these farmland preservation tools and techniques should be properly packaged in a carefully planned comprehensive strategy custom made for each individual community's situation. What works in Massachusetts might not be what best works in California. What works near a rapidly growing urban center is probably not the best strategy for a rural area or a region in decline. This is often the result of differing availabilities—enabling legislations—of tools in different states, but it is also the result of different political, economic, and demographic climates. Having established the characteristics and drawbacks of each preservation technique, the following chapter of this thesis will examine what works in farmland preservation; what strategies can be employed to best conserve working farmland as well as to encourage and promote smart urban growth at the same time.

## Chapter 4: Utilizing Conservation Tools Effectively

"They ain't makin' any more of the stuff."
-Will Rogers, in reference to land

The tools examined in the previous chapter are the basic techniques employed in farmland and open space preservation in the United States today. The list is not exhaustive but it does provide an adequate overview of some of the most commonly found items in the preservation toolbox. As in any toolbox, each tool serves a specific purpose and some are more effective at one aspect of farmland preservation than another. One wouldn't want to build a house with just a hammer or just a saw. Rather the hammer and the saw are used for different key actions with one goal in mind: building a house. The same can be said for each of the aforementioned conservation tools. As Daniels and Bowers (1997, p. 235) note, "Any one technique alone cannot achieve protection for more than the short run. The most successful farmland protection programs employ several techniques in a coordinated package."

Before we dig into the packaging of the tools as conservation and growth management strategies for particular growth pressure environments, it is important to understand how best to approach the construction of such programs. This chapter will begin with an outline of the American Farmland Trust's (1997) "Five I's: Identification, Inventory, Investigation, Integration, and Implementation." This formula describes the necessary steps taken to establishing a successful farmland conservation program. Then, I will explain and analyze the process of creating a successful and comprehensive farmland protection package based on different growth pressure environments.

Planning a Land Conservation Program: The Five I's (American Farmland Trust, 1997, Ch. 11)

Given the pitfalls of employing conservation techniques in a haphazard manner and prior to assembling a package of conservation tools into a comprehensive land conservation-growth management strategy, one must first conduct a thorough analysis of the community in which the plan will be implemented. What types of land comprise the area? What is the political will for farming and farmland conservation? What growth has the area experienced recently and what is the projected growth in the short and long term? Have all the potential stakeholders been invited to the discussion? These questions and others must be addressed appropriately if a farmland conservation package is going to be successful in any part of the United States.

For these reasons, the American Farmland Trust (AFT) (1997) in *Saving American Farmland: What Works*, developed a five-step guideline based on research conducted of successful farmland protection programs around the country. The Five I's are meant not to be a set-in-stone formula for farmland conservation success, but rather a template to get the process from the idea stage to the implementation stage. The steps are as follows: Identification, Inventory, Investigation, Integration, and Implementation. I chose to include this process in this thesis because it is very important to note, before discussing specific packages or strategies, the preparatory work involved in creating and enacting a land conservation program, particularly with the intent of growth management in

mind. This approach also sets the table for the discussion of packaging specific growth management strategies based on a specific land threats and conservation needs which will be addressed in the next section.

*Step 1: Identification*

As the American Farmland Trust (1997, p. 304) notes, "Identification of the problem can take many forms, from conversations between neighbors to formal discussion groups or stakeholder surveys" or other types of research. The important part of this step is that it is done carefully and thoroughly.

The "problem" can be anything. Communities around the country face a broad array of potential challenges and each community has a set of circumstances quite unique to it. A community could face problems with resources, growth rates, economics, industry structures, land prices, different stakeholder interests, etc. All are valid and all should be taken into consideration when formulating a plan to address the situation.

When conducting the Identification process, it is important to come to a consensus with various stakeholders concerning the "extent and nature of the problems that need to be addressed" as well as an agreement that action does in fact need to be taken to produce a remedy (American Farmland Trust, 1997, p. 304). To get to this point, all stakeholders must be included as "it is rare for one group to have the power to create a solution alone" (American Farmland Trust, 1997, p. 304). This means farmers, neighbors, politicians, builders, developers, housing advocates, conservationists, and anyone else who could potentially be

influenced by the outcome of this process. Excluded stakeholders have a way of opposing solutions (American Farmland Trust, 1997, p. 304).

*Step 2: Inventory*

The next important step in the process is creating an inventory of all key factors. This includes physical infrastructure, agricultural infrastructure, and both natural and human resources (American Farmland Trust, 1997, p. 304). Particularly important in planning for farmland conservation is the creation of maps of farmland, soils, water access, farmland support infrastructure, utility infrastructure, relevant populations, residential areas, view-sheds, and any other ingredients that may be important depending on the individual community. All of this information is important so that planners can identify important growth and development patterns, and formulate the desired critical mass of farmland to be protected as well as to carefully identify the areas in which growth should be encouraged and directed.

*Step 3: Investigation*

The third step, often occurring simultaneously to *Inventory*, is to carry out the "process of looking for solutions to the problems identified in step one" (American Farmland Trust, 1997, p. 305). *Investigation* includes researching what other communities have done to successfully discourage farmland conversion—or how they have unsuccessfully done so—and contacting them. It might also include consulting conservation experts, conducting field work and/or field trips,

and conducting surveys, public meetings or charrettes (American Farmland Trust, 1997, p. 306). This step essentially means gathering all the necessary information and including all the necessary inputs to successfully implement a comprehensive conservation plan and growth strategy. This step begins broadly in its scope and becomes quite precise in its outcome.

*Step 4: Integration*

After conducting the appropriate research of the previous steps, *Integration* is where the development of a program or plan begins to take shape. Specific goals are set here and the strategy to achieve those goals is developed. According to the American Farmland Trust (1997, p. 307), "The proposed program should be based on the nature and scope of the problem and targeted to protect the most important agricultural lands. It should respond to the concerns of stakeholders and reflect the lessons learned by other communities. While the proposed strategy may resemble other farmland protection programs on paper, it should be the result of a unique, locally driven process."

*Step 5: Implementation*

Another name for this step could potentially be "PR Campaign." Once the concrete plans are created, the entire project culminates and potentially lives or dies here based on how it is sold to—and conversely received by—the public, including all the key constituencies whose inputs were collected along the way. This final step includes "the approval, funding, and administration of a program to

protect farmland" and manage growth (American Farmland Trust, 1997, p. 307). The Public Relations aspect of this step occurs because the program or plan must be sold effectively to ultimately be effective. Across the country are the scattered remains of conservation programs that have failed to conserve much of anything. The community must be on board with any program—from beginning to end—if it is going to be a successful one. According to *Saving American Farmland: What Works* (American Farmland Trust, 1997, p. 308), implementation of a conservation program is an "ongoing process." One cannot simply wash one's hands of the project once implemented, but rather monitor its progress and make necessary adjustments as changing times and conditions demand.

These five steps are important to keep in mind when reading the following section pertaining to specific strategies of land conservation tools and growth management. As mentioned in the beginning of this thesis, land conservation does not exist in a vacuum, but rather in a very complex and evolving world with influences and threats coming from all directions. It is important to keep the goal in mind, land conservation, but not at the expense of the numerous stakeholders involved and the best interests of a community.

## Packaging Techniques into Effective Strategies for Farmland Conservation and Community Growth Management

As have been demonstrated, the land conservation techniques discussed in this paper have different strengths and weaknesses. Most are effective for one particular aim in farmland preservation; Most are ineffective in promoting quality growth management and sustainable preservation as standalone tools. By

packaging the tools into comprehensive strategies, the strengths of one tool can help to cancel out the weakness of another, the strengths of which assist the weakness of some other tool, and so on (Daniels and Bowers, 1997, p. 235). All of this should be executed with the following goals in mind:

- To protect a critical mass of working land and to curb sprawling development.
- To maintain affordable land prices so that the act of farming remains viable for both expansion of and entry into the profession, as well as the well being of farm support industries.
- To ensure that the program is cost-effective for the community in which it is enacted.
- To ensure the strategy and its individual tools remain sustainable and durable into the future. (Richardson and Micklow, 2007, p. 7 and Daniels and Bowers, 1997, p. 235)

Different land conservation strategies are appropriate for different growth environments. For example, what may be appropriate in a rural setting with extensive farmland, little immediate threat from development, and a wish to strongly preserve the farming culture and economy, is probably not what may be appropriate in an increasingly dense suburb that is experiencing heavy population growth and development. Farmland preservation strategies may be called for in both scenarios, but the means by which those strategies are carried out—and the ends to which they lead—will not be exactly the same. Lessons can be learned and ideas generated, however, by examining one community's strategy despite differing circumstances. Ralph Grossi, former president of the American Farmland Trust, once said in referencing the farmland preservation efforts in Marin County, CA, "There is still some perception that Marin is an anomaly. Not so. It's very much a typical case of the problems farmers face everywhere on the

urban fringe. And the solutions Marin worked out have meaning elsewhere" (Daniels and Bowers, 1997, p. 245).

Following are examples of farmland preservation packages for preserving a strong and vibrant farming community, balancing a farming culture with an increasingly developing community, and lastly, maintaining a working rural character in a community that has experienced heavy development. These are broad examples of possible packages that communities can utilize to appropriately plan for future development with specific examples provided to illustrate each strategy (Daniels and Bowers, 1997, p. 237). As aforementioned, every real-world scenario is unique from the lay of the land to the stakeholders involved to the cultural and economic environments of the time, thus the following plans are meant only as starting points to show the options communities have, not as prescriptive plans of action.

Additionally, it is important to keep in mind that the tools and techniques discussed in this paper are not an exhaustive list of options for preserving land or encouraging the act of farming. There are key tools intentionally left out—preferential taxation, economic development strategies, in-depth comprehensive planning, among others—due to the limited scope of this paper. It is granted that such tools would and should be included in a real world exercise to this end, and as such, these tools will be mentioned but not deeply explored in the following sections.

*Package 1: Preserving a Strong and Vibrant Farming Community*

In order to play defense and preserve an existing vibrant farming community, a preservation and growth management strategy will require a whole hog approach. The type of hypothetical community for this sort of approach is one with a very strong presence of working lands; one with relatively low existing development and low to moderate expected development pressure. In such a community the land holdings are in large ownerships and there is a healthy farm support industry. Perhaps most important to the success of preserving the open and working lands of this type of community is that the farmers want to continue farming (Daniels and Bowers, 1997, p. 237). This calls for utilizing all the available tools in a synchronized comprehensive strategy. The tools, techniques, and strategies involved—if available based on state and local enabling legislation—are as follows (Daniels and Bowers, 1997, p. 237):

- A thorough and carefully designed comprehensive plan to include;
- Urban growth boundaries
- Large lot agricultural zoning
- A transfer of development rights program and/or a purchase of development rights program, preferably both
- Designated agricultural districts
- Right to farm legislation
- Differential assessment for agricultural uses
- Agricultural economic development
- Public support of private land conservation efforts

The first step in the process is to evaluate what the community has in terms of build-out and resources, what it wants to be, and how it wants to get there. This is done by creating a thorough and comprehensive plan that prescribes the community's objectives in the effort to conserve farmland and farming. Comprehensive plans, when effectively constructed, provide not only a blueprint

for a community's growth and development, but also provide a level of predictability and transparency that ideally allows for smooth growth and cooperation for all citizens, government, businesses, and developers alike. In the case of preserving farmland and creating a development strategy, comprehensive plans plainly show where a community values land preservation, where it values development, and what type of development it values in the community. (Daniels and Bowers, 1997, p. 238)

Urban growth boundaries, while somewhat challenging to implement, can be very effective in encouraging growth in specifically planned locations by placing bounds on the extent of municipal services such as sewer and water. Growth boundaries are even more effective when utilized in concert with transfer or purchase of development rights programs. By placing the receiving areas of such programs within the confines of the urban growth boundary, a community further encourages compact development in desired locations where it is cheaper and easier to support at the same time as encouraging the preservation of existing working lands. (Daniels and Bowers, 1997, p. 238)

Carefully designed large lot agricultural zoning "next to the growth boundaries reinforces the boundaries and makes leapfrog development less likely [by helping to] buffer 'preserved' farms from encroaching development" (Daniels and Bowers, 1997, p. 238). Agricultural zoning increases the effectiveness of transfer and purchase of development rights programs by encouraging the use of agriculture in the sending areas. PDR and TDR programs in turn "soften opposition" to agricultural zoning by providing compensation to landowners who

place restrictions on their land to keep it from further development (Daniels and Bowers, 1997, p. 239). Additionally, agricultural zoning helps to keep the cost of a purchase of development rights program in check by limiting the type of development on the land. If it is not reasonable or even possible to heavily develop a parcel of land due to the underlying zoning, the value of that parcel's development rights would not be as lucrative as if zoned otherwise, thus making it possible for a community or organization to purchase more rights at lower prices (Daniels and Bowers, 1997, p. 239). This must be done within reason, however, keeping the landowners' interests in mind.

The standard for large lot agricultural zoning should be carefully considered. For this example, a standard in the vicinity of one building lot of approximately 2 acres for every 25-50 acres owned is reasonable. This, ideally, prohibits suburban development as well as discourages extensive hobby farming in an area where commercial farming thrives. Non-farm uses should be zoned for as well in this hypothetical circumstance; however they should be carefully designed so as to avoid interference between farm and non-farm uses (Daniels and Bowers, 1997, p. 238).

Voluntary agricultural districts and right to farm laws further support the aforementioned tools. Depending on how they are established, these tools provide farmers protection from nuisance complaints and/or nuisance ordinances associated with normal farming activities. Such districts and legislation also provide increased protection from imminent domain for active farmers as well as a stated policy by the community, regional government or state that "farming is

the preferred land use in the area" (Daniels and Bowers, 1997, p. 239). That show of public support is invaluable in the effort to preserve farming and farmland.

Communities can also make a point of encouraging private land conservation either through incentivizing conservation restrictions or engaging the public in an educational campaign around land conservation. It is important, however, that communities work with private landowners so that conservation efforts are not made loosely and uncoordinated; Conservation planning is important and private efforts have their place among the many tools in the toolbox.

In addition to all of these tools, communities have several other tools at their disposal to encourage farmland preservation. As aforementioned, differential assessment is a very important tool in maintaining farming as a viable business. If farms were taxed at their highest and best use as is most other real estate, it would difficult for farmers to cover their property taxes and still turn a profit through farming. Taxing farmland as an agricultural use has proved to be a powerful tool in not only keeping farmers in business, but maintaining farmland as farmland.

Lastly, communities can do a lot beyond simply maintaining the status quo. Communities can indeed be pro-active in encouraging the agricultural industry to expand and thrive by engaging in economic development to that end. Zoning for farmer's markets and farm stands, encouraging certain types of agricultural tourism, and easing restrictions on and in fact encouraging direct farm-to-consumer sales all go a long way to show community support for the act of farming and the preservation of valuable working lands (Daniels and Bowers,

1997, p. 240). By establishing an agricultural commission, a public land trust or bank, a farm bureau, or some other entity devoted to these agricultural interests, a community can make a strong pro-farm statement that will support a positive agenda moving forward.

*Package 2: Balancing a Farming Culture in an Increasingly Developing Community*

For this hypothetical community, farming has historically been strong but development pressures have increased to the point of being moderate or heavy and there are enough urban commuters living there for it to potentially be considered a "bedroom" community. These communities, often termed "exurbs," are common in the United States and are generally found on the very urban fringe; the front lines between sprawl and undeveloped lands. In these communities, farm landholdings are somewhat scattered and fragmented amidst large lot residential and commercial development. Large farms still exist and the act of farming is still in place, however, many farmers increasingly feel the pressure of developers and many have already given in to it.

Balancing a farming culture in such an increasingly developing community requires largely the same set of tools as the previous section with some tweaks and rearranging of emphases. The tools include:

- A thorough and carefully designed comprehensive plan to include;
- Urban growth boundaries
- Large lot agricultural zoning
- A transfer of development rights program and/or a purchase of development rights program, preferably both
- Designated agricultural districts
- Right to farm legislation
- Differential assessment for agricultural uses

- Agricultural economic development
- Public support of private land conservation efforts

As previously covered, the strengths of each tool compensate for the weakness of others—ideally. For a community such as this however, that is experiencing imminent development pressure, farmers most likely feel the immediacy of financial pressures to sell their increasingly valuable land. Given that factor—a major difference between this and the previous section—the conservation and growth management strategy should place more emphasis on maintaining the act of farming as a viable and lucrative enterprise and, even more importantly, provide options to compensate landowners for restricting their lands. To be short: in the face of development pressures, financial incentives become paramount. (Daniels and Bowers, 1997, p. 241)

As in the last section, urban growth boundaries discourage sprawl by preventing services to extend to areas not targeted for development. Daniels and Bowers (1997, p. 241) state, "Once sewer and water lines are extended next to farmland, it is a signal for the farmer to develop." Large lot agricultural zoning, though realistically smaller than in the aforementioned vibrant farming community, are important as are right to farm laws and designated agricultural districts to protect the act of farming from nuisance issues. These efforts are all important but, given the type of development pressure this hypothetical community faces, will not alone protect farmland.

Transfer of development rights and purchase of development rights programs have the potential to be very effective in an agricultural community facing this type of growth pressure not only to support the growth boundary and

the other aforementioned tools, but because of the compensatory nature of the programs. If landowners feel that land conversion is inevitable and there is potential for them to cash in through the process, it is difficult to say no. However, if there are programs in place such as that of a TDR or PDR program, there is a financial incentive to retire development rights permanently along with a vote of support for farming, farmland, and proper growth management (Daniels and Bowers, 1997, p. 241). Not only are farmers being paid to not develop their land, the TDR and PDR programs help "to stabilize the land base and to strengthen the credibility of the [agricultural] zoning" (Daniels and Bowers, 1997, p. 243). Combined with differential assessment, such incentives along with the rest of the tools offer a good approach to encourage farmers to preserve land and developers to steer development to the parts of the community where it is valued and, ultimately, more sustainable for the community.

### *Package 3: Maintaining a Working Rural Character in a Community that has Experienced Heavy Development*

A by-product of the urbanization of America is that there are former farm communities everywhere. As cities grow and expand outwards, they swallow working lands and spit out development. This final example is of a community experiencing heavy growth with a small amount of farmland remaining but not enough to call it a "farming community." What working land remains is fragmented and increasingly quaint. For this type of community, the strategy is less about protecting the act of farming, and more about maintaining remaining open space or the "rural character" (Daniels and Bowers, 1997, p. 245). With few

farm support industries and the increased likelihood of farm and non-farm competition and/or tensions, large-scale agriculture is no longer a viable option.

Given that, the tools discussed in this paper still have relevance if not as much as with the previous examples of community farmland protection strategies. In this type of community, according to Daniels and Bowers (1997, p. 245), the following tools are relevant and important:

- Comprehensive planning […] to accommodate development and maintain open space
- Large lot rural zoning of 2- to 10-acre minimum lot size or cluster zoning
- Farm property tax breaks only for commercial farming operations that meet a gross revenue standard of $20,000 a year
- Right to farm law

The effectiveness of these tools relies on, as in the other sections, a quality comprehensive plan. In a community such as this, preserving large scale farming is probably unrealistically expensive and politically difficult. Designing a comprehensive plan to identify remaining open lands, assessing the value of those lands for conservation, commercial farming, or specialty/hobby farming purposes is important in deciding which direction to take the preservation strategy. In this scenario, "The goal of the comprehensive plan will probably emphasize maintaining the [remaining] rural character of the community [as] the appearance of the community is important in providing a good quality of life, as well as supporting residential and commercial real estate values" (Daniels and Bowers, 1997, p. 245).

If there are farmlands in the community worth preserving and there is an interest in doing so from the farmers, large lot rural zoning in the realm of 2-10

acre minimum lot sizes might be the only type of agricultural zoning that would be possible. If that could be successfully coupled with a right to farm law, it would increase the effectiveness of the zoning.

Many of the other tools successfully employed in *Package 1* and *Package 2*, however, are either inappropriate or unrealistic for this type of community scenario. True agricultural zoning would make little sense based on actual land uses, existing lot sizes, and the likely priorities of community residents and businesses. The aforementioned large lot zoning allows for some remaining space as residential development engulfs the former farmland or open space areas. Urban growth boundaries are unlikely to be effective if most of a community's jurisdiction has been developed already or is too sprawling to reign in. PDR and TDR programs are likely too expensive and lacking in appropriately sized contiguous swaths of land to preserve. (Daniels and Bowers, 1997, p. 245)

Conclusions

The tone of *Package 3* perhaps seems like one that embodies the attitude of "giving up and giving in." It is not giving up but rather changing direction. Sometimes it is more appropriate to recognize that a different direction is needed in a community than the one that was followed historically. The goal should be to allocate resources appropriately. If the allocation of those resources is most appropriate in planning for and encouraging dense growth, then so be it; this is not necessarily a bad thing. Conservation for the sake of conservation is not the goal of this thesis. Rather, doing what is best for a community or a region and the people that comprise that community not only now but also in the future should

be the primary aim. Some communities are destined to be agricultural, some are destined to be suburbs, and some are destined to be bustling cities. Knowing when to pull the plug on a lost cause and allocating those resources elsewhere is part of good conservation planning and by extension—ideally—good growth management.

## Chapter 5: What We Learned, Left Out, and Where to Go From Here

"Land preservation […] will have to become more proactive and less reactive [and] take place within the comprehensive planning process to work towards smart growth goals."

-Tom Daniels and Mark Lapping (2005, p. 326)

Since World War II, the urban environment has spiraled outwards, engulfing previously undeveloped lands and often leaving behind urban skeletons that once were bustling, active hubs. Despite the need for infill development and the reuse of brownfield sites, cheap and easily developed lands have encouraged sprawl and the conversion of farms, forests, and open space to strip malls and residential developments that look remarkably similar no matter in which part of the country one may be. Sprawl stresses municipal infrastructure, increases the cost of services, and straps municipal finances. Unlike suburban residential development, farmland puts more money into municipal coffers than it requires in services. On the flip side, however, farmland provides a cheap and ready opportunity for all kinds of suburban development, and more often than not the price offered by speculators to farmers for their prime land is often too hard to pass up.

However, there are options for preserving farmland, limiting shoddy and piecemeal development, and in fact encouraging sustainable growth. Chapter 3 of this thesis examined a variety of tools and techniques that are available in the effort to preserve working land and open space. From private actions such as defeasible estates to governmental actions like urban growth boundaries, options to steer growth and protect working lands abound.

Chapter 4 explored why these tools do not maximize land protection and growth management on an individual basis. As one tool's strength combats another's weakness, the most effective method of farmland preservation is to use the tools in concert with one another and as part of a carefully designed comprehensive plan for growth management.

The comprehensive planning process is an important element that was not focused on in this thesis. In a real-world application of these techniques, much attention would need to be placed on creating a strong, goal-oriented comprehensive plan that carefully considers any and all community stakeholders. Build-out scenarios, thorough fiscal impact studies, demographic analyses, growth projections, and transportation studies are just some of the important steps in determining a community's direction, needs, and goals.

Another notable element in any land conservation consideration not explored deeply in this thesis is the role of taxation and the relief thereof for agricultural activities. Tax benefits were discussed briefly in Chapter 3, however entire theses and books have been devoted to the subject. Every state has "at least one program to reduce the amount of money farmers are required to pay in real property taxes" (American Farmland Trust, 1997, p. 147). Preferential assessment, deferred taxation, restrictive agreements, and tax credits play the following important roles in farmland conservation:

- To help farmers stay in business by reducing their real property taxes
- To treat farmers fairly by taxing farmland based on its value for agriculture, rather than at fair market value as if it were the site of a housing development; and

- To protect farmland by easing the financial pressures that force some farmers to sell their land for development (American Farmland Trust, 1997, p. 147)

Tax relief is invaluable to the viability of the farming industry, particular on the small scale, and for the careers and livelihoods of those working as farmers. Land is not cheap to own or maintain, thus these tax relief measures help to keep farms in business and the American system of food production in action. The economics of farming is an enormous discussion that takes place every five years when the American Farm Bill is proposed by the United States Department of Agriculture to Congress. It is just as important of an issue at the local level as it is on the federal and one that is important on which to maintain current information. Tax codes, from local to federal, are notorious for changing often.

Protecting threatened farmland is only one piece of the pie when it comes to protecting farms. The protection and encouragement of the act of farming itself is something that is arguably just as important as preserving finite land resources. According to Klein and Regangold (2007), "A survey of county agricultural departments in Washington State revealed that most planning departments felt that the significant factors contributing to a farm operator's decision to retain farmland were farm operation profitability, farm operator age, and farm operator plans for the land at his retirement." It is not just about saving land, it is about promoting the industry of farming as well and making it attractive for future generations of farmers. In order for agriculture to be successful and for communities to have a thriving farm culture, a better effort to promote the act of

farming needs to take place. Future scholarship should focus on these efforts to promote the act of farming in addition to the promotion of land conservation.

There is an increasingly loud drumbeat for a more transparent and local food production system in the United States and there is much concern and excitement regarding local food issues. It is a good time to capitalize on this interest. Just as infill development in cities makes sense from an infrastructure standpoint, so does protecting existing working lands and encouraging their continued use to grow food. And these efforts do not have to be independent from growth management and planning efforts. Farm and other land conservation initiatives can be key components to shaping the quality, healthy, and sustainable growth of both the built (and un-built!) environment in which we live, and the agricultural industry on which we rely.

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