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Are we preserving the right land?
Recommendations to improve New Jersey farmland preservation

Lauren Wasilauski

University of Pennsylvania

Presented to the Faculties of the University of Pennsylvania in Partial Fulfillment of the Requirements for the Degree of Master of Environmental Studies 2006.

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Master of Environmental Studies Capstone Project  
University of Pennsylvania  
Lauren Wasilauski  
Reader: David Harper  
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Introduction

Farmland is rapidly disappearing in New Jersey and being replaced with residential subdivisions, commercial strip malls and inefficient development, all of which threaten our heritage as the “Garden State.”* This issue is important to all New Jerseyans because farming is the number three industry in New Jersey, bringing in cash receipts totaling over $63 billion (note this figure represents a very broad estimation) (NJ DoA – Smart Growth, 2003), while also providing residents the option of locally-grown fresh food. According to the United States

* The nickname ‘The Garden State’ supposedly originates from the Centennial Exhibition in Philadelphia May 1876; Abraham Browning, a Camden resident, used the phrase to describe New Jersey as “an immense barrel, filled with good things to eat and open at both ends, with Pennsylvanians grabbing from one end and the New Yorkers from the other.” For a more complete history, see Netstate, 2006.
Department of Agriculture (USDA), New Jersey’s farming industry generates almost $750 million (note this figure is not as inclusive in its definition of ‘total farm sales’, see USDA – NASS definitions, 2002) (USDA – NASS Ranking, 2002; USDA – NASS definitions, 2002). The development of farmland also affects our status nationwide; New Jersey is a competitive seller of farm products nationwide, solidifying the place of New Jersey farms in the local, regional, and national economies (Stony Brook, 2005).

Farmland preservation is a movement that uses legal, financial and legislative means to keep farmland available for farming, but not other land uses, particularly residential, commercial or industrial uses. Preservation throughout the state has become increasingly aggressive over the past few decades, especially in the past five years, but much of New Jersey’s prime agricultural land remains vulnerable to development. Preservation is a popular policy among New Jersey voters, who have approved record numbers of bond issues to protect the land that is fast being consumed by development. Protecting viable farmland and a viable farm economy will require the state, counties and municipalities pool their resources to preserve land in a strategic manner. In consideration of the funding available, a capstone project examining the criteria used by a county or municipality when prioritizing farmland to be preserved would be beneficial in helping to spend this money more effectively and efficiently.

The trend of land consumption in New Jersey is mirrored in other states across the nation; farmland disappeared 51% faster during the 1990s than in the 1980s on a nationwide scale (NJ DoA – Smart Growth, 2003). Between 1982 and 1997, over 12 million hectares (1 hectare ≈ 2.5 acres) of land were converted to developed land, with over half of this new development taking the place of farmland (Hasse and Lathrop, 2003, 159-160). This statistic reveals that farmland is at risk nationwide because the pace and scale of land development is expanding, resulting in the
movement of populations into previously rural areas. The spreading out of populations across the country is also creating an inefficient land development pattern; on a national scale from 1982-1997 the population nationwide increased 17% while urbanized land increased 47% (NJ DoA – Smart Growth, 2003).

New Jersey is not alone in popular support of open space and farm preservation; in 1998, 72% of 240 ballot measure were approved across the United States that designation $7.5 billion in funding to preserve parks, open space and farmland (Lynch and Musser, 2001, 577). The trend continues more recently with $1.2 billion approved in 2003 with funding measures in 23 states. From 1998 through 2003, 765 ballot measures were approved at the county and municipal levels. (SERC, 2004) A public opinion survey conducted by the Farm Bureau in 1999 sited farmers as important public figures, ranking equally with teachers and firefighters. The opinion poll also showed that the public deemed farmers as advocates of environmental protection, even more so than scientists and environmentalists. Moreover, the survey showed the general opinion of farmers as great contributors to society, but poorly compensated for the services they provide (NJ Future, 2001).

**Overview of Farmland Preservation in New Jersey to Date**

Situated on the Atlantic Coast, New Jersey is a state steeped in history from the Revolutionary War and George Washington’s crossing of the Delaware River on Christmas Night 1776, to its present day importance as an extremely popular vacation destination, and corridor linking the New York City – Philadelphia metropolis. New Jersey is a small state with a population of approximately 8.5 million people (NJ Department of Labor and Workforce Development, 2005), the most densely populated state in the nation (NJ DoA – Smart Growth, 2003). Of this population, roughly 9,000 are farmers who work hard to contribute to the
economy and provide us with locally grown fresh food to eat (NJ DoA – Smart Growth, 2003). The fertile farmlands of New Jersey are the second costliest in the nation, averaging $9,245 per acre; however, they yield the highest income per acre (New Jersey State Development and Redevelopment Plan, 2000; USDA – NASS, 2002). This statistic reflects two facts: New Jersey faces formidable development pressures because of population influx, which increases the value of the land; at the same time, farmers cater to local interests by growing a diverse array of produce crops, dairy and meat products that can be sold at roadside stands and local markets, providing a higher, more direct income than, for instance, growing in monoculture grain crop for sale overseas as livestock feed. In sum, the land in New Jersey is highly desirable on two competing levels: use as productive farmland, and for development of industry, businesses and homes because of its ideal position in the greater “Boston – Washington megalopolis” (Hasse and Lathrop, 2003, 162).

New Jersey encompasses an area of about 4.8 million acres of land, 1.7 million of which are unprotected, undeveloped land. Over half of this remaining land is currently devoted to agriculture and forestry with much of the remainder categorized as wetlands, water and shoreline (NJ DoA – Smart Growth, 2003, 3; Lathrop, 2004, 23). New Jersey is quickly losing farmland, at an estimated rate of 10,000 acres per year (NJ DoA – Smart Growth, 2003, 4). Approximately 50 acres of land is lost each day to development; this figure includes farmland, open space and forested land. In his 2003 State of the State address, former Governor McGreevey stated, “there is no single greater threat to our way of life in New Jersey than the unrestrained, uncontrolled development that has jeopardized our water supplies, made our schools more crowded, our roads congested, and our open space disappear” (McGreevey, 2003). This quote from the former
governor eloquently sums up the problems that sprawling development creates for citizens across many areas of the US.

The loss of farmland in the latter half of this century has been drastic in New Jersey; the data compiled spurred conservation efforts beginning in the late 1970s and 80s (Figure 1). In 1950, there were approximately 1.8 million acres of farmland in New Jersey, but this number dropped by more than half to 0.8 million acres in 2000. Additionally, the number of farms decreased from 26,900 to 8,600 in the same time frame. In 2000, the size of the average farm had dwindled to 86 acres per farm, down from 123 acres per farm in 1970 (Stony Brook, 2005).

New Jersey is at risk of becoming the first state to use up all of its land by some point in the 21st century if land development continues at the current rate (NJ Future, 2001). This trend is exacerbated by the fact that land is being developed inefficiently across the state. The population increased by 4.5 percent between 1986 and 1995, but developed land increased by 15 percent. Studies show that in 1986 the statewide average was 0.16 acres per person; this increased to 0.36 acres per person by 1995 in the 20 municipalities with the highest development rates during that time period (NJ Future, 2001). These figures make sense when viewed in a larger context; New Jersey is the most densely populated state, so the 0.16 acres per person as the statewide average in 1986 is reasonable. When factoring in the 20 fastest growing municipalities as of 1995, 0.36 acres per person is a

![Figure 1: These graphs show the decline in acres of farmland (top) and the number of farms (bottom) over 110 years in New Jersey. This drastic decline in farming caused the beginnings of preservation in the late 1970s (Schmidt, 1973, 271).](image-url)
larger figure because the 1990s saw residents moving out of older urban areas into previously rural regions.

Land is also being developed in a random, checkerboard pattern, which disrupts the continuity of open space, wooded areas, farmland, riparian zones and other land types necessary for a viable agricultural economy. This fragmentation of land reduces available habitat for animal and plant species, and destabilizes agriculture by creating islands of farmland surrounded by development, severing links to the larger farming community and culture (NJ Future, 2001).

Current Methods of Preservation

Table 1: The data presented here shows the marked decline in farmland in New Jersey from the early 1900s to present. Note the decrease in the number of farms to less than 1/3 of the 1910 census (USDA - NASS, 2002).

<table>
<thead>
<tr>
<th></th>
<th>1910</th>
<th>1935</th>
<th>1975</th>
<th>2005</th>
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<tbody>
<tr>
<td># of Farms</td>
<td>34,000</td>
<td>29,400</td>
<td>8,600</td>
<td>9,800</td>
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<tr>
<td>Land in Farms</td>
<td>1,035</td>
<td></td>
<td>790</td>
<td></td>
</tr>
<tr>
<td>Average Farm Size</td>
<td></td>
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<td>81</td>
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Farming seems to be a dying profession especially in the increasingly populated Northeastern United States and New Jersey is no exception, losing a striking amount of farmland over the past century (Table 1). With no federal leadership providing guidance on methods to preserve farmland, states are left to develop individual programs and policies on a more local scale (Musachio et al, 2003, 147; Tulloch et al, 2003, 34). In New Jersey there are several state policies in effect to halt the loss of farmland to development including: agricultural easements, fee simple, grants to non-profits, planning incentive grants, transfer of development rights, and the eight-year program (NJ DoA – NJ Preservation Program, 2005). Preferential tax assessment for farmland, agricultural zoning, and the Right to Farm Act are other legal tools in place to keep New Jersey’s farms in active culture.

Agricultural Easement Purchase
Easement purchase has been the most effective means of preserving farmland across the state (NJ DoA – NJ Preservation Program, 2005; Tulloch et al, 2003, 35). Commonly referred to as purchase of development rights (PDR), this policy leaves farm ownership to the farmer who still has rights to work the land in agriculture, but a restrictive covenant is placed on the deed to the property, restricting land-use to agriculture in perpetuity. The farmer is paid the “easement value,” which is the difference of the price of the land as agriculture, and the price the land would fetch for development. A similar method, though much less utilized due to high costs, is the state’s plan of fee simple, through which the property is purchased from the farmer, the deed restricted and the land preserved in perpetuity. However, the farmer no longer owns the property as in PDR, but the state or county can resell the land or lease it to other farmers wishing to work the land in agriculture only (NJ DoA – NJ Preservation Program, 2005).

**Planning Incentive Grants (PIGs)**

Additionally, the state provides funding for other groups such as local governments and non-profit organizations to preserve land. The state will provide matching funds up to 50% for a non-profit preserving farmland through fee-simple or easement purchase. Planning Incentive Grants (PIGs) are monies available from the state to the county or municipal government to pay for easement or fee-simple purchase, preferably of a large bloc of land. These grants are awarded based on the local government’s inclusion of farmland preservation in their master plan, and formation of an agricultural advisory committee (for municipalities) or county agriculture development board (for counties) (NJ DoA – NJ Preservation Program, 2005).

The matching funding from the state for fee-simple or easement purchase by a municipality or non-profit is equally effective as the state easement purchase and less costly outright for the state because they are providing matching funds (one-to-one) to the non-profit
instead of bearing a majority of the cost. The PIGs are also effective on the same level in terms of permanence of preservation, but require the added feature of municipal planning. This extra facet is a bonus because it requires the municipality to examine their master plan and their commitment to agriculture. This incentive-based planning is beneficial to municipalities and farmers; farmers that apply for preservation in the future are more likely to be approved based on the municipality’s measure of ‘local commitment.’

Transfer of Development Rights (TDR)

Transfer of Development Rights (TDR) is a program that passes the cost of purchasing the development rights onto actual developers instead of the state or local government. The TDR process designates two areas, a preservation area and a receiving area; landowners (including farmers) in the preservation area may place their development rights for sale on the open market, which may be purchased by a developer. The developer will purchase the rights because they must be combined with those of the receiving area in order for development to occur at a given density, or to achieve higher density than the base zoning. The preservation area, however, is restricted to agriculture through deed restriction or agricultural easement and the farmer remains free to work the land (Veseth 1979, 104-05).

This program has been a decidedly less popular option for preservation because of the intensive planning required on the part of the municipality. Additionally, it has been regarded unfavorably by those citizens in the ‘sending district’ who still feel all the negative effects of development while paying for preservation elsewhere. However, the pattern of land development that TDR intends to achieve does address planning at a broader scale; thus when used effectively, TDR can preserve viable farming communities that have been designated by the
municipality while targeting residential, commercial and/or industrial development to other locales. This plan ranks at an intermediate level in terms of effectiveness in preserving farmland.

**Eight Year Program**

Less permanent preservation options are also available to farmers, specifically the 8-year program. Under this program established by the New Jersey State Agricultural Development Committee (SADC), the farmer enters a contract with the state restricting any development on his/her land for a period of 8 years. As compensation for this reprieve, the farmer receives grant money to carry out soil and water conservation projects such as streambank fencing, contour farming and drip irrigation. If the farmer decides to sell the property before the end of the 8 years, the SADC has the first option to buy the farm through the stipulations included in the contract (NJ DoA – NJ Preservation Program, 2005).

This type of ‘preservation’ could be construed as an unpopular policy in the public eye; neighbors of the farm who realize the farmer is working with the state or county to preserve their land, and then later see the land being developed may develop a negative perception that preservation is not forever. This type of experience can easily make the program unpopular in a community, jeopardizing any future bond issues intended to raise funds. Communicating with neighbors that this option is only a temporary solution becomes critical to the program’s survival. However, the program does provide benefits in terms of monetary expenditure for the state in comparison to agricultural easements; the funds needed for this level of preservation are considerably less. Additionally, this provides the state time to raise additional funds without the pressure and worry of the land becoming developed in the meantime.

**Agricultural Zoning**
Zoning is another method that restricts land use, but only temporarily. Municipalities can choose to zone particular areas only for agriculture, which costs no money to the taxpayer. These types of zoning changes can restrict development to one residence per 20 acres, for instance, but are uncommon for several reasons. First, many municipality residents may fight the changes because they believe it will cause their property values to decrease, or their taxes to increase due to a lack of new development (both residential and commercial). This argument represents a common misperception regarding the intrinsic costs associated with development, a topic to be addressed in-depth later in this paper (see *Opposition to Farmland Preservation*).

Agricultural zoning can also become a legal issue; developers may challenge the zoning of a municipality, calling it too restrictive, thus generating a Fifth Amendment argument regarding the ‘taking’ of property.

For agricultural zoning to be effective, the municipal government must uphold this decision, often difficult to achieve because of the discontinuity of government. As easily as zoning can be restricted, later officials can choose to change the zoning to a more intensive use, and the security of farming will be lost (Veseth, 1979, 102-03). Zoning and the eight year program are both ineffectual in preserving land; they merely temporarily preserve farms when convenient for the farmer and the municipality. No penalty is imposed on a farmer for removing his farm from the program just as no penalty is felt by the municipality for changing their zoning in a manner that encourages conversion of open space and farmland to housing subdivisions and industry.

**Preferential Tax Assessment**

Farms can receive preferential tax assessment in the state of New Jersey, which helps to alleviate the costs of maintaining their land as farm. New Jersey’s Farmland Assessment Act of
1964 allows for taxation based on farmland use value, instead of as real estate market value. The state maintains a list of certified appraisers who assess each farm individually. The stipulations of this program include that the farm must be five acres or more, in active culture, and have produced a certain monetary value in sales. The land and any farm associated building (barns, greenhouses, produce stands etc.) are included in the tax assessment, but residential structures are excluded from consideration (NJ DoA – Farmland Assessment Act, 2001).

This assessment status remains unless the property use changes; if the farmland is converted to developed land, the state will charge the landowner a rollback tax. This rollback tax requires the landowner to pay the taxes saved through preferential farmland assessment from the year that the land use changed, and also the previous two years. This tax is not felt, however, by a new landowner who purchases the property and maintains the agricultural use (NJ DoA – Farmland Assessment Act, 2001).

With the help of these numerous policies, over 144,000 acres of farmland have been preserved statewide as of April 2006 (NJ SADC – SADC preserves 102 acre farm, 2006). County and municipal governments should seek a mixture of these approaches in order to best preserve farmland in their area. TDR offers the most comprehensive planning option that will preserve viable farming communities, but requires much work on the part of the usually understaffed local government. PIGs are another option similar to TDR in reference to overall municipal-wide planning, and like TDR should be undertaken by municipalities that have not experienced a great influx of growth. These two programs will be ineffective in townships that already have experienced residential and commercial growth; planning on a larger municipal level is already too late.
Agricultural easements, whether purchased by the state or in conjunction with the county government or a non-profit organization, offers the most permanent form of preservation, but does not account for the larger picture at the municipal or county scale in terms of land use. Simply purchasing agricultural easements haphazardly does not ensure that farming will remain a viable land use in the area, especially if a majority of the township/county’s land is being converted to commercial buildings or residences. This means of preservation can be used effectively in conjunction with TDR or PIG to offer a more complete overall view of farming, allowing for agricultural easements to be purchased in contiguous blocks.

The eight-year program offers an advantageous solution for those townships just beginning the preservation process; it stays the course of agriculture without requiring large payouts of money from the municipality or county. However, this program can become a dead-end for farmers if their township does not advance plans for preservation; farmers will be locked into preservation for 8 years, and once the term is up, there is no guarantee that the township will then have other, more permanent preservation options. Agricultural zoning should only be used in the rare cases of townships that have retained a vast majority of their agricultural land and have residents that are invested in this way of life. Additionally, the community must be receptive to this change, and willing to understand the impacts that agricultural zoning will have. Finally, preferential tax assessment offers no tangible downside, and any farm that meets the minimum requirements should apply in order to alleviate their tax burden.

Right to Farm Act
New Jersey residents expanded their horizons away from existing suburbs, and moved farther out into rural areas in the 1970s and 1980s, and consequently gained farmers as new neighbors (Figure 2). The Right to Farm Act is a piece of state-wide legislation enacted in 1983 in response to an increasing number of nuisance lawsuits directed at farmers, citing noise, dust and odors (NJ DoA – Protecting, 2005; NJ Future – Agriculture in Suburban New Jersey, 2001). A 1993 survey by Rutgers University found that the estimated net loss per farm as a result of these conflicts is $25,000, which can be extrapolated to $33.6 million statewide based on 8,400 total farms (NJ Future – Agriculture in Suburban New Jersey, 2001). The Act protects farmers from such frivolous lawsuits, and allows them to continue their traditional farming practices (NJ DoA – Protecting, 2005).

**Popular Support in the Garden State and Nationwide**

Farmland preservation is often cited as a popular policy nationwide; supporters list the connected merit of preserving of aesthetics (scenic diversity, living historic landscape), quality of life, rural culture, maintaining national economic independence (in terms of food imports), a local food source and providing jobs to name a few of the most popular (Figure 3) (Brewer, 2003, 229-231; Kline and Wichelns, 1996, 547; Lesher and Eiler, 1978, 143). Many also claim
the environmental benefits accrued by maintaining farmland such as mitigation of urban heat island effects, providing sites for bird nesting, and as corridors for animal movement and forage (Musachio et al 2003, 145).

Public support of farmland preservation has been strong in New Jersey and nationwide. New Jersey voters have shown their support for the agricultural industry at the polls and with their purses. In 1998, voters approved an amendment to the state constitution that commits a portion of sales tax revenues to preservation of farmland, open space and historic sites. Additionally, in 1999, the Garden State Preservation Trust Act (GPST Act) initialized a stable source of funding to be focused on farmland preservation activities, with $98 million dedicated annually to matching preservation funding (NJ DoA – Smart Growth Plan, 2003; SERC, 2004).

Public support has continued into the more recent election years. In 2003, a state-wide ballot question was approved with 65% of the vote to increase funding to the Garden State Preservation Trust (GSPT), while 34 of 41 conservation funding measures were approved at the local level. The over 40 measures voted upon in November 2003 in New Jersey account for more than half
of the total conservation-related measures nationwide. As a testament the history and pride of the Garden State, the passage of the Hudson County measure in 2003 made New Jersey a leader, becoming the first state in which every county had passed an open space ballot measure (Cook, et al, 2003; Trust for Public Land, 2003). Finally, a record $141.6 million was approved in June 2005 by the State Legislature to fund farmland preservation across the state (NJ SADC, 2005).

**Opposition to Farm Preservation**

Despite the widespread popular support of farmland preservation, there are those who cite preservation as an economic disaster. Some scholars such as Lesher and Eiler argue that preserving farmland as opposed to developing the land for residential purposes will decrease the tax base of the local government and the high cost to purchase easement cannot be justified (Lesher and Eiler, 1978, 142). Several studies respond to this claim, the most frequently cited being the American Farmland Trust study of 1991 which revealed that for every $1 of revenue generated by agricultural/forested lands, the municipality spent $0.30. Conversely, for residential homes every $1 generated cost the municipality $1.14, creating a deficit (NJ Future – Tax Policy, 2001). A 2001 follow-up study reiterated the results from a decade prior. The cost per farm has risen to $0.36 for the municipality for every $1 generated by the farm, and $1.15 for residential services for every $1 generated (NJ DoA – Smart Growth, 2003). The cost for residential land use to the municipality is still over three times higher than agricultural land; population influx triggers the need for larger schools, increased emergency services (fire, police), and improved roads and sewer/water service.

Others have raised concerns about the viability of farming in the face of sprawling development. Will these small farms surrounded by development be able to survive if the infrastructure and market changes? Protecting farms that later become surrounded by
development becomes very difficult; “If I have one regret, it was purchasing development rights to isolated properties. Protecting a property that is completely surrounded by development is very difficult” says Leroy Jones, manager of the agricultural programs of the Washington Department of Natural Resources (Knack, 1999, 12-14). This concern is a valid one; keeping farming alive, especially in the over-populated Northeast will be a challenge, but this problem lends itself to my capstone topic of better planning, so as not to create islands of wilderness or farmland that are unable to survive. Additionally, maintaining a local food supply will become increasingly more important in the coming years; the rising cost of gasoline and oil as the resource is depleted will cause transportation costs to become higher and higher (Brewer, 2003, 231).

A number of New Jersey farms are adapting new ways to balance the need for more localized food production with the need to support farming amidst a growing urban/suburban population. One successful method for 19 New Jersey farms is Community Supported Agriculture (CSA); a concept that spread from Europe to the United States in 1984, first in Massachusetts, to communities across the country (Wilson College, 2006; Robyn Van En Center, 2006). CSA involves cooperation between local farms (often organic) and community members; the community members pay a due or fee to the farmer at the beginning of the growing season and subsequently are given a share of the crop throughout the growing season. This relationship is mutually beneficial, the farmer has funds available at the beginning of the growing season when it is critical to purchase seed, fertilizers, equipment etc., and in turn gains customers in the community that support agriculture. This type of consensus building in a local area helps to ensure the viability of farming in that area for the years ahead, while also providing a healthy, local food supply (Robyn Van En Center, 2006).
Some opponents, such as watershed groups, cite environmental reasons as a problem of farmland conservation. The most commonly raised concerns about conventional farming practices are the detrimental environmental effects of nitrogen and phosphorus runoff, as well as soil erosion and sediment loss which run off into streams, rivers and bays. Water quality can be compromised because of the runoff of these nutrients (a product of manure and fertilizer), pesticides, and pathogens from livestock farms (Bucks, 2003, 2; Dybas, 2005, 553-554). Excessive nitrogen and phosphorus runoff causes eutrophication, and subsequent anoxic conditions, leading to ‘dead zones’ in larger bodies of water where streams and rivers collide, combining their individual nitrogen and sediment-laden waters. The largest dead zone in the United States is in the Gulf of Mexico, also distinguished as the second largest in the world (Dybas, 2005, 554-555). A Gulf of Mexico clam farmer, Dan Leonard insists, “we’re the perpetrators of the crime, with our excess fertilizer and untreated sewage” (Dybas, 2005, 553). Dead zones found internationally are attributed to excess nitrogen being applied to farm fields to increase crop yields, and later running off into streams because plants are unable to fix the high quantities of nitrogen applied (Dybas, 2005, 554).

This argument is a powerful one; farmlands could be affecting the health of our drinking water and the biodiversity in our streams, rivers, oceans, lakes and seas. In spite of these severe implications farmland is not the primary source of non-point source pollution. The alternative to farmland is often impervious surface cover associated with urbanization, which is rising exponentially nationwide. Pavement and rooftops frequently covers land previously used for farming. This type of land cover allows for little to no groundwater recharge, and speeds up sheet flow across the surface. The Center for Watershed Protection has documented that streams in watersheds exceeding 12 to 15% impervious cover experience serious degradation that is
difficult and costly to restore. Urban stormwater runoff has more severe consequences than farmland runoff; even a small rain event will allow any pollutants (oil residue from cars, gas etc.) residing on the surface a more direct path into water bodies (Arnold and Gibbons, 1996, 243-244; Richardson and Tripp, 2006, 85; Stone, 2004, 101-102). With farmland in place, one quarter to half of the rainwater will be recharged into the ground, where pollutants can be naturally filtered out, and plants, grasses and crops in the fields will act as resistance to sheet flow. This resistance provides for a more bell-shaped curve of the flood period, thereby reducing the extent and frequency of flash flooding and severe soil erosion. Increases in local stream/river depths will be less severe and occur over a longer time frame in watersheds with greater amounts of farmland and less impervious cover (Tong and Chen, 2002, 384, 388-390).

Preserving farmland serves as the first step to alleviating the problems of storm water runoff, localized flooding, erosion, pollution and many other related issues. The county and state governments possess an opportunity to include best management practices (BMPs) in their farmland preservation programs. The concept of BMPs refers to methods that help to reduce the severity of runoff pollution, stream channelization and erosion, and other past engineering problems (Claytor, 2006). Many options for BMPs exist for the agricultural sector, these include: stream bank fencing; riparian buffers; wetland restoration; manure management systems; rotational grazing; grassy swales and berms; organic farming; integrated pest management; and contour farming to name several choices (Chesapeake Bay Foundation, 2006; US EPA, 2002). In order to initiate these changes, the state or county would have to incentivize the projects, providing funding and expertise to complete such projects as riparian buffers, stream bank fencing and wetlands restoration projects. Without any incentive program
in place, the adoption of BMPs will be slow and modest. Watershed groups will also be more likely to embrace farmland preservation if BMPs are a requirement.

Further examination of the current farmland preservation programs in place will generate recommendations to initiate changes in policy, which will help to quell these environmental (runoff), economic (tax base) and public policy concerns. There have been two major areas state wide that have received the most funding; the areas consist of Gloucester, Salem and Cumberland counties (known as the Delaware Bayshore) and Burlington, Monmouth, Ocean and Mercer counties (known as the Farmbelt) (NJ Future, 2001). This paper focuses on the Delaware Bayshore area, specifically parts of Gloucester and Salem Counties, an area infamous for its ubiquitous roadside stands selling fruits and vegetables (Figure 4). Although there are a few farms that produce large-scale monocultures of grains and hay for commercial sale, most farms have diversified their opportunities by growing crops for sale to individual consumers at local markets or as part of their farming operation on-site. This area is particularly at risk, noted as having the highest per capita losses of prime farmland from 1986-1995 (Hasse and Lathrop, 2003, 167-168).

Overview of Study Areas
Gloucester and Salem Counties are located in southwestern New Jersey and are located adjacent to one another with Gloucester County sharing its southern border with Salem County (Figure 4). Both counties are bordered to the west by the Delaware River, and landlocked on all other sides. To create a contiguous study area, with increasing distance from the urbanized areas of Wilmington, Delaware and Philadelphia, Pennsylvania across the Delaware River, three townships in Gloucester County were selected: Logan Township, Woolwich Township and South Harrison Township (Figure 5). The final township has retained more of its agricultural character than the aforementioned two townships, but development pressures continue to expand into these rural areas. In Salem County, Pilesgrove Township and Upper Pittsgrove Township, contiguous with
Gloucester County’s southern border, were chosen as study areas thereby creating one large bloc of land (Figures 6, 8).

The counties’ physiography is mostly Outer Coastal Plain (about 2/3), with a small strip of Inner Coastal Plain along the Delaware River (Figure 6). The soil types in this region can be classified in three major categories: Freehold Collington, Aura and Greenwich (Figure 7). The Freehold Collington soil type is described as “sand mixed with clay and silt,” “well drained” and an area “well known as a rich agricultural section since frontier days” (Schmidt, 1973, 12). The Aura soil is also a silt/sand mixture with a pan of red clay beneath the surface, and slightly less productive than the Freehold Collington type. However, it is noted as “good lands for general farming,” and fruit and vegetable production (Schmidt, 1973, 12). Finally, the Greenwich soils occupy a thin strip along the Delaware River, with a more sandy consistency than Aura soils, but with “larger returns of vegetables and fruit” especially peaches (Schmidt, 1973,12). This 30-year-old commentary on soil remains true today with peach orchards scattered throughout the county, and most of the agricultural land devoted to other fruits and vegetable production.

Gloucester County

The origins of Gloucester County date back to May 1686 when the residents of the town gathered to form a county constitution, providing ‘Old Gloucester’ the status of “the only county
in New Jersey that derived its existence from the direct action of its own people” (Cushing and Sheppard, 1883, 105). Before European settlement, the Lenape Indians inhabited the area of the Delaware Valley and Atlantic Coastal Plain today known as New Jersey. The Lenape were primarily a woodland people living as hunter-gatherers, yet during the summer growing season they adopted more agrarian practices. They systematically cleared certain areas of land near villages for farming left it fallow, and then farmed again (Stansfield, 1996, 14; Wacker, 1975, 58-63). These people lived in agricultural settlements because cultivated foods such as corn, beans and squash were a major facet of their economy and diet (Wacker, 1975, 58-63).

The more recent agricultural history of Gloucester County relates a strong trend in production; on a state-wide scale the county ranked fourth in potato production in the pre-Civil War era, ranked 1st or 2nd for vegetable production in the post-Civil War era, and 1st for tomatoes for over 50 years (Schmidt, 1973, 178&189&266).

Examining the townships’ present-day demographics also helps to gain a more overall perception of their character, especially in terms of development and economic status. Logan Township has the highest population, with just over 6,000 people as of the 2000 census; Woolwich Township has about half of the population of Logan Township, but development has increased greatly since the 2000 census and their population is undoubtedly close to that of Logan Township. South Harrison has the smallest constituency, the highest percentage of whites, but also a considerable Hispanic population. When compared to Gloucester County as a whole, these townships all had higher mean household incomes (as of 1999 dollars), and higher Hispanic populations (Table 2) (US Census Bureau, 2000).
Table 2: This table provides general demographics for the study areas in Gloucester County and the county itself as of the 2000 census. Note the low population in South Harrison (US Census Bureau, 2000).

<table>
<thead>
<tr>
<th></th>
<th>Logan Township</th>
<th>Woolwich Township</th>
<th>South Harrison Township</th>
<th>Gloucester County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>6032</td>
<td>3032</td>
<td>2417</td>
<td>254673</td>
</tr>
<tr>
<td>% White</td>
<td>82.0</td>
<td>91.1</td>
<td>93.1</td>
<td>87.1</td>
</tr>
<tr>
<td>% Black</td>
<td>13.5</td>
<td>4.6</td>
<td>3.8</td>
<td>9.1</td>
</tr>
<tr>
<td>% Asian</td>
<td>1.8</td>
<td>1.1</td>
<td>0.3</td>
<td>1.5</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>2.7</td>
<td>3.9</td>
<td>3.4</td>
<td>2.6</td>
</tr>
<tr>
<td>Mean Household Income</td>
<td>67148</td>
<td>83790</td>
<td>76390</td>
<td>54273</td>
</tr>
</tbody>
</table>

These racial demographics can lend themselves to describing the overall farming community. South Harrison and Woolwich Townships have larger percentages of Hispanics, most likely due to the need for migrant labor, but both also have majority white constituents, with higher household incomes (Table 2). This pattern of wealthier landowners could be more supportive of farmland preservation because they already live in a strong tax base. However, further examination of this trend will prove untrue for the study areas in Gloucester and Salem Counties.

**Salem County**

For comparative purposes, examination of a several townships in Salem County, provides a contrast to those in Gloucester and offers a glimpse into the varying policies of each individual county. Salem County has retained a more rural landscape character than Gloucester, most likely due its farther distance from the Philadelphia metropolitan region. As people are increasingly willing to commute farther to their jobs, areas like Salem face development pressure. Pilesgrove Township and Upper Pittsgrove Township, the Salem County study areas, are adjacent to Logan, Woolwich and South Harrison Townships along the border of Gloucester and Salem Counties (Figure 8).
Salem County was settled in much the same manner as Gloucester County, by the Dutch and Swedes in the 1630s. Salem County was one of the first divisions (with Burlington County) of the West Jersey colony, and later Gloucester and Cape May counties would break off from this parent county. In the late 17th century and continuing throughout the 18th century, settlers in the county converted wet meadows to productive farmland (Cushing and Sheppard, 1883, 316-331); “and with pride it may be stated their successors, to the present generation, have utilized, improved, cultivated, and made profitable much of the low land of Salem County” (Cushing and Sheppard, 1883, 331). The land was cultivated upon first European settlement and continues today due to its prime location and good soils, “The facility with which the land is tilled, nearness to the great river, and ease of access to prospective markets were leading inducements with the people who first settled here” (Cushing and Sheppard, 1883, 335).

The demographics of Pilesgrove Township are similar to those of the study areas in Gloucester County, in terms of total population, income and race percentages. Upper Pittsgrove Township is marked by its very high percentage of white residents but the overall population is similar. When comparing these two townships to the whole of Salem County, they are much wealthier than the county average (Table 3).
Table 3: This table shows the demographics for Salem County and associated study areas as of the 2000 census. Note the low populations in both townships, similar to that of South Harrison in Gloucester County (Table 2) (US Census Bureau, 2000).

<table>
<thead>
<tr>
<th></th>
<th>Pilesgrove Township</th>
<th>Upper Pittsgrove Township</th>
<th>Salem County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>3923</td>
<td>3468</td>
<td>64285</td>
</tr>
<tr>
<td>% White</td>
<td>84.6</td>
<td>94.8</td>
<td>81.2</td>
</tr>
<tr>
<td>% Black</td>
<td>12.2</td>
<td>2.2</td>
<td>14.8</td>
</tr>
<tr>
<td>% Asian</td>
<td>0.9</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>3.0</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Mean Household Income</td>
<td>66042</td>
<td>53813</td>
<td>45573</td>
</tr>
</tbody>
</table>

Salem and Gloucester Counties are very different when examining each county as a whole. Salem County’s total population is only a fraction, about one-fourth, of Gloucester County, illustrating the much lower rate of development in the former. The differences in their income vary by almost $10,000, and Salem County also has a higher composition of minorities, except for Asians, than Gloucester County (Tables 2, 3). This demographic breakdown offers a further glimpse into the connection with farming. Upper Pittsgrove Township which has preserved over ¼ of its land has a high percentage of whites, but a lower income than all of the Gloucester County township study areas, and Pilesgrove Township. The potential trend identified earlier of wealthier townships eager to preserve land does not fit with this township’s demographics. With a majority of this township’s land devoted to farming, the citizens are the ones pressing for preservation despite their lower average income. A wealthier tax base does not necessarily relate to increased farmland preservation activity; the township constituents must be educated in preservation options and benefits in order for the programs to thrive. Without popular support, the local officials are unlikely to initiate preservation programs and land use decisions will continue to be made by officials due to lack of public interest.
Local Flavors

The farms in Salem and Gloucester counties are smaller, locally owned and run farms that have diversified crops in order to stay in business. These farms are typically grown with several different crops that are harvested over the entire growing season in order to maximize the farm’s productivity. The crops include: tomatoes, peaches, peppers, mums, pumpkins and Christmas trees (Figures 9, 10).

Roadside stands are a common feature throughout Southern New Jersey (Figure 11); they are an important community resource as well as a tourist attraction for visitors passing through the state. The stands provide a source of income for farms, and allow for community building; creating this sense of community is important to developing a sense of place and maintaining support.
**Gloucester County’s Preservation Process**

Gloucester County’s Board of Chosen Freeholders has made a concerted effort to preserve farmland. They note that the county’s land preservation program, which is administered by the Freeholders, has focused on farmland efforts, rather than open space. Since the mid-1990s, the Freeholders recognized the early trend toward dramatic increases in land prices in Gloucester County and associated increases in development pressures. They acted upon the opportunity to preserve as much land as possible in the short term, while it was still relatively affordable; “…agriculture remains a major industry in our county and … the window to preserve this way of life is rapidly closing” (Gloucester County Office of Land Preservation, 2006).

In a recent interview for this report, the Director of Farmland Preservation for Gloucester County, Ken Atkinson clarified the details of the process of entering a farm successfully into the county’s Farmland Preservation program:

1. A landowner showing interest in preserving their land, and approaching the county preservation office by phone, letter, or in person.

2. Initial meetings are held between the landowner and officials from the office of preservation, preferably at the landowner’s home, where the landowner provides initial information about the property, the deed for examination and discusses preservation options with the staff. These meetings typically occur from January until May, and the farmer can discontinue the process at any time without any monetary penalty.

3. If the farmer decides to continue with the process from this point, the property will be surveyed by two independent real estate appraisers between May and October. Each group will develop an inventory of the property, listing any wetlands, soil content,
development pressures, proximity to other preserved properties and other characteristics. Based on this assessment, the appraisers will develop an appraised value of the land before preservation, and after preservation, and also note the difference between the two values, which is the easement value that the farmer would be paid (Atkinson, 2006).

4. The county office sends the applications for preservation to the State Agricultural Development Board (SADC) in September, and then follows up with the appraisals in November.

5. The state reviews all of this information and contacts the landowner with the value they will be paid for preserving their farm in March; this price will fall between the values of the two appraisals. The landowner can either accept or reject this price, and the preservation process continues accordingly. If the farmer rejects the price and declines to further participate in the preservation program, they will be charged the price for the title work and surveying that had been conducted so far for their property.

6. Once a farmer accepts the offered price, they go to Figure 12: This sign is a typical feature across Gloucester County, highlighting the efforts of the Freeholders in preserving farmland (Wasilauski, 2005).
settlement with the county office in March or shortly thereafter, and any fees incurred from surveying and title work are paid by the county. Overall, Atkinson estimated that the process takes twelve to fourteen months on average from the first meeting with the landowner until settlement day (Atkinson, 2006).

According to Atkinson, Gloucester County’s success in preserving farms over the past few years, about 3,000 acres in 3 years, is largely due in part to the funding made available through bond issues introduced by the Gloucester County Freeholders (Figure 12). Over the past 2 years, over $26 million has been earmarked for farmland and open space preservation through bond issues ($10 million in 2004 and $16 million in 2005). The farmland preservation program and open space program for the county are also funded by a 4¢ tax (4¢ per dollar added to the property tax), approved by a majority vote in three increments: 1¢ in 1993, an additional 1¢ in 1995, and a final 2¢ in 2004 (Gloucester County Office of Land Preservation, 2006).

Atkinson appreciates these available funds because it allows for a faster process of paying the landowner without waiting for the state funding. Funding delays had strained relationships with some landowners in the past, and had cost the county certain preservation deals; landowners became impatient for their pay-off while developers constantly stream to their front door with checks in-hand. Gloucester County is able to pay the landowners with the monies from the bond issues and then later receives reimbursement for the state’s portion of the funding for the parcel (usually about 60-70%) (Atkinson, 2006).

So how does Gloucester County, a county with more available funding than many other counties, rank the applications they receive for farmland preservation? The surprising answer is that they do not. In recent years, the county has not been forced to rank applications, they have been able to fund every reasonable application received. Some applications do get discarded if,
upon surveying, the property is determined to be 90% wetlands or has some other obvious
restriction, or if the landowner decides to leave the process at some point. The average is about
twenty-five farms preserved each year, most in the 30-50 acre size range; in 2006 with the farms
going to settlement in March, April and beyond, the county will add 700-800 acres of farmland
to their inventory (Atkinson, 2006).

Atkinson points out that this obviously ideal scenario for preserving farmland will soon
come to an end. He noted that the housing price ‘bubble’ continues to grow, and with
development demand driving up raw land values, the county dollars can only be stretched so far.
The county office of preservation receives the same relative amount of funding each year from
the state, and property tax (currently 4 cents) and any additional funding from bond issues or
other sources is a bonus. Atkinson has calculated that if the average current number of
applicants per year remains steady, and the land prices continue to rise, then the county will
definitely have to return to a ranking system when prioritizing farmland applications for
preservation. The office has already felt the pinch because of land prices, one property in the
process of preservation in Woolwich Township was assessed at $28,000 per acre at its current
use, with offers up to $40,000 from developers. With land prices like these, the county will soon
only be able to purchase a few easements each year.

To date, the county has preserved about 13,000 acres of farmland, but the future may see
a decline in additional farms preserved because of the extreme costs to buy the agricultural
easements from farmers who can often sell their land outright for a much higher price to
developers (Table 4). Atkinson does note however, that many farmers have been surprised with
the competitive and fair pricing that the county offers for buying development rights, and adds
this to the list of reasons for the success of the county’s program. The requirement of appraisals
on the part of the state and county governments is a successful facet of the program, many other programs such as Pennsylvania’s sets an upper limit for the price per acre to be paid for an agricultural easement.

Table 4: This table shows the preservation efforts in the study areas of Gloucester County, note South Harrison's preservation numbers (Gloucester County – Inventory, 2006).

<table>
<thead>
<tr>
<th></th>
<th>Logan Township</th>
<th>Woolwich Township</th>
<th>South Harrison Township</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of farms permanently preserved</strong></td>
<td>0</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td><strong>Acres permanently preserved</strong></td>
<td>0</td>
<td>353.35</td>
<td>2341.06</td>
</tr>
<tr>
<td><strong># of parcels pending</strong></td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Acres pending</strong></td>
<td>82.0</td>
<td>54.20</td>
<td>185.87</td>
</tr>
<tr>
<td><strong># of farms under 8-year municipal</strong></td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td><strong>Acres in 8-year municipal</strong></td>
<td>0</td>
<td>358.08</td>
<td>365.40</td>
</tr>
<tr>
<td><strong># of farms under 8-year state</strong></td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Acres in 8-year state</strong></td>
<td>0</td>
<td>0</td>
<td>174.8</td>
</tr>
<tr>
<td><strong>Total acres preserved per township</strong></td>
<td>82.0</td>
<td>765.63</td>
<td>3067.13</td>
</tr>
</tbody>
</table>

Gloucester County’s fortunate situation (available funding for all applications), was a recent occurrence in the last decade. The 1997 “Gloucester County, New Jersey Farmland Preservation, Open Space Protection and Recreational Needs Study,” presented the basics of the ranking system being utilized by the county at the time. This system ranked in three categories: high, medium or low based on seven criteria, and the top-seven ranked farms would go onto the state for funding (Table 5). By 1997, the county preserved 1576 acres with easement purchase and about 2020 acres were enlisted in the eight year program (Wells Appel et al, 1997, 38). The county has rapidly expanded its program since this plan, with over 13,000 acres of farmland in preservation as of March 2006, a more than 8-fold increase in less than a decade. Additionally,
the county plans to use the state’s ranking system for prioritizing farmland in the future, a decidedly more complex system that includes many other factors.

Table 5: This table offers a basic overview of the New Jersey state ranking system used as of the 1997 Gloucester County study (Wells Appel et al, 1997).

<table>
<thead>
<tr>
<th>Value Category</th>
<th>HIGH</th>
<th>MEDIUM</th>
<th>LOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility</td>
<td>Assessed active farmland</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Soils</td>
<td>Prime agricultural soils</td>
<td>Soils of state significance</td>
<td>Locally significant or unique soils</td>
</tr>
<tr>
<td>Proximity to Streams</td>
<td>Within 1000’ of stream</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Proximity to Ltd. Access Highways</td>
<td>Within 1000’ of ltd. access highway</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Proximity to Other Farms</td>
<td>Within ½ mile of a preserved farm</td>
<td>Preserved farms within the municipality</td>
<td>N/A</td>
</tr>
<tr>
<td>Right to Farm Ordinance</td>
<td>N/A</td>
<td>Ordinance exists</td>
<td>N/A</td>
</tr>
<tr>
<td>Municipal Dollars</td>
<td>N/A</td>
<td>Contribution made</td>
<td>N/A</td>
</tr>
</tbody>
</table>

This system is very basic and does not include the intricacies of surrounding land uses, municipal cooperation/interest including zoning and existence of a master plan and many other factors. Additionally, it is unclear why criteria such as the presence of a Right to Farm ordinance and contribution of municipal dollars were considered “not applicable” in ranking a farm highly. Additionally, there is no component for farm size as a component under consideration; generally, preserving more acres is more important than preserving a smaller acreage farm. This system does, however, have the foundation of a more complex ranking system, recognizing the importance of boundaries to farmland, with those farms near highways and streams receiving high priority status. Those farms, especially near the streams, provide an opportunity to protect streams and the ten watersheds across the county when operated in conjunction with best management practices (Wells Appel et al, 1997, 18).
Farms preserved in the 1990s utilizing this ranking system, were not the best expenditure of state funding. Many farms located adjacent to other farms would not necessarily be ranked highly if those other farms were not preserved. Many townships at the time did not have updated master plans and zoning because the pressures of development were not felt strongly. Farms in these less intensely developed communities, such as those in the study areas, would be good candidates for preservation due to their location in a predominantly farm-based community with built-in farming infrastructure such as feed stores and tractor sales/repairs. While the county and state governments administer the farmland preservation programs, municipalities have a great deal of control in determining land use; examination of tools in place used to affect land use changes can determine what townships have used ordinances, master plans and zoning in order take a proactive approach to future growth, and what townships have few controls in place, if any.

Logan Township

Logan Township borders the Delaware River on its western shore, Salem County to the south, Woolwich Township to the east and Greenwich Township to the north (Logan Township, 1990, I-7b). The underlying soil is classified as a dark sandy loam, with good drainage facilitated by the “slightly undulating surface” (Cushing and Sheppard, 1883, 252-253). In Cushing and Sheppard’s account from 1883, the township is described as mostly dedicated to farming, which is supported by the Delaware River, the two creeks in the township, as well as the proximity to Philadelphia as a market for farm goods (253). Additionally, the biographies of the ‘prominent citizens’ for Logan Township are all respected male farmers with a rich history of family farming in the township and county (Cushing and Sheppard, 1883, 259-260). This strong tradition of farming obviously has deep roots, dating back centuries to the Lenape Indians (later
known as the Delaware tribe to European settlers), continuing to the first Swedish settlers in the mid 1600s, and persisting even today (Wacker, 1975, 57-123).

Examination of the township’s master plan, written in 1990, easily reveals several deficiencies. The first obvious problem is the age of the master plan, over 15 years old, which contains many outdated figures regarding housing stock, employment, land uses, population and virtually every other aspect. This problem of current data is not the only issue with the master plan; the ideas contained in the plan are not consistent with the present climate of the community. The master plan emphasizes the opportunities for development, while in recent years there has been a backlash from development. The master plan identifies the township as an attractive place to live and work because of ample transportation routes, and also cites the township as being attractive to business owners and industry because of the proximity to urban areas as well as the existing road and rail networks (Logan Township, 1990, I-10). The plan touts these amenities, which they claim has “bolstered Logan Township’s image from that of a predominately agricultural community to an attractive, suburban location for economic development” (Logan, 1990, I-2). The consultants, however, have not thought to attribute this agricultural character as a key reason for the great population influx in the 1970s and 80s.

In the land inventory, it was determined that 47.9% of the land was devoted to agriculture as of 1990. Another 29% of the land inventory was categorized as ‘vacant’ most likely due to the preponderance of wetlands which fell under this general category (Logan, 1990, I-7b – I-9). With so much undeveloped land, the master plan makes recommendations for an almost complete build-out scenario, with the exception of the wetland areas (Logan, 1990, II-13a). Implementation of this scenario results in the township housing over 20,000 people, with about 5.7 persons per acre (Logan, 1990, II-14a).
At the time of the master plan’s development, the housing stock in the township was largely “related to farming activity on adjoining open lands” (Logan, 1990, I-10), translating to land largely developed in a scattered pattern (Logan, 1990, I-10). Since this time, several major subdivisions have been constructed, mostly in Beckett, making Beckett one of two centralized housing locations, Bridgeport being the other. The master plan states one of its goals as “preserve Logan Township’s character” via four sub-goals, the last of which is listed as “protect the rural scenic nature of roadside views by allowing cluster development to preserve the integrity of prime views” (Logan, 1990, I-2). Development, both commercial and residential, in Beckett has achieved the goal of clustering, but development continues, albeit at a smaller scale across the township. Additionally, at no point in the master plan is the means of achieving the goal of preserving rural views discussed; in fact, the build-out scenario would preserve very few, if any, roadside views or lands not categorized as wetlands.

Shockingly, in a township with almost 50% of its land devoted to agriculture as of 1990, there are no provisions in the master plan to conserve or protect these areas from development. The ‘conservation plan’ aspect of the master plan lists 4 goals: preserve and protect sensitive wetlands, preserve and enhance endangered/threatened species habitat, promote conservation of potable water and finally to conserve energy resources (Logan, 1990, II-40). Obviously, the township needs a plan regarding open space and farmland because it remains completely unaddressed by the master plan, and no farmland was preserved in the township until 2005. This led to the development of the Open Space and Recreation Plan, completed with the help of the Delaware Valley Regional Planning Commission (DVRPC) and adopted into the master plan in September 2004. This relatively new plan, as well as the election of a new, more progressive
mayor (elected 2004) led to the preservation of the first farm in Logan Township in March 2006 (Table 4).

Obviously, the master plan requires rewriting in order to coincide with the township’s current status in terms of population, and other statistics. While the Open Space plan was unavailable at the time of this report, it should address the issues of farmland and open space that were unaddressed by the master plan. Provisions for farmland preservation such as ordinances, zoning and an inventory would be most beneficial. This overall inventory would provide for visualization of any potential networks of farmland to target for preservation. This inventory could also provide township officials with the reality that farming has been pushed out of their community. More information is required in order to make a complete assessment.

**Woolwich Township**

Woolwich lies to the southeast of Logan Township, the second township inland from the Delaware River, but with a navigable stream that connects to the Delaware making trade of goods (especially farm products) possible. Logan Township’s roots date back to Woolwich Township, once one contiguous township, which separated in 1877, thus sharing a similar sandy

![Figure 13: This photo shows a massive subdivision development in Woolwich Township (Wasilauski, 2005).](image)
soil (Cushing and Sheppard, 1883, 253&296). The 1883 characterization of the township lists Swedesboro as the principal town in the township, and this remains true today. The rich heritage and pride associated with this area dates back almost four centuries to the town’s founding in 1638 (Cushing and Sheppard, 1883, 300); this pride continues today, lightheartedly noted in a sign outside of Swedesboro which reads, ‘This is God’s country, don’t drive like hell!’

A 1973 book about the towns of South Jersey included a portrait of Swedesboro and Woolwich Township noting, “Swedesboro today is a small community in the center of a large agricultural area in which the principal crops are tomatoes, pickles and apples” (McMahon, 143). In the thirty years since this quotation was written, the town and surrounding countryside has changed markedly. Agriculture is now being relegated to the further corners of the township as growth blossoms around Swedesboro (Figure 13).

Woolwich Township completed a new master plan in 2003, a necessary update from their previous 1990 plan. Between 1970 and 1990, less than 200 homes were built in Woolwich Township, and the 1990 master plan allowed for a population of up to 70,000 and 30,000 dwellings; at the time of the master plan, there were less than 1,500 residents in Woolwich. Ten years later in 2000, the population of Woolwich grew 107% to over 3,000, and grew another 50% in 2002 to over 4,400 citizens. This growth continues today, although at a decreased rate due to increased attention to the drastic growth pattern through change in local government officials, drafting of a new master plan and updated zoning (Woolwich Township, 2003).
The township cited many needs for the update of their master plan, including the “use smart growth principles that are intended to balance development in specific areas…so that the rural and open character of Woolwich Township can be retained” (Woolwich Township, 2003, 16). This statement shows that farming continues to be a high priority in the minds of the local people and the government officials. The local government has also recognized the strain that this uncontrolled growth has put upon the community, citing the increase in school taxes and that school enrollment has increased 57% in 3 years (Woolwich Township, 2003, 13).

In the process of forming the master plan, the planners targeted areas of future growth by examining current densities, and planning growth in areas already serviced by amenities such as sewer and good transportation networks (Figure 14) (Woolwich Township, 2003, 23). These two characteristics are very important in planning new growth because they save the township money in terms of cost in expanding their services. If the sewer were available throughout the township, the prices of land offered by developers would increase further, thus out-pricing the farmers and limiting the county’s ability to buy the development rights. Sewer facilities allow for higher densities of development than on-site septic, thus more attractive to developers who can construct more units (housing, commercial) in an area.
The local planners and officials also looked to zoning as a tool for crafting a vision of their community. A majority of the land, over 55%, was zoned at 1 and 1.5 acre residential; this encourages an influx of developers who will take advantage of the zoning to build large homes on even larger lots in what has become the cliché of a traditional suburban sprawling community. At the time of the master plan in 2003, 78% of the land was zoned for residential use, but only 40% was populated with homes. Furthermore, less than 25% of the land was zoned for nonresidential use with only 3% of the total land inventory being used for retail, commercial and industrial uses. The land inventory also showed that over 50% of the land was devoted to agriculture at the time, but only 4% was preserved (Woolwich Township, 2003, 30-32).

These discrepancies in zoning versus actual land use demonstrate the need for the changes in zoning regulations. The majority zoning for residential use jeopardizes the farming community in Woolwich, making the switch to developed land an easier process for builders. The proposed new plan would cut the township’s population potential to 30,000, a cut of over half from 70,000 proposed in 1990 by placing about 70% of the land in less dense development zoning, farmland zoning or as preserved open space. Also proposed is the designation of about 70% of the land for less dense development, farmland and open space (Woolwich Township, 2003, 38-39). This first proposed change to cap the population at 30,000 is a good start, but with the current population at less than 5,000 persons, this estimate of 6-times the population, is a major, perhaps unnecessarily large, increase in population. This population would be especially large considering the proposal to maintain over 70% of the land at low density development or in farming through rezoning. Quality of life is also in jeopardy under this scenario of multiplying the current population by 6; already congested roadways around central community areas (post office, supermarket) will become further stressed under this proposed set-up.
The choice of low density housing development is another point for criticism. Compared to clustered, high density development, a lower density development will consume more of the farmland and open space, with less housing units that are more spread out than a mixed use clustered development. The township should distinguish between open space/farmland and low density development so they can be sure to not to surround farms with large homes on 1.5 acre lots. This failure to separate residential and agricultural uses could lead to contention within the community, and potentially consume the time and money of farmers with Right to Farm lawsuits. If the township zones large areas of land this way, and creates farmer-friendly ordinances such as agricultural buffers, this land could become less attractive to developers while maintaining farming in particular location(s).

As of March 2006, Woolwich Township had 8 farms in permanently preserved status, with two additional farms pending. In total, the farms already preserved sum to over 350 acres of preserved farmland, with an additional 48.18 acres pending settlement, soon to be added. There are 8 farms in the 8-year program totaling 358.08 acres, bringing the townships preserved acres to over 750 (Table 4) (Gloucester County, 2006). This is a relatively good beginning to preserving land, about 5% preserved in Woolwich Township, a township with over 13,500 acres of land, but many opportunities remain (US Census Bureau).

Without further information about the use of any buffers or specific ordinances to protect farmland, a complete recommendation to improve the programs cannot be offered. However, the township should employ both of these policies in order to protect farmland in the township. This type of restriction would coincide with the master plan by separating different land uses, but providing a more definitive barrier between farming and other land uses. This township has perhaps taken control over development too late to effectively preserve large viable networks of
farmland, but many farms still exist in the outer reaches of the county that could form contiguous blocs with those in other townships, especially South Harrison.

**South Harrison Township**

South Harrison, the third township east of the Delaware River, has the most preserved acreage, including permanent preservation and the eight year program, of the three townships under examination in Gloucester County (Table 4). This township has a rich heritage of farming, and has maintained a low population over the centuries; today it is the least populated of the study areas (Table 2) and in 1883, Cushing and Sheppard note that the township is predominately composed of a village and two hamlets, all of which are sparsely populated. The township possessed several saw- and grist-mills in the 1800s, and a half-dozen general stores that allowed for trade and created agricultural infrastructure (Cushing and Sheppard, 1883, 280-1).

The overall township codes for land use cites farmland as an important usage; the township hopes to encourage a mix of uses that allows farming, residential, commercial interests to each have “sufficient space and appropriate locations” (South Harrison – 90-1.02, 2006). The codes also state the intent of the land use code to create a “desirable visual environment,” “promote the conservation of open space” and “to prevent urban sprawl and degradation of the environment through the improper use of land” (South Harrison – 90-1.02, 2006). Without an available master plan, these codes are the guiding principles used by the township when planning future development.

While these policies are strong pillars to support farmland preservation, there is a lot of ambiguous language, such as “providing adequate light, air and open space,” “establishment of appropriate population densities” and developing the township to “promote the public health, safety, morals, and general welfare” (South Harrison – 90-1.02, 2006). Whose morals are these
decisions based on? What is deemed an appropriate population? This vague terminology weakens the codes and leaves the municipality ripe for rampant development. A very specific master plan such as that of Woolwich Township, with population projections, caps set on future population, and maps with specific areas targeted for different types of development would be beneficial in protecting what the township deems are vital areas. A full-spectrum study of the township will be worth the time and funding in order to give township officials a sense of preparedness and control over the developers that are gradually moving farther and farther out into the rural areas.

The township has prepared to some degree for development; there are several equations that assign a value that developers will be responsible for when building in regards to sewers, drainage and roadways (South Harrison – 90-1.07, 2006). There is also a process of public hearings, notification and document checklist that must be met when a developer proposes subdivision (South Harrison – 90-1.13, 2006). These codes are a standard form of regulating the zoning/planning process for a municipality, but nevertheless do provide some obstacle to development, that could become uncontrollable if the process were too easy.

Under the township’s codes, chapter 69 reveals farmland preservation policies. In 1996, the township posed a public question that will allot an appropriation of roughly $11,000 annually to be devoted to purchasing easements on farmland; this money is raised via a 1¢ tax rate on the annual budget. This money will be available in a trust (Farmland Preservation Assistance Trust), and will be awarded only to farmers applying for permanent preservation at the county or state level. The intent is to gain an edge for farms in South Harrison under consideration for preservation by allowing the farmers to accept a lower price offered by the state and subsequently to be compensated for the rest of the money by the municipal trust funds (South
Harrison – Chapter 69, 2006). This type of municipal-level program will ‘win’ the farm application 5 points according to the state scoring system (NJ SADC – Directions, 2006, 8-9). This level of local commitment to farming is very important in maintaining the heritage across the state.

The limitations of this funding are that the township will only allow payment for a value up to $100 per acre, so farmers that desire more funding from the state will be limited by this stipulation. Additionally, the municipality only provides this funding for farms approved for state or county preservation, they do not preserve farmland at the municipal level with only local funding. After the application process is complete, the municipal clerk prepares a resolution, and then the property is presented to the Township Committee for their approval (South Harrison – Ch. 69, 2006).

This funding is obviously very helpful in making the applications for farmland preservation funding more desirable, but also puts the farmer in jeopardy of not receiving the funds. The application must go up before the Committee and has the potential to not be granted the funding, thus leaving the farmer with less funding from the state and no municipal monies to compensate for the difference. This has not occurred thus far, but if the funding were suddenly jeopardized or diverted elsewhere, then the participation in farmland preservation would most likely decline and the trust between the farming community and public officials would be severely damaged.

Development remains a contentious issue even during the writing of this paper; an April 17th newspaper article details information about potential changes in the township’s planning board. The Executive Democratic Committee nominated two new candidates for the board over existing veterans, both of whom have served over twenty years. These nominations have been
interpreted as a push for change in the township, to a more “proactive and progressive” approach. Under the current leadership, over 3,400 acres have been preserved, with plans to preserve 2,000 more. However, 600 homes have been approved, but no commercial ratables, causing disputes among board members and township residents. The township currently has a stock of 800 units, meaning the approved construction would almost double the population (Tiver, 2006, A-3).

The struggle to find a balance between preservation and development continues in South Harrison and many other townships across South Jersey. This typical scenario finds residents desiring to maintain the rural character that drew them to the location in the first place, but then blocking any future development. This ‘last man in’ mindset persists in communities across New Jersey, where development is challenged, even by newer residents, but local officials feel the pinch from subdivision development and seek more development as the solution to increased taxes.

The township **must** develop a current master plan and assess the growth that they expect and provide limitations to the growth they want. This township possesses the opportunity to use TDR or PIG (because of low levels of development) to provide an overall plan that would satisfy the needs of future development while also protecting the sizable amount of farmland remaining in the township. The township could also use agricultural easements to preserve their farmlands, but they would have to preserve a majority of the parcels in a contiguous fashion in order to maintain the viability of the farming community. The investment of county official time and resources to creating a TDR program, or developing a master plan and overall farmland preservation program to qualify for a PIG is well worthwhile to prevent inevitable future development.
Salem County’s Preservation Program

Salem County differs markedly from Gloucester County, and the rest of New Jersey, in the land use pattern, going so far as being referred to as an “anomaly” in the county’s own Smart Growth Plan (Rukenstein, 2004, 21). This categorization is based on the extremely low rate of development across the county; only ten percent of the land has been developed for commercial, residential and industrial uses. This leaves approximately ninety percent of the land categorized as farmland, tidal/freshwater marsh, forest, and other environmental resources. A Geographic Information System (GIS) survey conducted in 1995 by the New Jersey Department of Environmental Protection (NJ DEP) concluded that about 38% of the county’s land is devoted to agriculture, as compared to a 1998 Census of Agriculture survey that found 42.6% of the land in active agriculture (Rukenstein, 2004, 3&22). Either way, this county is a stronghold of New Jersey’s agrarian roots.

Land development has historically occurred in a “corridor” along the Delaware River beginning with the first European settlers in the 17th century. This land use pattern persisted throughout the centuries because of the importance of the river in commerce, access and trade. The allure of the western coast of Salem County with proximity to Wilmington, Delaware (approximately 15 minutes away) and Philadelphia (35 minutes) became a popular destination for industries such as timber in the late 1600s, agriculture (especially tomatoes) and glass, both beginning in the 1700s and continuing to the present time. Industry really began to boom in 1891 when E.I. DuPont de Nemours and Company purchased a property in western Salem County, and began making gunpowder, later a huge commodity due to the First World War, and their subsequent production of other chemicals and dyes. This development pattern was further reinforced by the construction of major highways (I-295, the New Jersey Turnpike, State Routes...
45 and 49, and US Routes 40 and 130) which kept the population along the western shores of the county (Rukenstein, 2004, 3, 20-21).

However, the boom of industry did not last in the United States or in Salem County, and many industries left the area, leaving behind many unemployed workers and empty factories. DuPont continues to utilize its Chambers Works building, which at the high point of production employed 25,000 of Salem County’s residents, but now the Salem Generating Station (nuclear power plant) is the county’s largest employer with about 1,800 workers (Rukenstein, 2004, 20-21). The industrial uses of the past have left a lasting impression even on the residential sector; about 45% of the housing in Salem County is found the corridor. The corridor consists of the present day towns Pennsville, Carneys Point Township, Oldmans Township and Penns Grove Borough, but is only 10% of the total area of the county (Rukenstein, 2004, 4&21).

In the Smart Growth Plan, the county has recognized that any future growth should be targeted to this corridor which already possesses the infrastructure necessary to sustain residential populations as well and commercial and industrial facilities and associated traffic for all land uses. There is also an agreement among officials, citizens and other groups that “growth in the eastern and central portions of the County should be contained to protect the traditional agrarian economy of that area” (Rukenstein, 2004, 4). This may be the preferred pattern of land use, but it has not persisted in recent years; the eastern sector of the county is facing population increase (Rukenstein, 2004, 4). This encroachment of sprawl into a relatively undeveloped county demonstrates the need for increased planning and awareness of the development that continues to threaten every corner of the state.

The creation of this growth plan serves as a good beginning to empowering local officials, planning boards and citizens regarding the future of their communities. The growth
plan stresses that growth be targeted in the corridor, and the central and eastern sectors of the county maintain rural in nature, as explained above. However, the plan also discusses many other facets of the county such as the poor education level of many residents, the lack of ratables and other economic development (Rukenstein, 2004, 15-17). The plan lists ten goals to meet a county ‘vision’ and these goals include protecting the county’s environmental resources, facilitating economic development, redeveloping urban areas and rural centers, and upgrading the transportation system (Rukenstein, 2004, 10).

Most of these goals seem to focus on redeveloping the depressed county. The county already has a lowered sales tax percentage, only 3%, as opposed to the state-wide level of 6%. Even this enticement has not spurred development in the county, population and household incomes have dropped over the past decade, while the county has approved the least amount of residential construction of any New Jersey county (Rukenstein, 2004, 15-16). With these circumstances in place, and the need for economic development felt so strongly, these needs could surpass those of farmland preservation.

Despite this potential fear, Salem County has led the way in agriculture for the New Jersey; more than 10% of the statewide farmland total consists of Salem County farms, which generated about $72 million in 2002 (Rukenstein, 2004, 3; USDA – NASS, 2002). Agriculture remains the largest land use, over one-third, in the county, and the county ranked second (after Burlington County) in preserved acres of farmland. As of 2002, over 100 farms totaling about 15,000 acres were preserved, with more to be added due to additional funding approved in 2002, $660,000 for open space and farmland preservation each year through county tax (Rukenstein, 2004, 22). As of late March 2006, Salem County reached the 20,000 acres preserved mark, with the addition of a 116 acre farm in Mannington. With this 20,000 acre distinction, Salem County
becomes the second-ranked county in the state in terms of farm acres preserved (Elko, March 29, 2006).

The county continues to invest time and resources to farmland preservation. In February 2006, the county freeholders sought the help of the Morris Land Conservancy in order to develop an open space and farmland preservation plan. With changes in Salem County already in progress, an evaluation of the current program would provide a history of past trends, but was unavailable. The Conservancy held its first public meeting on March 21st, in hopes of gathering information from residents, municipal authorities, and farmers regarding their priorities of preservation across the county. The Conservancy developed a survey for the county, to be answered by mid-April; this survey was distributed at the March meeting, and is also available at the Salem County website (www.salemcountynj.gov), and the Morris Conservancy website (www.morrislandconservancy.org) (Elko, March 26, 2006).

The 2-page survey gives residents the opportunity to rank 15 statements regarding open space, recreation, farmland, wildlife and other values. There are two questions targeted to residents asking for their opinion about increasing the Dedicated Tax (funding for open space and farmland preservation) from 2¢ to 3¢, and also their willingness to increase the tax above 3¢. Additionally, the Conservancy has provided an open-ended area for further opinions (Appendix 1). This type of survey allows the Conservancy (and the county) to gauge the public opinion, and prioritize their values, so that the new open space/farmland preservation plan does not focus on creation of recreation areas if there is little interest.

There are other stakeholder specific meetings planned, one targeted to the agricultural community on April 26, and another targeted to park managers, non-profits and recreation boards across the county set for May 24. The finalized plan is expected to be complete in
December 2006 (Weinstein, 2006). While planning multiple meetings, especially with individual meetings targeted to key stakeholders is a good idea, the public involvement is seemingly limited to those two public meetings held on March 21 and 22. The involvement of the public should undoubtedly be extended throughout the multiple stages of development of the preservation plan. While this step-by-step process of public involvement and approval will hinder the pace of the project, the county and Conservancy will garner a greater degree of consensus, cooperation and participation as the outcome.

While the county works to develop an overall regional plan, municipalities in Salem County have long been working for preservation in their own local niches. The most common tools at the municipal level are a strong master plan, ordinances that require setbacks and zoning that separates farm land use from other land uses. These tools have proved beneficial in two of Salem County’s municipalities, Pilesgrove and Upper Pittsgrove, both of which have preserved several thousand acres of farmland.

*Pilesgrove Township*

Pilesgrove Township is located outside the ‘growth corridor’ designated by the Smart Growth Plan, and continues to have a strong agricultural influence. The dueling interests of development and preservation in this township could intensify in the years to come because development pressures have increased over the past few years, but many citizens are interested in preservation.

Traveling through Pilesgrove Township can transport a visitor back to the Wild West, to a South Jersey landmark for the last 50 years. Cowtown, a year-round farmer’s market and seasonal rodeo preserves a way of life not traditionally found in the Northeast of the United States. The farmer’s market operates two days per week and sells everything from peaches to
pocketbooks from over 550 vendors (Cowtown, 2006). This setting provides the opportunity for
eighbors to meet, interact and dicker over prices, preserving a tradition of the past. This
treasure is an asset to the township, drawing tourists from across the county and region, while
bringing farming to the forefront. Highlighting this traditional land use increases the public’s
awareness of their neighbors and the services provided by farming in the township.

Concerned Pilesgrove Residents (CPR) is a citizen activist group that began about 4 years
ago when two dozen residents gathered to express their concerns over development in the
township. To date, they have over 3,000 supporters throughout the county, and their
membership is entirely free and organized by volunteers. The group’s motto is that citizens must
be the ones to initiate change, and they should hold a key role land use planning issues. CPR
believes that the public cares and when presented with information, will make a wise choice
versus doing nothing. Their major interest lies in farmland preservation and otherwise
preserving the rural heritage and character of the township. The group was recognized last year
by the New Jersey Planning Organization (NJPO) for their efforts in proactive land use planning
throughout Salem County; this was the first time NJPO recognized a citizens group like CPR
(CPR, 2006; Reardon, 2006).

Thus far, CPR has been involved in the preservation of over 1,000 acres in the township,
and also in campaigning for a dedicated tax for farm preservation. With the passing of this
dedicated tax, Pilesgrove Township became eligible to receive PIG funding from the state, and
took a large step toward better overall planning in the township. The group holds planning
seminars, and works with environmental groups, township and county officials to educate every
class of citizen from the leaders to the basic residents (CPR, 2006; Reardon, 2006). With a
community group such as this in place, the township has a better chance of preserving land
because of the consensus building processes in place and information distributed over the past 4 years by CPR.

In interviewing the Planning Board chairman, John Ober, for this project he enumerated the policies in place in Pilesgrove Township to preserve farmland. Zoning, ordinances and environmental impact statement requirements are the primary tools used to protect farmland, while the township works in conjunction with the state, county and non-profit organizations to preserve farmland, mostly through agricultural easement. According to Ober, approximately 5,000 acres have been preserved thus far in the township, with several other applications under consideration totaling an additional 800 acres. This year, the township received a PIG to preserve farmland, so landowners currently have four options to explore when preserving land (state, county, municipality, non-profit) (Ober, 2006).

The township has a 3¢ dedicated tax generated from property taxes, as well as $1.8 million in additional funding made available through a recent bond issue. This bonded money will be used to fund the PIG applications in the township. Because the PIG is a new technique, Ober says that the township is still working out a few issues such as getting matching funding from the county for agricultural easement purchase.

The Planning Board and Agricultural Advisory Board of the township asked farmers what their greatest fears were about incoming development, and using these suggestions developed the following ordinances and zoning techniques. The township has a zoning program in place with several zoning types that help to protect the viability of farmland. Currently, the zoning throughout the township is 2-acre lot size, but a vote to increase the lot size is planned for later this year. The township also has two agricultural preservation districts identified, securing farmland uses in these areas. The township also utilizes agricultural cluster zoning which
requires developers to preserve half of the land parcel while developing the other half at a higher density. This type of zoning puts the cost of preservation on the developer, while allowing the municipality to auction the land after restricting the development rights on the property. The funds generated from the sale of the property are filtered back into the farmland preservation program of the township, used to purchase other agricultural easements (Ober, 2006).

Ober cited the most powerful ordinance in the township as that which requires an agricultural buffer between farmland and any new development, whether commercial, residential or industrial. This agricultural buffer, of 150 feet, requires a fence, berm and trees as part of the setback. These requirements are helpful in blocking dust and allowing the farmer room for their traditional farming practices. Additionally, the township requires buffers near water courses varying from 50 – 300 feet depending on the contour and sensitivity of the land. This buffer quiets opponents of farming who cite runoff as a major problem, while protecting the farmland from erosion by a stream, river etc. (Ober, 2006).

The township has several requirements of incoming development for their environmental impact statements in regards to agriculture. The environmental impact statement (EIS) requires the developer to show how they will not negatively impact existing agriculture in the township. Additionally, the EIS must contain information about mitigation if any harm (destruction of crops, irrigation networks etc.) is inflicted upon farmland. Ober contends that the strong requirements imposed by the EIS offers protection to farmers; with so many requirements forced on developers, they could develop land more easily in other townships with less restrictions (Ober, 2006).

A Right to Farm ordinance is also active in the township, and required on the deeds of all new subdivisions. This identifies the policies in place in the township for new homeowners,
making them aware of traditional farming practices, in order to prevent lawsuits. An additional tool is planned by the municipality, targeted to new residents. The township is in the process of developing a pamphlet with a working title of “so you want to live in the country?” Ober and the other planning board members hope this pamphlet will effectively communicate to new residents what to expect when moving into a rural area (Ober, 2006).

Ober notes that farming is changing across the municipality and the state, mainly that traditional farming is not as viable so farmers are being forced to diversify their operations. He cited a few examples of how farmers are diversifying their interests; in recent years two vineyards have been established in the township as have several nurseries, neither of which existed in the past. Meanwhile, development is fast encroaching on the township; a subdivision plan for 600 units was recently proposed in this township of only 1200 homes (Ober, 2006).

While this township has seen success in preserving farmland thus far, the pressures of development are increasing as people are drawn to the rural appeal of the area. The use of cluster zoning and buffers are both effective measures to protect farmland, and can be applied to many other municipalities. The township should work hard to pass the zoning change in the agricultural district in order to increase the lot size, but this could require a high degree of persuasion on the part of the planning board to the farming community in order to communicate the benefits of this change. Finally, any future development must be planned carefully in order to preserve large blocs of agricultural land and cluster development in other areas.

Upper Pittsgrove Township

Upper Pittsgrove Township is the furthest township inland from the Delaware of the three Salem County study areas. Even 120 years ago the land in this township was viewed as critical, “among the most productive lands of the county” (Cushing and Sheppard, 1883, 490). The land
here was split up into large tracts, thousands of acres each, in the early 1700s, perhaps lending itself to the legacy of farming that persists today (Cushing and Sheppard, 1883, 490). Mayor Jack Cimprich, himself an immigrant, notes that it takes three generations to become a ‘local’ (Cimprich, 2006).

In speaking with mayor Cimprich, the township’s long history of farmland preservation was brought to light by its champion. Cimprich, the township’s mayor for the past 12 years, served previously on the township planning board for over 25 years, and currently serves as the board’s chairman. Cimprich’s efforts date back to the 1980s, shortly after he moved to the township from Northern New Jersey and wanted to preserve the rural character of the township and prevent the sprawl typical of the northern part of the state from spreading into the area (Cimprich, 2006).

To date, the township has preserved about 6500 acres out of a total 25,000 acres, equivalent to over one-fourth of the township’s total land locked in preservation. This percentage is incredible, and has been achieved through a number of methods including participation in the state and county preservation programs, and also local control exercised through zoning and ordinances. Cimprich estimates the township ranks in the top 5 of all of New Jersey’s municipalities for preserved land. The mayor’s vision for the future includes more ambitious plans for preservation; he plans to preserve a total of 10,000 acres, leaving 5,000 acres to be developed in addition to the approximately 5,000 acres already developed, and 5,000 acres of land that is undevelopable, mostly due to the presence of wetlands, existing roadways etc. Using these land use figures, over half of the township will be undeveloped at the mayor’s build-out scenario (Cimprich, 2006).
The mayor says that the primary strategy has been zoning and ordinances in the township to protect farmland. In 1990, all the zoning in the township was changed to large lot sizes of 2-3 acres. While Cimprich notes this is not an ideal planning technique because when the land is developed, a lot of land is consumed, he also sees the value in this tactic. This type of zoning has “bought us time” says Cimprich, allowing them the time to preserve farmland while keeping development interests low. This type of zoning deterred development in the township because developers would have to front a large investment for building inner roads and installing sewer (Cimprich, 2006).

The change of zoning also required some persuasion on the part of Cimprich and others on the planning board to those in the farming community. Cimprich cited the American Farmland Trust study (see pages 14-15) as an effective means to communicate to farmers and other citizens that development would not benefit the township in terms of lower taxes. He also argued that development would not increase the township’s quality of life in terms of industry generating business and tax revenue; “I’ve never seen a good quality of life follow increased development.” Further elaboration of this statement reveals Cimprich’s concerns over industry and housing construction generating more traffic, crowded schools and pollution (Cimprich, 2006).

The mayor attributes one of the township’s most successful ordinances as one which requires a 200-foot agricultural buffer for any development adjacent to farm assessed property, not just those farms which are preserved. This buffer cannot be applied to the setback or any other development requirement, it is effectively “just dead ground” that allows the farmer to most effectively and efficiently work the land using their traditional practices. This particular ordinance has been extremely effective in the township because there is so much farmland; a
The developer would be hard-pressed to find a parcel for development that was not adjoining farmland. The mayor thinks this ordinance has deterred development, because the buyer is paying for land that is not able to be used, which is not the case in other townships, making them more attractive for development (Cimprich, 2006).

Additional local controls in place include the master plan which states its primary objective as preserving agriculture. This profession allows the township great protection against claims from developers that the zoning/ordinances in place are too restrictive. If the developer appealed to the county or state, the area is also protected as prime agricultural land in the state master plan, and not targeted for development in the “corridor” under the county plan (see Salem County Regional Plan). Cimprich also noted that any new proposed development in the township includes Right to Farm language, protecting the farmer from lawsuits because of their ‘noisome’ practices (Cimprich, 2006).

In terms of applying for easement purchase to the state directly or using the county process, the Upper Pittsgrove Township farms have seen much success. The farms score high in the categories of local commitment due to a dedicated tax, passed this year, as well as the township’s voluntary contribution of 2% of the purchase price. Additionally, the farms rank very high in terms of adjacent land uses because most of the township is in farming; currently the township has thousands of contiguous acres of preserved farmland, also helping to maintain a viable farming infrastructure. Cimprich refers to this trend as “success breeding success in this game” because more farms will be preserved in the future as a result of past preservation efforts (Cimprich, 2006).

Cimprich cites the need for maintaining a farming community as integral to the farmland preservation process. If farmers across the township were selling their farms, others in the
community would lose hope as to the future of farming, and often be inclined to sell as well. The degree of preservation in the township has encouraged others to participate, and even drawn related businesses to the area; a few years ago, a John Deere tractor dealer opened a dealership in the township, showing that even businesses recognize the degree of commitment to farming in the community and its long-term viability. The mayor is proud of this maintenance of an agricultural way of life, something becoming increasingly rare across the state. He notes that a few townships across Southern New Jersey have preserved a few “showcase farms” in the midst of extensive development, which provides scenic views, but these farms are not viable in the long term (Cimprich, 2006).

Keeping with this trend, Cimprich has also modified zoning for farmland by allowing farmers to have farm related businesses without forcing the switch to commercial zoning. He provided the example of allowing farmers to use the same trucks used for potato transportation three months out of the year, to haul gravel during the non-farming season. He views this type of diversification as creating opportunities for farmers to maintain their way of life in the face of increasing costs of living. There are other covenants in place that will help to deter future development upon a government leader change; Cimprich has placed pro-farmland preservation people on the planning board, made extensive modifications to the master plan to highlight the importance of agriculture, created of ordinances and the changes in zoning mentioned above (Cimprich, 2006). All of these methods for farmland preservation have been created over the past thirty years, and will be difficult to overturn, ensuring the township’s future dedication to farming.

The future is bright in Upper Pittsgrove Township according to the mayor, his pride regarding the accomplishments of farmland preservation is quite evident, and he states that
“we’ve won the battle…even if we didn’t preserve another farm, we’re still in good shape.” The mayor predicts a real estate slump in the next few years which will decrease the pressures of development. He is wary of the funding that will be available for farmland preservation over the next year to 18 months because of the usurping of GSPT funds by the Highlands Commission (Cimprich, 2006).

While Upper Pittsgrove Township has been extremely fortunate in having a farmland preservation champion in Jack Cimprich, most townships are not as fortunate, nor did they start the process many years ago. To those townships that are just beginning their preservation process, examining the degree of local commitment to farming is important in determining what steps to take. The farmer-friendly ordinances such as agricultural buffers and allowing for diversification of use could serve many townships well, but large-lot zoning is not a good planning practice for most townships. This township’s efforts are highly commendable, but the large-lot zoning could become a problem in the future; as the townships in the growth corridor are developed, people will inevitably move further into rural areas and the demand could outweigh the costs to the builders.

**New Jersey State Ranking System**

The new round of applications that will be considered next year for preservation in Gloucester County are likely to come under the microscope of the state’s ranking system due to the increased pricing of land, and the limited funding available to the county. The size of the farm to be preserved is obviously the first thing to consider when ranking a farm for preservation. The state awards up to ten points for every net acre to be preserved (total acreage of farm – acres of exception = net acres) divided by 2x the average farm size in the county. An exception is the portion of the land that the farmer decides to omit from preservation, because of
the presence of a residential home or business façade, or to hold for future development. The withholding of an exception can have a negative impact on the ranking of an application, if the exception is more than 10% of the total acres, one point will be lost. If the county official thinks that the exception area has a “significant negative impact” they must attach a separate note explaining the impact, and up to ten points can be lost (NJ SADC – Directions, 2006, 3-5).

Additionally, if the exception can be sold separately from the rest of the property, two more points will be subtracted. Further points can be subtracted for each housing unit that can be built on the exception land according to the local zoning. The number of allowable units will be subtracted from the score, unless the farmer agrees to restrict the exception property to one residential unit. One additional note in regards to the exception, if the deed for the preserved land includes “Right to Farm” language for the adjacent exception area, then one point is added (NJ SADC – Directions, 2006, 3-5).

The county also has the ability to influence the state’s ranking of an application. If the county uses a ranking system, which Gloucester County currently does not, then they would attach their own assigned score, ranking 1, 2, 3, 4, etc., with 1 being the highest ranked application. If the county ranks a particular application as a ‘1’ the state will award ten points (NJ SADC – Directions, 2006, 5).

Township zoning has a significant impact on the scoring of a property as well. Five points will be awarded for any one of the following: zoning that supports clustering and buffering between development and agriculture, presence of a TDR program, sliding scale zoning that encourages large lots of farmland, and any other comparable program. Further points awarded on behalf of township participation include three points for lack of sewer service (and other comparable infrastructure), one point for municipal planning board activity in favor of
farmland preservation/inclusion in the master plan and one point for a municipal liaison to the county agricultural board. Further, the activities of the municipality are examined and one point each is awarded to the property for municipal eight year programs and presence of other preserved lands in the municipality. Finally, four points will be added for a Right to Farm ordinance in the municipality (NJ SADC – Directions, 2006, 8-9).

Another aspect of scoring in the ‘local commitment’ category includes the amount of funding allocated by the municipality toward farmland preservation. The awarding of points is based on an equation that divides the funding by the state equalized value over 1000. This new number is then awarded points, 1-5, based on an index (NJ SADC – Directions, 2006, 9). This scoring system reflects the importance of the participation of the municipality in farmland preservation, because without their cooperation in facilitating farmland preservation, the ranking of the parcel will be considerably less. The amount of available points here (up to 20 points) is justifiable because without municipal cooperation, preserving a farm parcel will arguably be a waste of preservation funding (Figure 15) (NJ SADC – Directions, 2006, 9). Without other programs in place locally, a farm is at risk of becoming an ‘island’ surrounded by residential subdivisions, a hostile community and ultimately unable to function at optimum performance.

Figure 15: Instances such as these occur often in communities mixed with farming and residential housing. Without measures of local commitment, ensuring that the community supports agriculture, farmers would be unable to conduct business as usual (Wasilauski, 2005).
The state has another category of scoring based on four categories of soils: prime 15%, statewide important 10%, unique 12.5% and local 5% (Appendix 2). The amount of tillable acreage awards points in a similar fashion with several categories: cropland harvested 15%, cropland pastured 15%, permanent pasture 2%, and woodlands and wetlands which receive no additional multiplying percentage (Appendix 3) (NJ SADC – Directions, 11-12). This type of ranking is a good baseline, but discriminates against alternative methods of farming, such as horse farming or nurseries which would not rank highly on this scale, but are very productive businesses.

Finally the types of surrounding land uses are taken into consideration when scoring an application for farmland preservation, an important factor to consider when speculating the viability of the farm in the future (Figure 16) (a complete listing of the state’s ranking system can be found in Appendix 4). The top tier of ranking is awarded for adjacent lands that are permanently preserved farmlands, with deed restricted wildlife areas and wetlands/streams running a close second. A surprising aspect is that private golf courses and landfills will be awarded weight percentages on an individual basis; the presence of a landfill next to a farm seems highly hazardous in terms of potential contamination through the soil, affecting the farm
soils (NJ SADC – Directions, 2006, 13). Furthermore, the parcel under consideration receives two additional points for each additional preserved farm (deed restricted) within ½ mile, and one point for each farm under the 8 year program or similar municipal program (NJ SADC – Directions, 14).

**Recommendations**

All of this information presents the opportunity for an open critique of the state, county and individual municipality plans and programs. Due to differing amounts of available information, each section which discusses the individual counties and municipalities will vary in the depth of information provided and thus the ability to provide a meaningful critique. This represents an area for further study, and also a recommendation to municipal governments regarding making information more readily available to its citizens, although difficult when many local governments are understaffed. By implementing these recommendations each of the above-mentioned governing bodies can increase the efficiency of their programs in terms of the farms preserved. This does not mean that these farms are literally producing more crops, but farms that are likely to remain viable based on the characteristics that receive points during application prioritization.

*Recommendations to the New Jersey State Program*

While the New Jersey state ranking system is a sound foundation, many changes to this system could vastly improve the intent of the program. One improvement encourages those farmers who have cooperated with the state or county in the past; farms that have already been in the eight year program could receive a few additional points on their application when applying to the state for permanent preservation. This rewards those farmers who have already taken the first steps toward preservation, but hesitated about a permanent option. Additionally, this
provides a reward for the state or county; the money spent for the conservation projects over the term of the eight year program will not be in vain, by losing the land to development after the program extent is terminated.

Another recommendation that involves the eight year program is the proposal of a monetary penalty for farmers who exit the eight year program before their contract expires. The state has lost the funding given to the farmer with the intent of completing soil or water conservation projects, projects which will be mute after the farmer sells the property for development. The cost of the grants received by the farmer over the time period should be paid back to the state or county as part of the contract. The state already has the option of being the first bidder on the property when it enters the market under the terms of the program contract, but this extra penalty will provide an extra disincentive for departing from the program.

Another monetary disincentive that will provide for more farmland preservation involves increasing the roll-back tax on farms that receive preferential tax assessment but later develop their property. Under the current statutes, landowners are charged the difference in the current year’s taxes as well as the previous two years. This disincentive, while substantive, could possess a larger impact. For instance, the state of Pennsylvania requires the landowner to pay a roll-back tax for the previous seven years (PA General Assembly, 2003).

The next series of recommendations will focus on cooperation between the SADC and other New Jersey agencies. Farms near historic sites, such as churches, mills, historic homes, schools and many other structures should receive extra points under the “Boundaries and Buffers” facet of the program. This type of adjacent structure provides a degree of permanence highly valued by the state as a ‘good neighbor’ to a farm, which elicits little threat to its existence. When working in conjunction with the New Jersey Historic Trust or similar non-
profit organization, the SADC could preserve farms that are important for all of the reasons enumerated previously, but also in preserving a historic landscape.

A second option of interagency networking can occur with the New Jersey Department of Environmental Protection, and farms that would fill in or extend a greenway which includes golf courses, municipal and national parks, trails, forest land types. This type of land already receives ranking points according to the current system, but if the land were adjacent to an official greenway project undertaken by the DEP, other land conservancy or similar organization, the level of community involvement is likely already high. Gaining this type of public support and awareness imparts a better result, and thus should be awarded extra points.

A similar option would award points to farms adjacent to roadways with “Scenic Byway” status. This type of status is defined by “a transportation route which is adjacent to or travels through an area that has particular scenic, historic, cultural, or recreational qualities” (NJ DOT – Scenic Byway, 2006). In order to gain this type of status, the state agencies work closely with town, municipal and county officials, as well as the public in order to gain support for this type of project, harkening back to the local support facet of successful preservation. This type of designation has already, in most cases, taken the time to identify a corridor that meets this scenic definition, and this work could be exploited by the SADC to identify qualified farms. There is, of course a potential downside.
to using these criteria, namely potential future problems of traffic. The DOT and SADC could use the scenic byway and preserved farmland as a springboard to working with the township and/or county to develop or refine their master plan and farmland preservation program.

Another change to the points ranking system awards points for farms engaging in ecotourism activities such as pumpkin picking, individual Christmas tree cutting, hayrides and mazes to name several examples. To revisit the theme of local support, this type of community involvement is crucial to maintaining a working farm environment. Allowing the community to experience the farm first-hand creates a more concrete connection in their minds to the products being created. By picking their own pumpkin, or cutting down their own Christmas tree, people are able to view the farm as providing an important service, more so than simply seeing the farm growing crops, but never actually consuming the product (Figure 17). This type of tangible connection to a place gives it a history and generates memories for every individual involved, arguably making the farm a highly prized resource to the community.

The state could use these farms as a venue to communicate information to the community such as facts and figures about farm preservation such as the money saved in taxes through preservation versus providing essential services (fire, rescue, sewer) to developed land. The American Farmland Trust study or Montgomery County Lands Trust study “Saving Land Saves Money” are both ideal candidates to communicate this information, or the state could commission its own individualized report, making the sentiments more personal to New Jerseyans. The state could also provide an overview of its farm preservation programs, making sure to distinguish between permanent preservation options (easement, fee simple) versus the eight year program which is only temporary. This ecotourism would not be a required covenant on the farm once it was preserved; the farmer would not have to maintain the activity.
Additionally, the ecotourism activity would only be worth a minimal amount of points, in order to minimize pressure among farms to create such programs, which are not suitable to everyone.

A final recommendation to the points-based ranking system would involve diversification on the part of the NJ SADC to include farms that fall outside of the traditional definition. These farms include horse farms and nurseries for instance. These farms would likely receive few points based on tillable acreage and soil quality because it is not integral to their operation. A special sub-class of preservation ranking could be developed for these ‘farms’ as they are also valuable to New Jersey’s economy and residents.

Improvements could be made to the state program to increase its effectiveness. One such improvement would be to change the farmland preservation process to a rolling applications program instead of one annual deadline. This solution could help to improve the program’s participation rate because a property can enter the market at any time of year, not just between January and May, when the process is slated to begin. If a farmer decides in July to sell the farm, and seeks the option of preservation, they could easily be deterred by the six-month waiting period to even begin the process, and the additional year until they receive the money at settlement. During this time period, a farm can easily be lost to developers who can quickly provide an initial deposit of money while they work out details of the sale with the farm owner and submit a subdivision and land development plan to the local municipality.

Improvements to County Programs

Inclusion of a county or state governing body serves as a structured method in order to ensure that ‘smart growth’ principles are diffusing effectively to the municipal level. The state or more likely the county could require notification and approval of any zoning changes at the municipal level. By including the County Agricultural Development Board (CADB) in the
preliminary stages when housing subdivisions or commercial structures are proposed in a township, unrestrained growth can be minimized (NJ DoA, 2003, 26). This type of forced approval from the county would ensure that townships examine the consequences of the proposed development, and target specific areas for growth while protecting farmland. This, however, could be difficult to instate because of New Jersey’s history of strong local government.

The open space faction of Gloucester County’s land preservation office currently uses GIS to prioritize land parcels for preservation. The program has several different layers that represent the various criteria and this helps officials to rank the properties visually while also providing them opportunities to more easily identify parcels near already preserved lands (Snyder, 2006). By incorporating the use of GIS into farm preservation at the county level, the efficiency of the process could be increased because of the visualization allowed by the program; being able to easily add new preserved parcels and see the county as a whole, planners and others could identify critical areas that would benefit from preservation based on their surrounding land uses.

Finally, the counties could increase their efforts to communicate information about farmland preservation to the public. Websites explaining the process, providing contact information and providing an up-to-date figure on number of acres preserved would serve to better communicate the plans and aims of the county agricultural board, farmland preservation program and other associated offices. This information would be invaluable to farmers exploring preservation options, potential farm purchasers (much like the state-run Farm Link program - http://www.nj.gov/agriculture/sadc/farmlink.htm), municipal officials seeking guidance, and teachers and students.
Municipal Recommendations

Many different types of zoning could be introduced to counties or more likely to municipalities. One type of zoning is Conservation Zoning and Conservation Subdivisions such as that in Pilesgrove Township; this allows for development on part of the land parcel with the rest of the land placed in conservation. In order to make this policy more widespread, communities would have to create a voluntary incentive-based program or a mandatory program. This zoning type saves money on the part of municipality because they are not required to purchase the conservation easement on the land. Incentive Zoning is another option to increase the efficiency and power of a municipality; this allows the developer to increase the lot number by 25% or more, creating more dense housing, while preserving the farmland or other land types adjacent to the property (NJ DOT – Conservation Zoning, 2006). Municipalities, however, must be careful not to surround a single farm by subdivision development.

Sliding scale zoning disallows multiple divisions of a land parcel. If a farmer divides 60 acres of his land into 6 parcels, and sells to a developer, while leaving the remaining 50 acres of his land in active culture, future division of the remaining 50 acres would not be allowed. This type of zoning is not meant for every community, it is better suited for areas with many different parcel sizes, and development of the area is in the early stages such as South Harrison Township.

Ordinances are another effective tool for protecting farmland, as seen in Pilesgrove and Upper Pittsgrove Townships. By requiring buffers from new development, townships help farmers maintain the most effective means of completing their job. This type of ordinance could be applied in any municipality, regardless of their level of development, in order to protect any existing farmers.
Municipalities should also regularly update their master plans, a very important facet to running a township smoothly. The master plan of Logan Township, the most outdated of the study areas, contains information about employment, housing stock and populations that is not useful to running the township in the present day. The master plan represents the viewpoints of the township officials, consultants and citizens from 15 years prior, not representative of the township’s present day makeup. The state offers technical assistance in forming master plans, or the township could link itself with another state agency for a related project (as mentioned above) and complete an overall master plan this way.

Conclusions

Sprawl is a buzzword in today’s society as Americans move farther away from existing urban areas, into rural lands, creating new suburban areas, often textbook definitions of inefficient development. While land is being developed inefficiently across the United States, New Jersey is especially susceptible to consuming land uses. The state is the 3rd smallest in the union, and the most densely populated, a distinction held for decades (NJ DoA – Smart Growth, 2003). This status is hardly surprising due to its prime location on the east coast between several major urban markets, especially with New York City at its northeastern end and Philadelphia to the southwest. The state is flanked by development on all sides and houses some of the busiest ports in the nation at Newark.

With so much potential for development, the rural areas of New Jersey have come under pressure in recent decades. The tension between escalating land development and New Jersey’s agricultural history spurred conservation efforts in the late 1970s (Schmidt, 1973, 275). Preserving land, whether farmland or open space, employs legal, legislative and financial means to prevent land conversion from the aforementioned to residential, commercial or industrial uses.
Farmland preservation now comes in many forms such as agricultural easements, agricultural zoning and transfer of development rights; these programs and other have been successful in preserving over 144,000 acres of farmland statewide (NJ SADC – SADC preserves 102 acre farm, 2006).

Obviously every acre of farmland cannot be preserved, and should not be preserved. Simply preserving parcels of land is not enough to ensure that these farm parcels will remain viable as farms in the coming years and decades. Farming requires a critical mass to maintain an effective community group that is involved in farm-related activities, and thus accepting of the burdens imposed by farming (noise, dust, smells etc.). Preserving a single farm within a 10-mile radius and then surrounding the farm by subdivisions will not ensure the future of farming because the predominating land use does not coexist readily with farming. The farm will effectively become an island surrounded by development, thus hindering the farmer’s ability to cultivate to the best of his ability.

Using the state’s ranking system with the above modifications will help to ensure that preserved farmland will not become threatened by development, sprawling communities and hostile neighbors. The recommendations posed to the more local levels of government are perhaps more critical, because the most change can be effected at the local front in the face of development. By making townships proactive in terms of planning for development, and providing them the tools to determine their own future, agriculture as well as many other land uses have a place and a future.
Acknowledgements

David Harper • Barbara Riebling • ENVS 699 • Yvette Bordeaux • ENVS 533 for all of their input on my project … Mom • Katie • Patti • Megan • Lori & Vince for their unrelenting support and serving as the best sounding boards
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Appendix 1

Open Space and Farmland Preservation in Salem County

Salem County is developing an Open Space and Farmland Preservation Plan to identify and prioritize the steps our County will be taking to preserve open space, protect our natural resources, and maintain agricultural land. As a part of this Plan, the County requests your input to help set priorities for open space and farmland preservation. Please provide your name and municipality after completing the survey below and return it before April 14, 2006 to:

Salem County Agriculture Development Board
51 Cheney Road, Suite 1, Woodstown, NJ 08098
FAX: (856) 769-3391

Using each number only once, rank the following initiatives from 1 to 15, with 1 being the highest priority and 15 being the lowest.

<table>
<thead>
<tr>
<th>Open Space Initiative Survey</th>
<th>Rank (1-15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preservation of land for active recreation areas (such as playing fields and playgrounds).</td>
<td></td>
</tr>
<tr>
<td>Preservation of land for the creation of a County Park System</td>
<td></td>
</tr>
<tr>
<td>Preservation of land to protect the Delaware River Bayside habitat.</td>
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</tr>
<tr>
<td>Preservation of land for resource-based recreation (hiking, hunting, and fishing).</td>
<td></td>
</tr>
<tr>
<td>Preservation of scenic vistas (overlooks, scenic byways).</td>
<td></td>
</tr>
<tr>
<td>Preservation of land to create greenways to link recreation areas, trail corridors, natural areas and local neighborhoods.</td>
<td></td>
</tr>
<tr>
<td>Preservation of forested lands.</td>
<td></td>
</tr>
<tr>
<td>Preservation of farmland to preserve tilable land and prime agricultural soils.</td>
<td></td>
</tr>
<tr>
<td>Preservation of farmland and open space to preserve the rural quality of life in the County.</td>
<td></td>
</tr>
<tr>
<td>Preservation of land with historical value.</td>
<td></td>
</tr>
<tr>
<td>Preservation of land for protection of, or access to, surface water (streams, lakes, wetlands).</td>
<td></td>
</tr>
<tr>
<td>Preservation of land for the protection of ground water, including drinking water resources.</td>
<td></td>
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<tr>
<td>Preservation of land to promote the County's Smart Growth Initiative.</td>
<td></td>
</tr>
<tr>
<td>Preservation of land for wildlife and plant habitats.</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Please complete both sides of the Salem County Open Space and Farmland Preservation Survey.
The current County Dedicated Tax is set at two cents. Would you support an increase in the Dedicated Tax from 2 cents to 3 cents? Yes _______ No _______
Would you support an increase in the Dedicated Tax above 3 cents? Yes _______ No _______

YOUR OPINIONS are important to us. Please give us your thoughts on open space and farmland preservation in the County.

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Name: ___________________________ Municipality: ___________________________

I am (circle all that apply):
County Open Space Committee Member Municipal OSC Member
County Environmental Commission Member Municipal EC Member
County Freeholder Municipal Council Member
County Planning Board Member Municipal PB Member

Thank you for completing this survey. We encourage you to attend our County Open Space and Agriculture Development Committee meetings, which are held at 6:00 p.m. and 7:30 p.m., respectively, on the fourth Wednesday of each month at the Salem County Agriculture Complex, Ware Building, 51 Chancy Road in Woodstown.

We will be hosting public meetings on March 21st at the Elmer Grange and March 22nd at the Salem Community College Davidson Hall on the Open Space and Farmland Preservation Plan. Please join us at that time to discuss the Plan and our goals for land conservation in Salem County.

Paul Codella, Chairman, Salem County Open Space Committee
Andy Burby, Chairman, Salem County Agriculture Development Board

Please complete both sides of the Salem County Open Space and Farmland Preservation Survey.
# Appendix 2

**New Jersey Soils Description** (from NJ SADC, Directions, 11)

<table>
<thead>
<tr>
<th>SOILS</th>
<th>(Page M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soils are identified for their production quality within the categories of Prime, Statewide, Unique or Locally Important. Calculate a percentage figure based on the acreage of each of the five soil categories that occurs on the Premises to be preserved. The sum of the percentages should total 100%.</td>
<td></td>
</tr>
<tr>
<td>Please include a list of soil units and calculations (acres/unit and percentage of each) used to determine the percentages of each soil type along with a USDA NRCS Soil Map with the following types of soils identified:</td>
<td></td>
</tr>
<tr>
<td>Prime Soils are those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and is also available for these uses. Prime soils are not excessively erodible or saturated with water for a long period of time and they either do not flood frequently or are protected from flooding.</td>
<td></td>
</tr>
<tr>
<td>Statewide Important Soils include those that do not meet the criteria as Prime Farmland but are nearly prime and economically produce high yields of crops when treated and managed according to acceptable farming methods. Some statewide important soils must be drained to receive credit for being a statewide important soil. If draining is required, then documentation must be provided.</td>
<td></td>
</tr>
<tr>
<td>Unique Soils shall be given credit if being used for special crops. Documentation of the special crop shall be provided. If a designated “unique” soil is not being used for its unique purpose, no points will be assigned. If points are to be awarded for unique soils, the county must provide justification.</td>
<td></td>
</tr>
<tr>
<td>Local Soils include those soils that are not prime or statewide importance but are used for the production of high value, fiber or horticultural crops.</td>
<td></td>
</tr>
<tr>
<td>Other Soils are those that are not included in any of the above categories.</td>
<td></td>
</tr>
</tbody>
</table>

**Score Note - Points are added to the ranking score by factors of the individual percentages as follows:**

- Prime = .15
- Statewide = .10
- Unique = .125
- Local = .05
- Other = .00

PLEASE MAKE SURE ALL EXCEPTIONS HAVE BEEN LOCATED AND CLEARLY DEPICTED WITHIN THE BOUNDARIES OF THE PREMISES AS SHOWN ON ATTACHED SOILS MAP, TAX MAP AND USGS TOPOGRAPHIC MAP.

**EXCEPTION ACREAGE SHOULD NOT BE USED TO CALCULATE SOIL SCORE.**

Although each county is responsible for evaluating and scoring the soil quality for each application in the ranking process, the SADC may verify soil quality for submitted county easement purchase applications using the Geographical Information System (GIS). Counties with SSURGO will be verified utilizing SSURGO; all others will be verified using the NJDEP version of USDA-NRCS soil surveys. Once a county has its SSURGO files certified by NRCS, this federally approved data should superecede the NJDEP data files.
**Tillable Acres** (from NJ SADC – Directions, 2006, 12)

<table>
<thead>
<tr>
<th><strong>TILLABLE ACRES</strong></th>
<th><strong>(PAGE M continued)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tillable acres are evaluated based on the proportion of land deemed tillable, emphasizing the importance of land use and productivity.</td>
<td></td>
</tr>
<tr>
<td><strong>Cropland Harvested</strong> is land from which a crop was harvested in the current year and shall include the land under structures utilized for agricultural or horticultural production.</td>
<td></td>
</tr>
<tr>
<td><strong>Cropland Pastured</strong> is land that can be and often is used to produce crops, but its maximum income may not be realized in a particular year. This includes land that is fallow or in cover crops as part of a rotational program.</td>
<td></td>
</tr>
<tr>
<td><strong>Permanent Pasture</strong> is land that is not cultivated or producing vegetative crops because its maximum economic potential is realized from grazing or as part of erosion control programs. Animals may or may not be part of the farm operation.</td>
<td></td>
</tr>
</tbody>
</table>

**Tillable Acres are verified using the Farmland Tax Assessment Breakdown of Land Use Classes.** To calculate the percentages of tillable acres, use the exact number of acres from the farmland assessment form and divide by the total acres listed, unless the total amount exceeds the acres in the application. Round percentages to nearest whole number. The sum of the percentages should total 100%.

**Scoring Note:** Identify the percentage of tillable acres on the Premises consisting of each of the following categories. Points are added to the ranking score by factors of the individual percentages as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cropland Harvested</td>
<td>.15</td>
</tr>
<tr>
<td>Cropland Pastured</td>
<td>.15</td>
</tr>
<tr>
<td>Permanent Pasture</td>
<td>.02</td>
</tr>
<tr>
<td>Woodlands</td>
<td>.00</td>
</tr>
<tr>
<td>Wetlands</td>
<td>.00</td>
</tr>
<tr>
<td>Other</td>
<td>.00</td>
</tr>
</tbody>
</table>

Compare percentages to an aerial photograph of the premises. If Prime and Statewide soils are listed as being used for permanent pasture, the CADB may confirm with landowner as to whether the ground has ever been cropped. If so, the permanent pasture can be changed to cropland pastured. If woodland areas are harvested, they cannot be counted as cropland harvested.

**SADC review staff will verify Tillable Acres scores utilizing both the Farm Tax Assessment form and aerial photography interpretation.**
Appendix 4

**Boundaries and Buffers** (from NJ SADC – Directions, 2006, 13)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deed Restricted Farmland (permanent)</td>
<td>.20</td>
</tr>
<tr>
<td>(must already be preserved)</td>
<td></td>
</tr>
<tr>
<td>Deed Restricted Wildlife Areas</td>
<td>.18</td>
</tr>
<tr>
<td>(Municipal, county or state owned parcels)</td>
<td></td>
</tr>
<tr>
<td>Streams (perennial) and Wetlands</td>
<td>.18</td>
</tr>
<tr>
<td>Cemeteries</td>
<td>.16</td>
</tr>
<tr>
<td>Parks (limited public access)</td>
<td>.14</td>
</tr>
<tr>
<td>Military Installations</td>
<td>.14</td>
</tr>
<tr>
<td>Golf Course (public)</td>
<td>.14</td>
</tr>
<tr>
<td>8 year programs</td>
<td>.13</td>
</tr>
<tr>
<td>EP applications</td>
<td>.13</td>
</tr>
<tr>
<td>Highway (limited access) or Railroads</td>
<td>.10</td>
</tr>
<tr>
<td>(Access via on/off ramps only)</td>
<td></td>
</tr>
<tr>
<td>Farmland (unrestricted)</td>
<td>.06</td>
</tr>
<tr>
<td>(Agriculturally zoned, undeveloped)</td>
<td></td>
</tr>
<tr>
<td>Woodlands</td>
<td>.06</td>
</tr>
<tr>
<td>Parks (high use)</td>
<td>.05</td>
</tr>
<tr>
<td>Residential Development</td>
<td>.00</td>
</tr>
<tr>
<td>(Existing infrastructure, streets, sewers, etc)</td>
<td></td>
</tr>
<tr>
<td>Residential (≤ 5 acres w/o infrastructure)</td>
<td>.00</td>
</tr>
<tr>
<td>Commercial</td>
<td>.00</td>
</tr>
<tr>
<td>Industrial</td>
<td>.00</td>
</tr>
<tr>
<td>Schools</td>
<td>.00</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>(Landfills, private golf courses, etc.)</td>
<td>Value TBD on a case-by-case basis</td>
</tr>
</tbody>
</table>

**Scoring Note** – Scoring will be based on the weight of each of the following classifications.

PLEASE BE SURE TO ENCLOSE A GIS, 7.5-MINUTE USGS TOPOGRAPHICAL QUAD MAP AND/OR TAX MAP WITH THE APPLICATION LOT BOUNDARIES AND ADJACENT LAND USES IDENTIFIED AND LABELED.