Highlands Council
New Jersey

Sustainable Agriculture

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Technical Report

HIGHLANDS REGIONAL MASTER PLAN

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EXECUTIVE SUMMARY

Agriculture, if it is to remain viable in the New Jersey Highlands, requires a sustainable land base. The Highlands Region contains over 859,000 acres of which over 118,000 acres consisted of agricultural land in 2002. Agricultural land, in both the Preservation and Planning Areas of the Highlands, serves not only as an important resource, but is essential to the residents of New Jersey for local availability of agricultural products, for the economic benefits of agricultural production, and for the rural character associated with agricultural land.

In order to preserve and sustain agricultural resources and enhance the viability of the agricultural industry, preservation of farms throughout the Highlands Region must be encouraged and funded. Programs are needed that focus more on the practices farmers can use to achieve sustainable profitability, sustainable stewardship practices for natural and agricultural resources, and sustainable coexistence with non-farmers in a densely populated state. To accomplish these objectives this technical report inventories existing agricultural lands; examines various approaches to assessing the resource value of agricultural lands; examines farmland preservation ranking criteria for the State of New Jersey, and other states and counties; examines existing federal, State, and county farmland preservation programs; defines and characterizes agricultural sustainability; and examines existing and innovative/alternative sustainable agriculture technical support and funding programs. Finally, findings and approaches will be made with regard to keeping the Highlands Region farming viable and productive, now and in the future.

The preservation of farmland and the promotion of agriculture in the Highlands Region are two essential objectives of the Highlands Water Protection and Planning Act (Highlands Act). The New Jersey Legislature declared that the agricultural lands in active production in the Highlands Region are important resources of the State that should be preserved, and that the agricultural industry in the Highlands Region is a vital component of the economy, welfare, and cultural landscape of the Garden State. The Legislature also declared that the maintenance of agricultural production and a positive agricultural business climate should be encouraged to the maximum extent possible wherever appropriate in the Highlands (Highlands Act, Section 2). To sustain and enhance agricultural resources and the viability of the agricultural industry, it is necessary to provide incentives and funding opportunities, to not only preserve agriculture, but to encourage land stewardship through Best Management Practices (BMPs) that enhance the resources of the Highlands Region. As stewards of the land, many farmers already implement BMPs. The Regional Master Plan goals, policies and objectives and the Agricultural Sustainability, Viability and Stewardship Program seek to reward these individuals with incentives and funding opportunities examined in this technical report.

To date, 21,067 acres of farmland have been preserved in the Highlands Planning Area and 12,696 acres have been preserved in the Highlands Preservation Area, totaling 33,763 acres in the Highlands Region since the inception of New Jersey's State Agriculture Development Committee (SADC) Farmland Preservation Program in 1983. These totals reflect preserved farms, farms with final approval for preservation, and farms in the eight year easement program. Approximately 8% of all land preserved in the Farmland Preservation Program is in the Preservation Area and 13% in the Planning Area, for a total of 21% in the Highlands Region.

The Highlands Region has experienced a steady loss of agricultural lands representing an average rate of loss of 1,700 acres per year, a 19% decline between 1986 and 2002 representing over 27,500 acres. According to the New Jersey Department of Agriculture (NJDA), between 1998 and 2003, there was an 8% decrease in farmland.

In addition to the direct loss of agricultural lands is a corresponding reduction in agricultural productivity and in many cases the irreplaceable loss of important farmland soils. Other measures of agricultural losses, such as the amount of farmland in field crop production, show a similar decrease. In 1998, the total acreage of field crops, which includes corn, wheat, soybeans, hay and other cover crops, was 81,313

acres. These crop lands decreased to 70,567 acres in 2003. The loss of over 10,000 acres of field crops during this five-year period represents a 13% loss for the Highlands Region.[1]

HIGHLANDS ACT REQUIREMENTS

As part of the regional master planning process, the Highlands Council must undertake a resource assessment which includes examining farming in the Highlands Region and a review of overall policies required to maintain and enhance that resource.

Section 10 of the Highlands Act states that:

a. The goal of the regional master plan with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act.

b. The goals of the regional master plan with respect to the preservation area shall be to:

(4) preserve farmland and historic sites and other historic resources;

(8) promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment; and

c. The goals of the regional master plan with respect to the planning area shall be to:

(4) preserve farmland and historic sites and other historic resources;

(5) promote the continuation and expansion of agricultural, horticultural, recreational, and cultural uses and opportunities;…

Section 11 of the Highlands Act states that:

a. The regional master plan shall include, but need not necessarily be limited to:

(1) A resource assessment which:

(a) determines the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply; contiguous forests and woodlands; endangered and threatened animals, plants, and biotic communities; ecological factors relating to the protection and enhancement of agricultural or horticultural production or activity; air quality; and other appropriate considerations affecting the ecological integrity of the Highlands Region; and

(b) includes an assessment of scenic, aesthetic, cultural, historic, open space, farmland, and outdoor recreation resources of the region, together with a determination of overall policies required to maintain and enhance such resources;…

INVENTORY OF EXISTING AGRICULTURAL LANDS IN THE HIGHLANDS REGION

INTRODUCTION

Agriculture is a vital component of the economy, culture, welfare and landscape of the Highlands Region. It provides economic benefits through agricultural production and maintains the rural character of Highland's communities. The loss of farmland over recent decades emphasizes the crucial need to promote the preservation of contiguous acres of agricultural resources and ensure a positive agricultural business climate. In order to accomplish this goal, the Highlands Council, collaborating with the New Jersey Department of Agriculture (NJDA), the Highlands County Agriculture Development Boards (CADBs) and the State Agriculture Development Committee (SADC), must first identify and inventory the scope of the agriculture industry in the Highlands Region through the use of existing data. This assessment will be completed using the Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for farmland soils, data on preserved farms, tax assessor records for farmland assessment, the New Jersey Department of Environmental Protection's (NJDEP) land use/land cover data, aerial photography, agricultural surveys and other data sources.

[1] These figures, unless otherwise stated, were taken from the United States Department of Agriculture (USDA) National Agricultural Statistics Service (NASS).

The Agricultural Land Inventory of the Highlands Region is illustrated in the following Figures: *Agriculture by Land Use / Land Cover*, *Important Farmland Soils* and *Preserved Farmland.* The following data sources were used in the creation of these figures and their associated tables:

2002 Land Use/Land Cover

The NJDEP Draft 2002 Land Use/Land Cover spatial files. Files are appended and recoded to Highlands 13 land use categories by the Walton Center for Remote Sensing & Spatial Analysis (CRSSA), Rutgers University.

Preserved Farmland

The NJDA SADC Farmland Preservation Program provided spatial files, which include farms that are preserved, farms that have final approval from the SADC, and farms under the eight year easement program as of June, 2008.

Soil Data

The United States Department of Agriculture (USDA), NRCS, SSURGO Database for farmland soil quality including Prime, Statewide, Unique, and Locally Important farmland soils.
http://soildatamart.nrcs.usda.gov/SSURGOMetadata.aspx

AGRICULTURAL LANDS BY LAND USE/LAND COVER

The Anderson Land Use/Land Cover Classification System was used to describe agricultural land uses and land cover. This Agricultural Lands category includes all lands used primarily for the production of food and fiber and some of the structures associated with this production. These areas are easily distinguished from the other categories and represent a significant land use in New Jersey. The categories included in the NJDEP Agricultural Lands by Land Use / Land Cover are Cropland and Pastureland; Orchards, Vineyards, Nurseries and Horticultural Areas; Confined Feeding Operations; and Other Agriculture. There were 118,216 acres of agricultural lands in the Highlands Region using this classification system as of 2002. Below is a description of each category of the NJDEP Agricultural Lands by Land Use/Land Cover.

Cropland and Pastureland

The Cropland and Pastureland category contains agricultural lands managed for the production of both row and field crops and for the grazing of cattle, sheep and horses. Also included are croplands left fallow or planted with soil improvement grasses and legumes. Included in Croplands and Pasturelands are:

- **Harvested Cropland.** This category contains agricultural areas that are managed for the production of harvested row or field crops. These include row crops, such as corn, soybeans, cabbage, and potatoes; or field crops predominately used as forage, such as hay or alfalfa.
- **Pastureland.** This category contains agricultural areas that are managed as pasture areas for livestock grazing. These areas may be either permanent pastures or tillable cropland that is used as pasture. Extensive acreage of pasture associated with equine (horse) farms is mapped as pastureland.
- **Inactive Cropland.** This category contains agricultural areas that have no physical indication of present agricultural use. These areas include both abandoned cropland and fields left fallow or planted in soil-improving grasses and legumes.
- **Agricultural Wetlands.** Included in this category are lands under cultivation that are modified former wetland areas, and which still exhibit evidence of soil saturation.
- **Former Agricultural Wetlands.** Becoming Shrubby, not Built-up. These areas have not undergone any other alterations, such as filling, grading or development, and may be returned to farmland if the land is placed under cultivation. However, these wetlands may continue to develop into a scrub/shrub wetland area if active cultivation is not resumed.

Orchards, Vineyards, Nurseries and Horticultural Areas

This category contains agricultural areas, which are intensively managed for production of fruits, trees, ornamental plants, and vegetable seedlings. Wholesale greenhouses where plants are grown are also included in this category as are orchards, nurseries, vineyards, sod and seed farms, and commercial greenhouses. Areas delineated include actively cultivated lands as well as land associated with the operations as, uncultivated lands, dirt roads, dikes, etc.

- **Orchards.** This category contains agricultural areas that are intensively managed as commercial orchards.
- **Vineyards.** This category contains agricultural areas of intensively managed vineyards.
- **Nurseries.** This category is comprised of areas that are intensively managed for commercial or private nurseries. Christmas tree farms are included in this category.
- **Floriculture.** This category contains areas occupied by wholesale producers of flowers, nursery stock, produce, and vegetable seedlings. These areas consist of large greenhouse operations and the associated land and buildings.
- **Sod and Seed Farms.** This category contains commercial sod and seed farms.
- **Inactive.** This category is used to represent lands occupied by abandoned or inactive orchards, vineyards, and nurseries.

Confined Feeding Operations

This category contains specialized livestock and poultry production enterprises and other specialty farms. These operations have high populations in relatively small areas, resulting in a concentration of waste material.

- **Cattle and Swine Feedlots.** This category contains mainly beef cattle feedlots and hog farms. Structures and attached corrals will be mapped in this category, but any substantial acreage of associated pasture will be mapped as Pastureland.
- **Poultry Farms.** This category is comprised of chicken, turkey, and duck production enterprises. These farms may be for either egg or meat production.
- **Specialty Farms.** This category contains specialized farms, such as game farms (pheasant or quail), fish hatcheries, goat farms, pigeon-raising areas, and rabbit production farms.

Other Agriculture

This category contains other miscellaneous agricultural areas, including experimental fields, equine (horse) farms, isolated dikes and access roads.

- **Experimental Agriculture Fields.** This category contains experimental crop areas associated with agriculture research stations, universities, or industries. These areas are for research purposes and may contain many different crops in one field.
- **Isolated Structures for Crop or Equipment Storage.** This category contains storage buildings which are not adjacent to the farmsteads. These areas include isolated grain silos; crop storage sheds, and sheds for storage of farm machinery.
- **Equine (Horse) Farm.** This category contains specialized farms for raising and training horses. This includes horse stables and barns, corrals, and indoor and outdoor riding arenas/training racetracks. Extensive acreage of pasture associated with equine farms is mapped as pastureland.
- **Agricultural Dikes/Roadways.** Included are non-cultivated portions of special agricultural areas such as dikes or roadways. These features may be the only portions of these farm categories that are not inundated during certain portions of the growing season, and provide access to the wetter cultivated portions of these farms.

See the Figure *Agriculture by Land Use / Land Cover* and the associated Table *Agricultural Land in the Highlands Agriculture Type from NJDEP.*

AGRICULTURAL LANDS BY SOIL TYPE

There are 306,314 acres of farmland soils in the Highlands Region which exceeds the approximate 118,216 acres of agriculture Land Use / Land Cover in the Region. As discussed later in this report, soil type is an important factor in determining the productivity of farmland. However 188,098 acres of farmland soils are not in agriculture and are an indication of the decline of farming in the Highlands Region. Important farmland soils are discussed in more detail in the section on Soil Quality. See Figure *Important Farmland Soils* and associated Table *NRCS Farmland Soils Classification All Farmland Soils*.

PRESERVED FARMLAND

According to the SADC, there are 33,763 acres of preserved farmland in the Highlands Region. In the two Bergen County Highlands municipalities, 319 acres are preserved; in the fifteen Hunterdon County Highlands municipalities, 7,787 acres are preserved; in the thirty-two Morris County Highlands municipalities, 6,307 acres are preserved; in the five Passaic County Highlands municipalities, there are no preserved farms; in the five Somerset County Highlands municipalities, 1,828 acres are preserved; in the ten Sussex County Highlands municipalities, 1,830 acres are preserved; and in the nineteen Warren County Highlands municipalities, 15,692 acres are preserved. See the Figure *Preserved Farmland* and associated Table *Agricultural Land in the Highlands SADC Preserved Farmland.*

CONCLUSION

The inventory of existing agricultural lands demonstrates the need for prioritizing farmland preservation to promote the long-term sustainability of agricultural resources and the viability of the agricultural industry in the Highlands Region. The reduced number of agricultural soils that are currently in agricultural use is evidence that lands have either been taken out of production or have been developed. This loss of significant agricultural resources validates the importance of sustaining and enhancing agricultural resources and the agricultural industry in the Region. In addition, the number of municipalities that have preserved farmland could be increased. Twenty-eight Highlands municipalities do not have open space and farmland trust funds to preserve farmland and open space. The municipalities and counties that have trust funds may not be maximizing their potential. It will be important for the Council to coordinate with the SADC and the CADB's to encourage municipalities to create or amend open space and farmland trust funds to leverage monies for farmland preservation. The next step is to create an approach for assessing the value of agricultural lands and prioritizing those lands for preservation.

APPROACHES FOR ASSESSING AGRICULTURAL LAND RESOURCE VALUE

INTRODUCTION

In order to promote long-term sustainability of important farmland resources and the viability of the agricultural industry in the Highlands region a healthy agricultural environment and an agricultural land base are necessary. To continue to achieve the objective of permanently preserving agricultural resources in the Highlands Region, the preservation of farms must be encouraged and funded. However since funds are limited, values must be placed on agricultural land to prioritize them in terms of their productivity, agricultural survivability, and long-term viability. The purpose for assigning values to agricultural resources enhances the goal to preserve a primary agricultural land base that is being used for, or offers the greatest potential for continued, commercially significant agricultural production. This section of the technical report examines criteria and formulas used in agriculture protection programs in New Jersey, as well as other areas of the country to determine which criteria are used predominantly to prioritize farmland preservation throughout the country.

CRITERIA FOR DETERMINING THE VIABILITY OF PRODUCTIVE AGRICULTURE

In order to determine the quality of agricultural lands a resource assessment analysis based on ranking criteria is used. This analysis ranks farm parcels based on their relative agricultural importance using

criteria that traditionally include, but are not limited to, soil quality, parcel size, on-farm investments, development pressure, and proximity to other farms and preserved land. A ranking system for farms assigns points and a relative weight to each criteria. The greater the total points assigned to a farm, the higher the rating is for that farm, and the more important the farm is to target for preservation. Most states, counties, local governments, and non-profit organizations preserving farmland around the country use these resource assessment methods in prioritizing ranking of farms for preservation.

In 2003, the American Farmland Trust and University of California at Davis prepared a report *The National Assessment of Agricultural Easement Programs* which compiled profiles of 46 agricultural easement programs and presented a summary of each program's activities including their acquisition strategies. These acquisition strategies featured a synopsis of resource assessment criteria used in prioritizing farmland for easement purchase.

With the exception of one program, all the programs applied formal criteria in selecting parcels for easement purchase. Thirty-three used quantitative ranking schemes and twelve used qualitative, subjective factors. Soils and soil productivity were the most frequently used factor in numerical rankings and are often given more weight than any other factor. Most programs also have criteria that highlight farmers' capacity and skills such as conservation practices, farm family history, and stewardship practices. Critical mass criteria, including proximity of large groups of protected farmland, and sympathetic community practices, such as agricultural zoning and certain growth management planning techniques are frequently incorporated.

While thirteen programs that use quantitative ranking automatically accept the scoring results, twenty programs allow decision makers some discretion to use other factors as well. Often quantitative scores are not the decisive factor that sort out a successful or unsuccessful application, but are used to prioritize applications for funding after basic eligibility is determined by the application of minimum standards, such as parcel size and enrollment in an agricultural district.

Twenty-one programs use some degree of geographical targeting in their selection processes. Usually this is a qualitative factor used in preservation areas and in agricultural zones. Some targeting also occurs in a much more open-ended fashion, as program managers use their discretion to place easements in strategic locations that are not expressly defined but have the potential to influence future land use patterns.

The next sections of the technical report provide an explanation of various criteria used in agricultural resource assessments and an examination of criteria used by specific federal agencies, states and counties.

Soil Quality

The primary factor used in determining important farmland is soil quality, which is measured based on land capability classes, important farmland classes, and soil productivity rating.

Soil data are prepared by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) and are used as the reference to identify soil quality. The four soil types that are considered Important Farmland Soils are Prime, Statewide Importance, Unique, and Locally Important soils. Usually a percentage figure for each of these four soil categories is calculated for the entire farm targeted for preservation.

Prime farmland soil has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce high yields of crops when treated and managed according to acceptable farming methods. Prime farmland 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.

Farmland of Statewide Importance soils are similar to Prime farmland soils and produce high yields of crops when treated and managed according to acceptable farming methods. This soil may support yields as high as Prime farmland if conditions are favorable. Farmland of Locally Important soils include those

soils that are not Prime or Statewide Importance and are used for the production of high value food, fiber, or horticultural crops.

Unique farmland soils are soils used for special crops (such as cranberries in the New Jersey Pinelands). Unique soils are determined on a statewide basis by the State Soil Conservation Committee. Locally Important soils are generally defined through county ranking processes, rather than by the NRCS.

Tillable Acres

Calculating tillable acres emphasizes the importance of land use and productivity. Significance is given to the proportion of land deemed tillable. Factors to consider are lands devoted to cropland, harvested, cropland pasture, and permanent pasture. Woodlots and other forest resources are not included in this factor.

Boundaries and Buffers

Boundaries and buffers are important features for farmland viability; they ensure that agricultural activities are given an appropriate separation from incompatible uses, such as neighboring residential development. The more permanent and effective the buffer is in reducing the negative impacts of non-agricultural development, the higher the value. Some of the buffers and boundaries that are considered are:

- Preserved farmland (permanent deed-restricted or temporary deed-restricted, such as eight year);
- Preserved wildlife areas;
- Municipal, county, state, or federally owned parcels;
- Contiguous farmland;
- Perennial streams and wetlands;
- Parks or preserved open space;
- Cemeteries;
- Golf courses;
- Military installations; and
- Limited access highways, railroads, utility easements, and other rights of way.

Boundaries also can include consideration of lot configuration, including the ratio of the lot's border length to its acreage. A lot with a lower ratio is less exposed to surrounding land uses than a lot with a higher ratio.

Development Potential/Threat of Change to Non-Agricultural Use

Many resource assessment criteria include an assessment of the degree of threat of the conversion of farmland to non-agricultural use. Factors include, but are not limited to, development opportunity – amount of road frontage and access, soil drainage, topography, flood hazard, views, proximity to transportation infrastructure and utilities such as municipal sewer and water, and current market pressure. When evaluating these factors, consideration is given to measuring the degree of imminence of change of farmland to a non-agricultural use and evaluating the impact of the farmland conversion.

Local Commitment

Priority is often given where municipal, county, regional, and state policies support the long term viability of the agricultural industry. Factors indicating support may include zoning that requires clustering and mandatory buffering to provide separation between development and existing agricultural operations; the use of other measures such as Transfer of Development Rights (TDR); or very low density zoning/agricultural zoning and other equivalent measures, which discourage conflicting non-agricultural development. Sewers or other growth inducing infrastructure located directly adjacent to active farmland is considered a negative for long-term viability and in targeting farms for preservation.

Additionally, farmland viability and preservation efforts must be consistent with municipal, county, and state plans and development regulations. Municipal commitment to an agriculture retention and farmland preservation program is very important. Elements that exhibit local commitment to a community's agricultural viability include, but are not limited to, municipal interaction with county agriculture boards or committees; planning board and municipal actions supporting agricultural activities and farmland preservation; the presence of an existing critical mass of preserved farms; and a local Right to Farm ordinance.

Municipal and county financial support through public funding is considered a strong local commitment. Generally, if municipal referenda or allocations of private dollars are invested in a farm preservation project, there is greater care taken by the community to protect the area from the negative effects resulting from non-agricultural development. One of the methods to compare municipalities and counties with respect to their direct financial support for farmland preservation is to measure their total dollar contribution per thousand dollars of current equalized (100 percent) assessed value for the municipality or the county.

Density/Critical Mass

An effective way to preserve agricultural land is to amass contiguous acreage (agricultural land mass that is not separated by intervening non-agricultural development). The larger the mass of contiguous farmland, the greater the opportunity to preserve sufficient acreage for productivity; retain dealers of agricultural equipment and supplies nearby; and maintain a sense of support for an agricultural community. As a result, farmland that is reasonably contiguous to other preserved land, permanently deed restricted farmland, or active farmland located where farmland preservation programs already exist, are given priority status. One program uses farmlands within one-half mile linear distance of each other as the measure for creating critical mass. The New Jersey SADC Farmland Preservation Program also uses contiguity as one of the criteria to prioritize farms for preservation.

Size

Individual farm size is a criteria associated with density or critical mass. While agricultural activities may take place on smaller parcels, larger parcels are historically more suitable to typical farming practices. Larger parcels are potentially more suited to commercial agriculture when considering economies of scale and appropriate separation from incompatible uses. However size criteria vary greatly. The *New York - New Jersey Highlands Technical Report* (USDA, 2002) gave greatest value to agricultural areas of 500 acres or more, but did not have parcel data available to discern individual farm size. Harford County in Maryland has a 200 acre minimum per farm and Kent County, Maryland uses 100 acres. Not surprisingly, Gallatin County, Montana gives highest values to farms of 640 acres or more. In the Highlands Region the minimum acreage to be considered for farmland preservation varies by county and is five acres in Bergen County, ten acres in Morris County, and 25 acres in Somerset County.

CONCLUSION

The USDA Cooperative State Research, Education and Extension Service has determined that the following characteristics are common criteria used to prioritize land parcels for preservation:

- Soil quality and productivity;
- Agricultural infrastructure;
- Farming methods including conservation practices;
- Unique or critical land quality;
- Critical size of a parcel for a viable agricultural operation;
- Proximity to other protected land for a critical mass to achieve effectiveness; and
- Importance to local agricultural and economic vitality.

However, these criteria and others have to be evaluated specifically considering the realities of farming in

the Highlands Region. For instance, the average size of a preserved farm in the Highlands Region is approximately 55 acres; illustrating the importance of size as a critical factor. Additionally, the Council has received comments from the NJDA, the CADBs and the public indicating that a large mass of farmland is not the most important factor; rather it is a local commitment as demonstrated by actions to create a "positive agricultural business climate" in encouraging sustainable agriculture.

Therefore, in order to identify critical agricultural lands in the Highlands Region, the Highlands Council examined the Region's agricultural resources and evaluated them specifically considering the realities of farming in the Highlands Region. The Council then utilized the following criteria to assess the Region's farmland and identify the Region's most important agricultural resources: contiguous farming landscapes; farms that include Important Farmland Soils; the extent of lands adjoining a farm that are in agricultural use; and concentrations of existing preserved farmland. An examination of these factors permitted the Highlands Council to spatially delineate areas in the Highlands Region, with a prevalence of active farms to develop the Agricultural Resource Area (ARA). In order to prioritize areas for farmland preservation, the Highlands Council, in coordination with the NJDA and the SADC, used the results of the agricultural resource assessment to identify those lands within the Highlands Region, which have the highest agricultural resource values. The *Agricultural Priority Area* (APA) Figure displays the relative value of these agricultural resources in order to provide a prioritization mechanism for future farmland preservation activities in the Highlands Region. The APA Indicators are listed in the Supporting Information section at the end of this technical report.

The APA figure also identifies lands preserved in perpetuity as farmland to show contiguity between preserved farmland and priority agricultural lands in the Region. In coordination, with the NJDA and the SADC, the Council created and will maintain a confidential inventory of agricultural lands in the APA. This inventory will also be analyzed using the Highlands County Agriculture Development Board (CADB) priorities to maximize preservation efforts in the Highlands Region. The method used to create the confidential inventory of agricultural lands is described in the *Land Preservation and Stewardship Technical Report*. There are 70,197 acres of agricultural land on the Confidential Agriculture Priority List. Currently, there are 33,763 acres of agricultural land permanently preserved in the Highlands Region through the SADC Farmland Preservation Program. The Confidential Agriculture Priority List is approximately two times the amount of preserved farmland. The total acquisition cost to preserve the Confidential Agriculture Priority List is estimated at over $653 million (70,197 acres). The methodology used to determine these costs is described in the *Financial Analysis Technical Report*. The SADC Farmland Preservation Program accounts for approximately an average of $85 million (38%) annually of Garden State Preservation Trust (GSPT) funding. Approximately 21% of the annual funding allocation from the SADC was attributed to farmland preservation in the Highlands Region based on historical acquisition costs. The GSPT figures would need to be enhanced considerably over the next ten years for the SADC in order to preserve the properties on the Agriculture Confidential Priority List.

AGRICULTURE RESOURCE ASSESSMENT CRITERIA USED BY SPECIFIC PROGRAMS

INTRODUCTION

In order to protect important farmland resources, preservation of farms throughout the Highlands Region must be encouraged and funded and since funds are limited, values must be placed on agricultural land to prioritize them in terms of their productivity, agricultural survivability, and long-term viability. This section examines criteria and formulas used in agriculture protection programs in New Jersey, as well as other areas of the country. The *Agricultural Resource Assessment Criteria* Table summarizes and compares a summary of ranking criteria for the programs examined below including the USDA Forest Service and several state and county farmland preservation programs across the country.

NEW YORK – NEW JERSEY HIGHLANDS TECHNICAL REPORT FARMLAND CONSERVATION VALUE ASSESSMENT

In 2002, the USDA Forest Service updated their 1992 New York – New Jersey Highlands Region report which included a farmland Conservation Value Assessment (CVA) as part of a broader CVA score that included four other resource factors for the two-state region. The report's objective for productive farmland resources was to identify those areas that have the highest value for maintaining viable agriculture.

This objective was translated into a set of rules designed to identify and rank lands for their value for productive farmland. The criteria used to rank farms include 1) prime farm soils; 2) lands associated with already preserved farms (i.e., a public investment has already been made); and 3) maintain larger contiguous tracts of farmland. The rationale is that if private landowners can receive income from their properties based on productive agriculture (i.e. those farms with the richest soils) then they will be less likely to sell and subdivide the land for development. Maintaining larger areas of contiguous farmland enhances the efficiency of farm operations and reduces conflicts with adjacent landowners (Right to Farm conflicts); sustaining agricultural viability and the rural agricultural landscape. This was accomplished in the CVA by prioritizing contiguous farmland greater than 500 acres in size with a higher ranking.

NEW JERSEY DEPARTMENT OF AGRICULTURE STATE AGRICULTURE DEVELOPMENT COMMITTEE PRIORITIZATION RANKING FACTORS AND METHODOLOGY

The New Jersey Legislature established New Jersey's Easement Purchase Program and the State Agriculture Development Committee (SADC) within the New Jersey Department of Agriculture (NJDA) in 1983 with the passage of the State Agriculture Retention and Development Act and the Right to Farm Act. The SADC was authorized to purchase conservation easements on agricultural lands. Five years later, the Legislature amended the law to give the SADC the authority to purchase fee title to agricultural land as well as to address situations where the landowner does not want to retain any rights to the land. The law requires the SADC to resell land, subject to an agricultural conservation easement, "within a reasonable time of its acquisition" (N.J.S.A. 4:1C-31.1.f.).

Suitability for permanent protection under the farmland easement or fee simple purchase programs is based on the extent to which the landowner is willing to discount the sale; the degree to which the purchase would reinforce and assure the future viability of municipally approved programs in productive agriculture; the degree of threat; and the comments of the respective county agricultural development boards and municipal agricultural advisory committees.

Farmland preservation applications are ranked according to soil quality; tillable acres; proximity to compatible uses (including preserved farmland); local commitment to farmland protection (demonstrated by land use regulations and policies that support the long-term viability of the agricultural industry and consistency with municipal, county, State, and regional plans); size and density; local factors; and the degree of threat.

The SADC ranking is based on a numeric score, referred to as the "quality score", which evaluates the degree to which the purchase would encourage the survivability of farmland in productive agriculture and the degree of threat for the land to change from productive agriculture to a non-agricultural use. The general philosophy is to preserve key farms that result in a stabilization of agriculture in a project area or act as a catalyst to encourage future program participation in a project area. The prioritization policy is organized in accordance with statutory requirements identified in the State Agriculture Retention and Development Act N.J.S.A. 4:1C-11 et seq. and the criteria described in the SADC Rules N.J.A.C. 2:76-6.16. Currently, the SADC prioritization criteria are set forth in the SADC Policy P-14-E effective 9/25/97. In the Highlands Region, Sussex and Warren counties use the SADC criteria in their

farmland preservation programs. Bergen, Hunterdon, Morris, Passaic, and Somerset counties have ranking criteria that reflect unique county conditions.

However, at present, there are new amended rules for implementing the SADC Farmland Preservation Program effective July 2, 2007. For instance, there are new minimum standards that relate to soil quality, existence of tillable soils, development potential and environmental constraints, and lands under ten acres must produce agricultural products of at least $2,500 annually. No such minimum standards existed prior to July 2, 2007. These rules will also allow counties to tailor selection and ranking criteria to local agricultural conditions which may result in Highlands County Agriculture Development Boards revisiting their current farmland preservation criteria.

PENNSYLVANIA AGRICULTURE CONSERVATION EASEMENTS PURCHASE PROGRAM - A RANKING SYSTEM FOR FARMLAND PRESERVATION

Each county in the Pennsylvania Agricultural Conservation Easements Purchase Program uses a farmland ranking system that prioritizes applications for the program. The two-part Land Evaluation and Site Assessment (LESA) ranking system evaluates and ranks farms on a 100-point scale. This system ensures a quantitative and consistent evaluation of all applications.

The LE portion of the LESA scores the agricultural productivity of soils on the farm, while the SA portion analyzes the following categories:

- Development potential – availability of sewer and water;
- Road frontage;
- Extent of non-agricultural use in adjoining land;
- Farmland potential – percent of cropland and pasture;
- Land stewardship;
- Farm size;
- Environment and cultural qualities;
- Clustering potential – consistency with master plans;
- Nearness to restricted lands; and
- Percentage of lands in agricultural district.

Each factor in the ranking system receives a score and the sum of the weighted LE and SA scores determines the final farm ranking. Each county has flexibility as it assigns weights to various categories and factors, as well as in defining additional factors.

MORRIS COUNTY, NEW JERSEY - COUNTY AGRICULTURE DEVELOPMENT BOARD (CADB) RANKING SYSTEM

The Morris CADB reviews easement applications and submits them to the State for further review and action. Final determinations to release county funds for purchases are made by the county's legislative body, the Board of Freeholders. The CADB has discretion to add other considerations to the results of the quantitative scoring system. While geographical targeting is not an explicit priority, most easements are located in one township because of its concentration of affordable farmland.

Using a scoring system common to most New Jersey programs, Morris County gives the highest priority to agricultural quality and contiguity, with lesser weights assigned to farm management, planning compatibility and parcel size. This system replaced a more open-ended evaluation process. Other criteria include enrollment in an Agricultural Development Area, 10 acre threshold, and not more than 50 percent in woodland. At the discretion of the CADB, bonus points or special consideration are given to applications from "good farms."

LANCASTER COUNTY, PENNSYLVANIA - FARMLAND RANKING SYSTEM

In 1988 the Lancaster County Agricultural Preserve Board began using the Farmland Ranking System to

identify high quality agricultural land; rank easement sale applications; and maintains a database over time on farmland protection parcel status, including agricultural zoning, agricultural security areas, farms under easement, and farms with easement sale applications.

The Lancaster Preserve Board does not target farms within designated urban growth boundaries, but does seek to create large blocks of contiguous preserved farmland. In addition, the Board wants to create parts of urban growth boundaries to channel development away from prime farming areas. The factors for ranking farmland are:

- Road frontage, as a measure of accessibility and development potential. 10 points if > 1320 feet;
- Percentage of Class I and II soil types, as determined by the NRCS. These soils are the easiest to develop because of gentle slope, generally good drainage, and soil depth. The score is based on the percentage of prime soils in the parcel times 20;
- Proximity to existing sewer lines, as a measure of development potential. The measurement process calculates the distance to the nearest sewer line. 20 points if < or = 1320 feet and 10 points if >1320 feet but < or = 2640 feet;
- Proximity to non-agricultural zoning, farms already preserved under conservation easements, and farms under application for easement sale. Nearly all of the parcels under application for easement sale are zoned for agriculture, generally at one building lot per 25 acres. The proximity to non-farm zoning reflects development potential. The Preserve Board tries to create contiguous blocks of preserved farmland, so there is an emphasis on preserving farms that are near already preserved farms and farms with easement sale applications. The three criteria are measured through 0.25 and 0.5 mile buffering depending on whether the farm in question is proximate to a preserved farm, an applicant farm, or non-farm zoning with a point spread from 20 points to no points; and
- Large acreage. Preference is given to larger tracts because they are thought to be more viable for farming. 10 points if the parcel is > or = 100 acres, 8 points if 75-99.9 acres, and 5 points if 40-74.9 acres.

FARMLAND PRESERVATION

INTRODUCTION

The preservation of farmland and the promotion of agriculture in the Highlands Region are essential objectives of the Highlands Act. This section includes a comprehensive list of federal, state, county and local farmland preservation programs already in existence.

EXISTING FUNDING PROGRAMS FOR AGRICULTURAL LAND ACQUISITION

Federal Farmland Preservation Programs

United States Department of Agriculture (USDA) Cooperative State Research, Education, and Extension Service (CREES)

Public interest in agricultural land protection, especially to prevent fragmentation and haphazard development, has increased steadily since the 1950s. As this interest has grown, the preservation toolbox has expanded from local and state to the federal level. USDA programs designed to preserve working agricultural landscapes include the following programs below, all of the programs with the exception of the Forest Legacy Program are administered by the USDA NRCS.

Farm and Ranch Lands Protection Program (FRPP)

FRPP leverages federal funds with state and local funds to purchase conservation easements on prime and locally important or unique land by limiting conversion to non-agricultural uses. Landowners who agree to accept federal funds are required to include deed restrictions that are specific to the federal FRPP. One of the requirements is a restriction on impervious coverage allowed on the farm. The amount of impervious cover allowed is imposed on a sliding scale and varies between two and six

percent. The FRPP is described in detail under federal conservation programs below in Existing Conservation and Technical Support Programs.

http://www.nrcs.usda.gov/programs/frpp/

Grassland Reserve Program (GRP)

Through conservation easements or rental agreements, GRP protects and restores grasslands from conversion to cropland and other non-agricultural uses and enables viable ranching operations to restore plant and animal biodiversity. NRCS administers this program. www.ncrs.usda.gov/programs/GRP/

Forest Legacy Program (FLP)

FLP establishes partnerships between the USDA Forest Service and state forestry agencies to protect environmentally important private forestlands from conversion to non-forest uses. The FLP directly supports property acquisition and efforts to acquire donated conservation easements on environmentally sensitive forestlands. www.fs.fed.us/spf/coop/programs/loa/flp.shtml

State, County and Local Preservation Programs

State Agriculture Development Committee Farmland Preservation Program
New Jersey's State Acquisition Program

A key program for the sustainability of agricultural activities is the State Agriculture Development Committee's (SADC) Farmland Preservation Program. Since the program's inception in 1983, a total of 33,763 acres have been preserved in the Highlands Region - 21,067 acres in the Planning Area and 12,696 acres in the Preservation Area. Together, these preserved farmlands represent approximately 21% of all farmland preserved statewide.

The SADC purchases development rights or fee simple ownership of farmland for preservation purposes under its state acquisition program. Landowners can either sell the development rights to their land and continue to own and farm the land, or sell their land outright. In both cases, the land is permanently deed-restricted for agricultural use. When the SADC purchases farms outright, it resells them at public auction as permanently preserved farms.

This program seeks to preserve priority farms that are strategically located in each county. Priority farms are those that meet or exceed the county average in size and quality score. Minimum county acreage requirements for qualifying as a priority farm range from 10 acres in Bergen County to 96 acres in Salem County. For Highlands Region counties, the minimum acreage requirements are: ten acres in Bergen; fifty-four acres in Hunterdon; thirty-one acres in Morris; sixteen acres in Passaic; sixty-one acres in Somerset; fifty-four acres in Sussex; and seventy-two acres in Warren. Quality scores are determined based on a number of factors, including soil quality, proportion of tillable acres, proximity to other preserved farms and the local support for agriculture. Applications for farms not meeting these criteria are still accepted and considered for approval on a case-by-case basis.

Applications are accepted year-round. An applicant farm that is strategically located and meets or exceeds the minimum criteria for size and quality score will qualify for immediate consideration for preservation. The SADC and the landowner will enter into a 120-day option agreement in which the landowner agrees not to market the property for that time period. During this time two independent appraisers evaluate the land. Based on the findings of those appraisers and the recommendations of its own review appraiser, the SADC will certify a fair-market value and make an offer. If the offer is accepted, the landowner and SADC will enter into an agreement of sale. The SADC will order a survey and title search and work directly with the landowner through the closing process.

Currently, a dual appraisal methodology established by the Highlands Act amending the Garden State Preservation Trust Act is utilized by the SADC farmland preservation programs. Under N.J.S.A. 13:8C-

38j, appraisals are calculated using two values including pre-Highlands Act (January 1, 2004) zoning and environmental regulations. The higher of these two appraisals is used as the basis for negotiations. This appraisal methodology will expire on June 20, 2009 unless it is extended.

The entire SADC process – from application to closing – can be completed in about 12 to 18 months provided there are no major complications associated with survey, title or related issues. One of the purposes of the new amended SADC Farmland Preservation Program rules is to lessen the time it takes to complete the preservation process.

http://www.nj.gov/agriculture/sadc/farmpreserve/programs/acquisition.html

County Easement Program

Under the County Easement Program, landowners sell the development rights on their farmland to the county. When landowners sell their development rights — also known as development easements — they retain ownership of their land, but agree to permanent deed restrictions that allow only agricultural use. The SADC provides counties with grants to fund 60-80 percent of the costs of purchasing development rights on approved farms. The SADC generally holds one funding round per year for this program. Landowners apply to their County Agriculture Development Board (CADB). The CADB reviews applications and forwards approved applications to the SADC.

In order to be considered for this program, farms must be in an Agricultural Development Area and be eligible for Farmland Assessment. The SADC prioritizes applications for preservation funding through a ranking system that assigns points for the following factors: percentage of high-quality soils; percentage of tillable acres; suitable boundaries and buffers, such as other nearby preserved farms and open space; the local commitment to agriculture (e.g., Right to Farm ordinances, financial commitment); size of the farm and agricultural density of the area; imminence of development, and prioritization by the CADB. These quality scores establish the SADC's preliminary priority list for preservation. The SADC certifies development values for each farm based on independent appraisals conducted by two licensed appraisers and a review by an SADC staff appraiser. Counties hire appraisers from an SADC-approved list. Once the SADC certifies development easement values, landowners have 30 days to submit their offers. A landowner can improve a farm's ranking on the preliminary priority list by offering to discount — or sell the development easement for less than the certified value. For every one percent a landowner discounts, two points are added to the farm's quality score. Landowner offers establish the final priority list for preservation. The number of farms that will be preserved each round depends on available state, county and sometimes municipal funding. Interested landowners should contact their CADB.

http://www.nj.gov/agriculture/sadc/farmpreserve/programs/easement.html

http://www.nj.gov/agriculture/sadc/farmpreserve/contacts/cadbs.html

Grants to Non-profit Organizations

The SADC provides grants to non-profit organizations to fund up to 50 percent of the fee simple or development easement values on farms to ensure their permanent preservation. Non-profit organizations should apply to the SADC and notice of available funds are published in the *New Jersey Register*. Applications must be submitted within 90 days of that notice. Non-profit groups also must publish a notice that an application has been filed and notify the municipality and CADB.

The SADC reviews and ranks applications based on the following criteria: percentage of high-quality soils; percentage of tillable acres; suitable boundaries and buffers, such as other nearby preserved farms and open space; the local commitment to agriculture (e.g., Right to Farm ordinances, community financial support); size of the farm; agricultural density of the area, and imminence of development. The SADC certifies a development easement or fee simple value based on independent appraisals conducted by two licensed appraisers. Like all other land in the Farmland Preservation Program, farmland preserved by non-profit organizations must be maintained in perpetuity for agricultural use.

http://www.nj.gov/agriculture/sadc/farmpreserve/programs/nonprofit.html

Planning Incentive Grants (PIG)

The SADC provides grants to municipalities or counties for the purchase of development easements to permanently protect large blocks of reasonably contiguous farmland in project areas they have identified called PIG areas. Municipalities seeking county funding forward applications to their CADB for approval prior to submitting applications to the SADC. Municipalities not seeking county funding and CADBs apply directly to the SADC. Municipalities must have an Agricultural Advisory Committee; for counties, the CADB serves this function. Municipal applications must contain a farmland preservation plan element of the master plan, while county applications should correlate with adopted county comprehensive farmland preservation plans. Municipalities or counties must establish and maintain a dedicated source of funding or alternative means of funding farmland preservation.

The SADC evaluates and ranks applications based on the local commitment to agriculture; soil productivity; size of the farms; agricultural density of the project area; proportion of tillable acres; and threat of development. Priority is given to applications that leverage state funding through installment purchases, option agreements and donations.

The SADC certifies development values for each farm based on independent appraisals conducted by two licensed appraisers and a review by an SADC staff appraiser. The SADC establishes preliminary funding allocations for all applications receiving preliminary approval. The maximum initial allocation is $1.5 million per municipal/county applicant per year. The SADC may increase or decrease preliminary allocations in subsequent years based on the applicants' progress.

http://www.nj.gov/agriculture/sadc/farmpreserve/programs/municipalPIG.html

Eight Year Preservation Program

Farmland owners agree to voluntarily restrict non-agricultural development for a period of eight years in exchange for certain benefits. There are two types of eight-year programs: municipally approved programs, which require a formal agreement among the landowner, county and municipality, and non-municipally approved programs, which require an agreement between only the landowner and the county. Landowners apply to their CADB. Land must be located in an Agricultural Development Area, be eligible for Farmland Assessment and meet local and/or county program criteria.

Landowners enrolled in both municipally and non-municipally approved programs receive no direct compensation for participating, but are eligible to apply to the SADC for grants that fund up to 50 percent of the costs of approved soil and water conservation projects up to a maximum amount during the eight year period.

Additionally, those farms in municipally approved programs are afforded greater protections from nuisance complaints, emergency fuel and water rationing, zoning changes and eminent domain actions. An eight-year agreement is recorded with the county clerk in the same manner as a deed. Land may be withdrawn prior to expiration of the eight-year period only in cases of death or incapacitating illness of the owner or other serious hardship or bankruptcy. Withdrawal from the program must be approved by the CADB and, for municipally approved programs, by the municipality. An owner who wants to sell the farm while enrolled in an eight-year program must provide the SADC with an executed contract of sale for the property. The SADC then has the first right and option to match the conditions of that contract and purchase the property. If an owner re-enrolls in the program for another eight years, the availability of funding is reinstituted under a new cap.

http://www.nj.gov/agriculture/sadc/farmpreserve/programs/eightyearprogram.pdf

ALTERNATIVE/INNOVATIVE PRESERVATION PROGRAMS

In addition to maximizing existing farmland preservation programs, the Highlands Council will

encourage establishment of alternative and innovative programs to enhance farmland preservation and stewardship. The SADC, the CADBs and municipalities preserve farmland through the purchase of development rights or transfer of development rights by deed restricting the land in perpetuity for agricultural purposes. Where existing programs may not be a viable option for the landowner, the need will exist for alternative or innovative tools to create incentives for landowners to voluntarily keep their land in agriculture. The *Land Preservation and Stewardship Technical Report* lists a broad range of options and programs, developed by other states, for the Highlands Council to examine and assess for use in the Highlands Region. Many of these tools are used specifically for agriculture, such as the Next Generation Farmland Acquisition Program, land preservation tontines, and Agricultural Conservation Pension.

AGRICULTURAL SUSTAINABILITY

INTRODUCTION

More than just preservation of the agricultural land base is needed to sustain and enhance agricultural resources and agricultural viability in the Highlands Region. Incentives and funding that support sustainable farming practices are also needed. "Sustainable agriculture" was addressed by Congress in the 1990 Farm Bill. Under that law, the term sustainable agriculture means "an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- Satisfy human food and fiber needs;
- Enhance environmental quality and the natural resource base upon which the agricultural economy depends;
- Make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- Sustain the economic viability of farm operations; and
- Enhance the quality of life for farmers and society as a whole." Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), Public Law 101-624, Title XVI, Subtitle A, Section 1603 (Government Printing Office, Washington, DC, 1990) NAL Call # KF1692.A31 1990.

This section of the report examines existing conservation, funding, technical support, and recognition programs to sustain and enhance agriculture in the Highlands Region which includes programs at the federal, State, county and local levels.

EXISTING CONSERVATION, TECHNICAL SUPPORT AND RECOGNITION PROGRAMS

Conservation Programs

The Highlands Council will collaborate with the NJDA, the NJDEP and all of the entities described below to develop and promote existing and alternative funding incentives and cost-share programs for Best Management Practices (BMPs) that sustain and enhance agricultural and natural resources. Stewardship and implementation of these BMP programs will support the long-term sustainability of natural and agricultural resources in the Highlands Region.

FEDERAL CONSERVATION PROGRAMS

The federal programs listed below are administered by either the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) or the USDA Farm Service Agency (FSA). All of the programs are described in detail on the NRCS and FSA websites:

http://www.fsa.usda.gov/

http://www.nrcs.usda.gov/

Agricultural Management Assistance (AMA)

AMA provides cost-share assistance to agricultural producers through the NRCS district offices to address risk management concerns linked to water management, water quality and erosion control issues.

http://www.nj.nrcs.usda.gov/programs/ama/

Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP)

CRP provides annual rental payments and cost-share assistance to establish long-term resource conserving land covers on eligible farmland. CREP is a cooperative State-Federal conservation program targeted to address environmental impacts related to agricultural practices. The NJDA and the NJDEP are co-sponsors for this voluntary program that offers financial incentives to encourage farmers to create stream buffers on existing farmland. CREP objectives are to maintain and improve water quality by reducing agricultural pollutants into streams, and to enhance farm viability and to contribute to the State's open space goals.

Farmland enrolled in this program will be under rental contract for 10-15 years or placed into both a permanent easement contract and a 10-15 year contract agreement in order to reduce non-point source impairment through the preservation of stream buffers and implementation of conservation practices on existing farmland.

CREP targets 30,000 acres of agricultural land throughout the State. The program has been authorized for up to $100 million in federal funds and involves a state match of $23 million over the life of the Program, and will pay 100% of the cost to establish the conservation practices and annual rental and incentive payments to the landowner.

The agricultural community supports the CREP program as it provides a way for New Jersey farmers to be recognized and compensated for their environmental stewardship. The industry also supports the voluntary nature of the Program and its ability to enhance farm viability. NRCS provides technical services for CREP, while the program is financially administered by the USDA FSA.

http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=cep

http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp

Conservation of Private Grazing Land Program (CPGP)

The CPGP program helps owners and managers of private grazing land address natural resource concerns while enhancing grazing land and rural communities. Privately owned grazing land is eligible, including private, State, Tribal, and other non-federally owned land managed to produce livestock and wildlife. Technical assistance is provided by NRCS in maintaining and improving grazing land, land management, conserving, improving, and maintaining water quality, fish and wildlife habitat, and recreational opportunities. Financial assistance is provided through other Farm Bill programs or other local resources. http://www.nrcs.usda.gov/PROGRAMS/cpgl/

Conservation Security Program (CSP)

CSP rewards producers who are actively protecting soil and water quality on their cropland and pasture, provides additional incentives for exceeding minimum standards and applies to privately owned land that meets certain eligibility requirements. Based on participation tier, landowners will receive payments of up to $45,000 annually for 5-10 years. NRCS administers this program.

http://www.nj.nrcs.usda.gov/programs/csp/index.html

Environmental Quality Incentives Program (EQIP)

EQIP provides assistance to install permanent measures or adopt new management strategies that address existing resource concerns on farms. EQIP promotes agricultural production and environmental quality as compatible goals. Private agricultural land, including eligible cropland, rangeland, pasture, private non-industrial forest land, and other farm or ranch lands are eligible. Financial and technical assistance; cost share payments covering up to 75% of conservation practices for up to 10 years. NRCS

administers this program.

http://www.nj.nrcs.usda.gov/programs/eqip/

Farm and Ranch Land Protection Program (FRPP)

As mentioned above, the FRPP is a Federal program managed by the USDA NRCS. The goal of the program is to protect farm and ranch lands that contain prime, unique, or statewide and locally important soils or historic and archaeological resources from conversion to non-agricultural uses. The program preserves valuable farm and ranch lands for future generations. USDA NRCS achieves this goal by working cooperatively with State, Tribal, and local governments and non-governmental organizations.

For Federal fiscal year 2005, the SADC was provided a Federal cost-share grant in the amount of $4.22 million for the preservation of farmland. This funding was used to provide a 20 percent Federal cost-share on the purchase of development easements on eligible farmland. The Federal cost-share must be based on the current fair market value of the development easement. For farms located in the Highlands region, the SADC will apply the entire 20 percent Federal grant against the local cost share. This can result in a significant savings to the county and/or municipality.

Landowners who agree to accept federal funds are required to include deed restrictions that are specific to the federal FRPP. One of the requirements is a restriction on impervious coverage allowed on the premises. Depending on how the application ranks with regard to its size, percentage of important soils (prime, statewide, unique and locally important), and location in particular population densities, the amount of impervious cover will vary between two and six percent. Any farm less than 50 acres is eligible for one acre of impervious cover and landowners are also required to implement An NRCS Farm Conservation Plan (FCP) on highly erodible soils. The NRCS prepares the FCP in cooperation with the landowner to address any conservation needs.

http://www.nj.nrcs.usda.gov/programs/frpp/

Wildlife Habitat Incentives Program (WHIP)

Under this program, NRCS assists landowners with habitat restoration and management activities specifically targeting fish and wildlife, including threatened and endangered species. NRCS administers this program. www.nj.nrcs.usda.gov/programs/whip/

Wetlands Reserve Program (WRP)

WRP provides financial incentives to landowners to enhance and restore wetlands on lands previously drained for agricultural use. Landowners benefit by seeing a reduction in problems associated with farming in potentially difficult areas. Landowners must have owned the land for at least 12 months before enrollment. Most private wetlands that were converted before 1985 are eligible. Land must be restorable and meet certain eligibility requirements. Permanent easement – offers 100% of permanent easement and construction costs; 30-yr. Easement – 75% of permanent easement and construction costs; Restoration Cost-Share Agreement – 75% cost-share for construction costs; agreements up to 10 years. NRCS administers this program. www.nj.nrcs.usda.gov/programs/wrp

NEW JERSEY CONSERVATION PROGRAMS

Deer Fencing Program

The NJDA and the NJDEP Division of Fish and Wildlife provide assistance to farmers experiencing crop damage caused by deer. The cost-share program, in which the farmer would bear part of the cost and the responsibility for installation, provides fencing material, plus up to 30 percent of the line posts at no cost to qualified farmers. www.nj.gov/agriculture/grants/deer.html

Soil and Water Conservation Grants

The SADC provides grants to eligible landowners to fund up to 75% of the costs of approved soil and water conservation projects, up to a capped amount that is renewed every eight years. Landowners apply to local Soil Conservation Districts, which assist in developing farm conservation plans. Farms must be permanently preserved or enrolled in an 8 year preservation program.

http://www.nj.gov/agriculture/sadc/farmpreserve/grants/

River Friendly Farm Certification Program

The North Jersey Resource Conservation & Development Council (NJRC&D) administers the River Friendly Farm Certification Program, in coordination with the Raritan Basin Watershed Alliance, to give public recognition to farms that protect and enhance the Raritan Basin's rivers, lakes, and streams.

http://www.raritanbasin.org/RaritanAg/RF_Farm/index.htm

Value-Added Tools[2]

Value-Added, USDA Rural Development

USDA Rural Development's mission is to deliver programs in a way that will support increasing economic opportunity and improve the quality of life of rural residents. As a venture capital entity, Rural Development provides equity and technical assistance to finance and foster growth in home ownership, business development, and critical community and technology infrastructure. Further information on rural programs is available at the New Jersey Rural Development office (856) 787-7700. http://www.rurdev.usda.gov/nj/

Value-Added Producer Grants

Currently, this program is intended to assist independent agricultural producers and producer groups with marketing value-added agricultural products. The grants are to be used for planning activities such as feasibility studies and development of business plans as well as for working capital by start-up businesses. Matching funds are a requirement and must be equal or greater than the amount of the grant. http://www.rurdev.usda.gov/nj/vapg.html

Planning grants are planning activities such as conducting feasibility studies and developing business and marketing plans for the marketing of a value-added agricultural product. The planning application needs to spell out the nature of the proposed venture, qualifications of those doing the studies, project leadership, commitment, work plan/budget, amount of grant funds requested, and project cost per producer.

Working *Capital grants* are available to operate as a venture and pay the normal expenses associated with producing a value-added product. Funds cannot be used to purchase or build facilities nor to purchase or install processing equipment.

Value-Added Tools for Agricultural Producers

Beginning in February 2005, farmers raising unique or organic crops can use an interactive website through the Agricultural Marketing Resource Center (AgMRC) for creating or expanding their value-added agriculture businesses. Through the site, growers will be able to assimilate information on their products for attracting buyers. It will feature an online tutorial to aid farmers and ranchers in understanding how to produce food under international quality control systems. The main AgMRC website also provides an extensive directory of resources, such as consultants and state contacts to aid farmers.

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[2] Value-added is the increase in value of goods as a result of the production process which includes advertising, marketing, and branding.

http://www.agmrc.org/agmrc/default.html

Sustainable Agriculture Research and Education (SARE)

SARE is a USDA competitive grants program with regional programs and regional leadership. SARE supports research and education that helps build the future economic viability of agriculture in the United States. SARE funding is authorized under Subtitle B of Title XVI of the Food, Agriculture, Conservation and Trade Act of 1990. http://www.uvm.edu/~nesare/

Farmer/Grower Grants

The goal of the program is to help farmers shift to practices that are environmentally sound, profitable, and beneficial to the farm community. Proposals can address a broad range of agricultural or farm-forestry issues, and successful projects offer an innovative approach that could be adopted by other farmers. Only commercial farmers may apply. They need not be farming full time, but their operation should have an established crop or products that are sold on a regular basis. Grants awards average $5,000 and there is a $10,000 cap. Projects normally run one year, although multiyear projects are not excluded. http://www.uvm.edu/~nesare/FGinfo.html

Partnership Grants

This grant is for Cooperative Extension, Natural Resources Conservation Service personnel, non-profits, and agricultural consultants who work directly with farmers. Grants are used for on-farm research and demonstration projects that address sustainability, and must be conducted in partnership with at least one farmer. The goal of the program is to develop demonstration projects and research results that other farmers can learn from; these projects and demonstrations should address sustainability issues that are important in the Northeast. The SARE portion of the grant is capped at $10,000 and both single and multiyear projects will be considered.

http://www.uvm.edu/~nesare/PARTinfo.html

Disaster Assistance

Emergency Programs for Disaster Assistance, 2003-2005

In October 2004, President Bush signed disaster and drought legislation that provides more than $3 billion in financial relief to farmers, ranchers, foresters, and other agricultural producers who incurred losses due to weather conditions in recent years. The legislation funds new and existing programs administered by the USDA FSA.

Emergency Conservation Program (ECP)

USDA FSA ECP provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures in periods of severe drought.

Crop Insurance Information

The USDA sponsored crop insurance program is a public/private partnership that provides protection nationally for over 100 crops, including limited protection plans for animal production. The Garden State Crop Insurance Education Initiative: http://salem.rutgers.edu/cropinsurance/

Risk Management Agency, USDA: http://www.rma.usda.gov/

Farm Link Program

The NJDA Farm Link Program

The Farm Link Program serves as a resource and referral center for new farmers, farmers seeking access to land and farming opportunities, landowners seeking farmers, and farmers working on estate and farm transfer plans.

Linking service

The programs linking service works to connect farmland owners with farmers seeking access to land and farming opportunities. People looking for land typically include new farmers or farmers looking to expand or relocate their operations. When matches occur, they often involve leasing arrangements, partnerships, apprenticeships, work-in arrangements, or standard sales.

http://www.nj.gov/agriculture/sadc/farmlink/

Marketing Programs

USDA Farmers Market Promotion Program (FMPP) Grants

The grants, authorized by the USDA FMPP are targeted to help improve and expand domestic farmers markets, roadside stands, community-supported agriculture programs and other direct producer-to-consumer market opportunities.

http://www.ams.usda.gov (search FMPP)

Farmers Market Resource Guide

The USDA and Farmers Market Consortium have released a guide which lists grants, programs and other financial and information resources available from public and private organizations to promote farmers markets by sharing practical information about funding and other resources that are available.

http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3100937

Jersey Fresh Matched Funds Program

Pursuant to N.J.S.A. 4:10-1 et seq., NJDA established the Jersey Fresh Program, an advertising and promotional campaign to promote and market agricultural products whereby New Jersey agricultural organizations may apply for grants to be used to adapt the Jersey Fresh Program to their individual advertising and promotion of New Jersey agricultural products.
http://www.state.nj.us/jerseyfresh/

NJDA Agri-Tourism Assistance

The Highlands Council is charged with researching current and potential agri-tourism opportunities and making recommendations to the Secretary of Agriculture on ways to expand and promote agri-tourism in the Highlands Region. With farmers facing rising costs and stagnant commodity prices, agri-tourism offers an important opportunity to generate additional farm income and keep farms economically viable. To assist in the development of the agri-tourism industry, the NJDA will be focusing on three major objectives: developing strategic partnerships, consumer promotion and industry education.

In 2005 the NJDA commissioned the Rutgers Food Policy Institute (FPI) to conduct a study on agri-tourism in New Jersey. The key objectives of this study were to document the nature of current activities, identify the challenges experienced by farmers, identify the perceived opportunities of agri-tourism, assess the importance of agri-tourism to "farm viability" and develop recommendations for agri-tourism industry development. The final report was issued in October 2006 *The Opportunity for Agritourism Development in New Jersey* and is available on the NJDA website:

http://www.state.nj.us/agriculture/pdf/ATReport.pdf.

The NJDA and FPI funded a second study in 2006 to determine the economic importance of agri-tourism in New Jersey by estimating the impact of agri-tourism on the income of New Jersey farms and estimating the statewide economic impact of agri-tourism. The results of this study determined that in 2006 more than one-fifth of New Jersey farms offered some form of agri-tourism and it was estimated that 43% of New Jersey's total land in farms is associated with farm operations engaged in agri-tourism. Income from agri-tourism activities on New Jersey farms totaled $57.5 million in 2006 and the average

agri-tourism income reported by farms with agri-tourism activities was $27,093 in 2006. A power point presentation summarizing the two reports is also available on the NJDA website: http://www.nj.gov/agriculture/pdf/Agritourism%20economic%20impact%20study%20-%202007.ppt

The Council will work with the NJDA to build on existing agri-tourism studies to maximize and expand agri-tourism opportunities for farms in the Highlands Region. Additional information on New Jersey agri-tourism events and attractions is available on the NJDA website at the following link:

http://www.state.nj.us/jerseyfresh/agritourismhome.htm

Federal State Marketing Improvement Program (FSMIP)

FSMIP provides matching funds to State Departments of Agriculture to assist in exploring new market opportunities for food and agricultural products, and to encourage research and innovation aimed at improving the efficiency and performance of the marketing system. The Agricultural Marketing Service awards approximately 25 to 35 grants each year averaging $50,000 per grant. Requests for FSMIP funds must be matched, at a minimum, on a one-on-one basis, from non-Federal sources which includes in-kind services.

http://www.ams.usda.gov (search FSMIP)

Energy Programs

New Jersey Clean Energy Program: Provides financial incentives (rebates of 30% - 70% of system costs) to owners who install qualifying clean energy generation systems such as fuel cells, photovoltaics (solar electricity), small wind and sustainable biomass equipment.

http://www.njcleanenergy.com/renewable-energy

Green Energy

Information about renewable energy is available on the New Jersey Department of Agriculture's website. The site explains the various green energy components: sun, wind, and renewable fuels, e.g. biogas, biodiesel, and ethanol. It also gives the rationales for turning to green energy sources. The site contains many links to obtain further information on green energy, as well as links to the studies used in determining the Department's positions.

http://www.nj.gov/agriculture/news/hottopics/topics060222.html

Renewable Energy Systems and Energy Efficiency Improvements Program

This program currently funds grants and loan guarantees to agricultural producers and rural small business for assistance with purchasing renewable energy systems and making energy efficiency improvements. New for 2006, the program offers both grants and guaranteed loans for eligible projects. In addition, projects with total eligible costs under $200,000 can apply under a Simplified Application Process designed to streamline the application process for small projects.

http://www.rurdev.usda.gov/rbs/farmbill/index.html

New Jersey SmartStart Building

The NJ SmartStart Building Program can be implemented when starting a commercial or industrial project from the ground up, renovating existing space, or upgrading equipment. SmartStart Buildings can provide a variety of free support to yield substantial savings in the short and long term. If an interested party contracts with an outside firm to implement a full-phase energy audit, the utility can pay up to 50 percent of the study cost with a maximum reimbursement of $10,000.

http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings

Motor-Up Premium Efficiency Initiative

This initiative combines cash rebates, end user education and motor management tools for qualified motors. http://www.appliedproactive.com/motors.html

Training Programs

Funding through the New Jersey Department of Labor and Workforce Development may be available for programs that will assist in upgrading the skills and productivity of the agricultural workforce.

Customized Training Initiative

Designed to create and retain a well trained and highly skilled workforce; this program can help employers tailor training programs to improve their workers' production capabilities and, in turn, their bottom line. Examples include training on specialized machinery, literacy, and basic skills or learning to use a personal computer.

http://lwd.dol.state.nj.us/labor/employer/training/competitive_customized_training.html

Basic Skills Program

Designed to teach basic reading comprehension, math, English proficiency, computer, language and work readiness skills.

http://lwd.dol.state.nj.us/labor/employer/training/competitive_customized_training.html

Occupational Safety and Health Training Program

Funds are used to provide occupationally related safety and health training to workers and students participating in occupational or school careers training. Trainers will visit the farm site, review existing safety measures and suggest alternative for OSHA compliance. Because the Department of Labor and Workforce Development proactively works with the farmer, OSHA audits may be exempted for that period for the farmer.

http://www.state.nj.us/labor/bsr/bsprog.html

Youth Transition to Work (YTTW)

YTTW is a well-established partnership of the Department of Labor, Department of Education, US Department of Labor, Bureau of Apprenticeship and Training, and the state AFL0-CIO. The program provides funding to employers, organized labor and schools to implement school to registered apprenticeship transition programs. Apprenticeship consists of structured on the job training and classroom instruction. http://www.state.nj.us/labor/bsr/bsprog.html

New Jersey Manufacturing Extension Program (NJMEP)

MEP is a nationwide network of resources transforming manufacturers to compete globally, supporting greater supply chain integration and providing access to technology for improved productivity. MEP has 350 centers nationwide that work directly with area manufacturers to provide expertise and services tailored to their most critical needs, which range from process improvements and worker training to business practices and applications of information technology. Solutions are offered through a combination of direct assistance from center staff and outside consultation

http://www.njmep.org/index.html

Other Tools and Programs (Recognition)

Farmland Assessment

New Jersey's Farmland Assessment Act, administered by the New Jersey Department of Treasury, provides for lower assessment based on productivity of farmland if it meets specific eligibility criteria. To qualify for the tax assessment reduction, a landowner must have no less than five acres of farmland

actively devoted to an agricultural or horticultural use for the two years immediately preceding the tax year being applied for and meet specific minimum gross income requirements based on the productivity of the land. If the land is subsequently sold for non-agricultural purposes, there are property tax repayment (rollback) provisions.

Debt for Nature Program

The Debt for Nature Program (DFN), also known as the Debt Cancellation Conservation Contract Program, is available to persons with Farm Service Agency (FSA) loans secured by real estate. These individuals may qualify for cancellation of a portion of their FSA indebtedness in exchange for a conservation contract with a term of 50, 30, or 10 years. A conservation contract is a voluntary legal agreement that restricts the type and amount of development that may take place on portions of a landowner's property. Contracts may be established on marginal cropland and other environmentally sensitive lands for conservation, recreation, and wildlife purposes. http://www.fsa.usda.gov/

Agriculture in the Classroom

Agriculture in the Classroom is a grassroots program sponsored by the USDA to help students gain greater awareness of the role of agriculture in society and the economy, "so that they may become citizens who support wise agricultural policies." Each state has their own individual program and the USDA supports those programs by helping to develop Agriculture in the Classroom programs, acting as a central clearinghouse for materials and information, coordinating with national organizations to promote increased awareness and encouraging USDA agencies to assist in the state programs.

http://www.agclassroom.org/

New Jersey Farm Bureau

The mission of the NJFB is "to represent the agricultural producers and enterprises of New Jersey at all levels of government – local, county, state, federal and international." Work of the NJFB includes influencing regulations and laws, creating positive public relations and seeking out initiatives, activities and ventures that help its producer members achieve profitability. Members of the NJFB are entitled to specific benefits ranging from discounts for insurance and healthcare to supplies and vehicles for farm production. http://www.njfb.org/

New Jersey Agricultural Society

The New Jersey Agricultural Society (NJAS) is a non-profit agricultural organization established in 1781 to "preserve and enhance agriculture, farming and related activities and businesses in New Jersey through educational, information, and promotional programs." The NJAS sponsors various programs including the New Jersey Farmers Against Hunger, which collects fresh fruit and vegetables from farms to distribute to those in need. Another program is the New Jersey Agricultural Leadership Development Program that provides opportunities for individuals in farming and agri-business to advance their business and leadership skills. The NJAS Learning Through Gardening Program helps teachers and their students learn about agriculture and how it translates to real life. http://www.njagsociety.org/

Northeast Organic Farming Association of New Jersey (NOFA-NJ)

The NOFA-NJ is a non-profit that serves the New Jersey and Pennsylvania region as a catalyst in the development of a sustainable organic agricultural system, educates individuals about the significance and meaning of organic practices for food and the environment, helps organic and progressive conventional farmers build and maintain sustainable operations, and offers USDA-accredited third-party certification to organic farms and processors. http://www.nofanj.org/

Recognition Programs

Dairy of Distinction Program

The Northeast Dairy Farm Beautification Program established in 1983 recognizes the hard work and dedication of dairy owners and operators through their Dairy of Distinction award program. Active dairy farms in New York, Pennsylvania, New Jersey and Vermont are eligible for the award and winning farms receive a special Dairy of Distinction roadside sign for their farm. http://dairyofdistinction.org/

American Farmland Trust (AFT) Steward of the Land Award

AFT, the only non-profit national farmland trust committed to protecting the nation's best farm and ranch land and improving the economic viability of agriculture, gives a Stewards of the Land Award. The Stewards of the Land award honors an American farm family or famer that demonstrates great leadership in conserving farmland and caring for the environment.

http://www.farmland.org/programs/award/

Barn Again!

The National Trust for Historic Preservation and *Successful Farming* magazine partnered in 1988 to present awards to owners of barns that "put forth exceptional efforts to preserve and maintain their historic barns." Winners of this award receive recognition in a featured article in *Successful Farming* magazine and a cash award. http://www.preservationnation.org/resources/case-studies/barn-again/

AGRICULTURE SUSTAINABILITY STANDARDS

INTRODUCTION

The term "sustainable agriculture" means something different to every farmer, agricultural community member, and policymaker. As previously mentioned "Sustainable agriculture" was addressed by Congress in the 1990 Farm Bill which defined it in terms of an integrated system of plant and animal production practices having a site-specific application. Sustainable agriculture also protects open space and the traditional characteristics of rural communities. Moreover, it helps landowners maintain their farms rather than being forced to sell their land because of pressure from development.

This section describes methods used to encourage implementation of agricultural practices at the federal, state, county and local levels in order to support agricultural sustainability and viability in the Highlands Region.

There are no federal, state, county or local standards for agriculture sustainability per se. "Sustainable agriculture does not refer to a prescribed set of practices. Instead, it challenges producers to think about the long-term implications of practices and the broad interactions and dynamics of agricultural systems. It also invites consumers to get more involved in agriculture by learning more about and becoming active participants in their food systems. A key goal is to understand agriculture from an ecological perspective--in terms of nutrient and energy dynamics, and interactions among plants, animals, insects and other organisms in agro-ecosystems --then balance it with profit, community and consumer needs." [Sustainable Agriculture Research and Education (SARE), *Exploring Sustainability in Agriculture: Ways to Enhance Profits Protect the Environment and Improve Quality of Life,* (SARE, 2003).]

EXISTING, FEDERAL, STATE, COUNTY AND LOCAL SUSTAINABLE AGRICULTURE STANDARDS

Sustainable Agriculture Conservation Practices

As stewards of the land, farmers protect the quality of the environment and conserve the natural resources that sustain it by implementing conservation practices that improve water quality, conserve

water and energy, prevent soil erosion and reduce the use of nutrients and pesticides. These identified conservation practices are examples of how the agricultural community achieves these goals.

Integrated Pest Management (IPM)

IPM is an approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks.

Rotational Grazing

Management-intensive grazing systems take animals out of the barn and into the pasture to provide high quality forage and reduced feed costs while avoiding manure buildup.

Soil Conservation

Many soil conservation methods, including strip cropping, reduced tillage and no-till, and help prevent loss of soil due to wind and water erosion.

Water Quality/Wetlands

Water conservation and protection have become important parts of agricultural stewardship. Practices such as planting riparian buffer strips can improve the quality of drinking and surface water, as well as protect wetlands. Farm ponds can contribute to flood management and groundwater recharge as well as nesting and feeding habitat for various species of waterfowl.

Cover Crops

Growing plants such as rye, clover or vetch after harvesting a grain or vegetable crop or intercropping them can provide several benefits, including weed suppression, erosion control and improved soil nutrients and soil quality.

Crop/Landscape Diversity

Growing a greater variety of crops and livestock on a farm can help reduce risks from extremes in weather, market conditions or pests. Increased diversity of crops and other plants, such as trees and shrubs, also can contribute to soil conservation, wildlife habitat and increased populations of beneficial insects.

Nutrient Management

Proper management of manure, nitrogen and other plant nutrients can improve soil and protect the environment. Increased use of on-farm nutrient sources, such as manure and leguminous cover crops, also reduces purchased fertilizer costs.

Agroforestry

Agroforestry covers a range of tree uses on farms, including inter-planting trees with crops or pasture, growing shade-loving specialty crops in forests, better managing woodlots and windbreaks, and using trees and shrubs along streams as buffer strips.

Drought Assistance

New Jersey has adopted a Drought Management Plan, which provides the guidelines and policies for water use during emergencies. The Drought Management Task Force implements these policies and provides hardship exemptions from water use restrictions when warranted. Agricultural water use including the irrigation of food and fiber crops, sod at commercial sod farms, water use for livestock and other animal operations is exempt from restrictions, provided that all watering is done in accordance with best management practices.

USDA Natural Resources Conservation Service (NRCS) Programs (See the sections above on Conservation Programs and Funding for Sustainable Farming Tech Memo).

Farm Conservation Plans and Resource Management Systems Plans

The Highlands Act at N.J.S.A. 13:20-29 requires that any agricultural development in the Preservation Area of the Highlands Region that would result in an increase of agricultural impervious cover by three percent or more of the total land area of a farm requires that the owner or farm operator develop and implement a NRCS Farm Conservation Plan (FCP) approved by the local Soil Conservation District. Any agricultural development that would result in the increase of agricultural impervious cover by nine percent or more requires a NRCS Resource Management Systems Plan (RMSP) be prepared and implemented. The management of agricultural impervious cover is important to the proper operation of a farm as well as to the protection of water resources and other resources in the Highlands Region. As a result, all farms should be required to adopt these conservation practices regarding agricultural impervious cover. See the White Paper on Conservation Plans and Best Management Practices for more information on the NRCS FCP and RMSP.

Marketing Practices

Alternative Marketing

Farmers and ranchers across the country are finding that innovative marketing strategies can improve profits. Direct marketing of agricultural goods may include selling at farmers markets, roadside stands, or through the world-wide web; delivering to restaurants and small grocers.

Community Supported Agriculture

Community Supported Agriculture (CSA) is sometimes known as "subscription farming" and the two terms have been used on occasion to convey the same basic principles. Subscription farming (or marketing) arrangements tend to emphasize the economic benefits, for the farmer as well as consumer, of a guaranteed, direct market for farm products. Growers typically contract directly with customers, who may be called "members," and who have agreed in advance to buy a minimum amount of produce at a fixed price, but who have little or no investment in the farm itself.

New Jersey Department of Agriculture (NJDA) Jersey Fresh Program

Facilitating investments in agricultural infrastructure supports, maintains and expands the business of farming. Identifying and facilitating the creation of new markets helps farmers access an ever-changing marketplace. At the same time, the NJDA realizes that promoting the wide variety of agricultural products the Garden State offers is critical to sustaining the industry. The NJDA's Jersey Fresh promotion program is a long-standing economic development tool. This nationally recognized marketing and grading program promotes the consumption of Jersey produced agricultural products and ensures consumers a high-quality product. For nearly 20 years, the Jersey Fresh program has been successful at strengthening consumer awareness of traditional New Jersey-grown fruits and vegetables.

Agricultural Land Use Planning

Below are some of the land use techniques and infrastructure systems that support development and redevelopment. These techniques and systems enable the accommodation of growth, the preservation of farmland and the continued viability of the agricultural industry.

Agriculture-Friendly Zoning

Agriculture-friendly zoning is a comprehensive land use practice that coordinates zoning and land use policy in a proactive way to encourage agri-business and reduce the incidence of farmer-homeowner nuisance issues or Right to Farm conflicts. The agricultural land use zone identifies active farms, farm product processing and farm support businesses as permitted uses. The zoning regulations would consider the needs of farm operations and permit increased lot coverage, housing for agricultural labor, reduced front setbacks and less restrictive signage regulations.

Clustering

Clustering is a development design technique that concentrates buildings on a portion of land to allow the remainder to be preserved for agriculture, recreation, or environmental purposes. Cluster development is a compromise between development and preservation, one that gives landowners some return on their equity by allowing limited residential subdivision while protecting agricultural uses. Several municipalities in New Jersey have cluster ordinances to protect agricultural lands. In New Jersey, East Amwell Township's ordinance requires a 75% open space set aside; Readington Township's ordinance requires a 70% set aside; and Upper Freehold Township requires a 75% set aside; all with dedicated easements on the open space. Additionally East Amwell requires at least 65% of the designated agricultural lands be unconstrained land areas and prime soils (SCS Classes I and II) or soils of statewide importance (SCS Class III). In the New Jersey Pinelands, the Pinelands Comprehensive Management Plan at 7:50-5.24 calls for an 80% set aside in its Agricultural Production Areas. In Maryland, Calvert County requires 80% of the parcel be preserved; Carroll County requires between 80% and 85% and Howard County averages 70%.

Lot-Averaging

Lot-averaging is a method similar to clustering, which permits flexibility in lot size on a parcel of land. This is an effective technique for smaller parcels (10-20 acres) that are proposed for subdivision where flexibility in lot size may help to preserve resources. The overall density remains the same and the lot sizes vary.

Transfer of Development Rights (TDR)

Transfer of Development Rights (TDR) programs can protect farmland by shifting development from agricultural areas to areas targeted for growth. TDR is the clustering of development, a tool that can be implemented in a portion of a township, township-wide or at a regional scale. TDR allows landowners to transfer the right to develop from one area of land – called a sending area, the area to be preserved – to another area of land – called a receiving area, the area to accommodate growth.

Ordinance Amendments

Municipalities have the ability to amend local zoning ordinances to encourage more compact smart growth and mixed-use development patterns in and around existing centers or in new centers. To encourage this type of development pattern municipalities can:

- Provide incentives to cluster development in centers;
- Reduce lot sizes, setbacks and yard requirements;
- Allow a mix of commercial and residential uses in centers; and
- Permanently preserve a majority of the area's farmland.

For more information on smart growth and smart design principles see the *Regional Land Use Conditions and Smart Design Technical Report*.

Economic Development

Municipalities and counties with significant agricultural resources should incorporate agriculture into their economic development plans using the following techniques:

- Include agricultural representation in local and regional business organizations and economic development agencies;
- Integrate agriculture into traditional business support systems;
- Engage local Chambers of Commerce and associated organizations to develop a Community Supported Agriculture (CSA) program that links growers with local buyers and residents;
- Work with the Office of State Tourism to promote agri-tourism and eco-tourism activities to support the farm economy by allowing farmers to benefit from additional sources of income;
- Coordinate historic preservation, open space and recreation efforts with agricultural

preservation/retention efforts; and

- Create economic development incentives and include flexible land use regulations to support the expansion of food and farm-related businesses.

Agricultural Industry

Creating an environment that supports the agricultural industry at the municipal, county and state levels demonstrates that agriculture is an important land use in New Jersey and encourages the retention of thriving and diverse farming operations. Educating the next generation, welcoming newcomers and ensuring the safety and well-being of today's farm workers are critical components of maintaining a profitable, strong agricultural industry poised for a bright future.

Right To Farm

New Jersey has seen an influx of development in what were traditionally agricultural areas. In some instances, local governing decisions are made to address this growth but may constrain agricultural operations or significantly increase the operating costs of farming. The Right to Farm Act (N.J.S.A. 4:1C-1 et seq.) and the New Jersey Department of Agriculture (NJDA) Right to Farm Rules (N.J.A.C. 2:76-2) are important provisions to sustain and enhance agricultural operations and maintain public health and safety in the Highlands Region. The Right to Farm Act protects responsible commercial farmers from unduly restrictive municipal regulations and public and private nuisance actions. The State Agriculture Development Committee (SADC) manages a Right to Farm Program in partnership with the County Agriculture Development Boards and has developed a model Right to Farm ordinance. Under the Right to Farm Program, the SADC helps to educate farmers, residents, and municipalities about the Right to Farm Act, the Act's formal conflict resolution process, and strategies for resolving agricultural conflicts and maintaining a positive agricultural business environment that enhances New Jersey's agricultural industry. http://nj.gov/agriculture/sadc/rtfprogram/

Farmland Assessment

The Farmland Assessment tax incentive has been instrumental in helping New Jersey retain productive farmland. The NJDA in consultation with the New Jersey Division of Taxation and the New Jersey Forest Service has an informational guide on the basic requirements of farmland assessment.

http://www.state.nj.us/agriculture/FarmlandAssessmentGuide.pdf

Transferring the Family Farm

The SADC offers a publication to assist farm families in undertaking the planning needed to ensure they can successfully transfer the farm to the next generation. "Transferring the Family Farm: What Worked, What Didn't for 10 New Jersey Families" offers real-life profiles of families who describe their successes and challenges, as well as what they learned and what resources proved valuable, as they planned for and undertook the transfer of their land and agricultural operations.

http://www.nj.gov/agriculture/sadc/publications/transferprofilesbooklet.pdf

Agriculture Education and New Farmers

Equipping the next generation to lead and manage the agricultural industry is vital to ensuring that agriculture continues to thrive. Having instructional programs available in our schools provides students with options beyond the standard curriculum. The next generation of farmers also includes individuals who are considering changing careers to start a new farm business or operation. It is important to equip these people, who often do not come from agricultural backgrounds, with the resources they need to succeed. http://www.nj.gov/agriculture/sadc/farmlink/resources/newfarmers.html

Rutgers Cooperative Extension

Rutgers Cooperative Extension (RCE) helps the diverse population of New Jersey adapt to a rapidly

changing society and improve their lives through an educational process that uses science-based knowledge. RCE focuses on issues and needs relating to agriculture and the environment; management of natural resources; food safety, quality, and health; family stability; economic security; and youth development. http://njaes.rutgers.edu/extension/

Farm Risk Management and Crop Insurance

It is also important farmers understand and participate in the United States Department of Agriculture's (USDA) risk management programs to insure their operations against potential losses. The NJDA, in conjunction with the USDA, conducts farm risk management and crop insurance education programs to assist farmers in understanding what assistance is available to reduce agricultural risks.

The USDA sponsored crop insurance program is a public/private partnership that provides protection nationally for over 100 crops, including limited protection plans for agriculture/animal production.

The Garden State Crop Insurance Education Initiative: http://salem.rutgers.edu/cropinsurance/

USDA Risk Management Agency: http://www.rma.usda.gov/

CONCLUSION

Sustainable agriculture is based on long-term goals and not a specific set of farming practices. By creating an environment that is supportive of agriculture and equipping the next generation to lead and manage the industry, New Jersey demonstrates its commitment to agriculture as a business and not just a source of scenic rural agricultural landscapes. Strategies to sustain the industry married with preservation and planning efforts, economic development activities and natural resource conservation practices, position New Jersey and Highlands Region agriculture for a profitable, strong and bright future.

FINDING AND APPROACHES

The preservation of farmland and the promotion of agriculture in the Highlands Region are essential objectives of the Highlands Act which echoes the importance of keeping agricultural lands in active production in the Highlands Region. The agricultural industry in the Highlands Region is a vital component of the economy, welfare, and cultural landscape of the Highlands Region and the need exists to maintain and encourage agricultural production and a positive agricultural business climate in the New Jersey Highlands. The reduction in acreage of agricultural soils farmed in the Highlands Region in the last twenty years reiterates the importance of preserving farming in the Region as a business and as a resource. The first step to sustaining and enhancing agricultural resources and the agricultural industry is to develop a Highlands Region approach for assessing the value of agricultural lands for preservation.

Common factors used to prioritize land parcels for preservation include soil quality and productivity, agricultural infrastructure, farming methods including conservation practices, unique or critical land quality, critical size of a parcel for a viable agricultural operation, proximity to other protected land for a critical mass to achieve effectiveness, and importance to local agricultural and economic vitality.

Therefore, in order to identify critical agricultural lands in the Highlands Region, the Highlands Council examined the Region's agricultural resources and evaluated them specifically considering the realities of farming in the Highlands Region. The Council then utilized the following factors to assess the Region's farmland and identify the Region's most important agricultural resources: contiguous farming landscapes; farms that include Important Farmland Soils; the extent of lands adjoining a farm that are in agricultural use; and concentrations of existing preserved farmland. An examination of these factors permitted the Highlands Council to spatially delineate areas in the Highlands Region, with a prevalence of active farms and develop Agricultural Resource Areas.

In order to prioritize areas for farmland preservation, the Highlands Council used the results of the agricultural resource assessment to identify the highest agricultural resource values in the Highlands

Region and determine the relative value of the agricultural resources in order to set priorities for farmland preservation. These areas are Agricultural Priority Areas (APA). The Council also created a confidential list of agricultural lands within the APA to prioritize for preservation and will maintain this list as properties are preserved. In coordination with the New Jersey Department of Agriculture and the State Agriculture Development Committee, the Council will prioritize the preservation of agricultural resources in order to sustain and enhance agricultural resources and the agricultural industry in the Highlands Region.

SUPPORTING INFORMATION

Acknowledgments
References
Agricultural Priority Area Indicators
White Paper, Conservation Plans and Best Management Practices
Figures
Tables

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DATA SOURCES

The following data sources were used in the creation of the figures and their associated tables:

2002 Land Use/Land Cover

New Jersey Department of Environmental Protection's 2002 Land Use/Land Cover spatial files. Files appended and recoded to Highlands 13 land use categories by the Walton Center for Remote Sensing & Spatial Analysis (CRSSA), Rutgers University.

Preserved Farmland

New Jersey Department of Agriculture, State Agriculture Development Committee (SADC) Program spatial files. The shapefile contains farms that are preserved, farms that have final approval from the SADC, and farms in the 8 year easement program. Data is current as of June 2008.

Soil Data

USDA, Natural Resources Conservation Service:

http://soildatamart.nrcs.usda.gov/SSURGOMetadata.aspx

AGRICULTURAL PRIORITY AREAS INDICATORS

In order to determine the priority areas for farmland preservation, the Council utilized the results of the agricultural resource assessment to identify those lands within the Highlands Region which have the highest agricultural resource values. Working in coordination with the New Jersey Department of Agriculture (NJDA) and the State Agriculture Development Committee (SADC), seven indicators are used to determine Agricultural Priority Areas (APA) and the figure *Agricultural Priority Area* displays the relative value of those agricultural resources. The seven indicators used to determine the APA are:

- Agricultural Resource Areas;
- Important Farmland Soils – Undeveloped;
- Preserved Farms;
- Contiguous Farms greater than 250 acres;
- Agricultural Uses 10 acres or greater;
- 50% or greater Prime Soils; and
- ¼ mile proximity to Preserved Farms.

1. Agriculture Resource Area (ARA)

The ARA is an intensity indicator that reflects areas in the Region with a prevalence of active farms and is based upon Contiguous Farms >250, Important Agricultural Soils - Undeveloped, and Preserved Farms data layers. The boundary was drawn to reflect areas with the highest agricultural areas.

2. Important Farmland Soils – Undeveloped

The type of soil is an important factor in determining the productivity of farmland. The Important Farmland Soils (1%+) feature based data layer include soils of local, statewide importance, unique and prime soils, as defined by Natural Resources Conservation Service's (NRCS) Soil Survey Geographic (SSURGO) Database for farmland soils. Developed lands were removed from this file.

3. Preserved Farms

The Preserved Farms feature based data layer is based on NJDA, SADC Program 2008 spatial files and contains farms that are preserved, farms with final approval from the SADC, and farms in the 8 year easement program.

4. Contiguous Farms greater than 250 acres

The Contiguous Farms greater than 250 acres data layer is an intensity indicator that represents areas with contiguous farming landscapes. The layer is based upon the following factors: parcels with 10% or greater agricultural uses and 1%+ important soils (local and statewide importance and prime soils) and preserved farms. Features were buffered by 50 feet to reduce fragmentation and only those areas with 250 or greater contiguous areas were selected. Once the Agricultural Resource Area (ARA) was established (based upon this data layer) those parcels that are outside of the ARA were deleted.

5. Agricultural Uses

The Agricultural Uses, >10 is an intensity indicator that represents the extent of lands that are currently in agricultural use based upon NJDEP 2002 Land Use Land Cover data, with 10 acres as a minimum threshold. Agricultural lands are used primarily for the production of food and fiber and some of the structures associated with this production. Categories include cropland and pastureland, orchards, vineyards, nurseries and horticultural areas, confined feeding operations, and other agriculture (includes equine). Parcels were identified - 10% or more of the parcel was classified as agricultural per Land Use

Land Cover.

6. 50% or greater Prime Soils

Parcels were identified within the Agricultural Resource Area in Agriculture Land Use which contains 50% or more Prime soils.

7. ¼ mile proximity to Preserved Farms

A ¼ mile buffer was identified that surrounds the Preserved Farms feature based data layer described above.

WHITE PAPER, CONSERVATION PLANS AND BEST MANAGEMENT PRACTICES

Conservation Plans and Best Management Practices

The Final Draft Regional Master Plan (RMP) include objectives that require specific conservation plans when a portion of an existing area of agricultural land is preserved and the remainder is proposed for clustered residential development in the Agricultural Resource Area (Objective 3A10c), and for clustered development in general (Objective 2J4b): "Where agricultural purposes are involved, increased agricultural impervious surfaces of greater than 3% but less than 9% of the agricultural lands requires the approval of a Farm Conservation Plan from the USDA Natural Resources Conservation Service and impervious agricultural surfaces of 9% or greater requires the approval of a Resource Management System Plan from the USDA Natural Resources Conservation Service." The Highlands Act states the impervious cover is measured after the date of enactment of the Act, so it would not include impervious cover prior to August 10, 2004. The 3% and 9% are established by the Highlands Act for agricultural development, but may not be the most appropriate triggers with regard to Objectives 2J4b and 3A10c to require best management practices that enhance and restore natural resources in the Highlands Region as these triggers were taken from the Highlands Act which focused on agricultural development versus major Highlands development. In determining appropriate triggers the preservation of the agricultural landscape and the sustainability of the agricultural industry must be considered.

The purpose of this white paper is to define the Farm Conservation Plan and the Resource Management System Plan and the differences between these two plans. In addition, the paper examines if the 3% and 9% impervious cover triggers are appropriate, the best management practices (BMPs) currently used in the region, and the difference in pollutant levels when these plans are implemented properly. If the conservation plans and the impervious cover limits are not appropriate targets for enhancing and restoring natural resources in the Highlands Region, the RMP should provide new language for goals, policies, and objectives and promote ways to encourage BMPs. Council staff recommends that, for the purposes of Objective 2J4b and similar objectives regarding non-agricultural compact or clustered development, the approval of the cluster development should trigger development and implementation of a Farm Conservation Plan that addresses the protection of water and soil resources, to address the issues of greatest concern for the Highlands Region.

Farm Conservation Plan (FCP) vs. Resource Management System Plan (RMSP)

There are two types of conservation plans: a Farmland Conservation Plan (FCP) and a Resource Management System Plan (RMSP). Conservation plans are developed to make the farm eligible for United States Department of Agriculture (USDA) cost-share grants, for farms preserved through the State Agriculture Development Committee (SADC) Farmland Preservation Program, and for farms that use USDA Natural Resources Conservation Service (NRCS) Farm and Ranchland Protection Program (FRPP) monies through preservation. The basic difference between a FCP and a RMSP is the FCP will only address a portion of the following five resources on the farm: soil, water, air, plants and animals (SWAPA).

Typically the FCP will address soil erosion on the farm to meet the requirements of a specific USDA Farm Program. USDA Farm Program compliance allows a higher erosion level than the sustainable erosion rate, which the office of the New Jersey Natural Resources Conservation Service (NJNRCS) refers to as 'T'. An example of a typical conservation plan would examine a farm with a poor erosion rate. Through the implementation of the FCP the farmer would employ a number of practices to get closer to, but not meet the 'T' (sustainable erosion rate). The farm would then meet the minimum compliance for USDA programs, but off-site erosion problems may still exist.

The NJNRCS uses New Jersey Quality Criteria for the SWAPA – soil, water, air, plants and animal resources. Each resource has the following number of natural resource concerns assigned to it: soil (seventeen), water (twenty-five), air (twelve), plant (six) and animal (eleven). Some of the quality criteria

identified to address the resource concern mimic the national quality criteria and other quality criteria are specific to New Jersey, such as the water quantity and water quality criteria (300' buffer) specific to the Highlands Preservation Area. Out of seventy-one resource concerns identified, six have quality criteria objectives specific to New Jersey and the remaining quality criteria are based on national criteria. When a conservation plan is developed that meets the New Jersey Quality Criteria for all five resources, the plan is considered an RMSP. The requirements for the RMSP are much more stringent, the plan is more complex, and implementation may be more taxing for the owner.

NJNRCS considers the financial hardship on a farming operation when deciding to develop a FCP or a RMSP. The goal of the NRCS is to "develop the most optimal conservation system for an operation" and maintain or enhance the financial sustainability of the operation. The development of the conservation plan and the final paper copy (FCP or RMSP) is at no cost to the farmer. The greatest cost is plan implementation. Plan implementation may span several years depending on plan complexity and is dependent on a schedule of target dates to develop and implement the plan's conservation practices. The USDA has several cost-share grant programs administered by the NRCS and the Farm Service Agency (FSA) to subsidize the cost of conservation plan implementation. State cost-share funding may also be used for this purpose, and in one case a water purveyor (NJ Water Supply Authority) has provided cost-share funding for RMSP implementation. Currently, the New Jersey Department of Agriculture (NJDA) and the New Jersey Department of Environmental Protection (NJDEP) are developing a cost-share program in two specific watersheds to provide 100% cost-share to specific conservation practices.

FCP vs. RMSP - Development and Implementation

There is no uniform template for the FCP or the RMSP; however there is a standard approach. A computer program allows the NRCS to populate fields and create a plan unique to each farm. Therefore, no two plans are exactly alike. Once the plan is created and printed for the file, it might not be revisited again unless there is a USDA conservation program cost-share contract associated with the plan or if the farm is participating in the SADC Farmland Preservation Program. This essentially means the plan may sit in a drawer and not be re-evaluated. There is no NJNRCS procedure in place to re-evaluate the plan for implementation status. Select farms have cost-share grants (data presented below) or participate in farmland preservation programs. This is due to several factors. One factor is that the USDA NRCS and the NJNRCS do not have the proper funding or resources to track all conservation plan status or implementation. This establishes a clear need for increased funding to conservation plan cost-share programs.

There is no NJNRCS database summarizing information about the conservation plan or agricultural uses, such as the type of plan, requirements to implement the plan, or the location, size, or type of farming operation. The second factor is the privacy restrictions of the Farm Security Rural Investment Act of 2002 requires the USDA NRCS to keep these plans confidential, though applications for cost-share funds from State or other sources may include one or more parts of the plans. For instance, USDA statistics on several of the conservation programs for best management practices will not have information for entire states. While most of the data exists for New Jersey, specific counties are excluded and specific data about each individual plan is not available to the general public. In addition, the USDA NRCS Natural Resources Inventory (NRI-described below), a national statistical survey of data, which evaluates natural resource conditions and trends on all public and privately owned non-federal land in the United States includes a relatively small amount of sample sites in New Jersey.

FCP vs. RMSP - Quantifying Benefits and Differences in Pollutants

How can the benefits from implementation of these plans be measured in the Highlands, New Jersey, or on a national level? To answer this question, four aspects are analyzed in the Highlands: the types of agriculture in the Highlands, the impervious cover typically associated with it, the types of conservation programs, and the degree to which the programs are being used. The Highlands Act and the RMP require a FCP when agricultural development increases agricultural impervious cover more than 3%, but less than 9%, and a RMSP when agricultural impervious cover increases by greater than 9%. The

Highlands Act states the impervious cover is measured after the date of enactment of the Act, so it would not include impervious cover prior to August 10, 2004. These thresholds apply to agricultural development, and may not be the best target points within the Highlands Region for triggering plans related to cluster development.

Agriculture Types and Impervious Cover

The NJNRCS stated there are few farms in the Highlands Region with impervious cover greater than 3%. Agricultural uses generally associated with impervious cover above 3% include nurseries or greenhouse operations, equine (farms for breeding, training, and boarding horses), semi-confined or confined animal feeding operations (CAFOs-cattle, poultry, and specialty farms), and aquaculture (fish hatcheries). In the entire Highlands Region there are only two fish hatcheries and there are only 204 acres (0.17% of total agricultural use) attributed to CAFOs based on the NJDEP 2002 LULC data. Currently, there are only five CAFOs in the entire State of New Jersey. A table generated from NJDEP 2002 LULC data in the Highlands Sustainable Agriculture technical report illustrates the breakdown of agricultural uses in the region (see NJDEP LULC Data for Agriculture by Type - 2002). Out of approximately 118,216 acres of agricultural land in the Highlands (805,682 acres in NJ) approximately 7.5% is attributed to uses that would have impervious cover above 3%. The 7.5% as shown in the table below also includes other uses such as orchards and experimental fields, so the percentage may be closer to approximately 5% to 6%. The NJDA prepared figures by Highland's municipalities for agricultural land use based on the New Jersey Farmland Assessment Summary for the 2004 tax year. Out of approximately 119,571 acres of agricultural land under farmland assessment in the Highlands, equine land use accounted for 0.42% or 922 acres. The breakdown of other agricultural land uses with impervious cover greater than 3% was not available.

There are few statistics in the Region that record impervious cover on farms. In 2005, in response to the SADC equine rules, Morris County did a study on the equine operations in the County. The study covered preserved and non-preserved equine farms to determine impervious cover figures. Out of twenty-three equine farms, only four farms had impervious cover above 3%. The three of the farms with impervious cover above 3% ranged from 3.5% to 3.8% and the fourth had the highest impervious cover rate at 5.8%.

The average size of a farm in the Highlands Region is 55 acres. A typical 55-acre farm including a residence (2-car garage/driveway) and two small general purpose barns would have an impervious coverage of approximately 0.33% (8,000 sq. ft.). Adding a very large general purpose hay barn or pole barn (20,000 sq. ft.) would be approximately 0.83% new impervious coverage. A 25-acre farm with identical structures as the 55-acre farm would have approximately 0.73% (8,000 sq. ft.) existing impervious cover and 1.84% (20,000 sq. ft.) new impervious cover to add a very large general purpose hay barn. The largest type of agricultural structure would be a general purpose barn or livestock barn for high-intensity crop production for a feeding operation (150,000 sq. ft. cattle/poultry). A 25-acre farm with this type of structure would yield 13.76% additional impervious cover and a 55-acre farm would yield 6.25% impervious cover. The Highlands Region has minimal to no high-density agricultural uses; for example, confined feeding operations at 0.17% of the agricultural land base as reported by NJDEP 2002 LULC data.

If the farmer constructed two 20,000 sq. ft. barns this would increase impervious cover more than 3% on a 25-acre farm. Most agricultural uses in the Highlands Region do not require multiple structures of this size. The majority of the agricultural land in the region under the 2002 LULC data is classified as cropland/pastureland at approximately 100,824 acres or 85%. The NJDA prepared figures by Highland's municipalities for agricultural land use based on the New Jersey Farmland Assessment Summary for the 2004 tax year. The total pastureland/cropland under farmland assessment for the tax year of 2004 was 118,649 acres.[3] Under the above impervious cover scenarios, assuming the farm unit

[3] This figure includes modified agricultural wetlands; a total percentage of cropland/pastureland to the total agricultural land use is not available.

constructs a very large general purpose hay barn (maximum size 20,000 sq. ft.), the agricultural impervious cover will not exceed the 3% trigger that would require a FCP. These calculations used maximum square footage figures from the New Jersey Real Property Manual for appraisals. See the table below with impervious surface calculations for agricultural structures (Impervious Surface Calculations - Agricultural Structures).

The primary new agricultural development that would add more than 3% or 9% impervious cover will be greenhouse operations, high-intensity feeding operations, and equine operations on small farm parcels. Currently, there are minimal agricultural uses of these types in the Highlands Region.

If the impervious cover limits of 3% and 9% are not met, few farms will be required to develop conservation plans and implement best management practices (BMPs) that maintain and enhance soil and water quality in the Region. Therefore, farms in the region will need to have incentives to develop conservation plans and implement BMPs, such as a tax credit program. Maryland and Pennsylvania have similar programs. Technical support and grant funding opportunities would also be important. With the USDA privacy restrictions these programs would need to be administered by the NJDA, NRCS or the Farm Services Agency (FSA), or a non-profit such as the North Jersey Resource Conservation & Development (NJRC&D). To explore the use and benefits of best management practices in New Jersey and the Highlands the section below analyzes New Jersey farms enrolled in four significant USDA Conservation Programs.

New Jersey Enrollment in USDA Conservation Programs

There are a number of USDA Conservation Programs authorized through the Farm Bill. These programs are administered by the NRCS and the FSA. Data on many of these programs are limited due to the privacy restrictions required by the Farm Security and Rural Investment Act of 2002. The four most significant programs in terms of funding, acreage, and best management practices are the Conservation Security Program (CSP), the Conservation Reserve Program (CRP), the Conservation Reserve Enhancement Program (CREP), and the Wildlife Habitat Incentive Program (WHIP). The statistics below are broken down between national, the northeastern states (CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, MA), and New Jersey. Federal funding for all of these programs fluctuates due to budget constraints and interest in the programs. Funding for these programs is allocated through annual payments based on five to ten year contracts.

Conservation Security Program (CSP)

The first green payment program created through the 2002 Farm Bill is the CSP administered by the USDA NRCS. CSP rewards farmers who use best management practices (BMPs) on their farms and creates incentives for others to develop these practices to protect soil and water quality. Only specific watersheds are eligible for the funding. This program was not launched until 2004, so the first year of funding began in 2005. Funding in New Jersey was allocated to the Cohansey-Maurice Watershed (South Jersey) in 2005, the Raritan Watershed in 2006, and the Lower Delaware in 2007. The allocations are based on the budget for this program, but also on the interest and participation in these areas. There are approximately 6,144 acres currently enrolled in CSP in the Cohansey-Maurice Watershed and the Raritan Watershed.

In 2005 out of approximately $146 Million (M) payments approved nationwide, $7 M (4.8%) was allocated to the northeastern states and $57,397 (0.82%) to New Jersey (NJ). The northeastern states had 197,036 acres enrolled or 1.9% of the total acreage (9.9 M acres) enrolled nationwide. The Cohansey-Maurice Watershed had 820 acres enrolled in 2005 or 0.42% of the total northeast acreage. In 2006 out of $45 M payments approved nationwide, $6 M (13%) was allocated to the northeastern states, and $104,464 (0.82%) to NJ. The northeastern states had 203,441 acres enrolled or 5.6% of the total acreage (3.6 M acres) enrolled nationwide. The Raritan Watershed had 5,324 acres enrolled in 2006 or 2.6% of the total northeast acreage. In 2007 approximately $237 M payments were approved, $12.6 M to the northeastern states (5.3%), and $168,052 (0.82%) to NJ. There are no acreage figures readily available for 2007, but of the total acreage enrolled nationwide from 2005 through 2006 (13.5 M acres)

only 2.96% is enrolled in the northeastern states and 0.05% in New Jersey.

In the northeast, New Jersey is consistent for allocation and acreage with Vermont and New Hampshire. Maryland, Pennsylvania, and New York have the highest allocations, but also have a much larger amount of agricultural acreage. The USDA NRCS data on New Jersey are not available by county, but the 2006 allocation to the Raritan Watershed included eighteen contracts distributed in the following Highlands counties: eight in Hunterdon County (2,497 acres), three in Morris County (550 acres), and two in Somerset County (2,032 acres). The distribution in New Jersey as compared to the northeast is relatively low in allocations and acreage and only covers the counties in the Raritan Watershed (Hunterdon, Mercer, Middlesex, Monmouth, Morris, Somerset, and Union). Therefore the program is not available to several Highlands counties including Warren County, which has the largest amount of cropland/pastureland (45%) of the total Highlands Region.

Conservation Reserve Program (CRP)

CRP provides cost-share assistance to farmers that establish long-term resource conservation mechanisms on eligible agricultural land and is administered by the New Jersey Office of the FSA. The CRP began in 1987 and seeks to protect topsoil from erosion by reducing water runoff and sedimentation. There are approximately 2,253 acres of agricultural land currently enrolled in New Jersey.

In 2005 out of approximately $1.8 Billion (B) payments approved nationwide, $37 M (2.1%) were allocated to the northeastern states and $120,000 (0.69%) to NJ. The northeastern states had 385,045 acres enrolled or 1.1% of the total acreage (34.9 M acres) enrolled nationwide. New Jersey had 2,295 or 0.56% of the total northeast acreage. In 2006 out of $1.8 B payments approved, $44 M (2.4%) to the northeastern states, and $303,000 (0.69%) to NJ. New Jersey had 2,535 or 0.56% of the total northeast acreage. No summary figures are readily available for 2007.

As of February 2008 approximately $1.8 B payments were approved nationwide, $38 M to the northeastern states (2.2%), and $138,000 (0.69%) to NJ. In the northeast New Jersey is consistent for allocation and acreage with Vermont. Maryland, Pennsylvania, and New York have the highest allocations. The USDA FSA data on New Jersey is presented by county, but much of the county data is kept confidential. Of the total 2,253 acres enrolled in the CRP as of February 2008 four Highlands counties have active contracts: Hunterdon County (1,250 acres), Somerset County (169 acres), Sussex (29 acres), and Warren (105 acres). Again the distribution within these counties is low, especially for Warren which occupies 45% of the cropland/pastureland in the Highlands Region. CRP enrollment tends to be low in high-cost states due to limitations on the amount of rent available per acre.

Conservation Reserve Enhancement Program (CREP)

CREP is a subset of the CRP and also administered by the FSA. Land is placed under a rental contract or under a permanent easement with a contract agreement to reduce non-point source impairment through the preservation of stream buffers and implementation of conservation practices on existing farmland. There are approximately 399 acres of agricultural land currently enrolled in New Jersey. CREP relies on more advanced levels and methods of conservation than CRP or CSP and requires a greater commitment from the farmer. CREP has higher rental rates than CRP (through funding from NJDA and NJDEP) and provides funding for the implementation of buffers adjacent to waterways.

In 2005 out of approximately $81 M payments approved nationwide, $25 M (31%) were allocated to the northeastern states and $2,000 (0.10%) to NJ. The northeastern states had 225,409 acres enrolled or 33% of the total acreage (675,977 acres) enrolled nationwide. New Jersey had 15 acres or 0.14% of the total northeast acreage. In 2006 out of $100 M payments approved, $28 M (28%) to the northeastern states, and $28,000 (0.10%) to NJ. The northeastern states had 252,281 acres enrolled or 30% of the total acreage (831,577 acres) enrolled nationwide. New Jersey had 215 acres or 0.14% of the total northeast acreage. No summary figures are available for 2007. As of February 2008 approximately $135 M payments approved, $32 M in the northeastern states (24%), and $53,000 (0.10%) to NJ. The northeastern states had 285,718 acres enrolled or 26% of the total acreage (1.1 M acres) enrolled nationwide. New Jersey had 399 acres or 0.14% of the total northeast acreage.

In the northeast New Jersey has the lowest funding allocation and acreage for the CREP with the exception of the states that do not participate: Connecticut, Delaware, Massachusetts, and New Hampshire. Maryland, Pennsylvania, and New York have the highest allocations and Vermont has about 1,000 acres enrolled. The USDA FSA figures on New Jersey are presented by county, but much of the county data is kept confidential. Of the total 399 acres enrolled in the CREP as of February 2008, only two Highlands counties have active contracts: Hunterdon County (12 acres) and Warren (16 acres). The majority of the acreage (324 acres) is in Salem County. The participation in this program is significantly low in New Jersey as compared to the other northeastern states. The low figures in New Jersey may be due to CREP being a more stringent program that addresses high priority conservation issues, although program participation has been steadily increasing over the last six months.

Wildlife Habitat Incentives Program (WHIP)

NRCS administers the WHIP and assists landowners through funding and technical assistance with habitat restoration and management activities specifically targeting fish and wildlife, including threatened and endangered species. WHIP is one of the most popular programs in New Jersey and has been widely accepted and highly effective throughout the country, because it provides benefits for protecting habitat on land that requires less cultivation. However, reports are not as readily available on WHIP as the other programs. Allocation history is only published by state and it would require manipulation to understand how New Jersey ranks amongst the other northeastern states.

In New Jersey sixteen out of the twenty-one counties participate in WHIP and all of the Highlands counties participate with the exception of Bergen and Passaic. Only figures for 2004 and 2005 are available by county. The allocations for 2004 were approximately $360,500 and the Highlands counties accounted for 65% or $236,000 of the allocation. In 2005 there was approximately $348,000 allocated to New Jersey and the Highlands counties accounted for 66% or $230,000. The funding allocations for New Jersey increased significantly in 2006 (approximately $750,000), but the acreage decreased. No exact acreage numbers are available.

The majority of these USDA cost-share conservation programs are relatively new and New Jersey has increased the acreage enrolled in these programs in the last few years, except for CREP which has substantially low acreage enrolled. However, the funding and acreage at the northeastern level and the nationwide level are staggering compared to the percentages attributed to New Jersey. With the exception of WHIP, farms in only a few Highlands counties, mainly Hunterdon, are taking advantage of these programs. Warren County has the highest percentage of cropland/pastureland, (45% or 44,758 acres) 2002 LULC figures and (46% or 54,017 acres) 2004 Farmland Assessment figures, in the Highlands Region and has farmland enrolled in CRP, CREP, and WHIP. Only 121 acres are enrolled in Warren County in the CRP and CREP. Hunterdon County has the second largest amount of cropland/pastureland, (29% or 29,098 acres) 2002 LULC figures and (26% or 31,231 acres) 2004 Farmland Assessment figures, in the Highlands Region and is participating in all of the programs, but only 3,759 acres are enrolled in the entire county in the CSP, CRP, and CREP.

Pennsylvania, Maryland, and New York are the leaders in these programs in the northeast and have significantly more agricultural land. New Jersey is one of the leaders in the nation in the preservation of the agricultural landscape, and is significantly ahead of all the northeastern states with the exception of Maryland, Pennsylvania, and New York. The USDA conservation programs need greater promotion throughout New Jersey. One specific roadblock in New Jersey is the shortage of staff to promote the programs. Some of the programs have sufficient implementation funds, but lack funding for technical support; NJDEP and other entities have been providing funds for this purpose, but resources are still limited.

USDA NRCS Natural Resources Inventory (NRI)

The NRI is a national statistical survey of data on natural resource conditions and trends on all public (includes state and local governments) and privately owned non-federal land in the United States. Several legislative acts authorize the NRI survey. The NRI is used to develop national conservation

policies and programs and serves as a basis for the USDA NRCS/FSA cost-share programs and the CEAP described below.

Data have been compiled in five-year periods from 1977 through 1997. The NRI data include total surface area by land cover/use by state and includes survey data from approximately 800,000 sample sites. Starting in 1997, data were collected annually and are available through 2003. Annual data are only collected on approximately 25% of the 800,000 sample sites. The locations of these sites are kept confidential and not released to the public due to privacy restrictions. Data are collected through remote-sensing and on-site field investigations. The survey data are then analyzed to develop trends for natural resources, most predominantly soil and water.

USDA NRCS Conservation Effects Assessment Project (CEAP)

In 2003 the USDA launched the CEAP, a multi-agency study to quantify the environmental effects of conservation practices used by private landowners participating in selected USDA NRCS/FSA conservation programs. CEAP has three components and uses NRI data and watershed modeling methods to quantify the effects of conservation practices. The first component is a national assessment to quantify the benefits of conservation practices associated with USDA conservation programs. The second component consists of a series of watershed assessment studies. Watersheds were selected nationwide and conservation practices in these watersheds are being studied to develop a framework to evaluate and improve the performance of national assessment models. The third component will develop an index of references on conservation programs.

Prior to the development of this study in 2003, there were no national studies to quantify the benefits of conservation plans and programs since a similar but less detailed project in the 1980's. The CEAP described below is the first of its kind. No watersheds in New Jersey are part of this national study, mainly due to the location of the NRI sample sites. However, the North Jersey Resource Conservation and Development Council (NJRC&D) has recently applied for a grant from the USDA to undertake such a study in the North Jersey region. Data collection has recently begun in many of the national studies and will continue over many years. The bulk of the CEAP watershed studies are in the Midwest. There are approximately thirty-seven watershed studies and fourteen benchmark watershed studies. The purpose of the fourteen benchmark watersheds studies is to provide a more in-depth assessment of soil, water, air quality, and wildlife habitat; and create a framework for national assessment models. Several of the benchmark watershed studies received grant funding in 2006 and 2007; therefore only preliminary results are available. The NJNRCS was contacted to isolate CEAP watershed studies that could be similar to the Highlands Region. Three studies were identified: Choptank River Watershed in Maryland, Town Brook Watershed in New York, and Spring Creek in Pennsylvania.

Choptank River Watershed (CRW), Maryland

A major tributary of the Chesapeake Bay, the Choptank River is located on the Delmarva Peninsula and spans 675 square miles (580,000 acres). The CRW is one of the fourteen benchmark studies and data collection began in 2006 and will sunset 2011. Agricultural use accounts for 58% of the CRW and the remaining land uses are urban (9%) and forested (33%). The types of agricultural use are cover crops (approximately 40% corn and 40% soybeans, remainder wheat and barley) and poultry industry confined feeding operations. Portions of the Choptank River have been identified as an impaired water body under the Clean Water Act for a high level of nutrients and sediments. Several stakeholders are involved in this process including the University of Maryland, NRCS, National Oceanic and Atmospheric Administration (NOAA), US EPA, and the Maryland Department of Agriculture (MDA). For this study NRCS is collecting individual datasets at the county level for the CSP, CRP, and CREP.

The study is using the USDA Agricultural Research Service (ARS) AnnAGNPS REMM water quality model to quantify the effects of riparian buffers, cover crops, and nutrient management on water quality. AnnAGNPS REMM stands for Annualized Agriculture Non-Point Source, Riparian Ecosystem Management Model. The model requires climate data and parameters for the physical watershed, land use, soil, and management data. After data are collected and entered into the model, the model can

determine which conservation practices and what combination of conservation practices will reduce nitrogen loads and establish Total Maximum Daily Loads (TMDLs). The model can be used to create a planning tool that depicts Best Management Practice (BMP) placement in the landscape. For instance, winter cover crops were shown to improve water quality within the CRW. In 2006 the MDA implemented a state-wide commodities winter grain/cover crop program allowing grain harvest, in addition to the traditional cover crop program without harvest. Although the distribution of agricultural land in this watershed is much greater than in the Highlands Region, the method of study would be compatible with the Highlands to determine how nitrogen loads are being reduced by BMPs and the specific types of BMPs that should be implemented to improve water, soil, and air quality.

Town Brook Watershed (TBW), New York

The TBW lies within the Upper West Branch of the Delaware River and drains into the Cannonsville Reservoir, which is a major part of New York City's drinking water supply system. TBW is also one of the fourteen benchmark studies and is substantially smaller than Choptank at 14.3 square miles (9,143 acres). Land use in the watershed consists of 49% agro-forestry, 48% cropland (2% corn and alfalfa, 48% pasture and hay), and 1% developed. There are approximately 230 dairy (2/3) and beef (1/3) animal feeding operations (confined and semi-confined). The Cannonsville Reservoir is designated as phosphorus-restricted because of algal blooms, which interfere with non-filtered water treatment. The TBW is also participating in Section 319 of the Clean Water Act – Nonpoint Source Pollution Program. Partners in this collaboration include NRCS, ARS, US Geological Survey, Delaware County Soil and Water Conservation Districts, the NYC DEP and the NY State DEP, Cornell University, and the Watershed Agricultural Council (WAC) - a non-profit supporting the NYC watershed region. The success of this project and others is highly dependent on collaboration between agencies; $750,000 has been provided through New York State to ARS from its Safe Drinking Water Act funds. Studies on this watershed began in 2003 and will be completed in July 2008. There was an interim progress report available outlining progress in the TBW.

The study is using the USDA ARS Soil and Water Assessment Tool (SWAT) watershed manual to evaluate areas in the watershed where phosphorus levels and erosion levels can be lowered at minimal costs through BMPs. New York City is supporting a 100% cost-share program to implement BMPs through a whole-farm planning process supported by the WAC and Delaware County. Of the 230 feeding operations, the majority of the stock is concentrated in seven primary farms. The seven primary farms are all enrolled in CREP and/or Environmental Quality Incentives Programs (EQIP). Since the whole-farm program was instituted approximately 160 out of the 230 (70%) feeding operations are also enrolled in the CREP and/or EQIP. WAC has set a goal of participation for the program at 85% or 196 of the 230 farms. The main concerns associated with these farms are soil quality due to erosion from corn silage and water quality due to the high levels of phosphorus from the dairy farms. A critical component identified in the study is the sustainability and economic viability of these farms as they implement BMPs. Currently these farms are implementing eighteen different types of BMPs. All of the farms are under private ownership, but watershed planners have developed good working relationships with the farmers, which permits smooth implementation of BMPs in most instances.

Spring Creek Watershed (SCW), Pennsylvania

The SCW is centrally located in Centre County, Pennsylvania and the Spring Creek drains into the Susquehanna River. SCW is not one of the fourteen benchmark studies. Land use in the watershed consists of 41% forested, 52% agriculture (44% cover crops, 7% hay, 1% other grass), and 7% development (5% low-intensity, 2% high-intensity). There are approximately 1,215 farms (164,000 acres) and approximately half of the farms (600) have confined or semi-confined feeding operations (91% dairy and beef cattle the largest distribution). Information is not readily available on this project. Pennsylvania State University is compiling the data and collaborating with the USGS, NOAA, PA DEP, the Centre County Planning Office, the Clear Water Conservancy (CWC), and two Spring Creek non-profit organizations: the SCW Community, and the SCW Commission.

Similar to the other two studies above, SCW is analyzing stream condition relative to the implementation

of nutrient management and conservation buffer BMPs. There were no preliminary results readily available for this study. However, long-term datasets are available to use in several different models to evaluate the effects of several types of BMPs. One of the major factors in all of these studies is to examine how implementation, maintenance, and performance of BMPs affect landowners and the viability of the farm unit. Although these three studies have a significant amount of feeding operations, the studies also have significant nitrate levels from the use of pesticides on cropland. The Highlands could use the ARS models developed through these projects to evaluate BMPs. New Jersey is not part of the CEAP, because there is a limited percent of site surveys being conducted across the country, only 25% of 800,000 sites annually.

Conclusion – Conservation Plans and Best Management Practices

Wells in the Highlands Region have been measured for shallow ground-water quality. Of the twenty-three wells in the Highlands, eight are in agricultural areas, six are undeveloped, and nine are in urban areas. Three of the eight (38%) of the wells in agricultural areas exceed the water standard of 10mg/L for nitrate plus nitrate. Pesticides were detected in seven out of eight (88%) of the wells in agricultural areas. These data provided direct evidence that shallow ground-water is being affected by nitrogen-based fertilizers in agricultural land areas within the Highlands. The approximate highest concentration of nitrates was less than 30 mg/L with a median around 10mg/L. Sewer-system leakage in urban areas is also considered a major source of nitrogen pollutant.

A paper published in 2007 by the magazine of *Food, Farm, and Resource Issues* estimated nitrate loadings for farms from approximately 120 to 135 lbs/acre using the NRCS Natural Resource Inventory and the Soil and Water Assessment Tool (SWAT) model. This figure is derived from what is applied and not the amount that moves below the root zone. If the pesticide is diluted only by drought recharge and the entire load goes past the root zone, the nitrate loadings would be between 1,600 and 1,800 mg/L. These figures were determined by entering the 120 to 135 lbs/acre figure and a drought recharge assumption of 9.4 inches/year into the Trela-Douglas model. Crops can and do uptake more nitrate than they actually need. Using the same model to look at the mixed nitrate concentration of a 200 acre farm parcel; assuming a 40 acre cluster development with a maximum target nitrate concentration of 10 mg/L from septic systems and a 160 acre active farm, an impervious surface of 5.5% would result in 10 mg/L over the 40 acre developed area. If the mixed nitrate concentration of the 160 acre farm and 40 acre cluster is plotted against the nitrate concentration for the 200 acre farm parcel, the septic system input provides a net benefit once the agricultural concentration is above 10 mg/L, but above 10 mg/L already exceeds the Safe Drinking Water Standards. Therefore no net benefit would be realized. Although the Private Well Testing Act will ensure that no wells are used that exceed the 10 mg/L, one question that does occur regarding both clustered and non-clustered development in agricultural areas is whether the RMP should include special policies for well construction in these areas, to require that the wells tap aquifers at a depth or location that minimizes the potential for agricultural contamination.

Certain USDA conservation programs provide incentives for farmers applying lower levels of pesticides based on the actual amount crops require. The overview of the USDA conservation programs above shows minimal acreage enrolled in New Jersey. These programs need to be encouraged throughout the Highlands. Currently, the USDA ARS Annualized Agriculture Non-Point Source, Riparian Ecosystem Management Model (AnnAGNPS REMM) and the USDA ARS SWAT watershed manual are not being used to evaluate farms in the Highlands Region. One proposal would be to examine cost effectiveness and reductions in pollutants for several farms in the Highlands Region. The AnnAGNPS REMM and the SWAT watershed manual could be used to determine the benefits of the BMPs, and what BMPs to apply to other farms in the Region. Warren County and Hunterdon County would be good models for this type of analysis, since these two counties include approximately 75% of the cropland/pastureland in the Region. The NJRC&D would be a good partner for this type of program, since they are formally supported by the NRCS and are familiar with the USDA NRCS/FSA cost-share programs. In addition privacy restrictions would prevent most stakeholders, except those affiliated with NRCS from collecting the data and reviewing the conservation plans.

If the run-off from impervious surface on an agricultural landscape is still a major issue the Farm Conservation Plan could address a single resource concern such as excess water (water quantity). Since few, if any farms will exceed the 9% impervious cover trigger for a RMSP and few will trigger the 3% impervious cover trigger for a FCP, other alternatives to trigger these conservation plans should be evaluated. If the 3% and 9% triggers are not met, reducing pollutants from agricultural lands linked to a cluster will be a difficult task.

A Farm Conservation Plan is required when agriculture is preserved in perpetuity. The recommendation of this white paper would be to require the development and implementation of a USDA NRCS Farm Conservation Plan that addresses the protection of water and soil resources. The language in the RMP goals, policies, and objectives, and the cluster program would be changed to reflect this recommendation. Once the RMP is adopted the Highlands Council staff should conduct further research and develop a grant program to analyze model farms, determine the benefits of BMPs on those farms, and identify what BMPs to apply to other farms in the Region. In order for implementation to be successful, there needs to be incentives for conservation plan implementation including grants or dedicated funding, technical assistance, and a tax credit program for best management practices.

In the cluster scenario, one option to fund implementation of the conservation plan is for the developer to create an escrow account. The escrow could also be funded from the homeowners that are part of the homeowner's association within the cluster. If the homeowner desires the view of the agricultural landscape, they should support the enhancement of the landscape with a minimal fee. New York City and New York State both provide watershed funding in the Town Brook Watershed project. The New Jersey Water Supply Authority is currently working on a program with the NJ RC&D to assist farmers in providing 90% of the funding for implementation of conservation plans. The Authority would assist the landowner in maximizing federal and state funds and guarantee up to 90% of the funding. This model program has been put in place on several farms in Lebanon Township, Hunterdon County and could be translated to a regional scale to the South Branch Raritan watershed and the Spruce Run and Round Valley Reservoirs.

The Highlands Region has received national recognition. In order to protect and enhance the quality of the natural resources within the Region, best management practices (BMPs) are a necessity. Preliminary studies of the nitrate levels in the Region show the need for BMPs. Simultaneously, the viability of the agricultural industry must be protected and enhanced. Few conservation plans are being implemented in the Highlands and the farmers are not taking advantage of USDA cost-share programs to implement these plans. The Highlands Council must develop model examples for farm conservation plans and model examples of cost-effective implementation of BMPs. The goals, policies, and objectives and the programs in the RMP should reflect these issues and provide specific funding and incentives for the Highlands Region that will simultaneously sustain the agricultural industry and protect natural resources.

Impervious Surface Calculations Agricultural Structures

	Average			
Size of Farm (Acres)	**55**	**25**	**75**	**100**
Low Impervious Cover Use	**55-acre**	**25-acre**	**75-acre**	**100-acre**
Cover Crops, 2 Large Barns	5,000	5,000	5,000	5,000
residence + 2 car garage (3,500 sq. ft./2,500 foundation)	2,500	2,500	2,500	2,500
driveway	500	500	500	500
total square footage	8,000	8,000	8,000	8,000
convert to acres:	0.1837	0.1837	0.1837	0.1837
% Impervious Cover	0.33%	0.73%	0.24%	0.18%
High Impervious Cover Use	**55-acre**	**25-acre**	**75-acre**	**100-acre**
total square footage	10,000	10,000	10,000	10,000
convert to acres:	0.2296	0.2296	0.2296	0.2296
% Impervious Cover	0.42%	0.92%	0.31%	0.23%
total square footage	20,000	20,000	20,000	20,000
convert to acres:	0.4591	0.4591	0.4591	0.4591
% Impervious Cover	0.83%	1.84%	0.61%	0.46%
Adding the maximum size pole barn and hay barn (cover crops)	**55-acre**	**25-acre**	**75-acre**	**100-acre**
total square footage	40,000	40,000	40,000	40,000
convert to acres:	0.9183	0.9183	0.9183	0.9183
% Impervious Cover	1.67%	3.67%	1.22%	0.92%
Adding the maximum size stall barn, hay barn, riding arena (equine)	**55-acre**	**25-acre**	**75-acre**	**100-acre**
total square footage	55,000	55,000	55,000	55,000
convert to acres:	1.263	1.263	1.263	1.263
% Impervious Cover	2.30%	5.05%	1.68%	1.26%

NJ Real Property Manual	**Square Footage**	**Acres**	**% on 55-Acres**	**% on 25-Acres**	**% on 75-Acres**
Max General Purpose Barn (Class 150) High-Density Feeding Op	150,000	3.44	6.25%	13.76%	4.59%
Max Livestock Barn (Class 151) High-Density Feeding Op	150,000	3.44	6.25%	13.76%	4.59%
Max Size Farm Shed/Outbuildings	3,000	0.07	0.13%	0.28%	0.09%
Max size of a Stall Barn/Stable (cattle/equine)	15,000	0.34	0.63%	1.38%	0.46%
Max size of an Indoor Riding Arena (equine)	20,000	0.46	0.83%	1.84%	0.61%
Max size of a Turn Out Shed (equine)	720	0.02	0.03%	0.07%	0.02%
Max size of a General Purpose Hay Barn (Class PF 160)	20,000	0.46	0.83%	1.84%	0.61%
Max size of a Livestock Barn w/storage (Class 161)	20,000	0.46	0.83%	1.84%	0.61%
Max size of a Poultry House, Pole Barn	20,000	0.46	0.83%	1.84%	0.61%
Max size of a Greenhouse	10,000	0.23	0.42%	0.92%	0.31%
Temporary Seed Greenhouses (no max or min)					

NJDEP LULC Data for Agriculture by Type - 2002

County	Total Cropland/ Pastureland	% Total	Total Wetlands	% Total	Total Former Ag Wetlands	% Total	Total Orchards, Vineyards, Nurseries, Horticulture	% Total	Total Confined Feeding Ops	% Total	Total Other (Equine, Dikes, Access Rds, Experimental Fields	% Total
Bergen	98	0.10%	41	0.52%	0	0.00%	24	0.81%	0	0.00%	37	0.65%
Hunterdon	29,098	28.86%	1,063	13.48%	76	11.64%	1,094	36.72%	11	5.34%	1,681	29.62%
Morris	11,306	11.21%	798	10.12%	67	10.33%	642	21.56%	4	1.97%	987	17.38%
Passaic	158	0.16%	94	1.20%	2	0.38%	19	0.65%	0	0.00%	159	2.81%
Somerset	8,328	8.26%	268	3.40%	18	2.78%	179	6.00%	0	0.00%	671	11.82%
Sussex	7,079	7.02%	1,694	21.48%	256	39.43%	161	5.40%	4	2.13%	477	8.40%
Warren	44,758	44.39%	3,926	49.79%	230	35.44%	859	28.85%	184	90.57%	1,664	29.32%
Total	**100,825**	**100.00%**	**7,885**	**100.00%**	**649**	**100.00%**	**2,978**	**100.00%**	**204**	**100.00%**	**5,676**	**100.00%**

Tot Acres: **118,216**

Agricultural Use % of Total Acres

Crop/Past: **85.29%** Wetlands: **6.67%** Former Wet: **0.55%** Orchard: **2.52%** Confined: **0.17%** Other: **4.80%** 100.00%

Approximate % Associated with High Impervious

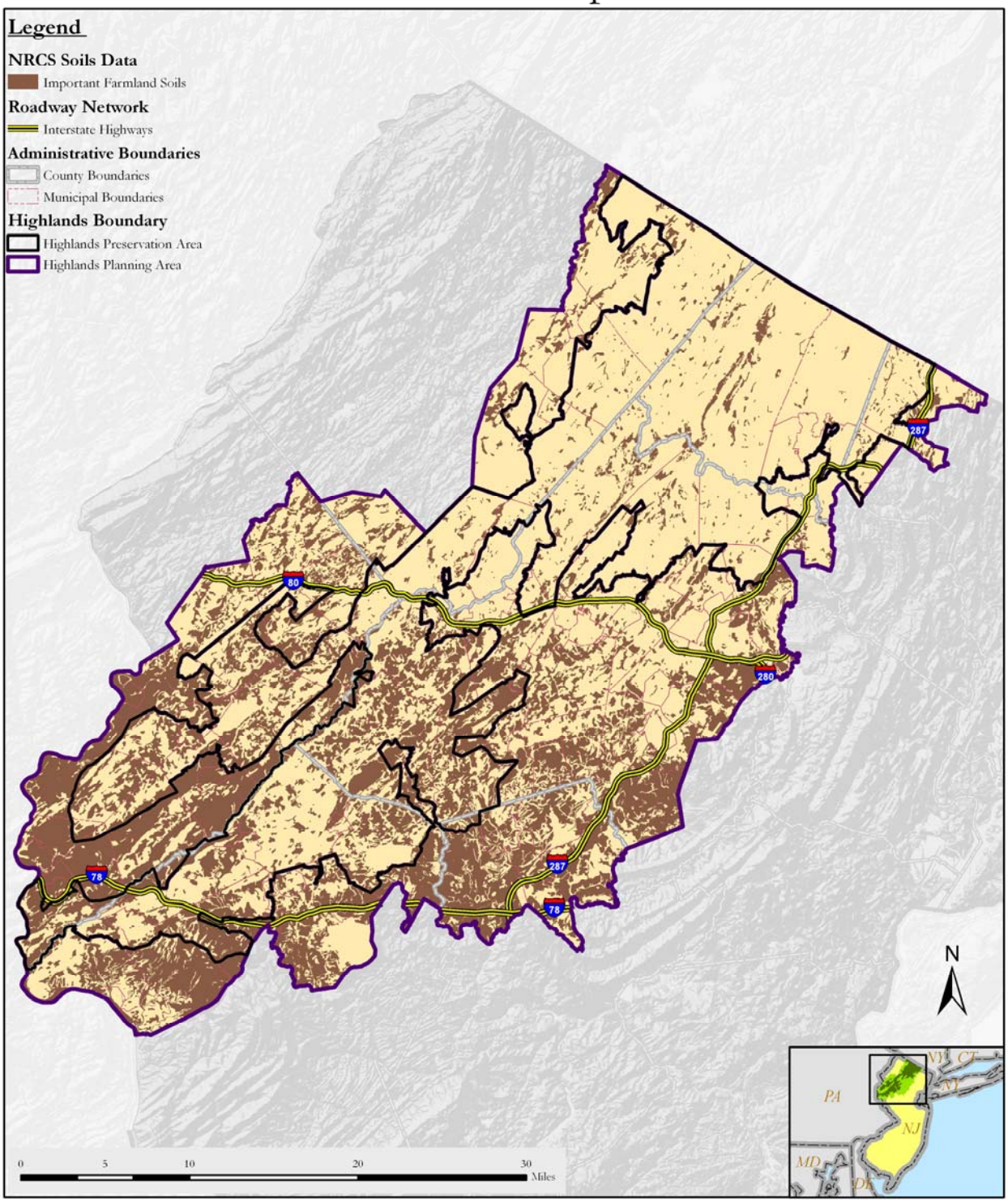
Orchard/Confined/Equine **7.49%**

Approximate % Associated with Cropland (nutrient mgmnt/nitrogen load)

Crop/Pasture **85.29%**

FIGURES

Important Farmland Soils

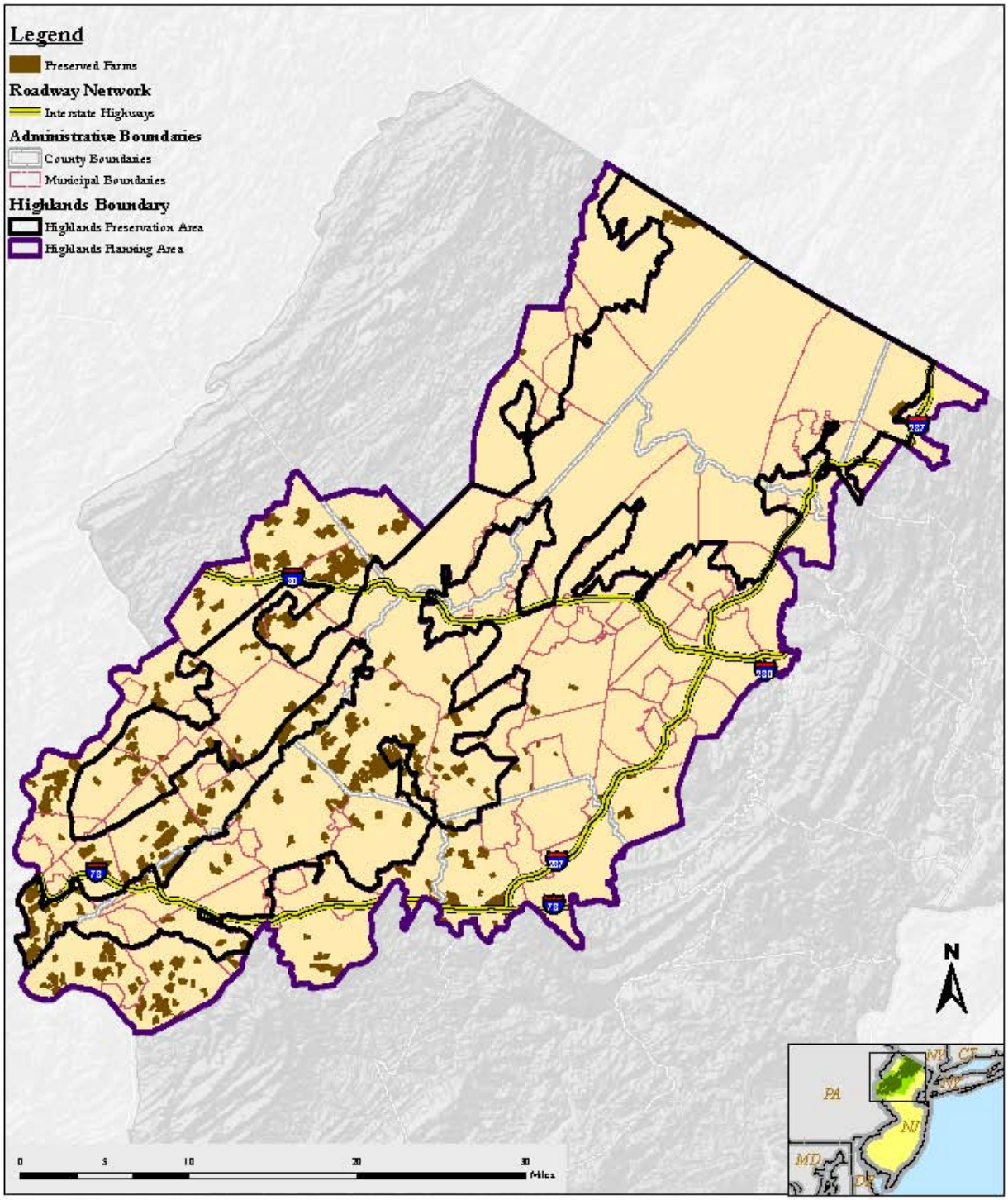


Regional Master Plan, July 2008

Highlands Council
New Jersey

Sources8
New Jersey Highlands Council, 2006
New Jersey Department of Environmental Protection, 2008
New Jersey Department of Transportation, 2004

Preserved Farmland

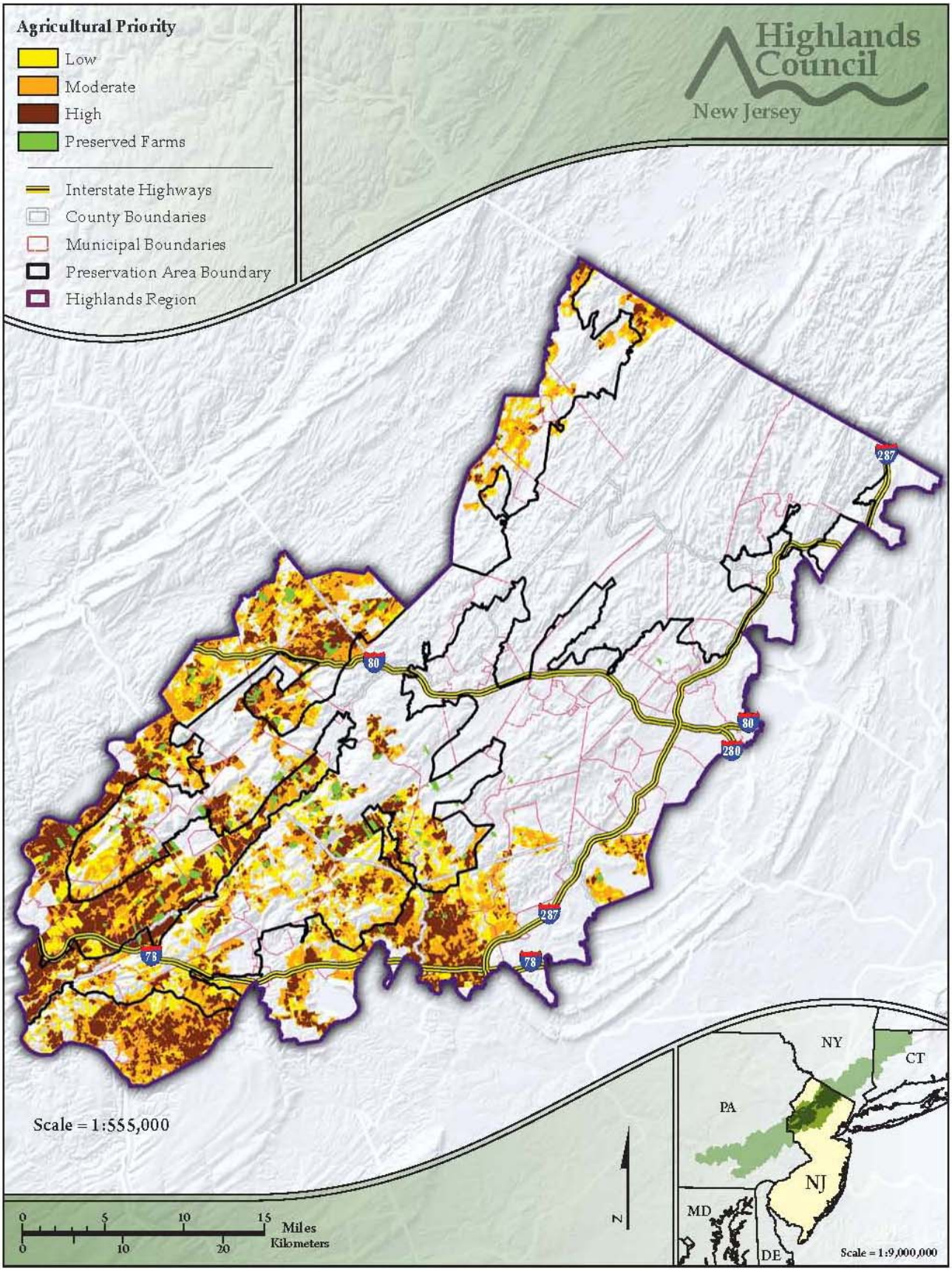


Regional Master Plan, July 2008

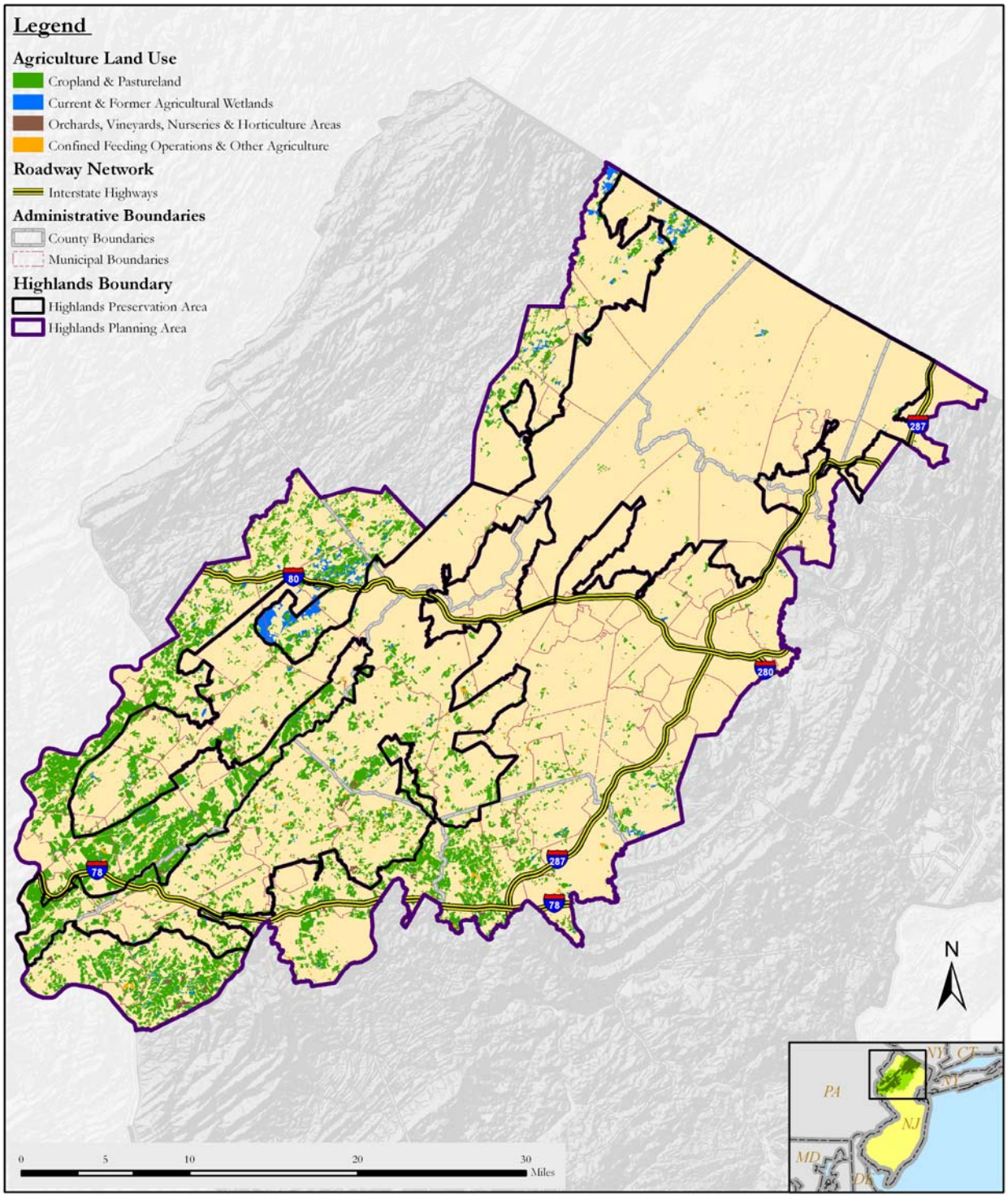
Highlands Council
New Jersey

Sources:
New Jersey Highlands Council, 2008
SADC, 2008
New Jersey Department of Transportation, 2004

AGRICULTURAL PRIORITY AREA



Agriculture by Land Use / Land Cover



Regional Master Plan, July 2008

Highlands Council
New Jersey

Sources:
New Jersey Highlands Council, 2008
New Jersey Department of Environmental Protection, 2008
New Jersey Department of Transportation, 2004

TABLES

Agricultural Land in the Highlands

Agriculture Type from NJDEP

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	78.79	92.17	170.96
0242	Oakland Borough	27.83	1.53	29.36
2 Municipalities		**106.62**	**93.70**	**200.32**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	7,149.21	483.59	7,632.81
1002	Bethlehem Township	931.60	2,200.54	3,132.15
1003	Bloomsbury Borough	-	165.21	165.21
1004	Califon Borough	-	31.24	31.24
1005	Clinton Town	93.63	26.65	120.28
1006	Clinton Township	4,099.05	49.78	4,148.83
1012	Glen Gardner Borough	-	83.84	83.84
1013	Hampton Borough	64.20	187.45	251.66
1014	High Bridge Borough	30.43	-	30.43
1015	Holland Township	4,040.89	315.58	4,356.47
1018	Lebanon Borough	43.04	-	43.04
1019	Lebanon Township	-	3,760.56	3,760.56
1020	Milford Borough	92.67	-	92.67
1024	Tewksbury Township	2,692.81	3,340.98	6,033.79
1025	Union Township	860.79	2,278.24	3,139.03
15 Municipalities		**20,098.33**	**12,923.66**	**33,021.99**

Agricultural Land in the Highlands

Agriculture Type from NJDEP

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	20.60	-	20.60
1402	Boonton Township	164.93	11.00	175.93
1403	Butler Borough	-	-	-
1406	Chester Borough	57.97	-	57.97
1407	Chester Township	109.55	2,001.46	2,111.01
1408	Denville Township	213.22	-	213.22
1409	Dover Township	-	-	-
1412	Hanover Township	11.36	-	11.36
1413	Harding Township	1,788.63	-	1,788.63
1414	Jefferson Township	4.45	97.26	101.71
1415	Kinnelon Borough	-	9.19	9.19
1418	Mendham Borough	459.69	-	459.69
1419	Mendham Township	740.42	-	740.42
1420	Mine Hill Township	33.33	-	33.33
1421	Montville Township	167.25	1.19	168.44
1422	Morris Township	244.76	-	244.76
1423	Morris Plains Borough	1.74	-	1.74
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	2.37	-	2.37
1427	Mount Olive Township	207.68	1,084.28	1,291.95
1428	Netcong Borough		-	-
1429	Parsippany-Troy Hills Township	102.66	-	102.66
1431	Pequannock Township	147.64	-	147.64
1432	Randolph Township	212.64	31.06	243.70
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	26.27	124.89	151.17
1436	Roxbury Township	74.93	103.78	178.72
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	1,047.71	4,499.27	5,546.97
1439	Wharton Borough	1.04	-	1.04
32 Municipalities		**5,840.84**	**7,963.38**	**13,804.23**

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	0.18	17.82	18.01
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	52.39	52.39
1613	Wanaque Borough	4.27	9.27	13.54
1615	West Milford Township	-	349.20	349.20
5 Municipalities		**4.46**	**428.69**	**433.15**

Agricultural Land in the Highlands

Agriculture Type from NJDEP

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	6,194.19	220.50	6,414.69
1802	Bernards Township	752.59	-	752.59
1803	Bernardsville Borough	694.57	-	694.57
1807	Far Hills Borough	733.15	-	733.15
1815	Peapack and Gladstone Borough	868.57	-	868.57
5 Municipalities		**9,243.06**	**220.50**	**9,463.56**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	95.36	95.36
1906	Franklin Borough	285.52	-	285.52
1908	Green Township	2,721.97	68.33	2,790.30
1909	Hamburg Borough	37.35	-	37.35
1911	Hardyston Township	1,631.26	96.79	1,728.05
1912	Hopatcong Borough	0.34	64.97	65.30
1916	Ogdensburg Borough	13.84	-	13.84
1918	Sparta Township	1,278.21	133.28	1,411.49
1919	Stanhope Borough	-	-	-
1922	Vernon Township	1,718.57	1,525.47	3,244.04
10 Municipalities		**7,687.07**	**1,984.19**	**9,671.26**

Agricultural Land in the Highlands

Agriculture Type from NJDEP

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	2,850.48	535.19	3,385.67
2102	Alpha Borough	424.27	-	424.27
2103	Belvidere Town	32.25	-	32.25
2105	Franklin Township	6,233.92	1,181.90	7,415.82
2106	Frelinghuysen Township	3,731.17	-	3,731.17
2107	Greenwich Township	3,250.07	255.43	3,505.51
2108	Hackettstown Town	68.99	-	68.99
2110	Harmony Township	4,100.48	1,904.25	6,004.73
2111	Hope Township	3,367.38	-	3,367.38
2112	Independence Township	2,280.72	422.74	2,703.46
2114	Liberty Township	445.13	520.98	966.11
2115	Lopatcong Township	1,176.40	210.89	1,387.29
2116	Mansfield Township	2,757.65	2,062.19	4,819.84
2117	Oxford Township	331.37	350.11	681.48
2119	Phillipsburg Town	49.37	-	49.37
2120	Pohatcong Township	420.33	3,512.69	3,933.03
2121	Washington Borough	12.50	-	12.50
2122	Washington Township	3,080.61	578.03	3,658.64
2123	White Township	4,174.59	1,299.78	5,474.37
19 Municipalities		**38,787.69**	**12,834.18**	**51,621.87**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***81,768.07***	***36,448.31***	***118,216.38***

Agricultural Land in the Highlands

2100: Cropland and Pastureland

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	50.66	44.34	95.00
0242	Oakland Borough	2.89		2.89
2 Municipalities		**53.55**	**44.34**	**97.89**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	6,164.41	411.69	6,576.10
1002	Bethlehem Township	824.51	1,958.28	2,782.79
1003	Bloomsbury Borough	-	158.08	158.08
1004	Califon Borough	-	23.69	23.69
1005	Clinton Town	91.58	26.65	118.23
1006	Clinton Township	3,690.20	41.49	3,731.69
1012	Glen Gardner Borough	-	72.13	72.13
1013	Hampton Borough	64.20	169.54	233.74
1014	High Bridge Borough	30.43	-	30.43
1015	Holland Township	3,635.32	283.46	3,918.78
1018	Lebanon Borough	30.79	-	30.79
1019	Lebanon Township	-	3,215.57	3,215.57
1020	Milford Borough	91.69	-	91.69
1024	Tewksbury Township	2,439.92	2,799.46	5,239.38
1025	Union Township	802.88	2,071.70	2,874.58
15 Municipalities		**17,865.92**	**11,231.74**	**29,097.67**

Agricultural Land in the Highlands

2100: Cropland and Pastureland

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	20.60	-	20.60
1402	Boonton Township	132.41	10.09	142.50
1403	Butler Borough	-	-	-
1406	Chester Borough	38.77	-	38.77
1407	Chester Township	79.77	1,752.22	1,831.99
1408	Denville Township	142.53	-	142.53
1409	Dover Township	-	-	-
1412	Hanover Township	2.43	-	2.43
1413	Harding Township	1,397.88	-	1,397.88
1414	Jefferson Township	4.45	61.56	66.00
1415	Kinnelon Borough	-	1.71	1.71
1418	Mendham Borough	407.63	-	407.63
1419	Mendham Township	576.09	-	576.09
1420	Mine Hill Township	25.47	-	25.47
1421	Montville Township	69.62	1.01	70.63
1422	Morris Township	218.70	-	218.70
1423	Morris Plains Borough	0.16	-	0.16
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	0.94	-	0.94
1427	Mount Olive Township	110.50	979.84	1,090.34
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	88.58	-	88.58
1431	Pequannock Township	16.23	-	16.23
1432	Randolph Township	156.99	23.24	180.23
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	22.74	93.13	115.87
1436	Roxbury Township	62.35	93.48	155.82
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	957.96	3,757.02	4,714.98
1439	Wharton Borough	-	-	-
32 Municipalities		**4,532.78**	**6,773.30**	**11,306.08**

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	8.03	8.03
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	25.69	25.69
1613	Wanaque Borough	2.84	3.92	6.76
1615	West Milford Township	-	117.15	117.15
5 Municipalities		**2.84**	**154.79**	**157.63**

Agricultural Land in the Highlands

2100: Cropland and Pastureland

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	5,518.73	185.05	5,703.78
1802	Bernards Township	563.85	-	563.85
1803	Bernardsville Borough	620.53	-	620.53
1807	Far Hills Borough	677.20	-	677.20
1815	Peapack and Gladstone Borough	762.41	-	762.41
5 Municipalities		**8,142.71**	**185.05**	**8,327.77**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	55.88	55.88
1906	Franklin Borough	201.18	-	201.18
1908	Green Township	2,330.75	62.90	2,393.65
1909	Hamburg Borough	33.20	-	33.20
1911	Hardyston Township	1,260.32	72.14	1,332.47
1912	Hopatcong Borough	0.34	57.59	57.92
1916	Ogdensburg Borough	10.65	-	10.65
1918	Sparta Township	1,086.47	121.29	1,207.76
1919	Stanhope Borough	-	-	-
1922	Vernon Township	835.25	951.13	1,786.38
10 Municipalities		**5,758.16**	**1,320.94**	**7,079.10**

Agricultural Land in the Highlands

2100: Cropland and Pastureland

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	1,858.35	277.00	2,135.35
2102	Alpha Borough	412.92	-	412.92
2103	Belvidere Town	28.02	-	28.02
2105	Franklin Township	5,757.68	1,066.91	6,824.59
2106	Frelinghuysen Township	3,286.12	-	3,286.12
2107	Greenwich Township	3,092.66	220.99	3,313.66
2108	Hackettstown Town	20.41	-	20.41
2110	Harmony Township	3,911.66	1,728.59	5,640.25
2111	Hope Township	2,941.70	-	2,941.70
2112	Independence Township	989.08	336.07	1,325.15
2114	Liberty Township	61.63	464.91	526.54
2115	Lopatcong Township	1,117.23	183.39	1,300.62
2116	Mansfield Township	2,548.59	1,694.63	4,243.22
2117	Oxford Township	240.17	313.89	554.07
2119	Phillipsburg Town	45.44	-	45.44
2120	Pohatcong Township	411.71	3,320.78	3,732.49
2121	Washington Borough	3.80	-	3.80
2122	Washington Township	2,884.25	523.38	3,407.63
2123	White Township	3,906.09	1,110.39	5,016.48
19 Municipalities		**33,517.51**	**11,240.94**	**44,758.45**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***69,873.49***	***30,951.10***	***100,824.59***

Agricultural Land in the Highlands

2140: Agricultural Wetlands

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	3.95	33.02	36.96
0242	Oakland Borough	4.38	-	4.38
2 Municipalities		**8.32**	**33.02**	**41.34**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	362.35	19.19	381.54
1002	Bethlehem Township	16.81	101.40	118.21
1003	Bloomsbury Borough	-	0.78	0.78
1004	Califon Borough	-	-	-
1005	Clinton Town	-	-	-
1006	Clinton Township	107.72	0.85	108.58
1012	Glen Gardner Borough	-	1.31	1.31
1013	Hampton Borough	-	6.20	6.20
1014	High Bridge Borough	-	-	-
1015	Holland Township	93.79	9.79	103.58
1018	Lebanon Borough	6.94	-	6.94
1019	Lebanon Township	-	127.84	127.84
1020	Milford Borough	-	-	-
1024	Tewksbury Township	41.36	65.38	106.74
1025	Union Township	25.74	75.45	101.19
15 Municipalities		**654.71**	**408.22**	**1,062.93**

Agricultural Land in the Highlands

2140: Agricultural Wetlands

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	10.30	-	10.30
1403	Butler Borough	-	-	-
1406	Chester Borough	4.74	-	4.74
1407	Chester Township	-	27.58	27.58
1408	Denville Township	26.10	-	26.10
1409	Dover Township	-	-	-
1412	Hanover Township	-	-	-
1413	Harding Township	265.85	-	265.85
1414	Jefferson Township	-	5.66	5.66
1415	Kinnelon Borough	-	2.38	2.38
1418	Mendham Borough	11.06	-	11.06
1419	Mendham Township	17.03	-	17.03
1420	Mine Hill Township	0.58	-	0.58
1421	Montville Township	38.29	-	38.29
1422	Morris Township	13.50	-	13.50
1423	Morris Plains Borough	-	-	-
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	-	-	-
1427	Mount Olive Township	17.46	39.25	56.71
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	1.33	-	1.33
1431	Pequannock Township	18.20	-	18.20
1432	Randolph Township	18.08	5.01	23.09
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	-	3.49	3.49
1436	Roxbury Township	1.09	0.42	1.51
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	17.74	253.19	270.93
1439	Wharton Borough	-	-	-
32 Municipalities		**461.34**	**336.98**	**798.32**

Agricultural Land in the Highlands

2140: Agricultural Wetlands

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	2.21	2.21
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	8.15	8.15
1613	Wanaque Borough	-	5.35	5.35
1615	West Milford Township	-	78.55	78.55
5 Municipalities		**-**	**94.26**	**94.26**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	157.90	6.30	164.19
1802	Bernards Township	35.17	-	35.17
1803	Bernardsville Borough	42.35	-	42.35
1807	Far Hills Borough	20.51	-	20.51
1815	Peapack and Gladstone Borough	5.99	-	5.99
5 Municipalities		**261.91**	**6.30**	**268.20**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	28.97	28.97
1906	Franklin Borough	60.00	-	60.00
1908	Green Township	171.55	1.75	173.30
1909	Hamburg Borough	1.02	-	1.02
1911	Hardyston Township	286.41	8.31	294.73
1912	Hopatcong Borough	-	1.29	1.29
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	86.19	3.30	89.49
1919	Stanhope Borough	-	-	-
1922	Vernon Township	668.82	376.38	1,045.20
10 Municipalities		**1,273.99**	**420.01**	**1,694.01**

Agricultural Land in the Highlands

2140: Agricultural Wetlands

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	792.21	209.46	1,001.67
2102	Alpha Borough	3.44	-	3.44
2103	Belvidere Town	-	-	-
2105	Franklin Township	225.49	50.66	276.15
2106	Frelinghuysen Township	140.95	-	140.95
2107	Greenwich Township	44.77	5.47	50.25
2108	Hackettstown Town	-	-	-
2110	Harmony Township	28.78	85.94	114.72
2111	Hope Township	205.49	-	205.49
2112	Independence Township	1,211.64	35.25	1,246.88
2114	Liberty Township	372.14	13.33	385.47
2115	Lopatcong Township	24.57	-	24.57
2116	Mansfield Township	63.76	138.09	201.85
2117	Oxford Township	68.37	19.70	88.07
2119	Phillipsburg Town	3.93	-	3.93
2120	Pohatcong Township	7.23	40.57	47.80
2121	Washington Borough	-	-	-
2122	Washington Township	73.84	14.53	88.37
2123	White Township	42.92	3.39	46.30
19 Municipalities		**3,309.54**	**616.38**	**3,925.92**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***5,969.82***	***1,915.16***	***7,884.98***

Agricultural Land in the Highlands

2150: Former Agricultural Wetlands
(Becoming Shrubby, Not Built Up)

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	-	-	-
0242	Oakland Borough	-	-	-
2 Municipalities		**-**	**-**	**-**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	12.85	3.40	16.26
1002	Bethlehem Township	-	1.47	1.47
1003	Bloomsbury Borough	-	1.34	1.34
1004	Califon Borough	-	-	-
1005	Clinton Town	-	-	-
1006	Clinton Township	6.65	1.09	7.74
1012	Glen Gardner Borough	-	-	-
1013	Hampton Borough	-	-	-
1014	High Bridge Borough	-	-	-
1015	Holland Township	10.21	-	10.21
1018	Lebanon Borough	-	-	-
1019	Lebanon Township	-	5.44	5.44
1020	Milford Borough	-	-	-
1024	Tewksbury Township	5.44	22.55	27.99
1025	Union Township	1.03	4.05	5.08
15 Municipalities		**36.18**	**39.35**	**75.53**

Agricultural Land in the Highlands

2150: Former Agricultural Wetlands
(Becoming Shrubby, Not Built Up)

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	-	-	-
1403	Butler Borough	-	-	-
1406	Chester Borough	-	-	-
1407	Chester Township	-	6.81	6.81
1408	Denville Township	7.65	-	7.65
1409	Dover Township	-	-	-
1412	Hanover Township	-	-	-
1413	Harding Township	10.71	-	10.71
1414	Jefferson Township	-	-	-
1415	Kinnelon Borough	-	-	-
1418	Mendham Borough	0.92	-	0.92
1419	Mendham Township	-	-	-
1420	Mine Hill Township	-	-	-
1421	Montville Township	10.15	-	10.15
1422	Morris Township	5.12	-	5.12
1423	Morris Plains Borough	-	-	-
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	-	-	-
1427	Mount Olive Township	-	3.78	3.78
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	-	-	-
1431	Pequannock Township	-	-	-
1432	Randolph Township	3.76	1.64	5.40
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	-	-	-
1436	Roxbury Township	-	0.71	0.71
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	-	15.76	15.76
1439	Wharton Borough	-	-	-
32 Municipalities		**38.31**	**28.70**	**67.02**

Agricultural Land in the Highlands

2150: Former Agricultural Wetlands
(Becoming Shrubby, Not Built Up)

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	-	-
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	-	-
1613	Wanaque Borough	-	-	-
1615	West Milford Township	-	2.45	2.45
5 Municipalities		**-**	**2.45**	**2.45**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	4.90	-	4.90
1802	Bernards Township	11.96	-	11.96
1803	Bernardsville Borough	1.21	-	1.21
1807	Far Hills Borough	-	-	-
1815	Peapack and Gladstone Borough	-	-	-
5 Municipalities		**18.07**	**-**	**18.07**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	-	-
1906	Franklin Borough	-	-	-
1908	Green Township	21.95	3.68	25.63
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	19.57	3.75	23.32
1912	Hopatcong Borough	-	-	-
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	36.86	8.01	44.87
1919	Stanhope Borough	-	-	-
1922	Vernon Township	121.21	40.87	162.07
10 Municipalities		**199.59**	**56.30**	**255.89**

Agricultural Land in the Highlands

2150: Former Agricultural Wetlands
(Becoming Shrubby, Not Built Up)

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	107.69	18.44	126.13
2102	Alpha Borough	1.75	-	1.75
2103	Belvidere Town	-	-	-
2105	Franklin Township	0.98	3.29	4.27
2106	Frelinghuysen Township	20.16	-	20.16
2107	Greenwich Township	-	-	-
2108	Hackettstown Town	-	-	-
2110	Harmony Township	-	13.46	13.46
2111	Hope Township	22.08	-	22.08
2112	Independence Township	15.52	-	15.52
2114	Liberty Township	-	-	-
2115	Lopatcong Township	-	-	-
2116	Mansfield Township	-	-	-
2117	Oxford Township	4.07	-	4.07
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	-	3.86	3.86
2121	Washington Borough	4.49	-	4.49
2122	Washington Township	8.38	3.23	11.62
2123	White Township	0.91	1.66	2.57
19 Municipalities		**186.04**	**43.95**	**229.98**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***478.19***	***170.75***	***648.95***

Agricultural Land in the Highlands

2200: Orchards/Vineyards/Nurseries/Horticulture Areas

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	11.64	1.35	13.00
0242	Oakland Borough	11.21	-	11.21
2 Municipalities		**22.85**	**1.35**	**24.20**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	365.83	23.92	389.75
1002	Bethlehem Township	46.70	45.30	91.99
1003	Bloomsbury Borough	-	-	-
1004	Califon Borough	-	2.14	2.14
1005	Clinton Town	-	-	-
1006	Clinton Township	99.09	4.86	103.95
1012	Glen Gardner Borough	-	1.08	1.08
1013	Hampton Borough	-	0.42	0.42
1014	High Bridge Borough	-	-	-
1015	Holland Township	115.24	7.19	122.44
1018	Lebanon Borough	-	-	-
1019	Lebanon Township	-	150.01	150.01
1020	Milford Borough	-	-	-
1024	Tewksbury Township	61.49	140.97	202.46
1025	Union Township	12.48	17.03	29.51
15 Municipalities		**700.82**	**392.93**	**1,093.75**

Agricultural Land in the Highlands

2200: Orchards/Vineyards/Nurseries/Horticulture Areas

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	8.64	-	8.64
1403	Butler Borough	-	-	-
1406	Chester Borough	1.44	-	1.44
1407	Chester Township	7.58	83.31	90.88
1408	Denville Township	33.02	-	33.02
1409	Dover Township	-	-	-
1412	Hanover Township	1.94	-	1.94
1413	Harding Township	38.27	-	38.27
1414	Jefferson Township	-	15.16	15.16
1415	Kinnelon Borough	-	-	-
1418	Mendham Borough	22.98	-	22.98
1419	Mendham Township	31.04	-	31.04
1420	Mine Hill Township	3.01	-	3.01
1421	Montville Township	10.04	-	10.04
1422	Morris Township	0.01	-	0.01
1423	Morris Plains Borough	-	-	-
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	-	-	-
1427	Mount Olive Township	-	22.19	22.19
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	3.31	-	3.31
1431	Pequannock Township	94.83	-	94.83
1432	Randolph Township	22.89	-	22.89
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	-	0.92	0.92
1436	Roxbury Township	7.33	0.80	8.13
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	11.81	221.67	233.48
1439	Wharton Borough	-	-	-
32 Municipalities		**298.13**	**344.05**	**642.18**

Agricultural Land in the Highlands

2200: Orchards/Vineyards/Nurseries/Horticulture Areas

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	-	-
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	-	-
1613	Wanaque Borough	-	-	-
1615	West Milford Township	-	19.38	19.38
5 Municipalities		**-**	**19.38**	**19.38**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	41.79	3.82	45.61
1802	Bernards Township	49.06	-	49.06
1803	Bernardsville Borough	5.52	-	5.52
1807	Far Hills Borough	-	-	-
1815	Peapack and Gladstone Borough	78.53	-	78.53
5 Municipalities		**174.90**	**3.82**	**178.72**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	4.07	4.07
1906	Franklin Borough	-	-	-
1908	Green Township	24.18	-	24.18
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	3.19	-	3.19
1912	Hopatcong Borough	-	3.69	3.69
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	21.97	0.03	21.99
1919	Stanhope Borough	-	-	-
1922	Vernon Township	36.81	67.04	103.85
10 Municipalities		**86.14**	**74.83**	**160.97**

Agricultural Land in the Highlands

2200: Orchards/Vineyards/Nurseries/Horticulture Areas

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	25.85	-	25.85
2102	Alpha Borough	-	-	-
2103	Belvidere Town	3.54	-	3.54
2105	Franklin Township	42.23	8.70	50.93
2106	Frelinghuysen Township	57.18	-	57.18
2107	Greenwich Township	9.57	-	9.57
2108	Hackettstown Town	-	-	-
2110	Harmony Township	16.73	26.88	43.61
2111	Hope Township	69.12	-	69.12
2112	Independence Township	9.18	35.50	44.68
2114	Liberty Township	2.80	21.18	23.98
2115	Lopatcong Township	7.54	18.37	25.91
2116	Mansfield Township	21.06	100.48	121.54
2117	Oxford Township	5.21	3.78	8.99
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	-	80.17	80.17
2121	Washington Borough	-	-	-
2122	Washington Township	39.93	6.49	46.41
2123	White Township	113.44	134.24	247.68
19 Municipalities		**423.36**	**435.78**	**859.14**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***1,706.22***	***1,272.14***	***2,978.36***

Agricultural Land in the Highlands

2300: Confined Feeding Operations

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	-	-	-
0242	Oakland Borough	-	-	-
2 Municipalities		**-**	**-**	**-**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	5.63	-	5.63
1002	Bethlehem Township	4.18	-	4.18
1003	Bloomsbury Borough	-	-	-
1004	Califon Borough	-	-	-
1005	Clinton Town	-	-	-
1006	Clinton Township	1.06	-	1.06
1012	Glen Gardner Borough	-	-	-
1013	Hampton Borough	-	-	-
1014	High Bridge Borough	-	-	-
1015	Holland Township	-	-	-
1018	Lebanon Borough	-	-	-
1019	Lebanon Township	-	-	-
1020	Milford Borough	-	-	-
1024	Tewksbury Township	-	-	-
1025	Union Township	-	-	-
15 Municipalities		**10.87**	**-**	**10.87**

Agricultural Land in the Highlands

2300: Confined Feeding Operations

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	-	-	-
1403	Butler Borough	-	-	-
1406	Chester Borough	4.01	-	4.01
1407	Chester Township	-	-	-
1408	Denville Township	-	-	-
1409	Dover Township	-	-	-
1412	Hanover Township	-	-	-
1413	Harding Township	-	-	-
1414	Jefferson Township	-	-	-
1415	Kinnelon Borough	-	-	-
1418	Mendham Borough	-	-	-
1419	Mendham Township	-	-	-
1420	Mine Hill Township	-	-	-
1421	Montville Township	-	-	-
1422	Morris Township	-	-	-
1423	Morris Plains Borough	-	-	-
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	-	-	-
1427	Mount Olive Township	-	-	-
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	-	-	-
1431	Pequannock Township	-	-	-
1432	Randolph Township	-	-	-
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	-	-	-
1436	Roxbury Township	-	-	-
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	-	-	-
1439	Wharton Borough	-	-	-
32 Municipalities		**4.01**	**-**	**4.01**

Agricultural Land in the Highlands

2300: Confined Feeding Operations

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	-	-
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	-	-
1613	Wanaque Borough	-	-	-
1615	West Milford Township	-	-	-
5 Municipalities		**-**	**-**	**-**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	-	-	-
1802	Bernards Township	-	-	-
1803	Bernardsville Borough	-	-	-
1807	Far Hills Borough	-	-	-
1815	Peapack and Gladstone Borough	-	-	-
5 Municipalities		**-**	**-**	**-**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	-	-
1906	Franklin Borough	-	-	-
1908	Green Township	4.34	-	4.34
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	-	-	-
1912	Hopatcong Borough	-	-	-
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	-	-	-
1919	Stanhope Borough	-	-	-
1922	Vernon Township	-	-	-
10 Municipalities		**4.34**	**-**	**4.34**

Agricultural Land in the Highlands

2300: Confined Feeding Operations

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	18.64	-	18.64
2102	Alpha Borough	-	-	-
2103	Belvidere Town	-	-	-
2105	Franklin Township	34.65	4.77	39.43
2106	Frelinghuysen Township	-	-	-
2107	Greenwich Township	-	-	-
2108	Hackettstown Town	48.58	-	48.58
2110	Harmony Township	21.10	-	21.10
2111	Hope Township	-	-	-
2112	Independence Township	-	-	-
2114	Liberty Township	-	1.62	1.62
2115	Lopatcong Township	-	-	-
2116	Mansfield Township	47.87	7.26	55.13
2117	Oxford Township	-	-	-
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	-	-	-
2121	Washington Borough	-	-	-
2122	Washington Township	-	-	-
2123	White Township	-	-	-
19 Municipalities		**170.84**	**13.66**	**184.50**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***190.05***	***13.66***	***203.71***

Agricultural Land in the Highlands

2400: Other Agriculture

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	12.54	13.46	26.00
0242	Oakland Borough	9.36	1.53	10.89
2 Municipalities		**21.89**	**14.99**	**36.88**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	238.14	25.39	263.53
1002	Bethlehem Township	39.41	94.09	133.50
1003	Bloomsbury Borough	-	5.00	5.00
1004	Califon Borough	-	5.40	5.40
1005	Clinton Town	2.05	-	2.05
1006	Clinton Township	194.32	1.48	195.80
1012	Glen Gardner Borough	-	9.32	9.32
1013	Hampton Borough	-	11.30	11.30
1014	High Bridge Borough	-	-	-
1015	Holland Township	186.34	15.13	201.47
1018	Lebanon Borough	5.30	-	5.30
1019	Lebanon Township	-	261.69	261.69
1020	Milford Borough	0.98	-	0.98
1024	Tewksbury Township	144.60	312.62	457.23
1025	Union Township	18.66	110.01	128.67
15 Municipalities		**829.82**	**851.42**	**1,681.24**

Agricultural Land in the Highlands

2400: Other Agriculture

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	13.59	0.91	14.50
1403	Butler Borough	-	-	-
1406	Chester Borough	9.01	-	9.01
1407	Chester Township	22.21	131.53	153.74
1408	Denville Township	3.92	-	3.92
1409	Dover Township	-	-	-
1412	Hanover Township	6.99	-	6.99
1413	Harding Township	75.92	-	75.92
1414	Jefferson Township	-	14.89	14.89
1415	Kinnelon Borough	-	5.10	5.10
1418	Mendham Borough	17.10	-	17.10
1419	Mendham Township	116.28	-	116.28
1420	Mine Hill Township	4.27	-	4.27
1421	Montville Township	39.14	0.18	39.33
1422	Morris Township	7.43	-	7.43
1423	Morris Plains Borough	1.58	-	1.58
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	1.44	-	1.44
1427	Mount Olive Township	79.72	39.21	118.93
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	9.44	-	9.44
1431	Pequannock Township	18.38	-	18.38
1432	Randolph Township	10.93	1.16	12.09
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	3.54	27.35	30.89
1436	Roxbury Township	4.16	8.38	12.54
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	60.19	251.63	311.82
1439	Wharton Borough	1.04	-	1.04
32 Municipalities		**506.26**	**480.35**	**986.61**

Agricultural Land in the Highlands

2400: Other Agriculture

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	0.18	7.58	7.76
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	18.56	18.56
1613	Wanaque Borough	1.43	-	1.43
1615	West Milford Township	-	131.67	131.67
5 Municipalities		**1.61**	**157.81**	**159.42**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	470.88	25.33	496.21
1802	Bernards Township	92.54	-	92.54
1803	Bernardsville Borough	24.96	-	24.96
1807	Far Hills Borough	35.45	-	35.45
1815	Peapack and Gladstone Borough	21.64	-	21.64
5 Municipalities		**645.47**	**25.33**	**670.80**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	6.43	6.43
1906	Franklin Borough	24.35	-	24.35
1908	Green Township	169.20	-	169.20
1909	Hamburg Borough	3.12	-	3.12
1911	Hardyston Township	61.77	12.58	74.35
1912	Hopatcong Borough	-	2.40	2.40
1916	Ogdensburg Borough	3.19	-	3.19
1918	Sparta Township	46.73	0.65	47.37
1919	Stanhope Borough	-	-	-
1922	Vernon Township	56.48	90.06	146.54
10 Municipalities		**364.84**	**112.11**	**476.96**

Agricultural Land in the Highlands

2400: Other Agriculture

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	47.75	30.29	78.04
2102	Alpha Borough	6.16	-	6.16
2103	Belvidere Town	0.69	-	0.69
2105	Franklin Township	172.88	47.57	220.45
2106	Frelinghuysen Township	226.77	-	226.77
2107	Greenwich Township	103.07	28.97	132.04
2108	Hackettstown Town	-	-	-
2110	Harmony Township	122.21	49.38	171.59
2111	Hope Township	129.00	-	129.00
2112	Independence Township	55.31	15.92	71.23
2114	Liberty Township	8.55	19.94	28.49
2115	Lopatcong Township	27.06	9.13	36.19
2116	Mansfield Township	76.38	121.73	198.10
2117	Oxford Township	13.54	12.74	26.28
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	1.38	67.31	68.70
2121	Washington Borough	4.22	-	4.22
2122	Washington Township	74.21	30.39	104.61
2123	White Township	111.23	50.11	161.34
19 Municipalities		**1,180.40**	**483.48**	**1,663.88**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***3,550.31***	***2,125.49***	***5,675.80***

NRCS Farmland Soils Classification
All Farmland Soils

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	1,873.61	1,034.35	2,907.96
0242	Oakland Borough	239.57	387.75	627.32
2 Municipalities		**2,113.18**	**1,422.10**	**3,535.28**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	10,910.40	801.67	11,712.07
1002	Bethlehem Township	800.63	4,519.92	5,320.55
1003	Bloomsbury Borough	-	476.42	476.42
1004	Califon Borough	-	231.09	231.09
1005	Clinton Town	598.35	53.43	651.78
1006	Clinton Township	11,106.92	158.30	11,265.22
1012	Glen Gardner Borough	-	321.35	321.35
1013	Hampton Borough	114.35	559.10	673.45
1014	High Bridge Borough	534.77	-	534.77
1015	Holland Township	5,667.45	718.62	6,386.07
1018	Lebanon Borough	412.25	-	412.25
1019	Lebanon Township	0.00	4,577.67	4,577.68
1020	Milford Borough	260.69	-	260.69
1024	Tewksbury Township	5,405.55	5,786.32	11,191.88
1025	Union Township	2,415.53	7,060.48	9,476.01
15 Municipalities		**38,226.88**	**25,264.40**	**63,491.28**

NRCS Farmland Soils Classification
All Farmland Soils

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	209.74	-	209.74
1402	Boonton Township	1,052.17	46.08	1,098.25
1403	Butler Borough	9.42	-	9.42
1406	Chester Borough	779.61	0.07	779.68
1407	Chester Township	1,443.23	9,487.56	10,930.78
1408	Denville Township	1,941.72	0.03	1,941.75
1409	Dover Township	123.92	-	123.92
1412	Hanover Township	3,448.98	-	3,448.98
1413	Harding Township	9,663.44	-	9,663.44
1414	Jefferson Township	105.52	3,184.04	3,289.56
1415	Kinnelon Borough	73.90	448.03	521.93
1418	Mendham Borough	2,694.36	-	2,694.36
1419	Mendham Township	5,254.42	0.00	5,254.42
1420	Mine Hill Township	618.82	-	618.82
1421	Montville Township	4,021.73	347.94	4,369.67
1422	Morris Township	4,868.83	-	4,868.83
1423	Morris Plains Borough	105.73	-	105.73
1424	Morristown Town	132.58	-	132.58
1425	Mountain Lakes Borough	75.32	-	75.32
1426	Mount Arlington Borough	84.84	0.00	84.84
1427	Mount Olive Township	1,826.12	7,201.94	9,028.06
1428	Netcong Borough	79.48	-	79.48
1429	Parsippany-Troy Hills Township	5,861.34	-	5,861.34
1431	Pequannock Township	725.25	0.63	725.88
1432	Randolph Township	5,199.44	464.56	5,664.00
1433	Riverdale Borough	17.34	-	17.34
1434	Rockaway Borough	125.51	-	125.51
1435	Rockaway Township	1,473.31	1,603.51	3,076.82
1436	Roxbury Township	3,480.65	1,320.97	4,801.62
1437	Victory Gardens Borough	31.37	-	31.37
1438	Washington Township	2,393.30	13,566.06	15,959.36
1439	Wharton Borough	46.15	-	46.15
32 Municipalities		**57,967.52**	**37,671.42**	**95,638.95**

NRCS Farmland Soils Classification
All Farmland Soils

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	15.91	-	15.91
1609	Pompton Lakes Borough	61.44	-	61.44
1611	Ringwood Borough	0.41	104.63	105.04
1613	Wanaque Borough	61.42	18.88	80.30
1615	West Milford Township	-	826.89	826.89
5 Municipalities		**139.18**	**950.39**	**1,089.57**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	12,702.26	675.16	13,377.42
1802	Bernards Township	8,111.78	-	8,111.78
1803	Bernardsville Borough	4,278.67	-	4,278.67
1807	Far Hills Borough	1,932.05	-	1,932.05
1815	Peapack and Gladstone Borough	1,968.87	-	1,968.87
5 Municipalities		**28,993.64**	**675.16**	**29,668.80**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	0.33	1,203.79	1,204.12
1906	Franklin Borough	121.52	-	121.52
1908	Green Township	2,504.54	48.82	2,553.36
1909	Hamburg Borough	132.02	-	132.02
1911	Hardyston Township	1,523.99	777.96	2,301.95
1912	Hopatcong Borough	153.37	295.68	449.04
1916	Ogdensburg Borough	167.40	-	167.40
1918	Sparta Township	1,522.28	735.28	2,257.56
1919	Stanhope Borough	71.58	-	71.58
1922	Vernon Township	2,907.23	1,936.88	4,844.11
10 Municipalities		**9,104.27**	**4,998.40**	**14,102.67**

NRCS Farmland Soils Classification
All Farmland Soils

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	3,123.89	933.20	4,057.10
2102	Alpha Borough	1,032.11	0.00	1,032.11
2103	Belvidere Town	894.65	-	894.65
2105	Franklin Township	7,692.72	1,957.36	9,650.08
2106	Frelinghuysen Township	5,286.41	-	5,286.41
2107	Greenwich Township	5,417.61	565.94	5,983.55
2108	Hackettstown Town	1,789.76	157.04	1,946.80
2110	Harmony Township	5,694.56	3,975.21	9,669.77
2111	Hope Township	3,496.92	-	3,496.92
2112	Independence Township	3,324.61	2,227.62	5,552.23
2114	Liberty Township	483.28	2,937.08	3,420.36
2115	Lopatcong Township	3,143.78	651.24	3,795.02
2116	Mansfield Township	3,515.71	5,375.60	8,891.31
2117	Oxford Township	1,117.55	1,308.55	2,426.11
2119	Phillipsburg Town	1,712.82	-	1,712.82
2120	Pohatcong Township	1,182.02	4,956.06	6,138.08
2121	Washington Borough	1,046.53	-	1,046.53
2122	Washington Township	6,959.39	1,554.09	8,513.48
2123	White Township	7,811.04	3,237.83	11,048.87
19 Municipalities		**64,725.38**	**29,836.83**	**94,562.22**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***201,322.58***	***104,991.69***	***306,314.27***

NRCS Farmland Soils Classification
Prime Farmland Soils

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	999.12	306.74	1,305.86
0242	Oakland Borough	114.09	4.62	118.71
2 Municipalities		**1,113.21**	**311.36**	**1,424.57**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	5,814.59	479.41	6,294.00
1002	Bethlehem Township	694.54	2,722.41	3,416.95
1003	Bloomsbury Borough	-	286.91	286.91
1004	Califon Borough	-	98.62	98.62
1005	Clinton Town	272.88	0.85	273.74
1006	Clinton Township	5,916.37	141.60	6,057.97
1012	Glen Gardner Borough	-	127.77	127.77
1013	Hampton Borough	92.03	247.03	339.07
1014	High Bridge Borough	219.32	-	219.32
1015	Holland Township	3,199.07	390.06	3,589.14
1018	Lebanon Borough	233.53	-	233.53
1019	Lebanon Township	0.00	3,057.56	3,057.56
1020	Milford Borough	186.15	-	186.15
1024	Tewksbury Township	2,670.82	3,811.55	6,482.37
1025	Union Township	913.93	3,617.48	4,531.42
15 Municipalities		**20,213.24**	**14,981.25**	**35,194.49**

NRCS Farmland Soils Classification
Prime Farmland Soils

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	147.67	-	147.67
1402	Boonton Township	736.82	19.11	755.93
1403	Butler Borough	2.66	-	2.66
1406	Chester Borough	595.67	0.05	595.71
1407	Chester Township	826.43	4,859.29	5,685.72
1408	Denville Township	1,231.68	0.03	1,231.71
1409	Dover Township	64.93	-	64.93
1412	Hanover Township	1,640.41	-	1,640.41
1413	Harding Township	4,111.41	-	4,111.41
1414	Jefferson Township	42.76	1,543.96	1,586.73
1415	Kinnelon Borough	37.22	118.21	155.43
1418	Mendham Borough	1,856.70	-	1,856.70
1419	Mendham Township	2,900.19	0.00	2,900.19
1420	Mine Hill Township	334.10	-	334.10
1421	Montville Township	2,348.40	199.47	2,547.87
1422	Morris Township	1,896.60	-	1,896.60
1423	Morris Plains Borough	63.95	-	63.95
1424	Morristown Town	56.31	-	56.31
1425	Mountain Lakes Borough	18.49	-	18.49
1426	Mount Arlington Borough	48.92	0.00	48.92
1427	Mount Olive Township	1,392.22	4,651.49	6,043.71
1428	Netcong Borough	78.44	-	78.44
1429	Parsippany-Troy Hills Township	2,237.64	-	2,237.64
1431	Pequannock Township	309.55	0.63	310.18
1432	Randolph Township	2,787.47	233.30	3,020.76
1433	Riverdale Borough	14.82	-	14.82
1434	Rockaway Borough	102.75	-	102.75
1435	Rockaway Township	441.97	560.92	1,002.89
1436	Roxbury Township	2,768.66	649.57	3,418.23
1437	Victory Gardens Borough	3.95	-	3.95
1438	Washington Township	1,707.93	9,887.18	11,595.11
1439	Wharton Borough	18.88	-	18.88
32 Municipalities		**30,825.60**	**22,723.20**	**53,548.80**

NRCS Farmland Soils Classification
Prime Farmland Soils

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	15.91	-	15.91
1609	Pompton Lakes Borough	61.44	-	61.44
1611	Ringwood Borough	0.41	104.63	105.04
1613	Wanaque Borough	61.42	18.88	80.30
1615	West Milford Township	-	826.89	826.89
5 Municipalities		**139.18**	**950.39**	**1,089.57**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	5,512.90	276.45	5,789.35
1802	Bernards Township	4,717.65	-	4,717.65
1803	Bernardsville Borough	1,899.51	-	1,899.51
1807	Far Hills Borough	833.34	-	833.34
1815	Peapack and Gladstone Borough	756.49	-	756.49
5 Municipalities		**13,719.89**	**276.45**	**13,996.34**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	637.63	637.63
1906	Franklin Borough	111.80	-	111.80
1908	Green Township	2,035.37	41.75	2,077.12
1909	Hamburg Borough	132.02	-	132.02
1911	Hardyston Township	1,406.47	353.41	1,759.88
1912	Hopatcong Borough	0.05	88.56	88.60
1916	Ogdensburg Borough	157.17	-	157.17
1918	Sparta Township	1,312.31	180.57	1,492.88
1919	Stanhope Borough	25.58	-	25.58
1922	Vernon Township	1,780.57	797.86	2,578.44
10 Municipalities		**6,961.34**	**2,099.78**	**9,061.12**

NRCS Farmland Soils Classification
Prime Farmland Soils

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	2,084.59	444.91	2,529.50
2102	Alpha Borough	967.45	0.00	967.45
2103	Belvidere Town	739.15	-	739.15
2105	Franklin Township	5,644.63	1,464.73	7,109.35
2106	Frelinghuysen Township	3,018.83	-	3,018.83
2107	Greenwich Township	4,853.34	373.65	5,226.99
2108	Hackettstown Town	1,595.33	132.48	1,727.81
2110	Harmony Township	4,609.61	2,770.97	7,380.58
2111	Hope Township	1,822.78	-	1,822.78
2112	Independence Township	1,568.08	907.27	2,475.35
2114	Liberty Township	111.45	1,312.86	1,424.31
2115	Lopatcong Township	2,565.24	450.10	3,015.34
2116	Mansfield Township	3,116.93	3,173.08	6,290.01
2117	Oxford Township	750.42	841.30	1,591.73
2119	Phillipsburg Town	1,639.59	-	1,639.59
2120	Pohatcong Township	989.56	3,464.92	4,454.48
2121	Washington Borough	854.57	-	854.57
2122	Washington Township	5,981.50	962.98	6,944.48
2123	White Township	5,610.87	1,870.58	7,481.45
19 Municipalities		**48,523.93**	**18,169.82**	**66,693.75**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	**121,496.39**	**59,512.25**	**181,008.65**

NRCS Farmland Soils Classification
Farmlands of Unique Importance

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	31.00	64.41	95.41
0242	Oakland Borough	-	8.93	8.93
2 Municipalities		**31.00**	**73.34**	**104.34**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	-	-	-
1002	Bethlehem Township	-	-	-
1003	Bloomsbury Borough	-	-	-
1004	Califon Borough	-	-	-
1005	Clinton Town	-	-	-
1006	Clinton Township	-	-	-
1012	Glen Gardner Borough	-	-	-
1013	Hampton Borough	-	-	-
1014	High Bridge Borough	-	-	-
1015	Holland Township	-	-	-
1018	Lebanon Borough	-	-	-
1019	Lebanon Township	-	-	-
1020	Milford Borough	-	-	-
1024	Tewksbury Township	-	-	-
1025	Union Township	-	-	-
15 Municipalities		**-**	**-**	**-**

NRCS Farmland Soils Classification
Farmlands of Unique Importance

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	78.55	10.26	88.81
1403	Butler Borough	2.09	-	2.09
1406	Chester Borough	-	-	-
1407	Chester Township	-	1,067.80	1,067.80
1408	Denville Township	83.67	-	83.67
1409	Dover Township	22.64	-	22.64
1412	Hanover Township	686.35	-	686.35
1413	Harding Township	799.63	-	799.63
1414	Jefferson Township	62.69	1,021.34	1,084.04
1415	Kinnelon Borough	1.22	263.86	265.09
1418	Mendham Borough	-	-	-
1419	Mendham Township	-	-	-
1420	Mine Hill Township	3.45	-	3.45
1421	Montville Township	275.99	56.56	332.56
1422	Morris Township	3.45	-	3.45
1423	Morris Plains Borough	5.34	-	5.34
1424	Morristown Town	-	-	-
1425	Mountain Lakes Borough	55.16	-	55.16
1426	Mount Arlington Borough	19.47	-	19.47
1427	Mount Olive Township	161.55	446.37	607.92
1428	Netcong Borough	0.61	-	0.61
1429	Parsippany-Troy Hills Township	1,401.63	-	1,401.63
1431	Pequannock Township	210.13	-	210.13
1432	Randolph Township	33.65	138.60	172.25
1433	Riverdale Borough	2.52	-	2.52
1434	Rockaway Borough	8.45	-	8.45
1435	Rockaway Township	816.63	732.00	1,548.63
1436	Roxbury Township	353.62	291.03	644.65
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	-	100.94	100.94
1439	Wharton Borough	19.80	-	19.80
32 Municipalities		**5,108.31**	**4,128.76**	**9,237.08**

NRCS Farmland Soils Classification
Farmlands of Unique Importance

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	8.98	28.65	37.63
1609	Pompton Lakes Borough	3.70	-	3.70
1611	Ringwood Borough	-	64.38	64.38
1613	Wanaque Borough	10.11	43.87	53.97
1615	West Milford Township	-	1,782.55	1,782.55
5 Municipalities		**22.79**	**1,919.44**	**1,942.23**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	-	-	-
1802	Bernards Township	-	-	-
1803	Bernardsville Borough	-	-	-
1807	Far Hills Borough	-	-	-
1815	Peapack and Gladstone Borough	-	-	-
5 Municipalities		**-**	**-**	**-**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	0.33	563.19	563.51
1906	Franklin Borough	-	-	-
1908	Green Township	433.95	7.06	441.01
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	117.52	424.55	542.07
1912	Hopatcong Borough	153.32	207.12	360.44
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	209.97	554.71	764.68
1919	Stanhope Borough	46.00	-	46.00
1922	Vernon Township	1,126.66	1,128.88	2,255.54
10 Municipalities		**2,087.75**	**2,885.51**	**4,973.26**

NRCS Farmland Soils Classification
Farmlands of Unique Importance

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	569.64	181.50	751.14
2102	Alpha Borough	-	-	-
2103	Belvidere Town	-	-	-
2105	Franklin Township	-	-	-
2106	Frelinghuysen Township	465.64	-	465.64
2107	Greenwich Township	-	-	-
2108	Hackettstown Town	-	-	-
2110	Harmony Township	-	-	-
2111	Hope Township	461.88	-	461.88
2112	Independence Township	1,013.62	254.74	1,268.36
2114	Liberty Township	362.68	126.35	489.03
2115	Lopatcong Township	-	-	-
2116	Mansfield Township	-	36.47	36.47
2117	Oxford Township	146.01	87.24	233.25
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	-	4.48	4.48
2121	Washington Borough	-	-	-
2122	Washington Township	12.73	-	12.73
2123	White Township	170.79	16.19	186.98
19 Municipalities		**3,202.99**	**706.98**	**3,909.98**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	***10,452.84***	***9,714.03***	***20,166.88***

NRCS Farmland Soils Classification
Farmlands of Statewide Importance

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	843.49	663.20	1,506.69
0242	Oakland Borough	125.48	374.20	499.68
2 Municipalities		**968.97**	**1,037.40**	**2,006.37**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	5,095.80	322.26	5,418.06
1002	Bethlehem Township	106.09	1,797.52	1,903.60
1003	Bloomsbury Borough	-	189.52	189.52
1004	Califon Borough	-	132.48	132.48
1005	Clinton Town	325.46	52.58	378.04
1006	Clinton Township	5,190.55	16.70	5,207.25
1012	Glen Gardner Borough	-	193.58	193.58
1013	Hampton Borough	22.31	312.07	334.38
1014	High Bridge Borough	315.45	-	315.45
1015	Holland Township	2,468.38	328.56	2,796.93
1018	Lebanon Borough	178.73	-	178.73
1019	Lebanon Township	0.00	1,520.12	1,520.12
1020	Milford Borough	74.54	-	74.54
1024	Tewksbury Township	2,734.73	1,974.77	4,709.50
1025	Union Township	1,501.60	3,442.99	4,944.59
15 Municipalities		**18,013.64**	**10,283.15**	**28,296.79**

NRCS Farmland Soils Classification
Farmlands of Statewide Importance

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	62.07	-	62.07
1402	Boonton Township	236.80	16.71	253.51
1403	Butler Borough	4.67	-	4.67
1406	Chester Borough	183.94	0.02	183.96
1407	Chester Township	616.80	3,560.47	4,177.26
1408	Denville Township	626.37	-	626.37
1409	Dover Township	36.34	-	36.34
1412	Hanover Township	277.35	-	277.35
1413	Harding Township	3,272.55	-	3,272.55
1414	Jefferson Township	0.06	618.74	618.80
1415	Kinnelon Borough	27.68	65.96	93.64
1418	Mendham Borough	837.66	-	837.66
1419	Mendham Township	2,354.23	0.00	2,354.23
1420	Mine Hill Township	281.27	-	281.27
1421	Montville Township	510.30	91.91	602.21
1422	Morris Township	2,515.49	-	2,515.49
1423	Morris Plains Borough	36.44	-	36.44
1424	Morristown Town	69.41	-	69.41
1425	Mountain Lakes Borough	1.66	-	1.66
1426	Mount Arlington Borough	16.46	-	16.46
1427	Mount Olive Township	272.35	2,104.08	2,376.43
1428	Netcong Borough	0.44	-	0.44
1429	Parsippany-Troy Hills Township	844.99	-	844.99
1431	Pequannock Township	87.15	-	87.15
1432	Randolph Township	2,378.32	92.66	2,470.98
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	14.31	-	14.31
1435	Rockaway Township	214.70	267.27	481.97
1436	Roxbury Township	358.36	380.37	738.73
1437	Victory Gardens Borough	27.42	-	27.42
1438	Washington Township	685.37	3,577.94	4,263.31
1439	Wharton Borough	7.48	-	7.48
32 Municipalities		**16,858.43**	**10,776.14**	**27,634.57**

NRCS Farmland Soils Classification
Farmlands of Statewide Importance

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	-	-	-
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	63.20	63.20
1613	Wanaque Borough	6.55	31.27	37.82
1615	West Milford Township	-	1,314.89	1,314.89
5 Municipalities		**6.55**	**1,409.36**	**1,415.91**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	7,189.36	398.71	7,588.07
1802	Bernards Township	3,391.75	-	3,391.75
1803	Bernardsville Borough	2,379.16	-	2,379.16
1807	Far Hills Borough	1,098.70	-	1,098.70
1815	Peapack and Gladstone Borough	1,212.38	-	1,212.38
5 Municipalities		**15,271.36**	**398.71**	**15,670.07**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	2.97	2.97
1906	Franklin Borough	9.72	-	9.72
1908	Green Township	35.23	-	35.23
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	-	-	-
1912	Hopatcong Borough	-	-	-
1916	Ogdensburg Borough	10.23	-	10.23
1918	Sparta Township	-	-	-
1919	Stanhope Borough	-	-	-
1922	Vernon Township	-	10.14	10.14
10 Municipalities		**55.18**	**13.11**	**68.29**

NRCS Farmland Soils Classification
Farmlands of Statewide Importance

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	469.66	306.79	776.45
2102	Alpha Borough	64.66	-	64.66
2103	Belvidere Town	155.51	-	155.51
2105	Franklin Township	2,048.10	492.63	2,540.73
2106	Frelinghuysen Township	1,801.94	-	1,801.94
2107	Greenwich Township	564.26	192.30	756.56
2108	Hackettstown Town	194.43	24.56	218.99
2110	Harmony Township	1,084.95	1,204.24	2,289.19
2111	Hope Township	1,212.25	-	1,212.25
2112	Independence Township	742.91	1,065.61	1,808.52
2114	Liberty Township	9.15	1,497.86	1,507.02
2115	Lopatcong Township	578.54	201.14	779.69
2116	Mansfield Township	398.78	2,166.06	2,564.83
2117	Oxford Township	221.12	380.01	601.13
2119	Phillipsburg Town	73.23	-	73.23
2120	Pohatcong Township	192.46	1,486.66	1,679.12
2121	Washington Borough	191.96	-	191.96
2122	Washington Township	965.16	591.11	1,556.27
2123	White Township	2,029.37	1,351.07	3,380.44
19 Municipalities		**12,998.46**	**10,960.03**	**23,958.49**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	**64,172.59**	**34,877.90**	**99,050.49**

NRCS Farmland Soils Classification
Farmlands of Local Importance

Bergen County				
SSN	Municipality	Planning Area	Preservation Area	Total
0233	Mahwah Township	-	-	-
0242	Oakland Borough	-	-	-
2 Municipalities		**-**	**-**	**-**

Hunterdon County				
SSN	Municipality	Planning Area	Preservation Area	Total
1001	Alexandria Township	-	-	-
1002	Bethlehem Township	-	-	-
1003	Bloomsbury Borough	-	-	-
1004	Califon Borough	-	-	-
1005	Clinton Town	-	-	-
1006	Clinton Township	-	-	-
1012	Glen Gardner Borough	-	-	-
1013	Hampton Borough	-	-	-
1014	High Bridge Borough	-	-	-
1015	Holland Township	-	-	-
1018	Lebanon Borough	-	-	-
1019	Lebanon Township	-	-	-
1020	Milford Borough	-	-	-
1024	Tewksbury Township	-	-	-
1025	Union Township	-	-	-
15 Municipalities		**-**	**-**	**-**

NRCS Farmland Soils Classification
Farmlands of Local Importance

Morris County				
SSN	Municipality	Planning Area	Preservation Area	Total
1401	Boonton Town	-	-	-
1402	Boonton Township	-	-	-
1403	Butler Borough	-	-	-
1406	Chester Borough	-	-	-
1407	Chester Township	-	-	-
1408	Denville Township	-	-	-
1409	Dover Township	-	-	-
1412	Hanover Township	844.88	-	844.88
1413	Harding Township	1,479.84	-	1,479.84
1414	Jefferson Township	-	-	-
1415	Kinnelon Borough	7.77	-	7.77
1418	Mendham Borough	-	-	-
1419	Mendham Township	-	-	-
1420	Mine Hill Township	-	-	-
1421	Montville Township	887.03	-	887.03
1422	Morris Township	453.29	-	453.29
1423	Morris Plains Borough	-	-	-
1424	Morristown Town	6.86	-	6.86
1425	Mountain Lakes Borough	-	-	-
1426	Mount Arlington Borough	-	-	-
1427	Mount Olive Township	-	-	-
1428	Netcong Borough	-	-	-
1429	Parsippany-Troy Hills Township	1,377.09	-	1,377.09
1431	Pequannock Township	118.42	-	118.42
1432	Randolph Township	-	-	-
1433	Riverdale Borough	-	-	-
1434	Rockaway Borough	-	-	-
1435	Rockaway Township	-	43.32	43.32
1436	Roxbury Township	-	-	-
1437	Victory Gardens Borough	-	-	-
1438	Washington Township	-	-	-
1439	Wharton Borough	-	-	-
32 Municipalities		**5,175.18**	**43.32**	**5,218.50**

NRCS Farmland Soils Classification
Farmlands of Local Importance

Passaic County				
SSN	Municipality	Planning Area	Preservation Area	Total
1601	Bloomingdale Borough	23.19	19.26	42.44
1609	Pompton Lakes Borough	-	-	-
1611	Ringwood Borough	-	53.99	53.99
1613	Wanaque Borough	-	-	-
1615	West Milford Township	-	770.95	770.95
5 Municipalities		**23.19**	**844.19**	**867.38**

Somerset County				
SSN	Municipality	Planning Area	Preservation Area	Total
1801	Bedminster Township	-	-	-
1802	Bernards Township	2.38	-	2.38
1803	Bernardsville Borough	-	-	-
1807	Far Hills Borough	-	-	-
1815	Peapack and Gladstone Borough	-	-	-
5 Municipalities		**2.38**	**-**	**2.38**

Sussex County				
SSN	Municipality	Planning Area	Preservation Area	Total
1904	Byram Township	-	-	-
1906	Franklin Borough	-	-	-
1908	Green Township	-	-	-
1909	Hamburg Borough	-	-	-
1911	Hardyston Township	-	-	-
1912	Hopatcong Borough	-	-	-
1916	Ogdensburg Borough	-	-	-
1918	Sparta Township	-	-	-
1919	Stanhope Borough	-	-	-
1922	Vernon Township	-	-	-
10 Municipalities		**-**	**-**	**-**

NRCS Farmland Soils Classification
Farmlands of Local Importance

Warren County				
SSN	Municipality	Planning Area	Preservation Area	Total
2101	Allamuchy Township	-	-	-
2102	Alpha Borough	-	-	-
2103	Belvidere Town	-	-	-
2105	Franklin Township	-	-	-
2106	Frelinghuysen Township	-	-	-
2107	Greenwich Township	-	-	-
2108	Hackettstown Town	-	-	-
2110	Harmony Township	-	-	-
2111	Hope Township	-	-	-
2112	Independence Township	-	-	-
2114	Liberty Township	-	-	-
2115	Lopatcong Township	-	-	-
2116	Mansfield Township	-	-	-
2117	Oxford Township	-	-	-
2119	Phillipsburg Town	-	-	-
2120	Pohatcong Township	-	-	-
2121	Washington Borough	-	-	-
2122	Washington Township	-	-	-
2123	White Township	-	-	-
19 Municipalities		**-**	**-**	**-**

HIGHLANDS TOTALS			
Municipalities	Planning Area	Preservation Area	Total
88 Municipalities	**5,200.75**	**887.51**	**6,088.26**

Preserved Farmland in the Highlands Region

Bergen County			
Municipality	Planning Area	Preservation Area	Total
MAHWAH TOWNSHIP	48.54	270.26	318.81
Total	**48.54**	**270.26**	**318.80**

Hunterdon County			
Municipality	Planning Area	Preservation Area	Total
ALEXANDRIA TOWNSHIP	1,707.12		1,707.12
BETHLEHEM TOWNSHIP	775.58	441.64	1,217.22
CLINTON TOWNSHIP	824.45		824.45
HOLLAND TOWNSHIP	1,651.03		1,651.03
LEBANON BOROUGH	23.62		23.62
LEBANON TOWNSHIP		1,066.23	1,066.23
TEWKSBURY TOWNSHIP	432.94	397.62	830.56
UNION TOWNSHIP	125.42	341.06	466.47
Total	**5,540.16**	**2,246.55**	**7,786.71**

Morris County			
Municipality	Planning Area	Preservation Area	Total
BOONTON TOWNSHIP	49.54		49.54
CHESTER BOROUGH	53.35		53.35
CHESTER TOWNSHIP		808.85	808.85
HARDING TOWNSHIP	319.00		319.00
MENDHAM BOROUGH	49.19		49.19
MENDHAM TOWNSHIP	144.53		144.53
MOUNT OLIVE TOWNSHIP	45.66	199.82	245.48
RANDOLPH TOWNSHIP	121.04		121.04
WASHINGTON TOWNSHIP	715.57	3,800.30	4,515.86
Total	**1,497.88**	**4,808.97**	**6,306.85**

Somerset			
Municipality	Planning Area	Preservation Area	Total
BEDMINSTER TOWNSHIP	1,744.71	83.33	1,828.04
Total	**1,744.71**	**83.33**	**1,828.04**

Preserved Farmland in the Highlands Region

Sussex County			
Municipality	Planning Area	Preservation Area	Total
GREEN TOWNSHIP	754.53		754.53
HARDYSTON TOWNSHIP	68.69		68.69
SPARTA TOWNSHIP	156.03	38.68	194.71
VERNON TOWNSHIP		812.70	812.70
Total	**979.24**	**851.37**	**1,830.61**

Warren County			
Municipality	Planning Area	Preservation Area	Total
ALLAMUCHY TOWNSHIP	2,114.82	46.95	2,161.77
ALPHA BOROUGH	125.39		125.39
BELVIDERE TOWN	3.08		3.08
FRANKLIN TOWNSHIP	1,791.25	243.62	2,034.87
FRELINGHUYSEN TOWNSHIP	1,502.94		1,502.94
GREENWICH TOWNSHIP	559.65		559.65
HARMONY TOWNSHIP	1,327.62	568.62	1,896.24
HOPE TOWNSHIP	509.14		509.14
INDEPENDENCE TOWNSHIP	947.90		947.90
LIBERTY TOWNSHIP	230.59	141.58	372.16
LOPATCONG TOWNSHIP	74.26		74.26
MANSFIELD TOWNSHIP	791.04	401.03	1,192.06
POHATCONG TOWNSHIP	0.00	2,168.64	2,168.64
WASHINGTON TOWNSHIP	760.18	509.36	1,269.54
WHITE TOWNSHIP	518.76	355.85	874.60
Total	**11,256.61**	**4,435.63**	**15,692.24**

	Highlands Region		
Municipality	Planning Area	Preservation Area	Total
Total	**21,067.15**	**12,696.11**	**33,763.26**

AGRICULTURAL RESOURCE ASSESSMENT CRITERIA	Total Max Pts	Soils	Size	Min Acres for Max Pts	Tillable Acres	Boundaries/ Buffers	Local Commitment	Financial	Development/ Threat of Change	Conservation/BMPs	Special Conditions	Owner Operated	Sewers/ Growth	Density/ Critical Mass	Consistency with Plans
PROGRAM															
USDA Forest Service															
NY-NJ Highlands Technical Report		X	X	500		X									
State Programs															
Agricultural Preservation Restriction Program, MA		X	X	400			X	X							
SADC, NJ		15	20		15	20	20		10						
Farm Ranking System, PA		X	X		X	X			X	X			X	X	X
VHCB, VT		X			X	X	X	X	X	X			X	X	X
County Programs															
Frederick County, MD	450	200	50		25	30			50	25		20	50	30	
Harford County, MD	300	100	15	200	35	20	15		20	20	15	20		20	20
Kent County, MD		X	X	100	X		X						X		
Morris County, NJ	80	25	5	50	25	15	10		10	10	15			10	
Lancaster County, PA	100	40	X		X			X	10	X			X	X	X
Gallatin County, MT			X	640	X	X	X	X	X	X	X		X	X	
Dunn County, WI	266	35	25	160		20		40	45	45	80		41	80	

X is used where no value was available but indicates the criteria was utilized