Highlands Council
New Jersey

Land Preservation And Stewardship

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Technical Report

HIGHLANDS REGIONAL MASTER PLAN

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EXECUTIVE SUMMARY

One of the fundamental aspects of the Highlands Act is the emphasis on land preservation to ensure that public funds and other resources are focused on protection of critical Highlands resources. In order to accomplish this purpose, the case for land preservation and critical issues surrounding preservation must be addressed by the Highlands Council including the criteria for the identification of critical lands, the priorities for land preservation, implementation strategies for land preservation and stewardship, and a process to ensure that sufficient financial and institutional resources are available for land preservation and stewardship.

An important factor in protecting environmentally critical areas is identifying existing preserved lands in the Highlands Region and the resources that are already protected. A total of 273,457 acres of the Highlands Region are primarily preserved open space or preserved farmland in a combination of federal, State, county municipal, nonprofit and private ownership and represents a catalog of the public and private land and water areas available for recreation or presently protected as open space and recreation facilities.

Successful land preservation requires four basic ingredients—targeting of land acquisition priorities based on a sound rationale, buyers with funding or other incentives, sellers willing to accept a buyer's offer, and stewardship of the acquired open space. This technical report includes the examination of the available and new, innovative, and alternative funding and stewardship methods and programs in New Jersey for open space acquisition and land preservation as well as how preservation priorities were established for preserving open space and farmland.

INTRODUCTION

The New Jersey Highlands Region (Highlands Region) includes 859,358 acres comprised of two areas, the Preservation Area and the Planning Area (See figure Highlands Region). It is located in the northwest part of the State encompassing eighty-eight municipalities in seven counties. A region noted for its scenic beauty and environmental significance, it stretches from Phillipsburg, Warren County in the southwest to Mahwah, Bergen County in the northeast. It is the source of drinking water for nearly 5 million people.

The Highlands Water Protection and Planning Act (Highlands Act) was enacted on August 10, 2004. In adopting the Highlands Act, the Legislature "found and proclaimed that the New Jersey Highlands is an essential source of drinking water . . . for one-half of the State's population, . . . that . . . [it] contains other exceptional natural resources such as clean air, contiguous forest lands, wetlands, pristine watersheds, and habitat for fauna and flora, [and that it] includes many sites of historic significance, and provides abundant recreational opportunities for the citizens of the State." (Highlands Water Protection and Planning Act, Section 2).

The Legislature also recognized that the resources of the Highlands Region are a vital part of the public trust. It declared that the measures of the Highlands Act "should be guided, in heart, mind, and spirit, by an abiding and generously given commitment to protecting the incomparable water resources and natural beauty of the New Jersey Highlands so as to preserve them intact, in trust, forever for the pleasure, enjoyment, and use of future generations . . . ." The statutory mechanism imposed by the Highlands Act to protect the Region's public trust resources includes the State's commitment to provide state funds for land preservation along with a reorganization of land use powers to emphasize regional planning.

Through passage of the Highlands Act, the New Jersey Highlands Water Protection and Planning Council (Highlands Council) was charged with the important task of developing a

Regional Master Plan to protect the critical natural resources and other significant values of the Highlands Region. The Act specifically emphasizes the protection of water resources for both potable supply and ecosystem viability but also includes goals relating to the protection of agricultural viability, ecosystems, species and communities, as well as scenic and historic resources.

Various systems have been developed in New Jersey for the identification of critical areas for land preservation. These systems have both similarities and fundamental differences. The Highlands Council needed to select or create a set of criteria for use in the Regional Master Plan that can be used to accomplish goals of the Highlands Act. In addition, the Highlands Council needed to determine whether to rely upon or augment the current State systems for identifying important open space and agricultural areas for preservation in the Highlands Region.

"Open space is not merely an amenity, a frill among other necessities on the map of a region, a watershed, or a community. Rather it is the matrix where most of the creatures in that region or community live, and it affects and controls and is affected by everything else that is there. In rural communities, this is so obvious that it needs no elaboration. But in developed communities, it is frequently forgotten. Open space, and especially natural open space (forest, wetlands), is the guarantor of biodiversity, of the continuance on the planet of natural communities of species, of fertility to feed all levels of the food chain including people, and of clean air and water essential to the biological health of all species, including *homo sapiens* (who frequently do not live up to their name). As natural open space is maintained, so will species richness, habitat diversity, and the health of all species be proportionally maintained. In short, the conservation of species, the protection of biodiversity, the maintenance of clean air, clean water and health is partly and significantly a function of habitat size, that is, amount of open space." The Benefits of Open Space, GSWA, The Ecological and Biological Benefits of Open Space, Richard P. Kane, Director of Conservation, New Jersey Audubon Society

In order to evaluate the state of land preservation in the Highlands Region that affords these benefits, maps and tables showing the open space by ownership and by land use/land cover are included in this technical report.

REQUIREMENTS OF THE HIGHLANDS ACT

The Highlands Act includes specific legislative findings relating to land preservation:

"The Legislature further finds and declares that the New Jersey Highlands is an essential source of drinking water, providing clean and plentiful drinking water for one-half of the State's population, including communities beyond the New Jersey Highlands, from only 13 percent of the State's land area; that the New Jersey Highlands contains other exceptional natural resources such as clean air, contiguous forest lands, wetlands, pristine watersheds, and habitat for fauna and flora, includes many sites of historic significance, and provides abundant recreational opportunities for the citizens of the State." Section 2.

In accordance with Section 6 of the Highlands Act, the Highlands Council is empowered to:

- To apply for, receive, and accept, from any federal, State, or other public or private source, grants or loans for, or in aid of, the council's authorized purposes, or in the carrying out of the council's powers, duties, and responsibilities;
- To identify and designate in the regional master plan special areas in the preservation area within which development shall not occur in order to protect water resources and environmentally sensitive lands while recognizing the need to provide just compensation to the owners of those lands when appropriate, whether through acquisition, transfer of development rights programs, or other means or strategies; and

- To identify any lands in which the public acquisition of a fee simple or lesser interest therein is necessary or desirable in order to ensure the preservation thereof, or to provide sites for public recreation, as well as any lands the beneficial use of which are so adversely affected by the restrictions imposed pursuant to this act as to require a guarantee of just compensation therefore, and to transmit a list of those lands to the Commissioner of Environmental Protection, affected local government units, and appropriate federal agencies.

In accordance with Section 10 of the Highlands Act, the overarching 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." Section10.a. The Highlands Act establishes specific goals relating to open space preservation. Those goals with respect to the Preservation Area shall be to:

- preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment which contains the unique and significant natural, scenic, and other resources representative of the Highlands Region;
- protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and critical habitat for fauna and flora;
- preserve farmland and historic sites and other historic resources;
- preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land; and
- promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment.

In addition, the goals with relating to protection of open space with respect to the Planning Area shall be to:

- preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes;
- protect and maintain the essential character of the Highlands environment;
- preserve farmland and historic sites and other historic resources;
- promote the continuation and expansion of agricultural, horticultural, recreational, and cultural uses and opportunities; and
- preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land.

INVENTORY OF EXISTING PRESERVED LANDS IN THE HIGHLANDS REGION

INTRODUCTION

To evaluate the status of land preservation in the Highlands Region, it is important to first inventory existing preserved lands. This technical report records the public and private resources that provide existing recreation and preserved lands for the Highlands Region. The Highlands inventory presents a catalog of the public and private land and water areas that have been preserved for conservation and recreation or presently protected as open space and recreation facilities. The inventory considers significant recreation and conservation resources in the Highlands Region including:

- public and private land and water areas available for active and passive recreation;
- public and private land and water areas maintained as conservation areas dedicated to the preservation of natural and cultural resources;
- lands that provide access to inland water bodies;
- preserved farmland; and
- other public or private lands that may not be directly accessible to the public but that

enhance the open space system in the Highlands Region.

The current status of ownership of preserved lands, including preserved farmland is represented in the figure "Highlands Preserved Lands" and the table "Preserved Lands in the Highlands." Since the data were acquired from numerous sources that measured their data at different scales, there may be discrepancies in the attribution of some sections of preserved open space or preserved farmland. Additionally, certain assumptions were made in the creation of the figures. After analyzing the available data the following statistics represent the status of open space and preserved farmland in the 859,358 acre Highlands Region.

PRESERVED LANDS BY LAND USE/LANDCOVER

Highlands Land Use/Land Cover of Open Space and Preserved Farmland by Acres - Of the 273,457acres of open space and preserved farmland in the Highlands Region, 30,259 acres are in agriculture, 172,099 acres are forested, 19,860 acres are water bodies, 39,980 acres are wetlands10,461 acres are classified as urban, and 800 acres are barren. Urban land includes categories such as, buildings on open space, parking lots, military installations, county facilities, transportation, communication and utilities facilities, and cemeteries. Barren land includes bare exposed rock, rock slides, and disturbed lands. Of the 273,457 acres in the Highlands Region, 185,385 acres are in the Preservation Area and the remaining 88,072 acres are located in the Planning Area. NJDEP 2002 and 2004 Land Use/Land Cover data were used to determine these statistics.

PRESERVED LANDS BY OWNERSHIP

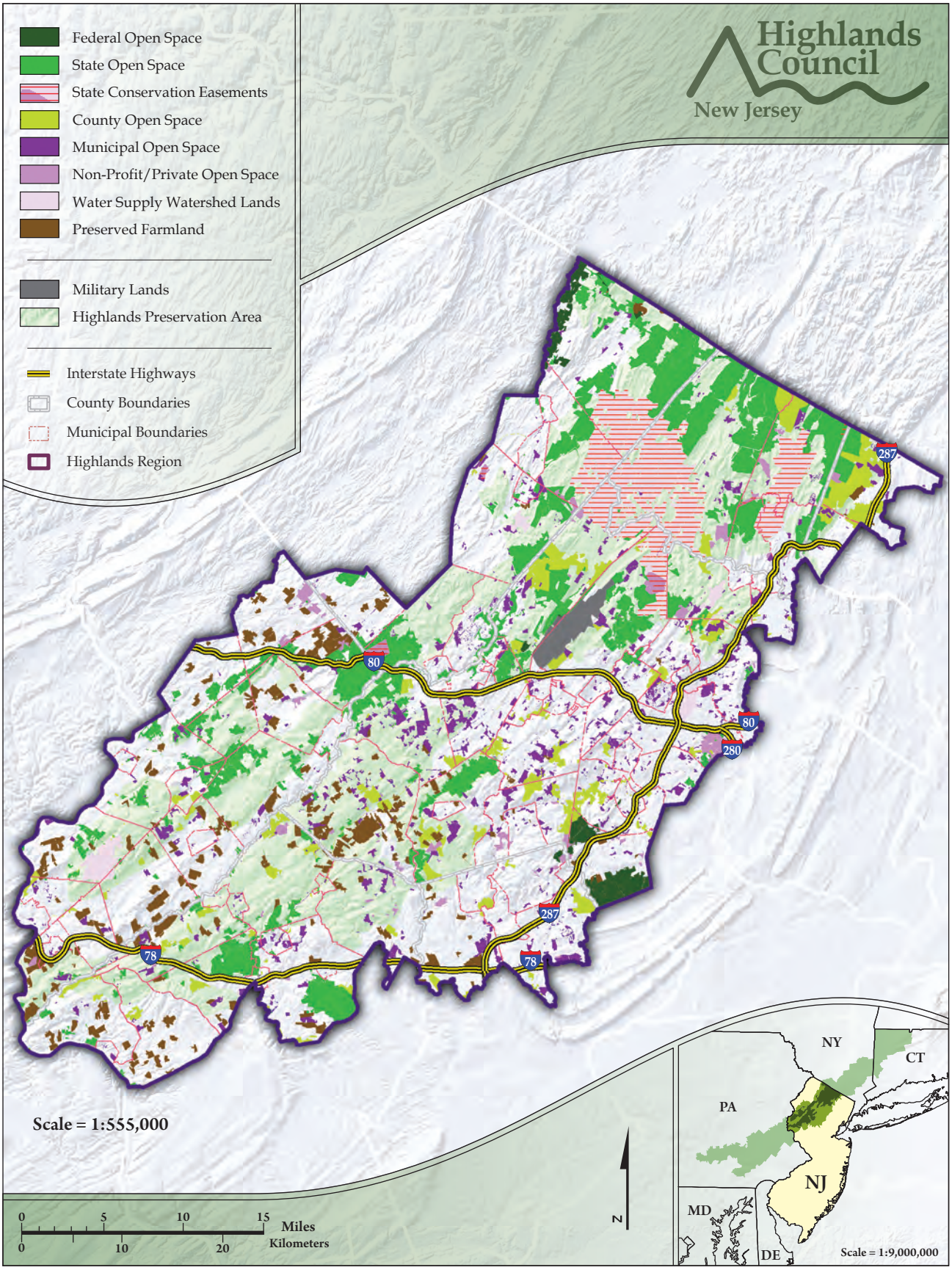
Ownership of Highlands Open Space and Preserved Farmland by Acres - A total of 273,457 acres of the Highlands Region are open space or preserved farmland. 9,281acres are in federal ownership, 107,837 acres are in State ownership, 32,619 acres are in county ownership, 34,076 acres are in municipal ownership, 33,763 are preserved farmland, 10,005 acres in nonprofit ownership, and 45,819 are watershed lands. See the figure "Highlands Preserved Lands" and the table in Appendix A, "Highlands Preserved Lands".

PRESERVED FARMLAND

According to the State Agriculture Development Committee (SADC) there are 33,763 acres of preserved farmland in the Highlands Region. In the two Bergen County Highlands municipalities, 319 acres of farmland are preserved; in the fifteen Hunterdon County Highlands municipalities, 7,787 acres; in the thirty-two Morris County Highlands municipalities, 6,307 acres; in the five Passaic County Highlands municipalities, there is no preserved farmland; in the five Somerset County Highlands municipalities, 1,828 acres; in the ten Sussex County Highlands municipalities, 1,831 acres; and in the nineteen Warren County Highlands municipalities, 15,692 acres. See the *Sustainable Agriculture Technical Report* for more detail.

In order to inform the analysis of the amount of preserved open space in the Highlands Region and develop a New Jersey Highlands Open Space layer, twelve datasets were examined e process of developing the New Jersey Highlands Preserved Lands layer required collecting existing digital data from multiple sources and combining this data into a uniform layer. The spatial and attribute synergy of the data sources varied. In many cases, this variation can be linked to an agency business model. All the existing digital data were assembled to present a comprehensive representation of preserved lands throughout the Highlands Region. Retaining the origin of each of the individual open space layers identified the level of government or agency most likely to administer or steward any particular area. The categories of administration or stewardship

HIGHLANDS PRESERVED LANDS



consist of the following:

- Federal Open Space
- State Open Space (owned in fee or by easement)
- Preserved Farmland
- County Open Space
- Municipal Open Space
- Non Profit/Private Open Space
- Watershed Lands (Not dedicated specifically as Open Space)

This process has revealed numerous consistency and completeness obstacles in both the spatial representation and attribute recording. Multiple agencies record public land information for the same areas using varying base layers. This causes overlaps and differences in area boundaries which are not easily rectified. Overlaps were resolved, and general assumptions were made in attributing the administering agency. Metadata were evaluated for data completeness and accuracy and positioned accordingly. See Appendix A for metadata descriptions.

CONCLUSION

Developing a comprehensive open space dataset throughout the Highlands Region is a highly complex undertaking. There are over a dozen agencies or organizations which contribute to open space identification and each has its own structure for recording open space data to meet its business model. Time, accuracy, precision and completeness differences all play a role in making the assemblage a difficult and imprecise product. The Highland Council intends to work with all agencies and organizations who contribute to open space recordkeeping to develop a standard which meets each agency's or organization's individual needs while at the same time improving open space representation and management at a regional scale.

LAND PRESERVATION CRITERIA

INTRODUCTION

In order to protect the important critical resources of the Highlands Region, preservation of the lands in which these resources are located must be encouraged and funded. However, since funds are not limitless, values must be placed on land to prioritize them in terms of their productivity and long-term viability. This section of the technical report examines factors and formulas used in natural resource protection programs in New Jersey to prioritize lands for preservation purposes.

CRITERIA TO ASSESS PRIORITIES FOR LAND PRESERVATION IN THE HIGHLANDS REGION

Water and Water-related Resources

The Highlands Act strongly emphasizes the need to protect ground and surface water resources for the benefit of Highlands and non-Highlands communities and natural resources. Most communities in the Highlands Region rely on ground water for their potable, industrial, agricultural and recreational needs. Surface waters from the Highlands are critical to the urban areas of northern and central New Jersey. Ecosystems rely on the natural pattern (from drought to flood) of precipitation, recharge, runoff and baseflow to streams.

Several criteria systems have been developed by regional interests and the State. The Green Acres program has developed a set of criteria and a priority setting system for water resources

protection that applies statewide.[1] The US Forest Service (USFS) developed a different set of criteria for use in the Highlands as part of its 2002 Update Report on the Highlands Region of New York and New Jersey. The USFS system is part of a larger priority system that also addresses agriculture, recreation and natural habitats. Watershed management planning projects in the Passaic, Raritan and Upper Delaware regions have also developed criteria and priority systems for water resources protection.

The table "Comparison of Existing Land Preservation Programs Criteria in New Jersey – Other Than Farmland Preservation" provides a comparison of the criteria used in these systems. (The priority systems are addressed in another section of this report.) Each system was generated for specific purposes, and reflects both those purposes and the development process. The USFS system was developed by the Center for Remote Sensing and Spatial Analysis (CRSSA) at Rutgers University, working with USFS and a technical advisory committee. The three watershed project approaches were developed by the Passaic River Coalition, NJ Water Supply Authority (NJWSA) and North Jersey Resource Conservation & Development Council, respectively, working with stakeholder committees. NJWSA has also developed the Spruce Run Initiative Critical Areas Preservation Plan. Green Acres developed their approach in-house in response to a legislative mandate, using informal discussions with various stakeholders including the USFS and the three watershed projects. More detailed descriptions of these prioritization systems are available on the following Web sites:

- Green Acres: www.nj.gov/dep/greenacres/lpplan0507.pdf
- US Forest Service: www.na.fs.fed.us/highlands/maps_pubs/regional_study/regional_study.shtm
- Upper Delaware Watershed Management Project/North Jersey Resource Conservation & Development Council: www.northjerseyrcd.org, www.upperdelaware.org/Documents/tech_rep/wres/wres.htm
- NJWSA Spruce Run Initiative: www.njwsa.org/WPU/SRI/SRI_Plan.pdf
- Passaic River Coalition: www.passaicriver.org/openspacepreservation.htm
- Raritan Basin Watershed Management Project: www.raritanbasin.org

Historic & Cultural Resources

There are several categories of historic and cultural resources, according to the NJDEP Historic Preservation Office. The descriptions under "criteria" are taken from their Web site at www.nj.gov/dep/hpo/1identify/identify.htm

The New Jersey and National Registers of Historic Places are the official lists of historic properties and districts worthy of preservation. Inclusion in the Registers provides benefits and protection for listed resources, and the information generated through the nomination process contributes to the growing body of knowledge about historic places in New Jersey. National Historic Landmarks (NHL) are buildings, sites, structures, objects and districts that have been determined by the Secretary of the Interior to be nationally significant in American history and culture. The NHL Program is administered by the National Park Service. New Jersey has over 50 NHL's, including Craftsman Farms and Ringwood Manor in the Highlands Region. Historic resources are those buildings, sites, structures, objects, and districts that meet the National Register Criteria for Evaluation.

www.nps.gov/history/nr/publications/bulletins/nrb15/nrb15_9.htm

[1] The Green Acres analysis responds to P.L. 2002, c. 76, which required guidelines for the evaluation and priority ranking of lands to be acquired by the State for recreation and conservation purposes, with the criteria for water resources and floodprone areas given additional priority.

These criteria outline qualities for which a property may be considered significant at the local, state, and national levels. Those significant properties or districts that retain integrity of design, feeling or association are considered historic. Historic resources are generally considered either "above ground" (buildings, structures and objects) and "below ground" (archaeological sites), with consequent differences in identification and treatment for each discipline.

Habitat for Rare, Threatened & Endangered Species and Rare Ecosystems

The New Jersey Division of Fish & Wildlife, Office of Nongame and Endangered Species, has developed with Rutgers-CRSSA the "Landscape Project," which identifies habitats in which threatened and endangered vertebrate species are known, suspected or likely to be present or supportable. The project addresses four landscape types: emergent wetlands, forested wetlands, upland forests, and grasslands. For each, the maps rank the habitats in five levels, based on the certainty of species existence and the listed status of the species (e.g., federal, state, threatened, endangered). The Landscape Project is a peer-reviewed product.

Non-vertebrate species have also been documented, though no comparable habitat mapping project exists for them. The NJ Natural Heritage Program is the primary State database for confirmed sightings of rare, threatened and endangered plants and animals, and also identifies "representative ecological communities."[2] This program "Tracks the status of more than 1,000 species of plant and animals and more than 50 ecological communities that are exemplary, rare, or imperiled at the state or global level" according to the program web site.

Scenic Resources

The Highlands Act calls for the regional master plan to "protect the … scenic… resources of the Highlands Region…" in the Preservation Area, and to "preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment which contains the unique and significant … scenic… resources representative of the Highlands Region." (Section 10). The goals for the Planning Area do not include the same language, but do call for the regional master plan to "protect and maintain the essential character of the Highlands environment" which can be construed to include scenic qualities as part of the Highlands' essential character. (Section 10).

In general, other planning documents, such as the USFS Highlands Study, focus on scenic resources as landscape features that can be readily and routinely seen by people in public areas, such as roads, scenic viewing areas, trails and picnic areas. These landscape features may include agricultural areas, valleys, ridgelines, lakes and ponds, and rural townscapes. The emphasis is on the scenic qualities of the landscape resources, though they may also have many other values as well.

Outdoor Recreation Lands

The Highlands Act establishes a goal for both the Preservation and Planning Areas to "preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land." (Section 10). The use of the same language for both areas emphasizes the legislative purpose on this issue. Outdoor recreation opportunities are generally accepted to mean activities that are not organized games (such as those requiring ball fields or capital construction) such as hiking, cross country skiing, birding, fishing, hunting, canoeing, picnicking and low-density camping. These are also activities that require more extensive land and water areas that are essentially natural in character, which means that many other criteria (e.g., water resource protection,

[2] Information is available at: www.nj.gov/dep/parksandforests/natural/heritage/

habitat protection) identify lands that are also compatible for outdoor recreation activities. However, outdoor recreation can also be incompatible with some preservation criteria. Endangered species may be intolerant of any significant human activity, from motorized off-road vehicles to picnic areas to even limited hiking. Because of the large acreage requirements for outdoor recreation activities, these areas tend to be county, state and federal lands.

The Green Acres 2005-2007 Land Preservation Plan includes criteria for lands that make up greenways, include or abut trails, include or abut designated Wild and Scenic Rivers, link to existing parks with significant outdoor recreational uses, or acts as a buffer to such areas. It also includes criteria for recreational needs relative to population and for a broad variety of recreational purposes. The USFS Highlands Study included a component for recreational resources, focusing broadly on outdoor recreational activities. Criteria in that study included recreational trails, scenic view sheds, visible ridge tops, existing parks and buffers, recreational waters and shoreline buffers, and historic and cultural sites.

Community Recreation Lands

The needs for active recreation shift over time (as sports become more or less popular) and by community make-up, size, density and economic status. Planning for local active recreation at the regional scale is feasible in terms of broad needs analysis. However, regional analyses are extremely difficult with regard to location criteria, especially as active recreation lands tend to be interspersed among the broader development pattern so recreational lands can be in close proximity to their users.

National recreational planning practice, the State Comprehensive Outdoor Recreation Plan (SCORP), and other resources provide criteria for use by municipal and county governments to use in determining how much land is needed for active recreation, and the potential split among recreational uses.

PRIORITY SETTING METHODS FOR LAND AREAS

Once the criteria for identifying critical areas are established and the results mapped, the various criteria must be related to one another to define preservation priorities, which in turn will be affected by other policies, funding, willing sellers and interested purchasers. It is critical to note that a priority system cannot be "one size fits all" because funding sources and preservation organizations have different targets. To take an extreme example, those interested in the protection of endangered species will not be well served by a priority system that focuses on active recreation. Active recreation lands require considerable land modification, while species preservation requires maintenance of natural ecosystems. Moreover, a natural resource may have a wide variety of land uses associated with it that will need to be factored into a priority system and which will affect management activities for the resource. For instance, forest resources can be designated for wildlife management, forestry, watershed protection, or active recreation. These uses should be reflected in the priority criteria. For this reason, it will be necessary to have a system that is both useful in regional planning (using aggregated criteria to indicate where development should be limited or prohibited in the land use capability map) and for local planning and preservation/acquisition efforts (using aspects of the system as appropriate to each entity's focus).

Priority Setting Methods for Land Areas

There can be any number of priority setting methods. While each may draw on scientific information, the methods will reflect societal or organizational values and the influence of those who establish the priorities.

Priority systems generally can be grouped in the following types:

Mathematical systems – In this system, each land area is assigned a score based on the criteria met for that land area. Because of mapping difficulties, these systems tend to use grid cells, creating equal size areas across a region. Each preservation criterion is scored for the grid cell and then a final score is computed. The preservation criteria scores represent actual environmental measures, ordinal scores (e.g., 1 through 5, where all criteria have the same possible scale), or presence/absence if that is appropriate (e.g., with the criterion getting a score of 0 – absence – or the top ordinal value – presence). The final scores can be on a sliding scale (i.e., representing the aggregate score of all criteria for each cell), grouped into ordinals (e.g., 1 through 5), or weighted (e.g., where one criterion is given twice the weight of others). As an example of a mathematical system, the USFS Highlands Report has a tiered scoring systems, where each criterion is given an ordinal score from 1 through 5; then criteria are grouped according to major topic (e.g., water resources, forestry, agriculture, habitat, recreation) and again given ordinal scores from 1 through 5 based on the highest-ranked criterion in that group; and finally the scores for each topic were added and then divided by the number of topics to provide a final score ranging, again, from 1 through 5. The major difficulty with mathematical systems lies in deciding how to scale and weight each criterion, a value judgment process that can require extensive stakeholder discussion. They can also give a false sense of "science" because the results are numerical.

Threshold or presence/absence systems – In these systems, each criterion is based on a threshold or presence/absence (see above discussion on criteria, above). The results are mapped and then overlaid to provide a geographic sense of which land areas meet one or more criteria. No scoring is needed – the land areas either do or do not meet some criterion. The GIS coverage can be developed so that the user can visually see the number of criteria met in each land area. The user can also determine which criteria are met for any one area. This approach can use either grid cells or GIS polygon data. The Raritan system for identifying water resource critical areas uses this approach, with polygon data. The major difficulty with these systems is that, unlike mathematical systems, they do not provide a method for determining how each criterion is valued against all others. If one area is a priority for ground water recharge and dense forests, and another for wetlands and threatened species, which is more important? The major benefits of such systems are in their simplicity and clarity.

Either system can be used to allow one or more criteria to serve as overriding priorities, sometimes called the "trump card" concept. For example, an area with flood plains, dense contiguous forests, federally-listed endangered species or very steep slopes could be automatically given highest priority, regardless of whether any other criteria are met. Any priority system will need to address the issue of overlapping priorities. Systems can provide higher priority to land areas where several criteria all had high scores, or to land areas that met the largest number of criteria, etc.

PRIORITY SETTING METHODS FOR PARCELS

Most priority systems have one major problem – translating the results from criteria analysis to individual parcels – because the system designers lacked parcel data. However, the Highlands Council has GIS parcel data for every Highlands municipality, providing an immensely valuable opportunity for linking the preservation criteria and priority systems to individual parcels.

Translating critical area delineations to specific parcels – For the mathematical priority systems, the most direct approach is to add the scores for each parcel, weighted by land area, and then divide by total parcel size. However, this approach can dilute or discount very high scores in one part of the parcel that do not exist in the remainder. Other approaches include identifying each parcel

where more than a specified percentage of its area has higher scores, which indicates that the parcel as a whole (rather than a piece of it) is of high priority. For the threshold systems, the most direct approach is to identify the percentage of each parcel that meets at least one criterion. Similar to the mathematical models, this approach can result in two parcels having the same result, but one parcel meets only one criterion while the other meets several. Alternative approaches include combining the "percent critical" score with another indicator of how many criteria are met within the parcel, or using the "percent critical" results with a map showing how the critical areas lie within the parcels. (The latter approach is used within the Spruce Run Initiative system).

Parcel size – Not all parcels are equal, even if their coverage with critical areas is equal. Parcel size is a major consideration: the administrative, legal and due diligence costs of preserving a small parcel can be similar to those for a large parcel; the preservation of large parcels can more quickly assemble a major preserved area; and the cost per acre of small parcels is likely to exceed that of large parcels (due in part to reduced land development approval costs). Because most priority systems have not been linked to GIS parcel data, this issue has rarely been addressed. In the Spruce Run Initiative, municipal members decided to focus on parcels of 30 acres or greater, unless a smaller, undeveloped parcel would provide a critical link between larger parcels. This concept should be considered, though the appropriate threshold may differ by area.

Parcel contiguity – Parcels also differ in their contiguity to other parcels with significant critical areas or to existing open space. Municipal open space plans often address this issue, because they have at least paper maps of parcels, understand the terrain and wish to interconnect preserved lands. Having contiguous lands increases the aggregate potential to protect dense forests, habitat for rare species and scenic landscapes; it also reduces property management costs. Agricultural Development Areas are specifically delineated to include large areas of contiguous farmland, in part to reduce the intrusion of incompatible development. In the Spruce Run Initiative, municipalities decided that priority would be given to parcels (of 30 acres or more) that created contiguous areas of 100 acres or more.

Intensity of critical areas in parcel – Finally, parcels differ in terms of the intensity of critical areas in the parcel and the pattern of those areas. Two parcels may have similar coverage with critical areas, but in one the areas are concentrated along one side and in the other the areas are threaded through the entire property. The first might accommodate careful development that is sited well away from the critical areas; the second would be a potential acquisition target. Using this concept, the Regional Master Plan could include policies for regulatory preservation of critical areas on properties with limited critical areas and significant development opportunities. Other parcels with significant or widespread critical areas, sufficient size and contiguity to other parcels of concern could be designated for full preservation. The first concept would be more frequently applied in the Existing Community Zone, while the second concept would be more common in the Protection Zone.

Partially or fully developed lands with critical areas – Most preservation criteria and priority systems cannot identify parcels that contain both critical areas and some level of existing development. The Highlands Council will be able to do so using its preservation priority system in concert with GIS parcel data, zoning information and the NJDEP 2002/2004 Land Use/lLand Cover data. Doing so will allow the identification of parcels with critical areas that can be subdivided, and those with critical areas that are already fully developed per local zoning. The former will include agricultural lands and non-agricultural lands, allowing different funding sources to be targeted to those parcels. The latter would not be acquired, but consideration can be given to regulations limiting harm to the remaining critical areas through additional site clearing. There is little benefit to acquisition of properties that are fully developed, in most circumstances.

However, the Highlands Council may wish to include methods of identifying (perhaps through local initiatives) lands that are developed but abandoned, that have significant potential for restoration of critical resources such as floodplains, wetlands, ground water recharge or species habitat.

OTHER CONSIDERATIONS

The discussion above addresses the issue of land preservation priorities based on resource value. However, there is a second tier of issues that must be addressed regarding how actual acquisition occurs. These issues are critical because the decisions made here drive the need for financial and staff resources.

"Willing Seller" Requirement

The Garden State Preservation Trust legislation requires that direct acquisitions by Green Acres and the State Agricultural Development Committee be from willing sellers. Counties and municipalities do have eminent domain powers, under the Eminent Domain Act of 1971, N.J.S.A. 20:3-1 et seq., for a broad range of public purposes including recreational lands, and may use Garden State Preservation Trust Fund grants to cover part of the acquisition costs. Water supply utilities and NJDEP have eminent domain powers, but only for the development of water supply projects (e.g., reservoirs, pipelines, treatment facilities).

Recent court decisions, such as the Mount Laurel Township v. MiPro Homes L.L.C., have sided with municipal use of eminent domain where the municipality has a sound rationale and plan for its use. However, the use of eminent domain is often much more costly than "willing seller" purchases and is controversial, raising issues about appropriate use that have come to the forefront after the Kelo v. City of New London decision by the U.S. Supreme Court. Land trusts, because they are neither government or authorized by government, have no ability to acquire land other than from willing sellers.

Property-based Considerations

Given a willing seller, there are other considerations that determine whether a specific property will gain priority for acquisition. For instance, the property may represent the presence of a significant development threat affecting critical resources. It may be a very large parcel, or have a seller that is willing to consider a "bargain sale" (sale at less than market value, usually for tax benefit purposes), have strong public support, or have a buying entity that has a strong stewardship interest in the parcel and resources to properly manage it. However, these factors are very difficult, if at all possible, to map or predict. Therefore, they are considerations for acquisition entities but cannot be addressed through the Regional Master Plan.

NEXT STEPS

In order to determine areas in the Highlands Region that the Council will target for preservation, the Council will use the results of the Resource Assessment to identify and prioritize those lands within the Highlands Region which have the highest ecological resource values. These values are be based on a combination of ecological indicators using methodologies heretofore discussed which will measure the quantity and quality of regional resources such as: watershed conditions, open waters, riparian areas, groundwater recharge areas, forests, critical habitat, and steep slopes. Moreover, existing protected lands, showing the historic pattern of land preservation activities in the Region, will be identified and integrated with the ecological resource value to identify priority areas for conservation. See "Highlands Conservation Priority Areas Indicators" in this Technical Report for more details.

LAND PRESERVATION

INTRODUCTION

One of the fundamental aspects of the Highlands Act is the emphasis on land preservation to ensure that public funds and other resources are focused on protection of critical Highlands resources. In order to accomplish this purpose, the case for land preservation and critical issues surrounding preservation must be addressed by the Highlands Council – the criteria for the identification of critical lands, the priorities for land preservation, implementation strategies for land preservation and stewardship, and a process to ensure that sufficient financial and institutional resources are available for land preservation and stewardship. This section of the technical report examines the available funding for acquisition and stewardship programs in New Jersey for land preservation.

EXISTING FUNDING PROGRAMS FOR ACQUISITION OF OPEN SPACE LANDS IN THE HIGHLANDS REGION

Federal Programs

USDA Forest Service, Forest Legacy Program

The Forest Legacy Program is a partnership between States and the USDA Forest Service to identify and help conserve environmentally important forests from conversion to non-forest uses. The main tool used for protecting these important forests is conservation easements. The Federal government may fund up to 75% of program costs, with at least 25% coming from private, state or local sources. Since 1995, approximately $19,723,000 has been provided to New Jersey for projects totaling over 14,000 acres, all of which has been in the Highlands Region.

http://www.fs.fed.us/spf/coop/programs/loa/flp.shtml

National Park Service Land, Water & Conservation Fund (LWCF)

The LWCF program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States. Land is bought from landowners at fair-market value (unless the owner chooses to offer the land as a donation or at a bargain price). The Fund receives money mostly from fees paid by companies drilling offshore for oil and gas. Other funding sources include the sale of surplus federal real estate and taxes on motorboat fuel. In recent years, the federal budget request for the LWCF has been far less nationally than New Jersey commitments through the Garden State Preservation Fund. Emphasis for the use of the LWCF in New Jersey has been for National Wildlife Refuge purchases. www.nps.gov/lwcf

Highlands Conservation Act (HCA)

The Highlands Conservation Act, signed by President Bush on November of 2004, is designed to assist Connecticut, New Jersey, New York and Pennsylvania in conserving land and natural resources in the Highlands region through federal assistance for land conservation projects in which a state entity acquires land or an interest in land from a willing seller to permanently protect resources of high conservation value. The USDA Forest Service will identify lands that have high conservation value in the Highlands of Connecticut and Pennsylvania through a Regional Study Update similar to that completed for the Highlands of New Jersey and New York in 2002.

Each year, governors of the four Highlands states may submit land conservation projects in the Highlands for funding not to exceed fifty-percent of the total cost; projects must be consistent with areas identified in the Update as having high resource value. The USDA Forest Service is responsible for doing the resource assessment and preparing the Update for the states involved; Department of the Interior has responsibility for project grants. To date, there is no direct funding. The HCA is authorizing legislation that allows for the expenditure of funds and gives direction to the Federal agencies, but any funding must be appropriated yearly. The legislation authorizes $1,000,000 per year for the same time period for the Secretary of Agriculture to continue USDA and Forest Service programs in the Highlands. www.na.fs.fed.us/highlands/con_act/index.shtm

New Jersey State Programs

Garden State Preservation Trust

On November 3, 1998, New Jersey voters approved a referendum which creates a stable source of funding for open space, farmland, and historic preservation and recreation development, and on June 30, 1999, the Garden State Preservation Trust Act was signed into law. The bill established, for the first time in history, a stable source of funding for preservation efforts.

The *Garden State Preservation Trust* is the financing authority that receives $98 million a year through a constitutional dedication for the preservation of parks, natural lands, farmland and historic sites. The Trust is run by a nine-member board that disburses these dedicated funds for use by the NJDEP's Office of Green Acres, the State Agriculture Development Committee's Farmland Preservation Program, and the New Jersey Historic Trust. The GSPT has issued bonds to leverage this dedicated annual sum to provide the maximum funds for a 10-year preservation program from 2000 through 2009. To date the Trust has amassed $2 billion for the land preservation effort, the largest such program in the United States to use public financing. The Trust has only limited funding remaining, and anticipates committing its last funds in 2007. www.state.nj.us/gspt/

New Jersey Department of Environmental Protection Green Acres Program

The Green Acres Program was created in 1961 to meet New Jersey's growing recreation and conservation needs. From 1961 through 1995 New Jersey's voters overwhelmingly approved nine bond issues, earmarking over $1.4 billion for land acquisition and park development. Green Acres provides low interest (2%) loans and grants to municipal and county governments to acquire open space and develop outdoor recreation facilities. Green Acres works with local governments from the time of application through project completion. Green Acres also provides matching grants to nonprofit organizations to acquire land for public recreation and conservation purposes. The Planning Incentive Program provides grant and loan funding to local governments that have enacted an open space tax and have adopted an open space and recreation plan. Over 80,000 acres have been protected and hundreds of recreation development projects throughout the state have been financed through Green Acres' Local and Nonprofit funding program.

Green Acres also administers the Tax Exemption Program which provides exemption from local property taxes to eligible nonprofit organizations that own recreation or conservation lands and permit public use of their private lands. The Tax Exemption Program has protected over 38,000 acres of private lands.

The Green Acres Program serves as the real estate agent for the New Jersey Department of Environmental Protection (NJDEP), acquiring land - much of which has been offered for sale by property owners - that becomes part of the system of state parks, forests, natural areas, and

wildlife management areas. Green Acres works with the NJDEP's divisions of Parks and Forestry, Fish and Wildlife, and the New Jersey Natural Lands Trust to determine which lands should be preserved. Green Acres does not own the land it acquires; instead land is assigned to the divisions for management. Since passage of the Garden State Preservation Trust, nearly all Green Acres acquisitions have involved the use of GPST appropriations. www.nj.gov/dep/greenacres

New Jersey Natural Lands Trust

The New Jersey Natural Lands Trust was created in 1968 by the Legislature as an independent agency with the mission to preserve land in its natural state for enjoyment by the public and to protect natural diversity through the acquisition of open space. The Trust acquires open space primarily by donations of land and easements. The Trust manages its properties to conserve endangered species habitat, rare natural features, and significant ecosystems. The Trust allows passive use by the public for recreational or educational purposes wherever such use will not adversely affect natural communities and biological diversity.

The Trust is established for constitutional purposes "in but not of" the Division of Parks and Forestry in the Department of Environmental Protection (DEP). The powers and duties of the Trust are vested in an eleven-member Board of Trustees. The Board is comprised of six representatives from the private sector and five from State government. Employees of the Office of Natural Lands Management (ONLM) serve as staff to the New Jersey Natural Lands Trust and implement the policy set by the Board. www.njnlt.org

Natural Resource Restoration/Office of Natural Resource Restoration

Natural Resource Restoration is administered by the NJDEP Office of Natural Resource Restoration (ONRR), which was established in the early 1990s to restore the public value of natural resources from environmental injury caused by multiple oil spills and discharges. The authority for addressing injuries to the public's natural resources is derived from the Public Trust Doctrine. This common law provides that public lands, waters and living resources are held in trust by the government for the benefit of its citizens. Restoration is the remedial action that returns the natural resources to pre-discharge conditions. It includes the rehabilitation of injured resources, replacement, or acquisition of natural resources and their services, which were lost or impaired. Restoration also includes compensation for the natural resource services lost from the beginning of the injury through to the full recovery of the resource. It is distinct from the pollution cleanup process itself.

ONRR coordinates restoration activities with a variety of NJDEP programs, such as the Site Remediation Program, Division of Fish & Wildlife, and the Green Acres Program. ONRR also has restoration partnerships with environmental organizations, and solicits input from environmental and local community groups with special resource expertise and knowledge of the restoration area. ONRR brings together the necessary ecological and legal expertise within the state to pursue natural resource restoration. In recent years, settlements and restoration efforts worth millions of dollars have resulted from this process. www.state.nj.us/dep/nrr/

Environmental Infrastructure Financing Program (EIFP)

Open space preservation is essential to protecting and enhancing the quality of life in New Jersey's communities. New roads and large, scattered housing sites create stormwater runoff that carries trash, road salts, oil and other contaminants into our streams and rivers. By some estimates, nearly 60 percent of current water pollution is attributed to stormwater runoff. Preserving open space protects land from development, safeguards our water supplies and other natural resources and provides outdoor recreational opportunities. Any acquisitions financed

must demonstrate a water quality benefit. Headwaters, stream corridors, wetlands, watershed protection, and aquifer recharge areas are among the types of land that would qualify.

The EIFP provides low interest loans (generally one half or one quarter of market interest rates, using a combination of State and market financing) for certain types of land acquisition and is administered by the Environmental Infrastructure Trust (EIT) which is an independent State financing authority. While lands purchased through this program cannot be developed, they may be used for passive recreational activities, such as hiking, fishing and horseback riding. Application of a conservation easement on funded parcels assures that the water quality benefits are preserved. The EIFP works closely with the Green Acres Program to maximize a community's limited funds for land acquisition. Through this partnership, municipalities, counties and water utilities can receive the resources necessary to purchase larger and/or more expensive parcels before they are lost to development. If only a portion of a parcel is eligible for EIT financing, the remaining portion of the land can be financed through open space acquisition programs such as Green Acres or local programs funded by county and municipal open space taxes. This program is relatively new and has primarily been used in northern Hunterdon County for protection of water supply watersheds. Due to significant increases in funding requests through the EIFP for wastewater projects, the FY 2009 program no longer provides the same priority for land acquisition as in prior years. www.njeit.org

Open Space Trust Funds

Two-thirds of the municipalities, 59 out of 88, and all seven counties in the Highlands region have created dedicated sources of funds or trusts to purchase open space for natural and cultural protection, agricultural easements to preserve farmland, and to develop recreation facilities. These funds are all based on dedicated funds from the ad valorem (property) tax as approved by voters. In typical land deals, the local government contribution will leverage dollars from other sources. A detailed discussion of public funding of open space in New Jersey can be found at www.anjec.org/pdfs/PublicFinancingOpenSpace.pdf.

COUNTY OPEN SPACE FUNDING PROGRAMS

HIGHLANDS REGION

County	Year Approved/Increased	Rate - Cents Per $100	Annual Tax Collected
Bergen	1998/2003	1	$15,390,000
Hunterdon	1999	1-3	7,664,000
Morris	1992/1998/2001	up to 5.25	42,572,000
Passaic	1996	1	5,244,000
Somerset	1989/1997	3	18,365,000
Sussex	2000/2005	up to 3.5	6,940,000
Warren	1993/1999/2002	6	7,741,000
		Highlands Region Total	$103,916,000

NJDEP/Green Acres Program, May 2008
SOURCE: 2006 Open Space Tax Data, New Jersey Department of Community Affairs, Division of Local Government Services

COUNTY AND MUNICIPAL OPEN SPACE TRUST FUNDS

COLLECTED IN 2006

Municipality	County	County Open Space Preservation Trust Fund	Local Municipal Open Space
Mahwah Township	**Bergen**	$643,827	$410,545
Oakland Borough	**Bergen**	$260,456	$252,500
Total in County		**$904,283**	**$663,045**
Alexandria Township	**Hunterdon**	$267,924	$313,710
Bethlehem Township	**Hunterdon**	$212,037	$263,531
Bloomsbury Borough	**Hunterdon**	$35,897	$0
Califon Borough	**Hunterdon**	$48,939	$32,605
Clinton Town	**Hunterdon**	$135,887	$0
Clinton Township	**Hunterdon**	$835,491	$1,295,237
Glen Gardner Borough	**Hunterdon**	$62,093	$13,950
Hampton Borough	**Hunterdon**	$45,578	$0
High Bridge Borough	**Hunterdon**	$133,375	$0
Holland Township	**Hunterdon**	$262,990	$0
Lebanon Borough	**Hunterdon**	$106,957	$0
Lebanon Township	**Hunterdon**	$342,718	$299,216
Milford Borough	**Hunterdon**	$51,768	$0
Tewksbury Township	**Hunterdon**	$593,491	$671,535
Union Township	**Hunterdon**	$313,169	$135,039
Total in County		**$3,448,313**	**$3,024,822**
Boonton Town	**Morris**	$597,879	$0
Boonton Township	**Morris**	$509,940	$398,927
Butler Borough	**Morris**	$503,999	$0
Chester Borough	**Morris**	$212,878	$89,770
Chester Township	**Morris**	$1,015,317	$452,125
Denville Township	**Morris**	$1,597,840	$677,415
Dover Town	**Morris**	$756,271	$0
Hanover Township	**Morris**	$1,880,522	$406,291
Harding Township	**Morris**	$1,200,877	$884,391
Jefferson Township	**Morris**	$1,460,525	$323,436
Kinnelon Borough	**Morris**	$1,152,759	$246,104
Mendham Borough	**Morris**	$695,842	$109,594
Mendham Township	**Morris**	$1,017,624	$426,500
Mine Hill Township	**Morris**	$249,293	$26,754
Montville Township	**Morris**	$2,424,067	$1,370,000
Morris Township	**Morris**	$2,672,790	$381,984
Morris Plains Borough	**Morris**	$764,674	$0
Morristown Town	**Morris**	$1,235,888	$0

Mountain Lakes Borough	**Morris**	$660,007	$0
Mount Arlington Borough	**Morris**	$402,638	$0
Mount Olive Township	**Morris**	$1,723,497	$593,569
Netcong Borough	**Morris**	$156,005	$0
Parsippany-Troy Hills Township	**Morris**	$4,420,168	$1,517,656
Pequannock Township	**Morris**	$1,310,855	$280,000
Randolph Township	**Morris**	$2,319,257	$871,426
Riverdale Borough	**Morris**	$389,708	$78,249
Rockaway Borough	**Morris**	$415,735	$0
Rockaway Township	**Morris**	$2,064,112	$290,284
Roxbury Township	**Morris**	$1,805,936	$408,953
Victory Gardens Borough	**Morris**	$47,269	$0
Washington Township	**Morris**	$1,557,991	$344,280
Wharton Borough	**Morris**	$387,630	$69,000
Total in County		**$37,609,792**	**$10,246,709**
Bloomingdale Borough	**Passaic**	$97,241	$126,300
Pompton Lakes Borough	**Passaic**	$145,056	$64,211
Ringwood Borough	**Passaic**	$183,870	$86,732
Wanaque Borough	**Passaic**	$134,885	$56,358
West Milford Township	**Passaic**	$361,626	$151,584
Total in County		**$922,678**	**$485,185**
Bedminster Township	**Somerset**	$803,876	$522,250
Bernards Township	**Somerset**	$2,130,170	$2,858,232
Bernardsville Borough	**Somerset**	$770,018	$535,946
Far Hills Borough	**Somerset**	$136,935	$0
Peapack-Gladstone Borough	**Somerset**	$272,113	$253,983
Total in County		**$4,113,112**	**$4,170,411**
Byram Township	**Sussex**	$404,815	$105,948
Franklin Borough	**Sussex**	$174,539	$0
Green Township	**Sussex**	$188,495	$161,245
Hamburg Borough	**Sussex**	$123,499	$6,264
Hardyston Township	**Sussex**	$438,932	$0
Hopatcong Borough	**Sussex**	$608,046	$0
Ogdensburg Borough	**Sussex**	$81,023	$0
Sparta Township	**Sussex**	$1,226,376	$262,077
Stanhope Borough	**Sussex**	$143,664	$0
Vernon Township	**Sussex**	$1,069,630	$0
Total in County		**$4,459,020**	**$535,534**
Allamuchy Township	**Warren**	$398,224	$104,400
Alpha Borough	**Warren**	$138,491	$82,893

Belvidere Town	**Warren**	$159,251	$0
Franklin Township	**Warren**	$277,457	$267,048
Frelinghuysen Township	**Warren**	$188,470	$54,903
Greenwich Township	**Warren**	$486,373	$237,204
Hackettstown Town	**Warren**	$591,178	$0
Harmony Township	**Warren**	$409,876	$246,272
Hope Township	**Warren**	$171,162	$63,074
Independence Township	**Warren**	$436,843	$0
Liberty Township	**Warren**	$207,089	$53,411
Lopatcong Township	**Warren**	$586,972	$305,539
Mansfield Township	**Warren**	$525,723	$195,886
Oxford Township	**Warren**	$138,748	$0
Phillipsburg Town	**Warren**	$612,781	$0
Pohatcong Township	**Warren**	$276,481	$169,009
Washington Borough	**Warren**	$345,521	$0
Washington Township	**Warren**	$521,387	$138,862
White Township	**Warren**	$450,511	$124,431
Total in County		**$6,922,539**	**$2,042,931**
Highlands Regional Total		**$58,379,737**	**$21,168,638**

The county and local opens space tax information can be viewed by municipality at: www.nj.gov/dca/lgs/taxes/06_data/06taxes.xls

Water Supply Purveyor Programs

The New Jersey Water Supply Authority has established a Source Water Protection Fund as a component of its rate base, and uses the majority of this funding to capitalize its costs of land acquisition through the Environmental Infrastructure Financing Program. Most land purchases are in cooperation with municipalities and counties and also involve the Green Acres program. The North Jersey District Water Supply Commission has also used its rate base as a source of funding for land acquisition, but engages in cash purchases rather than EIFP or other financing. Most land purchases also are cooperative with other funding sources. In addition, other county or municipal utility authorities have been involved in cooperative land purchases using municipal or county open space trust funds and sometimes the utility rate base. www.njwsa.org; www.njdwsc.com

EXISTING CONSERVATION AND STEWARDSHIP PROGRAMS IN THE HIGHLANDS REGION

FEDERAL PROGRAMS

Recreational Trails Program Grants

The federal Recreational Trails Program provides financial assistance to governmental and non-profit agency landowners for developing and maintaining trails and trail facilities. Over $6 million has been awarded to public and non-profit agencies for non-motorized, multi-use and motorized purposes. Projects are funded on an 80% federal share and 20% matching share basis. In 2005, approximately $800,000 was available for projects in New Jersey. At the federal level the program is administered by the Federal Highway Administration. The state program is managed by the NJDEP Office of Natural Lands Management New Jersey Trails Program.

Of the funding available each year, 30% is allocated for non-motorized trail projects, 30% for motorized projects, and 40% for diversified trail projects. Permissible uses and projects include: Maintenance and restoration of existing trails; development and rehabilitation of trailside and trailhead facilities and trail linkages for trails (e.g., parking, signage, shelters, sanitary facilities); purchase and lease of trail construction and maintenance equipment; construction of new trails in existing parks or in new right of way; for motorized use only, acquisition of easement and fee simple title to property for trails. www.state.nj.us/dep/parksandforests/natural/njtrails.html

Partners for Fish and Wildlife

Partners for Fish and Wildlife is a US Fish and Wildlife Service program which, focuses on restoring wetlands, grasslands, and riparian (streamside) areas. Over 150 projects have been completed in NJ since 1991, restoring thousands of acres of wetlands and seeding hundreds of acres to native grasses. Additional information can be found at the Partners for Fish and Wildlife website. www.fws.gov/northeast/partners/.

Private Stewardship Grant Program (PSGP)

The PSGP is a U.S. Fish & Wildlife program that provides grants on a competitive basis, up to 90%, to help individuals and groups engaged in local, private, and voluntary conservation efforts that benefit federally listed, proposed, or candidate species, or other at-risk species. The PSGP is open to a wide variety of projects that will benefit one or more target species, such as managing non-native invasive plant species, restoring streams that support at-risk species or planting native vegetation to restore a rare plant community.

For 2005, the Service awarded more than $5.7 million in federal funding under this Program nationally. A ten percent (10%) match of cash or through in-kind contributions is required. The program is available to private landowners and their partners and is administered by a regional office in Massachusetts. http://www.fws.gov/endangered/grants/section6/index.html

Pension Protection Act of 2006

Signed August 17, 2006, this federal legislation significantly expands the tax incentive for taxpayers to make donations of land and conservation easements to conservation organizations. Specifically, the new legislation:

- Raises the charitable deduction landowners can take for donating land or conservation easements from 30% to 50% of their income in any year;
- Increases the deduction limit to 100% of income if the donor is a farmer or rancher; and
- Allows a donor of land or a conservation easement to carry forward the charitable deduction for up to 15 years.

Currently, the legislation only applies to land and conservation easements donated in 2006 up through 2009. Pension Protection Act of 2006 (H.R. 4, Public Law 109-280)

USDA Forest Stewardship Program

Authorized by the Cooperative Forestry Assistance Act of 1978, the Forest Stewardship Program (FSP) provides technical assistance, through State forestry agency partners, to non-industrial private forest (NIPF) owners to encourage and enable active long-term forest management. A primary focus of the Program is the development of comprehensive, multi-resource management plans that provide landowners with the information they need to manage their forests for a variety of products and services. New Jersey's Forest Stewardship program is coordinated under the direction of the State Forester, the NJ Forest Stewardship Committee maintains a state master plan and meets regularly to oversee and manage all aspects of the program. The committee includes representatives from the following natural resource agencies,

organizations and professionals: The NJ Forest Service; Rutgers Cooperative Extension; USDA Forest Service; USDA Farm Service Agency; USDA Natural Resources Conservation Service; NJ State Soil Conservation Committee; Soil Conservation Districts; NJ Division of Fish, Game and Wildlife; US Fish and Wildlife Service; NJ Audubon Society; NJ Forestry Association; NJ Consulting Foresters; and NJ Tree Farm.

NEW JERSEY STATE PROGRAMS

Garden State Preservation Trust In Lieu of Tax Payment Program

The Garden State Preservation Trust Act provided for increased in lieu of tax payments to municipalities with State and tax exempt nonprofit conservation and recreation lands. The payments are made so that "...municipalities may not suffer a loss of taxes" from state or nonprofit organization acquisition and ownership of lands for conservation and recreation purchases. In part, the program helps remove a disincentive for land acquisition within a municipality. The Green Acres Program is responsible for calculating the payment that each municipality receives under the program. The GSPT program establishes a sliding scale for per acre in lieu of tax payments based on the percentage of a municipality's total land area in State and tax exempt nonprofit conservation and recreation land.

- Municipalities with less than 20% receive $2 per acre for State and permanently preserved nonprofit conservation and recreation land;
- Municipalities with 20% up to 40% open space receive $5 per acre;
- Municipalities with 40% up to 60% open space receive $10 per acre;
- Municipalities with 60% or more open space receive $20 per acre.

In addition, the Green Acres "declining balance" program and the 1969 Water Bond in lieu of tax payment programs were continued. Starting with the 1971 Green Acres Bond Act, the State has been paying in lieu of taxes, on a 13 year declining basis, to municipalities for State park, forest, natural area, wildlife management and other open space purchased with Green Acres funds. Municipalities with land purchased with funds from the 1969 Water Bond issue also receive in lieu of tax payments based on the taxes paid for the year immediately preceding state acquisition. Finally, the 1992 and 1995 Green Acres bond issue provided for State payment of in lieu of taxes for nonprofit conservation and recreation lands purchased with Green Acres funds from those bond issues.

The GSPT program further provided for a comparative review of the payments that a municipality would receive for each property under the Green Acres declining balance and Water Bond programs and what it would receive under the new per acre program. In situations where it would be beneficial to a municipality to receive payments under the new program, the municipality receives the higher payments.

The Garden State Preservation Trust program has effectively replaced the NJDEP Division of Parks and Forestry's $1 per acre in lieu of tax payment program. Municipalities only received payments for state lands administered by the Division of Parks and Forestry. The Division of Fish and Wildlife's 200,000+ acres were not included.

Through the Garden State Preservation Trust program, together with the other continued in lieu programs, 235 municipalities throughout the state received nearly $6.4 million in the fall of 1999, or almost triple the amount the municipalities had received collectively in 1998. www.state.nj.us/gspt/

NJDEP Division of Parks & Forestry, State Forest Service

State Lands Management Program

The responsibility of the State Lands Management Program is to maintain a healthy, biologically diverse ecosystem that will sustain wildlife including threatened and endangered plant and animal species while providing for quality air, water and soil; recreational and educational opportunities; wood products for Division use and local industries; and the protection of historical, aesthetic and cultural values of the forest. The Division of Parks and Forestry is accountable for the stewardship of 326,000 acres and incorporates the best forest stewardship principles derived from a forest management plan developed with public input. http://www.state.nj.us/dep/parksandforests/forest/njfs_state_lands_mgt.html

Private Lands Management Program

The Private Lands Management Program fosters wise stewardship and management on 1.54 million acres of forest lands owned by 88,700 private landowners and the retention of these lands in contiguous and productive forests. This program administers the stewardship, rural forestry assistance, woodland assessment, wetlands and consultant forester projects of the Forest Service. The stewardship and rural forestry assistance projects are designed to provide professional forestry assistance to private landowners utilizing a minimum of public resources by forming partnerships with private consulting foresters. The NJ Forest Service limits its assistance to a single visit for the purposes of motivating landowners to practice forest stewardship, explaining cost share assistance and encouraging private landowners to seek private professional forestry assistance.

The management and stewardship of privately owned forests is encouraged through various NJ Forest Service administrative programs, the Forest Stewardship Program (FSP), the Forest Land Enhancement Program (FLEP) and Forest Resource Management (FRM), which are designed to provide technical and cost share assistance in the preparation and implementation of forest management and stewardship plans.

Other programs for landowners available are the Forest Stewardship Program, the Farmland Assessment Program, the New Jersey Tree Farm Program and the Community Forestry Program. http://www.state.nj.us/dep/parksandforests/forest/njfs_private_lands_mgt.html

The Forest Service State Lands Management Program and the various Private Lands Management Programs are discussed in more details in the NJ Highlands Council Technical Memo, Sustainable Forestry Memo, August 2006.

New Jersey Forest Fire Service

Grant Opportunities:

Federal Excess Personal Property *(FEPP):* The FEPP Program refers to the United States Forest Service owned property that is loaned to State Foresters through a cooperative agreement for the purpose of wildland and rural firefighting.

Volunteer Fire Assistance *(VFA):* The VFA is a United States Forest Service Grant Program administered by all 50 State Forest Fire Protection Agencies to provide funding to organize, train, and equip fire departments in rural areas and rural communities.

Community Wildfire Hazard Mitigation Assistance Program*:* This NJ Forest Fire Service grant program delivers National Fire Plan funding directly to organizations on a local level. http://www.state.nj.us/dep//parksandforests/fire/firesafety.html#grant

Office of Natural Lands Management

The Office of Natural Lands Management (ONLM) in the NJ Department of Environmental Protection administers a group of interrelated land management and planning programs which is committed to the conservation of biodiversity through stewardship, and the enhancement of passive recreational opportunities for the benefit of present and future generations.

Natural Heritage Program: identifies and catalogues the state's most significant biodiversity through a comprehensive statewide inventory of rare plant and animal species and representative ecological community occurrences;

Natural Areas System: protects and manages state-owned lands that support New Jersey's threatened and endangered plants and animals and representative ecosystems. When an area becomes part of the Natural Areas System, the DEP is required to develop and adopt a comprehensive management plan to ensure the continued protection of the ecosystems and species found within the area;

Endangered Plant Species Program: identifies and catalogues New Jersey's endangered plant species and performs research and management of globally rare plant species;

NJ State Trails Program: plans for trails that provide for outdoor recreation and an appreciation of the outdoor, natural and remote areas of New Jersey and administers grants that provide for trail development and restoration, as well as education about the natural and cultural resources found along trails. http://www.njparksandforests.org/natural/index.html

NJ Division of Fish & Wildlife (DFW)

Early successional habitats, particularly grasslands, were once quite common throughout New Jersey. In the early 20th Century, the agricultural landscape began to change. Increased human populations and loss of farmland to natural succession and development contributed to declines in the quantity and quality of New Jersey's grasslands. Today only about 5% of New Jersey's landscape remains in early successional stages. Grassland bird populations that once thrived in our farmland landscapes are now declining.

The NJDEP Division of Fish and Wildlife has partnered with the United States Department of Agriculture's Natural Resources Conservation Service (NRCS), the United States Department of the Interior's Fish and Wildlife Service (USFWS) and non-governmental organizations, including NJ Audubon, to implement a proactive plan of action to conserve and restore wildlife habitat and places a DFW wildlife biologist at NRCS field offices who will help interested landowners obtain assistance for conservation programs on their land. Both technical and financial assistance (cost-sharing) is available to landowners enrolled in the conservation programs. www.state.nj.us/dep/fgw/

US Department of Agriculture's 2008 Farm Bill Programs

These programs include several different programs that target different natural resources in need of protection and were designed to create and protect wildlife habitat at little or minimal cost to the landowner. In addition to restoring and establishing fish and wildlife habitat, the Farm Bill's conservation provisions help reduce soil erosion, safeguard streams and rivers, protect valuable ground water resources and improve air quality - things we all benefit from. Reducing the financial risk associated with drought or flooding is an additional benefit to farmers enrolling portions of properties in the appropriate conservation program. These programs are detailed in the *Sustainable Agriculture Technical Report*, Summary of Existing Funding & Technical Support Programs. These programs include among others:

Wildlife Habitat Incentive Program (WHIP)

Through the Wildlife Habitat Incentives Program (WHIP), USDA Natural Resources Conservation Service (NRCS) provides both technical assistance and cost-share assistance to establish and improve fish and wildlife habitat on non-federal land. WHIP is a voluntary program. Landowners work with NRCS to prepare and implement a wildlife habitat development plan. NRCS can provide up to 75% of the costs of the planned practices to implement habitat improvements. There is no financial limit on WHIP contracts. NRCS has provided up to $30,000 for an individual contract in New Jersey, although most average around $5000. www.nj.nrcs.usda.gov/programs/whip/

Wetland Reserve Program (WRP)

The Wetlands Reserve Program (WRP) is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private lands in an environmentally beneficial and cost-effective manner. The program provides an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture.

WRP participants benefit by:

- Receiving financial and technical assistance in return for restoring and protecting wetland functions and values;
- Seeing a reduction in problems associated with farming potentially difficult areas;
- Having incentives to develop wildlife recreational opportunities on their land. www.nj.nrcs.usda.gov/programs/wrp/.

Conservation Reserve Enhancement Program (CREP)

Under CREP, landowners voluntarily remove cropland along streams, lakes and wetlands from agricultural production and convert the land to native grasses, trees and other vegetation to provide buffers. These conservation buffers slow and absorb runoff, sediment, nutrients, and chemicals from cropland while also creating beneficial wildlife habitat for many species in need. CREP also pays landowners the cost to establish eligible conservation practices, annual rental payments to maintain the practices, and, in most cases, incentive payments to sign up for the program. New Jersey has been approved for participation in this program, with NJDEP and NJ Department of Agriculture providing matching funds. The federal program is administered by the USDA Farm Services Administration, with technical assistance provided to landowners by the NRCS. www.nj.nrcs.usda.gov/programs.

Landowner Incentive Program (LIP*)*

LIP is funded through the US Fish and Wildlife Service and administered by the NJ Division of Fish and Wildlife program. LIP is a relative newcomer to the wildlife habitat conservation scene, with the intent of protecting declining animal populations and their habitat. New Jersey LIP focuses on early successional habitat and land adjacent to permanently protected areas.

The Division of Fish and Wildlife implemented LIP in 2004 and since then has accepted projects protecting over 1,500 acres of grassland habitat, and will restore over 500 acres of that to native warm season grass meadows. Landowners typically engage in a delayed mowing program on their land allowing ground nesting grassland birds to fledge their young. These grassland projects protect over 15 declining wildlife species. In Hunterdon County alone 10 landowners will manage grasslands under LIP. These five-year agreements call for delayed mowing on nearly 800 acres and 200 acres will be seeded to native warm season grasses. www.liberty.state.nj.us/dep/fgw/ensp/lip_program.htm

Green Acres Administration, Bureau of Legal Services and Stewardship

Lands that are acquired or developed with Green Acres funds must be used solely for recreation and conservation purposes. In addition, all lands that a county or municipality holds for recreation and conservation purposes at the time that it accepts Green Acres funds are similarly restricted. No part of the property can be used or conveyed for a non-recreation, non-conservation use unless the use or conveyance would achieve a public purpose, no feasible alternative exists, the lands are replaced with lands of at least equal monetary value and recreation/conservation utility, and the conveyance is approved by the Commissioner of the DEP and the State House Commission.

The Bureau of Legal Services and Stewardship monitors municipal and county sites that were acquired and developed with Green Acres funds and sites that were acquired by nonprofit organizations with Green Acres matching grants. Bureau staff inspects these sites to ensure that they are well maintained and are open and accessible for public recreation and conservation purposes. They also respond to questions and complaints from the public about the operation and maintenance of Green Acres assisted parkland.

The bureau processes all requests to divert Green Acres restricted state, county, municipal and nonprofit parks from recreation and conservation uses. In addition, the Bureau processes donations of land to the state for inclusion in the state's system of parks, forests, wildlife management and natural areas. www.state.nj.us/dep/greenacres/comp.htm

Green Acres Administration, Bureau of Planning & Information Management

The Bureau of Planning & Information Management provides open space and recreation planning guidance and technical assistance for municipal, county, nonprofit, and state open space acquisition and recreation development efforts. The Bureau also provides staff support to the Governor's Council on New Jersey Outdoors.

The Bureau administers the federal LWCF monies for the preservation of open space and development of recreation facilities. The Bureau prepares the State's Open Space and Recreation Plan that guides the expenditure of federal and state funds for land preservation and recreation projects.

The Bureau's Geographic Information Section, in cooperation with other state agencies and nonprofit groups, is compiling geographical information on New Jersey's open space resources for DEP's ArcInfo Geographic Information System, a computerized mapping and data management system, that can assemble, store, and manipulate geographically-referenced information, and can display the results in mapped form. Additionally, the Section provides technical review of land survey plans for municipal, county, nonprofit and state land acquisition projects to be funded by Green Acres. www.state.nj.us/dep/greenacres/plan.htm

INNOVATIVE TOOLS AND FUNDING OPTIONS

Public and private investment in land preservation over the years has protected nearly a third of the Highlands Region as perpetual open space and farmland, approximately 273,457 acres. Maintaining the land in a natural condition is necessary to preserve ecosystem integrity and to protect drinking water supplies. Maintaining a land base for agriculture is a prerequisite for agricultural sustainability in the region. The Highlands Act contemplates preservation of additional open space and agricultural resources in order to protect and enhance ecosystem function, protect drinking water resources, sustain the agricultural industry, and preserve natural and recreational lands.

Traditionally, open space has been preserved in the Highlands Region by fee or easement acquisitions through the NJDEP Green Acres Program and the State Agriculture Development Committee Farmland Preservation Program. In an acknowledgement of the necessity for a dedicated source of funding for the preservation of open lands in the Highlands Region, the Final Draft Regional Master Plan supports the re-authorization of the Garden State Preservation Trust Fund, capitalization of the Highlands Development Credit Bank and a surcharge on public water supply system rates. Implementation of these sources of funding will create more revenue for preservation but more methods and programs for preservation are also needed. While the Highlands Act and the RMP anticipate that the proposed Highlands Transfer of Development Rights and Cluster Programs will also be vehicles for land preservation, the Highlands Council will need to examine new, innovative, and alternative methods of land preservation.

The purpose of this section is to outline innovative tools for the protection and preservation of open space and agricultural resources in the Highlands Region. The *Land Preservation and Stewardship Technical Report* identifies 10 federal,State, county, municipal, and nonprofit land preservation funding programs. All of the tools outlined below would be in addition to the existing programs in New Jersey outlined in this Technical Report. The focus is on new tools, rather than on new funding sources or the existing tools. There are a myriad of potential funding sources for fee simple and easement acquisition, some reasonable and some not, but the expectation is that the programs discussed above will be the primary sources for the preservation programs.

The following is a brief summary of a broad range of options and programs developed by other States to create incentives for landowners to keep their lands in agriculture, forests, or a natural condition voluntarily. They are not presented in any order of feasibility.

CONSERVATION TAX CREDITS

A Conservation Tax Credit is an income tax credit available to landowners who voluntarily preserve their land through the donation of a conservation easement and/or fee title. The donation must protect conservation values as defined by individual states and must be made to an entity qualified to hold such property interest by the terms of the legislation creating the credit. Typically, this includes state and local governments and 501(c)(3) land conservation organizations. Whether stated explicitly or not, Internal Revenue Code (IRC) §170(h), pertaining to federal tax deductions, is often the starting point for setting eligibility guidelines for a program. Most states also add their own layer of requirements to those required by Internal Revenue Service (IRS) guidelines for federal deductibility.

Conservation Tax Credits were developed to complement existing state and federal incentive structures for land conservation. Depending on their value, Conservation Tax Credits can provide greater and more direct financial benefits to landowners than those provided by federal tax deductions. State Conservation Credits, as distinguished from federal deductions, are dollar-for-dollar write-offs of state income taxes. It should be noted that the land value for federal tax purposes is based on its current condition and regulatory constraints, not on its value without implementation of the Highlands Act or other regulations. Prior to recommending this tool, research should be done to determine the base value used in other state tax credit programs.

However, as with federal deductions, landowners with little or no taxable income derive less benefit from tax credits than do wealthier landowners with higher taxable incomes. To partially address this inequity, nearly all Conservation Tax Credit programs allow credits to be carried forward so that the credit may be applied to reduce taxes over a number of years. While this can help, many times landowners still cannot realize the full benefit of their credit. To further

address this issue, several states have made their credits transferable or refundable.

Twelve states (California, Colorado, Connecticut, Delaware, Georgia, Maryland, Mississippi, New Mexico, New York, North Carolina, South Carolina, and Virginia) and Puerto Rico currently offer state Conservation Credits to landowners who donate lands for conservation.

www.taxcreditexchange.com/documents/StateConservationTaxCreditsImpactAnalysis.pdf

INSTALLMENT PURCHASE OPTIONS/AGREEMENTS (IPA)

An IPA is an innovative payment plan offered by a handful of jurisdictions with easement programs. By using IPAs, local governments can leverage preservation funding while lands are still available and offer landowners financial advantages that developers cannot duplicate. At settlement, the landowner grants the jurisdiction a permanent agricultural conservation easement in exchange for an IPA. IPAs spread out payments so that landowners receive semi-annual, tax exempt interest over a term of years (typically 20 to 30). The principal is due at the end of the contract term. Jurisdictions can purchase zero-coupon U.S. Treasury bonds to cover the final balloon payments. "Zeroes" do not generate regular interest income. Instead, they yield a lump sum when the bond matures. Because zero coupon bonds cost a fraction of their face value, the public entity leverages available funds. Landowners also can sell or securitize IPA contracts at any point to realize the outstanding principal.

The advantages of an IPA program to the landowner are:

- Tax-exempt interest semiannually for up to 30 years on the full value of their sale. They pay no federal or state income taxes on such interest;
- Deferral of taxes on capital gains—landowners entering into IPAs may defer recognition of capital gains until they actually receive the principal amounts of such purchases;
- Better estate planning—by deferring recognition of capital gains indefinitely, selling landowners create the opportunity for IPAs to pass to their estates, where federal estate taxes paid may reduce or eliminate any capital gains taxes that would ultimately be due by the heirs;
- Charitable deduction—landowners can realize deductions that are equal to the difference between the appraised value of the lands or easements sold and the prices the government entity pays.

The advantages of an IPA program to a jurisdiction are:

- Leverage-- by making interest payments over 30 years, the government entity could pay for preservation over the period during which their citizens enjoy the open space, thus pushing conservation costs well into the future. Once land is developed it is lost to conservation forever. Therefore, acting immediately is essential, and an IPA program would allow a jurisdiction to protect significant amounts of land, spreading the costs over a number of years;
- Discount Purchases--It is almost always cheaper to act now than it will be to act later. And, because of the value of benefits offered over a 30-year period, selling landowners may be willing to sell their lands or easements at discounted prices from appraised value. By implementing IPA programs now and thereby locking in to a financial agreement with landowners, a community will be saving money. Land values will only increase over time, thereby increasing the costs for protection;
- Return on Investment--IPAs are an excellent way for communities to increase return on investment. By pushing implementation costs into the future, and at the same time realizing costs savings by acting immediately, the return on investment is increased.
- Howard County, Md., Harford County, Md., Burlington County, N.J. and Virginia Beach, Va. have developed IPA programs to stretch public funds for farmland protection.

http://www.efc.umd.edu/pdf/TalbotReport.pdf.
www.farmlandinfo.org/documents/27752/tafs-ipa.pdf

PROPERTY TAX FORGIVENESS

A state forgives 100% of property taxes for land kept in agriculture, working forests, or wild lands. So that the municipality does not suffer the decrease in property taxes, the state pays the municipality the amount the landowner would have paid to the municipality in taxes; however, the state also places a lien against the property for the value of the forgiven taxes annually. If the landowner then converts the property to in impermissible use or sells it, the State collects the lien, i.e., the back taxes, or can use the lien as a down payment on purchasing the remaining value of the land in fee simple or easement.

New York State provides farm families with significant state personal income tax and business tax credit for school property taxes paid on farmland and buildings. The tax credit will exempt the first 250 acres of farmland from school property taxes and provide a tax credit up to 100% of the annual cost of their school property tax.

Another approach that can be taken is, instead of further reducing farm assessments, reducing or eliminating property taxes on agricultural structures.

NEXT GENERATION FARMLAND ACQUISITION PROGRAM (NGFAP)

The NGFAP is an innovative program ready to be offered by the Maryland Agriculture and Resource Based Industry Development Corp. (MARBIDCO), working in collaboration with the Maryland Agricultural Land Preservation Foundation (MALPF), the counties, and commercial lenders, to help young or beginning farmers to purchase quality rural working land and permanently preserve this land at the same time. The key advantage with the NGFAP for the young farmer trying to purchase farmland, is the timeliness in getting the external financial assistance. MARBIDCO believes that a 45- to 60-day turnaround is potentially achievable under the NGFAP, whereas participation in a MALPF land easement purchase program can take 2 to 5 years to complete from start to finish. An additional advantage of the NGFAP is that it would help to permanently preserve considerable agricultural land from future development, thus providing significant open space and water/air quality benefits.

Under the NGFAP, commercial lenders would be responsible for qualifying young or beginning farmers for initial eligibility. A commercial lender would review the credit history, equity position, work experience and proposed business plan of a beginning farmer seeking to acquire property for agricultural production, and the lender would decide whether to make a tentative mortgage loan commitment and bring forward a NGFAP application to MARBIDCO to make up the borrower's equity shortfall. With the lender's tentative agreement to finance a portion of the farm property purchase, MARBIDCO, after conducting its own review, would then purchase an easement option for the development rights at 70% of fair market value, with those monies being made available to the young/beginning farmer at the land purchase settlement table.

Because MALPF will serve as the "default easement holder" for the NGFAP, the properties on which MARBIDCO is purchasing easement options must be "MALPF eligible", meaning that the properties must meet the minimum size, location, and soil standards established by MALPF. The parcel of farmland being purchased for permanent agricultural conservation must also receive approval of the respective county government.

The easement seller (i.e., the young farmer who sold MARBIDCO the easement option) would then have three years to sell the easement to a Maryland land conservation program of his/her

choosing (e.g., MALPF, Rural Legacy, a county program or a land trust), presumably with the goal of getting a higher return on the sale of the land conservation easement. If, after three years, a permanent easement sale for the property has not been executed, MARBIDCO would then exercise its easement purchase option and convey that easement to MALPF to hold permanently. If the participating young farmer is able to sell an easement, then the monies MARBIDCO provided at settlement would be returned in full, and would go back into the Next Generation Program to be used in making future easement option purchases. The program is not yet funded, but a funding source has been proposed in legislation pending in the Maryland General Assembly. http://www.marbidco.org/land/nextgen.html.

STATEWIDE OR REGIONAL LOCAL LAND TRUST/FEE SIMPLE

The state, counties, municipalities, and non-government organizations (NGOs) purchase land outright through direct or fee simple acquisition. Fee simple acquisition compensates landowners completely and allows the government or NGOs to assume total control over the land. However, fee simple can be a very expensive approach and when maintained by the government, the land is removed from the tax roll. Additionally, future administrations may sell the land to entities or individuals whose primary interests are not maintaining and enhancing natural resources.

Several states have statewide or regional land trusts that are incorporated as non-profit tax exempt organizations under section 501(c)(3) of the Internal Revenue Service. Maryland has a statewide local land trust, created by the General Assembly in 1967, which is governed by a citizen board of trustees. The Maryland Environmental Trust (MET) works with over forty private non-profit land trusts to hold conservation easements jointly with MET or independently. As of 2007 MET has preserved over 900 properties totaling more than 115,000 acres of land. The Northern California Regional Land Trust (NCRLT) negotiates conservation easements and facilitates land exchanges and land acquisitions with private landowners, public agencies, and non-profit organizations. Founded in 1990, the NCRLT covers a 5,000 square mile region and currently holds conservation easements on 5,800 acres of land.

TERM CONSERVATION EASEMENTS

Most easements run in perpetuity with the land, but term conservation easements are a voluntary technique that preserves land for a set period of time, such as twenty or thirty years. This concept is similar to the New Jersey Department of Agriculture (NJDA) State Agriculture Development Committee (SADC) 8-year easement program. A government or non-profit entity would pay the landowner a rental fee in exchange for prohibiting activities associated with non-agricultural development on the land for an extended period of time. Landowners wary of long-term commitments may entertain the idea of a term conservation lease. The term lease should be less expensive per year and for the set period of time than Purchase of Development Rights (PDR) programs since there is no permanent commitment. The term conservation easement allows temporary preservation of critical areas at a lower cost when there is insufficient funding for preservation in perpetuity.

Several states allow term conservation easements, but state PDR programs greatly exceed the use of term conservation easements. Prior to recommending this tool, research should be done to determine the success of other programs. Vermont has done an evaluation of their program. The Vermont Land Trust (VLT) found that the cost of term easements in the long run is far greater, and the easements save relatively little money at the front end. In addition, term conservation easements do not qualify for federal income and estate tax deductions, so landowners donating conservation easements would not be able to take advantage of IRS

deductions. Term conservation easements may also require higher levels of monitoring and enforcement. As development pressures accelerate and funding becomes tighter due to budget constraints, this may be a tool that could provide temporary relief for critical areas.

CURRENT USE PROGRAM

In New Hampshire, the current use program is a form of preferential taxation used to encourage private landowners to keep medium and large parcels of land in their traditional use, preserving open space and the rural character of the state. Land enrolled in current use is assessed at a rate consistent with its traditional and current use (agricultural and forestry, for example), not at the economically "highest and best use" which is often for development. The goal of this law is to allow property owners to maintain their land without being taxed at rates that force changes in land use.

For land to qualify for current use in New Hampshire, it must be a tract of land or a combination of contiguous qualifying tracts at least ten acres in size that is used for agriculture, forestry, or wild land. Some smaller parcels may qualify for enrollment if there is at least $2,500 of agricultural activity on them in four of the five previous years. While a parcel is enrolled in current use, it is taxed at its traditional use value, which can result in significant tax savings to the landowner.

When land is removed from current use, it is subject to a land use change tax equal to 10% of the full and true value of the land. The purpose of this tax is to allow the municipality to recapture some of the money it would have collected if the land had not been enrolled in current use. Current use provides only temporary conservation of open space, and preferential tax treatment may not be enough to ultimately deter development. However, it may be useful in areas with stringent development controls, such as the Preservation Area, where development deterrence is not the major issue. http://extension.unh.edu/forestry/Docs/nrgn1004.pdf

In 1978 the Vermont legislature passed the Use Value Appraisal (Current Use) law. The purpose of the law was to allow the valuation and taxation of farm and forest land based on its remaining in agricultural or forest use instead of its value in the market place. The primary objectives of the program were to keep Vermont's agricultural and forest land in production, help slow the development of these lands, and achieve greater equity in property taxation on undeveloped land. Participation in the program has grown as it has evolved. The two most significant changes have been the inclusion of conservation land owned by qualifying nonprofit organizations and the exemption from all property taxes of eligible farm buildings. When an application is approved and recorded in the municipal land records a lien is established on the enrolled land to recover a land use change tax should all or any portion of the enrolled land become developed. If property enrolled in the program is ever developed, the owner will be liable for a land use change tax on the portion of the property that is developed. Development means the construction of any dwelling, camp, mobile home or other buildings not directly used for farming or forestry purposes, or the commencement of commercial mining, excavation, landfill activities or fee hunting or fishing on land enrolled in the program, or the subdivision of enrolled property into parcels less than 25 acres in size. The amount of the tax is twenty percent of the fair market value of the developed proportion of the land, calculated at the time the land ceased receiving use value appraisal. The tax will only be ten percent for the proportion of developed land that was enrolled for more than ten years. Land may be voluntarily withdrawn from use value appraisal at any time by the owner, or it may become ineligible through some other action of the owner. The land will then return to fair market value appraisal, but the land use change tax would not be due unless and until the land is developed, or the owner wishes to discharge the lien to clear the title. http://www.state.vt.us/tax/pvrcurrentuse.shtml

LAND PRESERVATION TONTINE

A land preservation tontine is an incentive based tool, which uses a contract to provide incentives for owners to maintain agricultural uses through claims to conversions funds. Landowners lose the right to contract claims if they convert their land to non-agricultural development. Penalties would be distributed among the owners who retain their land in agricultural use. The contract is between landowners and not an interaction between the government and the landowner, but the government would administer the program. As the pool of landowners shrinks the landowners who remain receive a higher payout. Even though the landowner has the right to convert, the conversion decision of one landowner affects the viability of the neighboring landowner's operation.

The tontine is designed to maintain critical contiguous masses of agricultural land and avoid the fragmentation of the agricultural landscape. Maintaining contiguous masses of agricultural land prevents conflicts with non-farm neighbors. The challenges of this program lie in explaining the concept, attracting willing participants, and preventing abuse. One option is to eliminate the government in the tontine scenario and model the concept similar to a cooperative. There is limited information to indicate this technique is being used or considered by other states.

AGRICULTURAL CONSERVATION PENSION

The equity of the owner's land is considered their retirement fund. Agricultural conservation pension is an alternative way to finance retirement in exchange for an easement. Under the pension program retirement income would be guaranteed to farmers who attach an easement to their land and continue farming the land. The land could also be acquired in fee simple and leased back to a farmer. The landowner would decide when payments begin, how long the payments will continue, and what rights would be entitled to survivors. Value would be set at closing and the local government would be responsible for incremental payments to the owner before retirement.

The advantage to the conservation pension is a guaranteed income to the landowner that allows flexibility in retirement; avoidance of a large, one-time and taxable capital gain; and managing of savings prior to retirement. The pension might also be higher than the expected return of selling the land outright. State governments are better positioned to protect owners against the risk of cyclical savings, because the risk would be pooled over the farming population. The pension could be tied to the owner or the land, but the easement restriction would be permanent. The program could also be designed as a reverse mortgage by converting the value of the conservation easement into cash to live on during retirement. A percentage of the land value each year would be extracted to finance living expenses. The government would ensure payments continue for the life of the owner.

MANDATORY SOURCE WATER PROTECTION PROGRAMS

A major justification for protection of the Highlands Region is the protection of source waters for public community water supplies both within and outside of the Region. However, water purveyors are not required to participate in or contribute to such source water protection efforts, and their activities in this area range from extensive (e.g., the Pequannock Watershed where Newark has very extensive holdings) to minimal. By requiring that water purveyors develop and implement source water protection plans for their water supply sources, with an objective of achieving a specific level of protection over a lengthy period, a new revenue source and implementation entity could be drawn into both land preservation and the reduction of pollutant sources. Because the water purveyors lack regulatory controls over lands they do not own (as

differentiated from the powers of New York State municipal utilities, overseen by the State Department of Health), all actions by the water purveyors would be on a partnership basis or involve willing sellers. Water purveyors with existing protection programs would require fewer expenditures than those with minimal protections in place, which inserts a level of fairness into the program. By making the water purveyors directly responsible for aspects of their own protection (supplemented by State laws and regulatory programs, such as NJDEP rules and the Highlands RMP), protection efforts will be focused on those actions achieving the highest level of protection for the cost.

FARM TRANSFER AND ESTATE PLANNING

Estate planning can lay a framework for a smooth transition of farm ownership and management. It can provide or the needs of all family members, even those who leave the operation and can help reduce high inheritance taxes on land made more valuable by inflation and non-farm development pressure. Proper estate planning can also address the settlement problems that arise because land is not a liquid asset. A good estate plan should accomplish at least four goals:

· Transfer ownership and management of the agricultural operation, land and other assets;
· Avoid unnecessary transfer taxes (income, gift and estate) thus avoiding the possible sale of a farm for non-farm development;
· Ensure financial security and peace of mind for all generations;
· Develop the next generation's management capacity.
http://www.farmlandinfo.org/documents/27981/Estate_Planning_1.04.pdf

FARM LINK

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. The program's 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. Farm owners and farm seekers interested in using this service should complete one of the two forms below.

The Farm Link Program provides support for all farmers, both new and established. The program's resources, including its linking service, are particularly useful for the following groups:

- New farmers looking for land and opportunities to gain experience and get started
- Established farmers looking for land to expand
- Farmers and landowners looking to lease, sell or make some land available for farming
- Retiring farmers who would like to ensure their land stays in agricultural production but have no family members who want to continue to farm
- Farmers looking to fill farm manager or apprenticeship positions, or to mentor a new farmer
- Nonprofit organizations, municipalities and counties looking for farmers for farmland they have bought and preserved
- Farmers working on intergenerational farm transfers
  http://nj.gov/agriculture/sadc/farmlink/

LONG-TERM LEASES

Long-term leases of State-owned farmland could be made at favorable rates in order to create farming opportunities to young farmers. While this would lead to further preservation of farmland, it would provide for active stewardship of the land.

ECOSYSTEM SERVICE MARKETS/CARBON TRADING

While the United States continues to debate the best approach for tackling climate change, the voluntary carbon trading market is alive and well. Farmers and ranchers are getting a piece of the carbon trading pie, with more than one million acres of U.S. cropland storing carbon in the soil using practices including no-till farming and planting grasses and trees. Agriculture has a significant role to play in helping reach our climate change goals, whether through offsetting carbon, growing biofuels, or generating alternative energy such as wind or solar power. The American Farmland Trust's (AFT) Center for Agriculture in the Environment is working with farmers and ranchers_throughout the country to host a series of listening sessions to learn just what is working "in the field."

Washington State passed an AFT supported bill that will result in new ecosystem services markets for farm and forest landowners while also potentially improving the performance of existing environmental mitigation and restoration programs.

After passing unanimously SB 6805 was signed into law on March 25th, 2008. It will contract a study of private farm and forest-based conservation markets and then support a pilot project to prove their feasibility. Ecosystem services markets issues addressed by the feasibility study will include:

- Identification and evaluation of successful models from other communities
- Determination of potential interest by farm and forest landowners in participating as environmental service suppliers
- Assessing the services farm and forest suppliers could potentially produce
- Identifying opportunities for using a farm and forest ecosystems services market to contribute to agricultural viability
- Forecasting potential demand and market activity for farm and forest ecosystem services
- Consulting with regulatory agencies (federal, state, local, tribal) to determine willingness to help and potentially undertake any needed regulatory changes

http://www.farmland.org/programs/states/WA/ConservationMarketsBillPasses.asp

LAND STEWARDSHIP IN THE HIGHLANDS

INTRODUCTION

The Highlands Region is a mix of private and public ownership; each with a range of objectives, interests, and concerns. These differing concerns create considerable challenges and opportunities to conserve and protect critical environmental resources.

For instance, an increasing percentage of the Highlands will probably be owned and managed by more people, which will further parcelize existing properties and fragment existing forest cover. When tract sizes are reduced at some point resource management becomes economically prohibitive. For farmland, ownership patterns are similar. Additionally, with an increase of residential development adjacent to agricultural lands, farming activities become increasingly difficult as new neighbors complain about the smells and sounds of an operating farm.

Yet another problem is that landowners have little or no incentive to provide public benefits, such as clean water and wildlife and fish habitat. Even some tax laws and local ordinances serve as a disincentive for continued stewardship or even continued ownership of large contiguous blocks of land. For example, while many municipalities have increased the minimum lot size for residential housing, these local ordinances actually encourage land subdivision and fragmentation of large tracts of land.

Many of the same concerns, challenges, and constraints associated with multiple owners of private land occur with public land. Many public entities are involved, with diverse management objectives, different levels of funding for management and maintenance, and a mix of missions and authorities that may have competing objectives.

For example, there are currently no forest management plans completed on state-owned forested lands within the Highlands Region (conversation with NJ Forest Service June 2006). Active stewardship does not occur on these lands with the exception of small parcels managed by the Division of Fish and Wildlife for early successional habitats which use clearcuts occurring at 5 years intervals over a patchwork of the landscape. The only known example in the Highlands is Berkshire Valley Wildlife Management Area in Jefferson where 25 acres were clearcut in 10 blocks (a 2.5 acre average). These cuts removed 192 thousand board feet. (A board foot is equivalent to a 12" X 12" board 1" thick). It should be noted that forest management planning does not require timber harvesting but rather an inventory of existing forests and active management areas to improve forest health, wildlife habitat, water quality protection, and removal of invasive species based on the land holding entities goals for the property. Funding for developing forest management plans in the Highlands Region is currently available though the NJ Forest Service. Forest management planning criteria can be found in Appendix C.

With the enactment of the Highlands Act a regional coordinated approach towards land preservation and stewardship is on the horizon. However, even with a consistent regional view of environmental issues, there are insufficient financial and technical resources available to State agencies and private landowners to manage lands and pursue all conservations strategies. As a result, one way to meet these challenges is through a partnership approach that involves federal, State, and local governments, nongovernmental organizations, and individual citizens.

STEWARDSHIP GOALS

The 1992 NY – NJ Highlands Regional Study report set out the following goals that are considered vital for the long-term stewardship of the Highlands:

- Manage future growth that is compatible with the region's ecological constraints;
- Maintain an adequate surface and ground water supply that meets the needs of local and downstream users;
- Conserve contiguous forests using management practices that are consistent with private property rights and regional resources;
- Provide appropriate recreational opportunities; and
- Promote economic prosperity that is compatible with above goals;
- And all levels of government, landowners, businesses, citizens, and conservation organizations must be involved to ensure the goals are achieved.

STEWARDSHIP AND CONSERVATION STRATEGIES

The NY – NJ Highlands Regional Study: 2002 Update also offered the following strategies with the understanding that conservation of the rich and valuable landscape will be accomplished only through a broad partnership that brings together complementary strengths, information, and

resources.

- Acquire easements and land for conservation purposes or create incentives for private landowners and local government to conserve natural resources. See "Existing Funding Programs for Acquisition of Open Space in the Highlands Region" in this Technical Report.
- Educate landowners and residents about Highlands Region resources and their values in order to build a basis for protection and management.
- Provide consistent and updated information on Highlands resources for decision makers.
- Promote stewardship in private lands. The majority of land in the Highlands is privately owned, and will probably continue to be so in the future. Incentives and technical assistance can help landowners ensure that forest and farmland continue to provide essential ecosystem benefits.
- Provide current and new information on management issues and practices on public and private lands. The availability of science based resource management techniques and the dissemination of that knowledge to land managers and landowners is critical.
- Improve, encourage and coordinate conservation efforts.
- Use indicators to measure and monitor Highlands Region resource change. Indicators can enable people to track changes in the environment and inform decision makers on the impacts and results of actions implemented.

LAND STEWARDSHIP PRIORITIES

The parcelization of the landscape highlights the importance of those unfragmented, high value areas, including forests that remain in the Highlands Region. Another means of identifying conservation priorities is to highlight those areas with the highest probability of change in the future and correlate those areas with the results of the RMP and its land use capability map. In addition, conservation opportunities need to include concerted complementary action throughout the Region such as creating and maintaining forested riparian buffers throughout the varied landscape of the Highlands Region - farmland, forests, and developed areas. The stewardship capability of all landowners will determine the amount and condition of natural resources found in the Highlands. Landowners' awareness, commitment, and ability to protect and manage resources are critical to sustaining the derived ecosystem benefits.

FINDINGS AND APPROACHES

Land preservation and stewardship, which includes restoration, will rely on many of the following factors:

STABLE AND ADEQUATE LAND ACQUISITION FUNDING ASSISTANCE

Federal - Competition for federal funds will be expected to increase from areas in New Jersey outside of the Highlands Region. Continued resistance by many in the U.S. Congress for federal land acquisition has hampered funding for the Land Water and Conservation Fund, and is hindering appropriation of funds for the Highlands Conservation Act.

State – The Garden State Preservation Trust Fund (Trust), by far, provides the bulk of funding used to preserve land in the State of New Jersey. The Trust is currently funded from a quarter of a cent on the New Jersey sales tax. The proceeds are bonded to provide about $150 million per year. The Trust was created to provide a stable source of funding for land acquisition and recreation development. However, the upcoming expiration of the Trust funding in 2009 will halt much open space and farmland preservation activity. A replacement resource is required.

Specifically with regard the Trust and the special needs of the Highlands Region:

- An appropriate portion of the capital funds from the Trust needs to be specifically dedicated

for the Highlands Region. The Highlands Act's mandate for a "strong and significant commitment by the State" must be a central issue in the recapitalization of the Trust. As a source of drinking water for much of New Jersey, funds for the protection and conservation of the Highlands Region should be a priority for Trust funding decisions.

- During this initial period, a Highlands Development Credit (HDC) Bank will need the ability to acquire HDCs from willing property owners, to both stimulate a supply and demand for HDCs, and assure the market that HDCs have value. Accordingly, it is anticipated that initial capital funds will be necessary to ensure an effective Highlands TDR program. Therefore the Trust should create and capitalize a reserve fund pursuant to N.J.S.A. 13:8C-11 in order to provide for the capital needs of the HDCBank.
- Moreover the dual appraisal method in the Garden State Preservation Trust Act (Trust Act) under the SADC and NJDEP Green Acres preservation programs should be extended beyond June 30, 2009. Under N.J.S.A. 13:8C-38.j, appraisals are calculated using two values, one as of January 1, 2004 and the other as of the date of the acquisition, based on zoning and regulations in effect on those appraisal dates. The higher of these two appraisal values is utilized as the basis for negotiation. However, by the terms of the Trust Act, this appraisal methodology expires on June 30, 2009. This method of determining an appraisal is an important tool for land preservation in the Highlands Region and should be extended past June 30, 2009 in order to allow Highlands landowners to participate in the preservation process.
- The Trust's partnering agencies each have specific targets for preservation as outlined in the Trust Act. The Green Acres Program secures lands for recreation and conservation purposes, the State Agriculture Development Committee's (SADC) Farmland Preservation Program acquires the development rights on privately owned farmland, and Historic Trust's Historic Preservation provides matching grants to save important historic buildings. Consequently, the existing programs do not capture many of the important resources in the Highlands Region and steps need to be taken to fill these gaps. For example, the SADC preserves farmland through the purchase of development easements. One criterion for prioritizing farmland is the percentage of land in crop production. As a result, a farm that is heavily forested may not be considered a priority for preservation by the SADC. Additionally, lots that are entirely forested with woodland management plans and are farmland assessed are not considered farms for purposes of SADC preservation. The Green Acres Program is primarily based upon the purchasing of property in fee rather than be easement. As a result, there is a need to create an adequate method to preserve forested lands through easements to allow them to remain in private ownership and properly maintained through woodland management. Given the fact that the Highlands Region is over 50% forested and maintaining forest land is important to protecting water quality, a program specifically for purchasing forest easements should be made available. In order to carry out the mandates of the Highlands Act, it is crucial to examine the capital needs and scope of the Trust as it relates to the Highlands Region.

Additionally, other stable sources of funding must be explored such as the imposition of a water user fee. The relationship between preserved land and clean drinking water must be conclusive, shared with the public, and conveyed in business terms, such as a comparison of the cost of investing in land with savings in water quality treatment activity. In Resolution 2006-22, the Highlands Council supported efforts to create a statutory funding mechanism for water quality and watershed land acquisitions which included a water consumption fee.

Source water protection should also be an overarching goal of water purveyors in the Highlands Region and water rate schedules should be increased to foster a purveyor's ability to acquire critical watershed properties, as has been done by the New Jersey Water Supply Authority for its Spruce Run Initiative and the Raritan Basin Watershed Management Project. In Resolution

2005-18, the Highlands Council expressed its support for a dedicated, directed and stable source of land acquisition and stewardship funding and directed its Land Conservation Committee and staff to examine the feasibility of a Highlands source water protection fee.

Alternate sources of funding must also be developed for preservation in the Highlands Region. For instance the U.S. Attorney's Office for the District of New Jersey recently awarded $1.65 million to an environmental foundation for on-the-ground conservation projects in New Jersey. The money resulted from court-imposed payments levied against companies convicted of purposeful pollution violations and in order to accommodate the use of these funds for acquisition and stewardship a Highlands Water Protection and Planning Trust Fund needs to be established.

And while not a stable source of funding, Section 37 of the Act states that all penalties collected under that section will be used, as determined by the Council, by the NJDEP for the acquisition of lands in the Preservation Area or by any development transfer bank used or established by the Council to purchase development potential in the Preservation Area.

Local - As local property taxes continue to increase with the growing cost of supplying community services, pressures to divert funds accumulated in local open space trust funds will continue and could have an impact on the amount of funding available for acquisition in the future. The squeeze on property tax increases makes local open space tax collection vulnerable, and may also provide incentive for moving money from acquisition to parks maintenance.

A comprehensive list of existing funding for land preservation and stewardship is provided in "Existing funding Programs for Acquisition of Open Space Lands in the Highlands Region" and "Existing Conservation and Stewardship Programs in the Highlands Region" in this Technical Report.

COORDINATION AND COOPERATION AMONG STATE AGIENCIES AND OTHER FUNDING SOURCES

The scope and intent funding entities must account for the goals and needs of the Highlands Region. Incentives will also be needed to motivate funding agencies to cooperate with the Highlands Council. There may be resistance by other funding sources to broaden the scope and intent of their funds. The challenge is to show how their support in the Highlands will help them achieve their objectives. Additionally, funding sources will need to coordinate on regional preservation projects. The Council should provide assistance to land acquisition efforts of other public and private organizations in order to maximize the number and quantity of acres which are permanently preserved. Since most significant water resources tend to be regional in nature (rivers, aquifers, recharge areas, contiguous forests), the need to encourage partnerships to protect these regional resources is also critical.

COMPREHENSIVE MAPPING AND UNIFORM DATA COLLECTION OF PRESERVED LANDS

The amount and ownership of permanently protected land is underreported. Municipalities submit a list of municipally owned park and recreation areas, including easements, on a Recreation and Open Space Inventory (ROSI) as part of a grant application to Green Acres. The ROSI represents a contract between the State Green Acres Program and any municipal recipient of Green Acres grant funds. An updated ROSI is required every time a municipality receives a Green Acres grant. However, if a municipality has not requested any Green Acres grants since the early 1990s or if the community has never accepted any State Green Acres funding, the municipality's preserved land will not be reflected on the map.

Land preserved by nonprofit land trusts is also underreported. Since the early 1990s, the information has not been routinely collected, thus creating a potential under-representation of more recent nonprofit activity, such as private donations of land or easements. Privately owned recreation and open space lands are also underrepresented. Examples include youth camps, hunting clubs and other recreation land owned by private groups. As a result, a uniform database used by the Green Acres Program, the SADC and the Trust, would supply needed information to track preserved lands. These three groups frequently partner with nonprofit and other funding sources and could capture the vast majority of land transactions for open space conservation. A database that records land preserved in the Highlands Region will help assess the progress made toward reaching the goals of the Act and stewardship efforts.

HIGHLANDS CONSERVATION PRIORITY AREAS INDICATORS

In addition to inventorying existing recreation and open space properties, the Highlands Council seeks to identify additional lands in the Region that should be protected in order to preserve their ecological and water supply value By using a prioritization tool, the following objectives can be addressed as part of the overall land preservation strategy for the Highlands Region: 1) identification of parcels of land that are appropriate for protection or management due to their significant resource value; 2) identification of the portion of a parcel which contains significant resource value and should be preserved; 3) identification of the remainder of the parcel that may be appropriate for some level of development and therefore can remain in private ownership; and 4) identification of resources in need of protection on a particular parcel such that they can be readily identified and protected under either public or private ownership. To determine these priority areas for land preservation, the Highlands Council used the results of the Resource Assessment to identify those lands within the Highlands Region which have the highest ecological resource values. These values are based upon a combination of 33 ecological indicators which measure the quantity and quality of the following regional resource values: forests, watershed condition, critical habitat, prime ground water recharge areas, open waters and riparian areas, and steep slopes. The resources are not weighted, but rather are scored as an additive process (i.e., an area containing three resources would receive a score of three). The figure *Conservation Priority Areas* displays a scale of the relative value of these resources in order to provide an initial prioritization mechanism for future land preservation activities in the Highlands Region that is consistent with the resource protection goals of the Regional Master Plan. Because the priority system is GIS-based, it is possible to use the same data layers in different combinations, and to ascertain which resources resulted in a score for any area of land. The highest value areas contained a maximum of 31 criteria/indicators.

The following 33 criteria were used to determine the Conservation Priority Areas:

Forest Integrity	1 Total Forest Area
	2 Forest Resource Protection Area
	3 Core Forest > 250 ac
	4 Forest Patch > 500 ac
	5 Proportion of Total Forest > 45%
Watershed Characteristics	6 Watershed Condition – High
	7 Forest Condition – High
	8 Habitat Quality - High
Riparian Corridors	9 Riparian Area
	10 Riparian Area – Undeveloped
	11 Flood Prone Area
	12 Riparian Corridor Condition – High

	13 Riparian Corridor Impervious Cover – Low
	14 Riparian Vegetation Condition – High
	15 Riparian Habitat Quality – High
Recharge Areas	16 Prime Recharge > 40%
Open Water	17 Highlands Open Water (HOW) Protection Area
	18 HOW Protection Area – Undeveloped
	19 Streams and Lakes
	20 Wetlands
	21 Streams and Lakes – Highlands Classification
	22 Wetlands Protection Area – Highlands Classification
Critical Habitat	23 Critical Habitat Resource Protection Area
	24 Critical Habitat
	25 All Habitat – Landscape Rank 2-5
	26 Highlands Conservation Status – Highlands Rank 2-3
	27 Water/Wetland Dependent Species Habitat
	28 Mussels + 1000 ft
	29 Vernal Pools + 1000 ft
	30 Significant Natural Areas
Slope	31 > 20% Slope – Undeveloped
	32 > 15% Slope – Undeveloped
	33 > 10% Slope – Undeveloped

The individual indicators are described below:

Forest Integrity Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

1.	Total Forest Area	The Total Forest Area is a feature based data layer that was extracted from the NJDEP 2002 draft Land Use Land Cover data. Forest is defined as all upland and wetland forest and scrub/shrub categories (excluding old field). NJDOT roads, buffered by 10 feet, were removed from the file.
2.	Forest Resource Area	The Forest Resource Area data layer is an intensity indicator that captures high ecological value forest areas including those forested areas that exhibit the least fragmentation, which are vital for the maintenance of ecological processes. The Forest Resource Area was spatially delineated based upon presence of any one of the following data layers: Total Forest Area, Forest Core Area > 250, Forest Patch >500, and Proportion Total Forest >45%.
3.	Forest Core Area >250	Core area refers to the area and percent of a forest patch that is greater than 300 feet from a forest edge, based on the Total Forest Area. The Forest Core Area >250 is a feature based data layer that includes those areas consisting of 250 acres or greater of core forest.
4.	Forest Patch >500	Forest patch refers to the size of a contiguous forest stand, based on the Total Forest Area. The Forest Patch >500 is a feature based data layer that captures contiguous forest patches

		that are equal to or greater than 500 acres in size.
5.	Proportion Total Forest >45%	The Proportion Total Forest data layer measures the proportion of forest cover within a 3 square kilometer search area in order to provide a landscape level view of the Highlands forest landscape and to simulate habitat requirements of Highlands wildlife species. This intensity based layer was based on the Total Forest Area and captures those areas that account for 45% or greater of proportion of total forest cover.

Watershed Characteristics Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

6.	High Resource Value Watershed	High Resource Value Watershed data layer includes all subwatersheds that contain predominantly forest lands and includes a significant portion of the watershed that is high quality habitat. A High Resource Value Watershed is an integrity-based indicator and was developed by considering the following watershed characteristics: Percent Core, Proportion Total Forest, Percent Total Forest, Percentage Habitat Quality, and Percent Developed.
	Watershed Characteristics - Percent Core Forest	The Watershed Characteristics - Percent Core Forest watershed indicator represents the percentage of a subwatershed that contains the percentage of a subwatershed with forested areas greater than 300 feet in distance from an altered edge (i.e., disturbed land), based on NJDEP draft 2002 Land Use Land Cover data. This is an integrity-based indicator.
	Watershed Characteristics - Proportion of Total Forest	The Watershed Characteristics - Proportion of Total Forest is the amount of forest cover within a given geographic area. A 3-kilometer search area was used to calculate this metric, based on NJDEP draft 2002 Land Use Land Cover data. This is an indicator of watershed integrity (i.e., the higher the percentage, the higher the watershed quality). This is an integrity-based indicator.
	Watershed Characteristics - Percent Total Forest	The Watershed Characteristics - Percent Total Forest watershed indicator represents the percentage of a subwatershed that is forested, with forested defined as all mature and successional upland and wetland forested communities (excluding old fields), based on NJDEP draft 2002 Land Use Land Cover data. This is an integrity-based indicator.
	Watershed Characteristics - Habitat Quality	The Watershed Characteristics - Habitat Quality watershed indicator represents the percentage of a subwatershed that contains habitat for species of concern including rare, threatened or endangered species, based on Landscape data. Habitat quality is used as an indicator of the biological diversity of a watershed (i.e., the more habitat that supports a species of concern, the higher the quality of habitat within a watershed). This is an integrity-based indicator.
	Watershed	The Watershed Characteristics - Percent Developed Lands

	Characteristics - Percent Developed	represents the percentage of a subwatershed that is developed, with developed defined as lands that have been altered for residential and/or commercial use. Developed lands include areas with impervious cover as well as those with non-impervious cover (e.g., lawns, golf courses). Percent developed land is an indicator of watershed impairment (i.e., in general, the higher the percentage, the lower the watershed quality) and is an integrity-based indicator.
7.	High Integrity Forest Area	High Integrity Forest Area is a watershed that is predominantly forested, including a high proportion of forest cover consisting of high core area, large patch size, and a low distance to nearest patch. The High Integrity Forest Area data layer was developed according to a value class rank ranging from 1-12 and considering the following watershed characteristics: Percent Core, Proportion Total Forest, and Percent Total Forest. This is an integrity-based indicator.
8.	Habitat Quality - High	Habitat Quality represents the percentage of a subwatershed that contains habitat for species of concern including rare, threatened or endangered species, based on Landscape data V 3.3. Habitat quality is used as an indicator of the biological diversity of a watershed (i.e., the more habitat that supports a species of concern, the higher the quality of habitat within a watershed). Those watersheds that have been classified as "high" is assigned when 40% or greater of the subwatershed is characterized by high habitat quality. This is an integrity-based indicator.

Riparian Corridor Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

9.	Riparian Area	The Riparian Area data layer is a feature based data layer, comprised of flood prone areas, riparian soils, and contiguous Highlands Open Waters, which includes Wetlands, and Wildlife Corridors.
	Riparian Soils	Defined as a hydric soil, a soil exhibiting a shallow depth to seasonal high water table, or alluvial soil based on Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SURGO) digital soils coverage. Riparian Soils is a feature based data layer.
	Wildlife Corridor	Defined as a 300-foot corridor on each mapped stream bank or from the stream centerline if no stream bank is mapped. The Wildlife Corridor is a feature based data layer.
10.	Riparian Corridor – Undeveloped	The Riparian Corridor - Undeveloped is a feature based data layer that represents the riparian corridor, with developed lands removed.
11.	Flood Prone Area	Defined as U.S. Geological Survey (USGS) documented and undocumented flood prone areas and Federal Emergency Management Agency (FEMA) 100-year floodplain. The Flood

Prone data layer is feature based.

12. Riparian Corridor Condition - High — A Riparian Area integrity value class was assigned to the riparian corridor for each subwatershed based on a cumulative assessment of 5 indicators (including impervious cover, natural vegetation, water/wetland species, agricultural, and road crossings). The Riparian Corridor Condition - is an integrity-based data layer that represents areas that exhibit predominantly natural vegetation including high quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses, and/or road crossings.

    Riparian Corridor - Impervious Cover — The Riparian Corridor Impervious Cover is an integrity-based data layer that represents the percentage of the riparian area that includes impervious surfaces.

    Riparian Corridor - Natural Vegetation — The Riparian Corridor Natural Vegetation is an integrity-based data layer that represents the percentage of the riparian area that features urban and agricultural lands (as a way to determine natural vegetation).

    Riparian Corridor – Water/Wetland Species — The Riparian Corridor - Habitat Quality - is an integrity-based data layer that represents the amount of habitat suitable for one or more water/wetland dependent species of concern including mussels.

    Riparian Corridor – Agriculture — The Riparian Corridor - Agriculture is an integrity-based data layer that reflects the percentage of the riparian area that is in agricultural use.

    Riparian Corridor - Crossings — The Riparian Corridor Crossings is an integrity-based data layer that represents the number of road crossings per linear stream mile, (per the Highlands roadway center-line) which indicate impairment of the riparian area integrity.

13. Riparian Corridor - Impervious Cover - Low — The Riparian Corridor Impervious Cover is an integrity-based data layer that represents the percentage of the riparian area that includes impervious surfaces. The "low" classification is assigned when less than 10% of the riparian area is covered with impervious surfaces.

14. Riparian Corridor - Natural Vegetation - High — The Riparian Corridor Natural Vegetation is an integrity-based data layer that represents the percentage of the riparian area that features urban and agricultural lands (as a way to determine natural vegetation). The "high" classification is assigned when less than 30% of the riparian area is being used as urban or agriculture lands.

15. Riparian Corridor – Water/Wetland Species - High — The Riparian Corridor - Habitat Quality - High is an integrity-based data layer that represents the amount of habitat suitable for one or more water/wetland dependent species of concern including mussels. The "high" classification is assigned when greater than 40% of the riparian corridor is considered to be

suitable habitat for water/wetland dependent species.

Recharge Indicator, as further described in the Water Resources Technical Report, Volume II – Water Use and Availability, July 2008

16. Prime Recharge >40% — The land area that contributes 40% of groundwater recharge by volume, under drought conditions.

Open Water Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

17. Highlands Open Water Protection Area — The Highlands Open Water Protection Area feature based data layer includes all Highlands Open Waters and associated buffers of 300 feet.

18. Highlands Open Water Protection Area - Undeveloped — The Highlands Open Water Protection Area - Undeveloped feature based data layer includes all Highlands Open Waters and associated buffers, with developed lands removed.

19. Streams and Lakes — The streams and lakes feature based data layer includes hydro data, based on the NJDEP 2002 Hydrography Draft, and Waters, as defined by the NJDEP draft 2002 Land Use Land Cover, including streams and canals, natural lakes, and artificial lakes.

20. Wetlands — The Wetlands feature based data layer includes wetlands as defined by the NJDEP draft 2002 Land Use Land Cover.

21. Water/Hydro – Highlands Classification — Waters – Highlands Classification is feature based data layer and includes rivers, streams, and lakes classified as Highlands Waters, based upon the following:

- **Highlands Waters** – Waters that are contained within the Highlands Preservation Area.
- Special Waters –Waters that drain to C1 or TP waters, or that are upstream of, are within the same subwatershed, and/or are hydrologically interconnected with a C1, TP, or Highlands Waters.
- Exceptional Waters - Waters other than Highlands Waters or Special Waters that drain to a FW1 waterway or include habitat for water/wetland dependent threatened or endangered species. In addition, this will include any other waters (which are not considered Highlands Waters or Special Waters) that are upstream, of, are within the same subwatershed, and are hydrologically interconnected with an Exceptional Water.
- Intermediate Waters - All remaining Waters that are not a Highlands, Special, and Exceptional Waters and consist of waters that are man-made and hydrologically isolated from a surface water feature within the same

subwatershed.

22. Wetlands – Highlands Classification

Wetlands – Highlands Classification is a feature based data layer and includes wetlands classified as Highlands Waters, based upon the following:

- **Highlands Waters** –Waters that are contained within the Highlands Preservation Area.
- Special Waters –Waters that drain to C1 or TP waters, or that are upstream of, are within the same subwatershed, and/or are hydrologically interconnected with a C1, TP, or Highlands Waters.
- Exceptional Waters - Waters other than Highlands Waters or Special Waters that drain to a FW1 waterway or include habitat for water/wetland dependent threatened or endangered species. In addition, this will include any other waters (which are not considered Highlands Waters or Special Waters) that are upstream, of, are within the same subwatershed, and are hydrologically interconnected with an Exceptional Water.
- Intermediate Waters - All remaining Waters that are not a Highlands, Special, and Exceptional Waters and consist of waters that are man-made and hydrologically isolated from a surface water feature within the same subwatershed.

Critical Habitat Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

23. Critical Habitat Resource Area

The Critical Habitat Resource Area is an intensity indicator that was delineated by combining the Critical Wildlife Area, Significant Natural Areas, and all land within 1,000 feet of a vernal pool. A spatial analysis was performed in order to identify those areas in the Region that contain a critical mass of habitat features. The Critical Habitat Resource Area contains at least 90% of those areas designated as Landscape Rank 2, 3, 4, or 5, Highlands Rank of Critically Significant or Significant, vernal pools, and Significant Natural Areas.

24. Critical Wildlife Area

The Critical Wildlife Area is an intensity indicator that was delineated by combining Landscape Project Rank 2, 3, 4, and 5 and Highlands Conservation Rank 2 and 3 (or Critically Significant and Significant), those water/wetland dependent species that occur within the Highlands Region, and portions of streams containing mussels including a 1,000 foot buffer. A spatial analysis was performed using the aforementioned data sets, with the Critical Wildlife Area reflecting those areas exhibiting the greatest intensity of critical wildlife features.

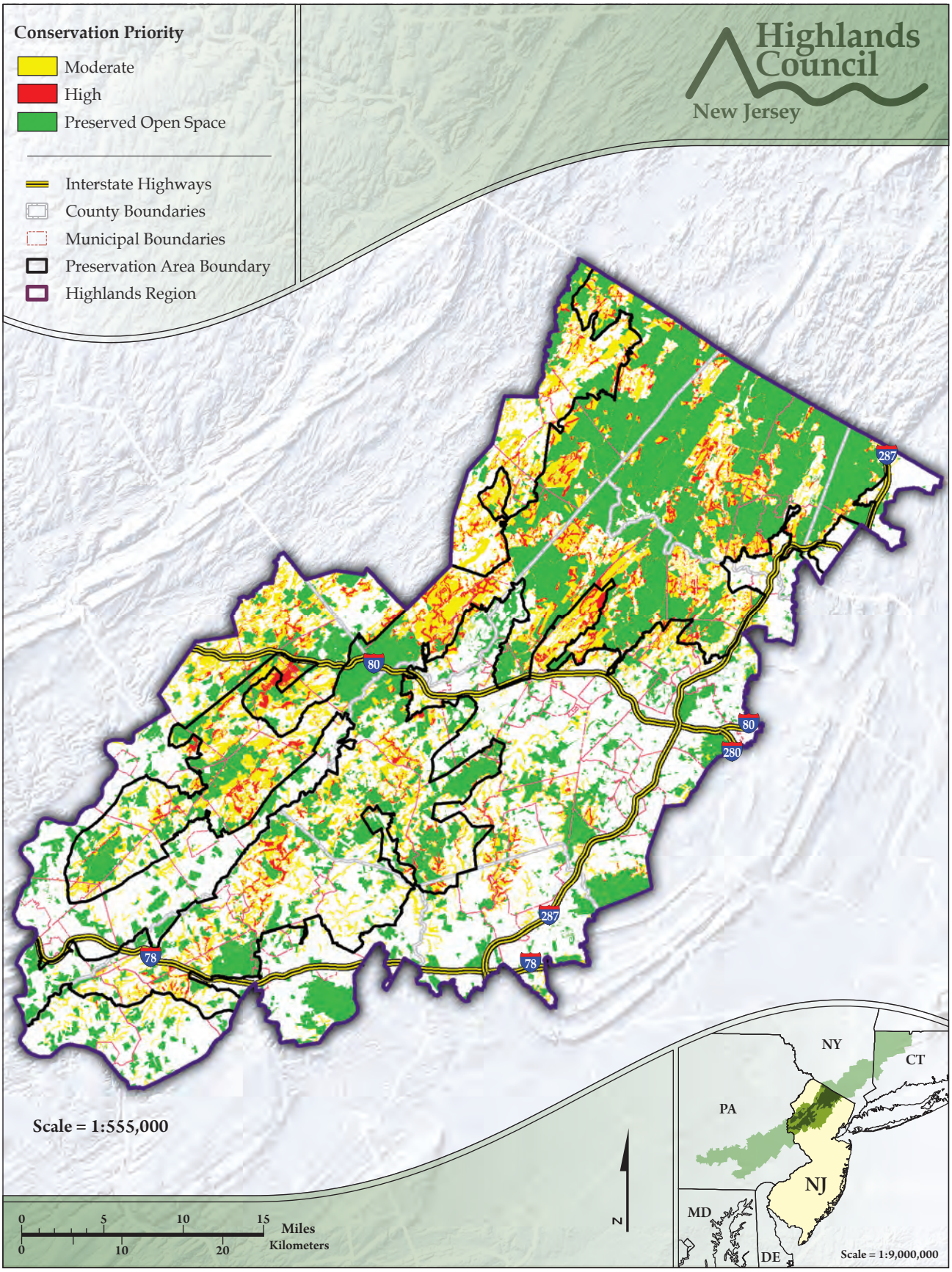
25.	All Habitat (Landscape Rank 2 - 5)	The Landscape Project ranks habitat according to the status and distribution of species of concern. All Habitat (Landscape Rank 2 - 5) is a feature based data layer and includes Landscape ranked Habitat 2 through 5, which refer to the habitats of species that are federally endangered, state endangered, state threatened, and/or of special concern.
26.	Highlands Rank	The Landscape Project ranks habitat according to the status and distribution of species of concern. The Highlands Rank feature based data layer refers to the following: ▪ Critically Significant – if habitats in the Highlands Region were lost, that species would not exist in the state, and ▪ Significant – Highlands Region habitats play a significant role for that species' existence in the state.
27.	Water/Wetland Dependent	The Highlands Council selected 34 rare, threatened, and endangered species for which dependence upon water bodies or wetlands is critical to their survival to serve as indicator species for high quality aquatic ecosystems. The Water/Wetland Dependent is a feature based data layer.
28.	Mussels +1000	NJDEP Endangered and Nongame Species Program data identifies critical stream reaches for mussels species of concern. The spatial extent of documented habitat for mussels includes all associated stream reaches within 2,460 feet (0.75 kilometers) of a know occurrence. The Mussels + 1000 is a feature based data layer that includes those portions of streams containing mussels buffered by 1,000 feet.
29.	Vernal Pools +1000	A vernal pool is a confined ephemeral wetland depression that provides important breeding areas for amphibians. The Vernal Pools +1000 feature based data layer includes 2005 NJDEP confirmed vernal pool data buffered by 1,000 feet.
30.	Significant Natural Areas	The Significant Natural Area feature based data layer contains sites or areas that constitute outstanding examples of a particular habitat type or geologic formation, or habitat that supports populations of rare or endangered plant species in the Highland Region. The data layer utilized NHP data and was spatially reviewed for the 95 sites. "Active Use" lands (per the Highlands Land Classification Data Layer Relationship table) and roadway right of ways were removed from the file.

Steep Slope Indicators, as further described in the Ecosystem Management Technical Report, July 2008.

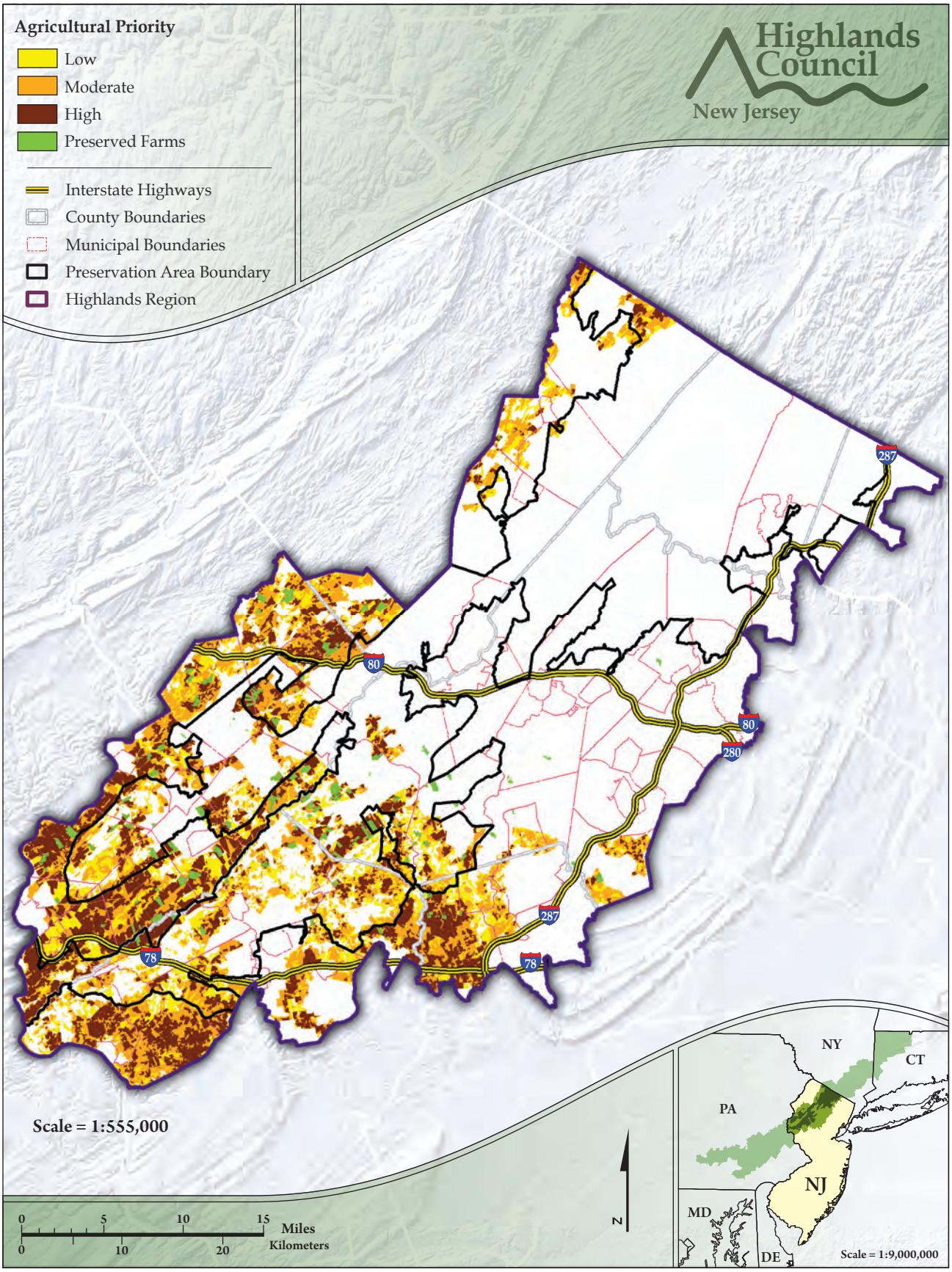
31.	>20% Undeveloped	The >20% Undeveloped is a feature based data layer that includes all slopes of 20% or greater, excluding developed lands.
32.	>15%	The >15% Undeveloped is a feature based data layer that

	Undeveloped	includes all slopes of 15% or greater, excluding developed lands.
33.	>10% within the Riparian Corridor	The >10% within the Riparian Corridor is a feature based data layer that includes all slopes of 10% or greater that exist within, intersect, proximate to, or drain to the riparian corridor.

CONSERVATION PRIORITY AREA



AGRICULTURAL PRIORITY AREA



CONFIDENTIAL LIST OF PROPERTIES FOR ACQUISITION BY SADC AND GREEN ACRES PROGRAM

The Highlands Act, in Section 54, requires coordinated planning between the Highlands Council and State Agriculture Development Committee (SADC). The Highlands Council is to provide SADC with recommendations "concerning farmland preservation strategies and acquisition plans in the Highlands Region."

These recommendations must include a "methodology for prioritizing the acquisition of development easements and fee simple titles to farmland" by the Farmland Preservation Trust Fund in the Preservation Area especially where "farmland that has declined substantially in value due to the implementation" of the Highlands Act. The Council may list specific parcels in the Preservation Area "that have experienced a substantial decline in value and for that reason should be considered by the committee as a priority for acquisition, but any such list shall remain confidential notwithstanding any provision of P.L.1963, c. 73 (C.47:1A-1 et seq.) or any other law to the contrary." For applications from municipalities in the Planning Area, SADC is required to additionally accord a higher weight to municipalities that establish a TDR Receiving Zone.

The Highlands Act, in Section 53, requires coordinated planning between the Highlands Council and NJDEP's Green Acres Program. The Highlands Council is to provide recommendations "concerning land preservation strategies and acquisition plans in the Highlands Region." These recommendations must include a "methodology for prioritizing the acquisition of land" by Green Acres Trust Fund in the Preservation Area especially where land value has declined substantially or where a project would have qualified for exemption #3 but lacked a State permit. The Council may list specific parcels in the Preservation Area that should be considered "as a priority for acquisition, but any such list shall remain confidential notwithstanding any provision of P.L.1963, c. 73 (C.47:1A-1 et seq.) or any other law to the contrary." For applications from municipalities in the Planning Area, Green Acres is required to additionally accord a higher weight to municipalities that establish a TDR Receiving Zone.

Council staff has developed a method for identifying land preservation priorities for Green Acres land preservation and SADC farmland preservation. In order to identify these lands, the Agricultural Priority Areas (APA) and Conservation Priority Areas (CPA) established in the *Sustainable Agriculture* and this Technical Report were analyzed. The extent to which these agriculture and natural resource based priority areas occurred on individual parcels was assessed in order to create a list of properties by Block and Lot. Property ownership was not determined in this process. In order to develop lands preservation priorities certain assumptions were made, for example, the percentage of a parcel in an APA or CPA to establish the parcel as an Agriculture or Conservation Priority Parcel.

Once the priority parcels were determined, agriculture and conservation contiguity and critical mass were determining factors in establishing Agriculture Clusters and Conservation Clusters. The Clusters are important because preservation of contiguous high priority lands is a more effective method of preserving natural resources and agricultural landscapes, and better limits the potential for conflicts between development and preserved lands. The final step was to create Super Clusters by combining the Agriculture Clusters and Conservation Clusters. The Super Clusters illustrate how agricultural and conservation lands complement each other in preserving the Highlands Region. A description of the development process follows. Currently there are approximately, 6,100 parcels of preserved land in the Highlands Region, totaling 273,457 acres.

AGRICULTURAL PRIORITY AREAS (APA) FORMATION

The *Sustainable Agriculture Technical Report* describes how the APAs were formed by layering seven factors:

- Agricultural Resource Areas
- Important Farmland Soils – Undeveloped
- Preserved Farms (based on SADC data)
- Contiguous Farms greater than 250 acres
- Agricultural uses covering 10 acres or more
- 50% or more Prime Soils
- ¼ mile proximity to preserved farms

To determine the agricultural resource value; low, moderate and high resource value rankings were determined based on the following:

- Low Priority Area – 2 factors or less
- Moderate Priority Area – 3 to 4 factors
- High Priority Area – 5 to 7 factors

The APA consists of 63,711 acres in the Preservation Area and 131,223 acres in the Planning Area, totaling 194,934 for the Region and includes only lands not preserved.

AGRICULTURE PRIORITY PARCEL FORMATION

The Agricultural Priority Areas were developed using agricultural resource factors. In order to create a list of properties for preservation Block and Lot information is necessary. As a result, a list of Agricultural Priority Parcels was developed based on the following criteria:

- Preserved farmland was removed from the APA. Since preserved farmland is already protected in perpetuity through the SADC Farmland Preservation Program it would not need to be targeted for preservation.
- Property class 3B-Q (qualified farm), and class 3A-Q (qualified farmstead) were included, including other classes attached to 3B, i.e., 3B/3A and 3B/4A. These parcels are the initial group of parcels under consideration.
- Properties that contained more than 90% as Moderate or High Priority Area in the APA were retained. Due to the large number of resulting parcels the priority list was further reduced to prioritize agriculture with the highest ranking.
- Properties of less than 25 total acres were excluded; properties greater than or equal to 25 acres were included. This threshold was chosen for two reasons. First, the 25-acre figure is the SADC minimum acreage criteria for the ranking of parcels in the Farmland Preservation Program (the average size of a farm in the Highlands Region is 55 acres). In addition, the 25 acre threshold addressed farmland that has declined substantially in value due to the implementation of the Highlands Act given the exemptions under the Act and the septic system densities of 25 acres for non-forested lands.

AGRICULTURE CLUSTER FORMATION

Contiguity and critical mass are important factors in preserving land. As a result a cluster approach was used and Agriculture Clusters were formed. In order to create contiguity, any Agriculture Priority Parcels and Preserved Farmland Parcels that are within 200 ft of each other (100 feet from each parcel) were clustered. The buffers were used to eliminate the effects of roads and rights of way in separating parcels.

Duplicate parcels were identified on the Agriculture Priority List and the Conservation Priority List. In order to eliminate duplicate parcels on the priority lists, parcels with less than 25% agricultural use were removed. The 25% agricultural use factor ensures farms with a substantial

agricultural use remain on the Agriculture Priority List and parcels with important environmental resources appear on the Conservation Priority List. The Agriculture Clusters were then clipped to the Highlands boundary. The total number of Agriculture Priority parcels in Agriculture Clusters was approximately 1,025 and and 68,461 acres

CONSERVATION PRIORITY AREAS FORMATION

This Technical Report also identifies the formation of Conservation Priority Areas. These areas represent a scale of relative value of 31 ecological indicators that were prioritized into Moderate and High Conservation Priority Areas using 31 Conservation Priority Indicator factors.

- Medium Priority Area – from 14 to 21 factors
- High Priority Area – from 22 to 31 factors

The CPA consists of 111,785 acres in the Preservation Area and 68,659 acres in the Planning Area, totaling 180,435 for the Region and includes only lands not preserved.

CONSERVATION PRIORITY PARCEL FORMATION

The Conservation Priority Areas were mapped and scored using natural resource indicators. In order to create a list of properties for preservation, Block and Lot information is necessary. As a result a list of Conservation Priority Parcels was developed based on the following criteria:

- Property class 1 (vacant lands), class 2 (residential), and 3B-Q (farmland qualified) were used.
- All preserved lands were removed which included open space and preserved farmland (these lands were based on NJDEP Green Acres data) since they were already protected.

The following parcel sizes were used:

- Classes 1 (vacant) and 3B-Q (farmland qualified) of 10 acres or greater
- Class 2 (residential) of 20 acres or greater in order to retain only those lots with an existing residence that are large enough to be retain significant natural features.
- Intersecting Conservation Priority Areas greater than 10 acres in order to include as many of the conservation resources as possible.

The resulting parcels were sorted to identify parcels with more than 50% Medium/High Conservation Priority Area. Properties that had more than 50% Moderate or High in the Conservation Priority Area were included. Due to the large number of parcels, the priority list was further reduced to prioritize conservation areas with the highest ranking.

CONSERVATION CLUSTER FORMATION

As with the Agriculture Clusters, in order to create continuity the identified parcels and all preserved open space lands within 200 ft of each other (100 feet from each parcel) were clustered.; SADC preserved farmland was not included. The next step was to identify Conservation Clusters of 200 acres or more.

- Higher Priority – 200 acres contiguous
- Lower Priority – 200 acres outside contiguous

The Conservation Clusters were then clipped to the Highlands boundary.

The total Conservation Priority parcels was approximately 2,021 parcels and 91,91,882acres.

SUPER CLUSTER FORMATION

Super Clusters were formed by merging Higher Priority Conservation Clusters with the Agriculture Clusters, again using the method of identifying those within 200 ft of each other (100 feet from each Cluster) and grouping them. After analyzing critical mass and acreage in the

Super Clusters, it was determined to only carry those Super Clusters that were greater than 150 acres since it was a natural break point in the sizes.

The total Conservation Parcels in Super Clusters was 1,674 parcels consisting of 82,355 acres.

The total Agriculture Parcels in Super Clusters was 944 parcels consisting of 64,715 acres.

Super Cluster Grand Total = 2,638 parcels; 147,070 acres.

The Council staff then visually determined whether there are nodes that need to be included to complete contiguous greenways. The final list was separated into Preservation and Planning Area parcels and by Conservation and Agriculture in order to prepare confidential lists for the NJDEP Green Acres Program and the SADC Farmland Preservation Program. In addition, the Council will work with NJDEP to specifically identify those Block and Lots that nearly qualified for the Highlands Act's third exemption.

The Conservation Confidential Priority List consists of approximately 60,308 acres (1,349 parcels) in the Preservation Area and 32,052 acres (672 parcels) in the Planning Area totaling 92,360 acres (2027 parcels) in the Region.

The Agriculture Confidential Priority List consists of approximately 19,140 acres (285 parcels) in the Preservation Area and 51,057 acres (740 parcels) in the Planning Area totaling 70,197 (1025 parcels) in the Region.

The total acquisition cost to preserve the Confidential Agriculture Priority List is $652,734,154 (70,197 acres) and the total acquisition cost to preserve the Confidential Conservation Priority List is $678,448,826 (92,360 acres). The total cost to preserve both Confidential Priority Lists is approximately $1.3 billion. The methodology used to determine these costs is described in the *Financial Analysis Technical Report*.

SPECIAL ENVIRONMENTAL ZONES

The following is an explanation of the method and indicators used to determine the extent of lands to be included in

> *a preservation zone element that identifies zones within the preservation area where development shall not occur in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools, including but not limited to land acquisition and the transfer of development rights (N.J.S.A. 13:20-12a)*

These environmentally sensitive lands are called the Special Environmental Zone in the RMP to avoid confusion with the Protection Zone and the Preservation Area.

In order to create an element with critical mass with a greater focus on water protection, the following methodology was developed:

Five indicators from the Draft Technical Report Addenda were chosen as the best indicators for protection of water resource and environmentally sensitive lands:

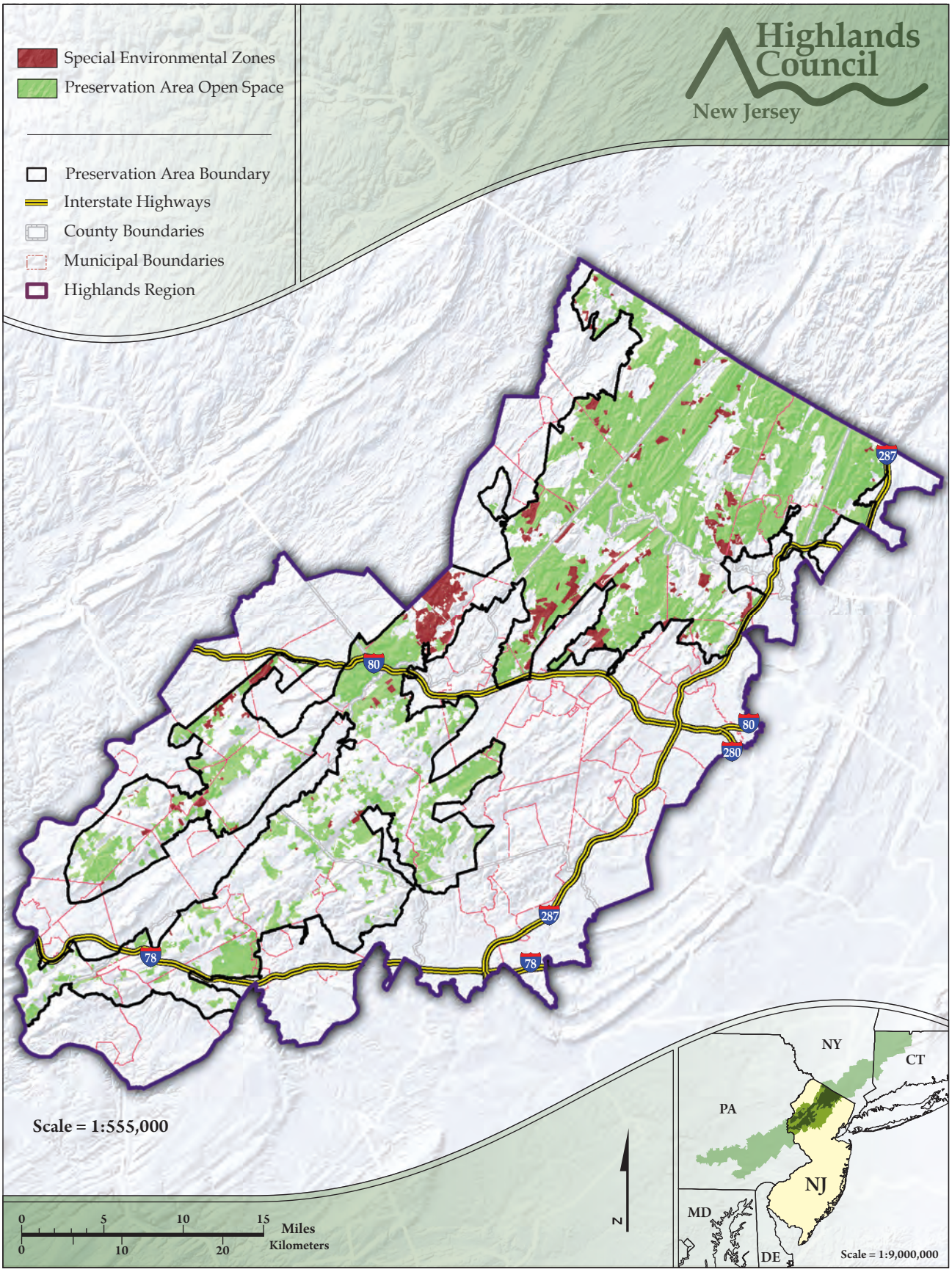
- Forest within the Forest Resource Area
- Riparian Corridor Condition High
- Highlands Open Water Protection Area
- Critical Habitat
- Water Quality Management Tier – 1,000' buffer on all lakes within the Protection Zone, Conservation Zone, and the Environmentally-Constrained Sub-zones in both the Conservation and Existing Community Zones (excluding the Lake Community Sub-zone, which is already developed)

Next, using the Conservation Priority Area Clusters, determine the percent of each water protection indicator within undeveloped, unpreserved portions of the cluster. The analysis clipped the cluster to the Preservation Area boundary and removed the preserved lands from within the Preservation Area portion of the cluster; the remaining land was subject to the environmental features evaluation. These lands were evaluated to determine the percentage of each of the five indicators, and then the percentages were added. This means that the highest total percentage achievable for a cluster is 500% (i.e., if all five water protection indicators were present at 100% of the acreage within the cluster).

Once the percentages were determined for the clusters, they were summed. With a total possible score of 500%, our cluster scores ranged from 0 to 300%. The range was then reviewed for natural breaks and connectivity to already preserved lands and it was determined that a score of 192% or greater would be the highest priority to preserve. Additionally, parcels that were not contiguous to existing preserved lands were removed as were parcels that were entirely water. Additionally staff visually reviewed each parcel for appropriateness of inclusion in the Special Environmental Zone. This resulted in including approximately 360 parcels totaling 19,000 acres in the Zone.

This approach maintains the cluster feature from the Conservation Priority Areas, focuses on the Preservation Area, and evaluates the nature and extent of the water protection features surrounding the preserved lands within the cluster.

SPECIAL ENVIRONMENTAL ZONES



SUPPORTING INFORMATION

Acknowledgments
References
Appendix

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H. David DuMont | *New Jersey Department of Environmental Protection*
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Jeffrey Hoffman | *New Jersey Department of Environmental Protection*
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New Jersey Commerce Commission
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New Jersey Department of Community Affairs
New Jersey Department of Environmental Protection
New Jersey Department of Law and Public Safety
New Jersey Department of Transportation
New Jersey Department of the Treasury
New Jersey Economic Development Authority
New Jersey Environmental Infrastructure Trust
New Jersey Meadowlands Commission
New Jersey Pinelands Commission
New Jersey Redevelopment Authority
New Jersey State Agriculture Development Committee
New Jersey Transit
New Jersey Water Supply Authority
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North Jersey Transportation Planning Authority
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Pinelands Development Credit Bank
State Planning Commission
State Transfer of Development Rights Bank
United States Environmental Protection Agency
United States Department of the Interior, Fish & Wildlife Service
United States Department of Agriculture, Natural Resources Conservation Service

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Integra Realty Resources
Lane H. Kendig of Kendig Keast Collaborative
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Rutgers University, Center for Urban Policy Research
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Ecosystem Management
Eco-Tourism and Recreation
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Housing
Land Preservation
Land Use Planning
Regional Development and Design
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Sustainable Forestry
Transfer of Development Rights
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Utility Capacity
Water Resource Management

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Please customize for technical report
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Dorothy Guzzo, New Jersey Department of Environmental Protection
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- New Jersey Department of the Treasury
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- New Jersey Pinelands Commission
- New Jersey State Agriculture Development Committee
- North Jersey District Water Supply Commission
- Pinelands Development Credit Bank
- State Transfer of Development Rights Bank
- United States Environmental Protection Agency

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- New Jersey Water Supply Authority
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APPENDIX

APPENDIX A

HIGHLANDS PRESERVED LANDS

PRESERVED FEDERAL LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	-	-	-
OAKLAND BOROUGH	-	-	-
Total	**-**	**-**	**-**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	-	-	-
BETHLEHEM TOWNSHIP	-	-	-
BLOOMSBURY BOROUGH	-	-	-
CALIFON BOROUGH	-	-	-
CLINTON TOWN	-	-	-
CLINTON TOWNSHIP	-	-	-
GLEN GARDNER BOROUGH	-	-	-
HAMPTON BOROUGH	-	-	-
HIGH BRIDGE BOROUGH	-	-	-
HOLLAND TOWNSHIP	-	-	-
LEBANON BOROUGH	-	-	-
LEBANON TOWNSHIP	-	-	-
MILFORD BOROUGH	-	-	-
TEWKSBURY TOWNSHIP	-	-	-
UNION TOWNSHIP	-	-	-
Total	**-**	**-**	**-**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	-	-	-
BOONTON TOWNSHIP	-	-	-
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	-	-	-
CHESTER TOWNSHIP	-	-	-
DENVILLE TOWNSHIP	-	-	-
DOVER TOWN	-	-	-
HANOVER TOWNSHIP	-	-	-
HARDING TOWNSHIP	5,213.30	-	5,213.30
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	327.20	143.74	470.95
KINNELON BOROUGH	-	-	-

MENDHAM BOROUGH	-	-	-
MENDHAM TOWNSHIP	23.37	-	23.37
MINE HILL TOWNSHIP	-	-	-
MONTVILLE TOWNSHIP	-	-	-
MORRIS PLAINS BOROUGH	-	-	-
MORRIS TOWNSHIP	72.26	-	72.26
MORRISTOWN TOWN	36.65	-	36.65
MOUNT ARLINGTON BOROUGH	-	-	-
MOUNT OLIVE TOWNSHIP	-	-	-
MOUNTAIN LAKES BOROUGH	-	-	-
NETCONG BOROUGH	-	-	-
PARSIPPANY-TROY HILLS TOWNSHIP	-	-	-
PEQUANNOCK TOWNSHIP	-	-	-
RANDOLPH TOWNSHIP	-	-	-
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	-	6.33	6.33
ROXBURY TOWNSHIP	-	-	-
WASHINGTON TOWNSHIP	-	-	-
WHARTON BOROUGH	-	-	-
Total	**5,672.78**	**150.07**	**5,822.85**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	-	-	-
POMPTON LAKES BOROUGH	-	-	-
RINGWOOD BOROUGH	-	-	-
WANAQUE BOROUGH	-	-	-
WEST MILFORD TOWNSHIP	-	22.51	22.51
Total	**-**	**22.51**	**22.51**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	-	-	-
BERNARDS TOWNSHIP	-	-	-
BERNARDSVILLE BOROUGH	175.67	-	175.67
FAR HILLS BOROUGH	-	-	-
PEAPACK GLADSTONE BOROUGH	-	-	-
Total	**175.67**	**-**	**175.67**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	-	-
FRANKLIN BOROUGH	-	-	-
GREEN TOWNSHIP	-	-	-

HAMBURG BOROUGH	-	-	-
HARDYSTON TOWNSHIP	185.96	-	185.96
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	-	-	-
SPARTA TOWNSHIP	-	-	-
STANHOPE BOROUGH	-	-	-
VERNON TOWNSHIP	2,903.40	170.90	3,074.29
Total	**3,089.36**	**170.90**	**3,260.26**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	-	-	-
ALPHA BOROUGH	-	-	-
BELVIDERE TOWN	-	-	-
FRANKLIN TOWNSHIP	-	-	-
FRELINGHUYSEN TOWNSHIP	-	-	-
GREENWICH TOWNSHIP	-	-	-
HACKETTSTOWN TOWN	-	-	-
HARMONY TOWNSHIP	-	-	-
HOPE TOWNSHIP	-	-	-
INDEPENDENCE TOWNSHIP	-	-	-
LIBERTY TOWNSHIP	-	-	-
LOPATCONG TOWNSHIP	-	-	-
MANSFIELD TOWNSHIP	-	-	-
OXFORD TOWNSHIP	-	-	-
PHILLIPSBURG TOWN	-	-	-
POHATCONG TOWNSHIP	-	-	-
WASHINGTON BOROUGH	-	-	-
WASHINGTON TOWNSHIP	-	-	-
WHITE TOWNSHIP	-	-	-
Total	**-**	**-**	**-**

Highlands Total	**8,937.81**	**343.48**	**9,281.28**

PRESERVED STATE LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	-	2,241.38	2,241.38
OAKLAND BOROUGH	-	759.79	759.79
Total	**-**	**3,001.18**	**3,001.18**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**

ALEXANDRIA TOWNSHIP	123.29	127.36	250.65
BETHLEHEM TOWNSHIP	-	709.15	709.15
BLOOMSBURY BOROUGH	-	106.42	106.42
CALIFON BOROUGH	-	20.01	20.01
CLINTON TOWN	1.65	141.03	142.67
CLINTON TOWNSHIP	4,035.22	371.70	4,406.92
GLEN GARDNER BOROUGH	-	30.48	30.48
HAMPTON BOROUGH	-	2.67	2.67
HIGH BRIDGE BOROUGH	144.82	-	144.82
HOLLAND TOWNSHIP	618.83	87.32	706.15
LEBANON BOROUGH	9.83	-	9.83
LEBANON TOWNSHIP	0.02	1,497.16	1,497.18
MILFORD BOROUGH	-	-	-
TEWKSBURY TOWNSHIP	-	-	-
UNION TOWNSHIP	22.03	3,590.34	3,612.37
Total	**4,955.69**	**6,683.62**	**11,639.31**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	-	-	-
BOONTON TOWNSHIP	-	30.25	30.25
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	-	-	-
CHESTER TOWNSHIP	-	3,738.98	3,738.98
DENVILLE TOWNSHIP	480.60	2.67	483.27
DOVER TOWN	-	-	-
HANOVER TOWNSHIP	145.68	-	145.68
HARDING TOWNSHIP	10.67	-	10.67
HOPATCONG BOROUGH	0.01	-	0.01
JEFFERSON TOWNSHIP	1,180.92	3,669.69	4,850.61
KINNELON BOROUGH	-	1,249.39	1,249.39
MENDHAM BOROUGH	-	-	-
MENDHAM TOWNSHIP	-	-	-
MINE HILL TOWNSHIP	-	-	-
MONTVILLE TOWNSHIP	257.52	279.21	536.73
MORRIS PLAINS BOROUGH	1.13	-	1.13
MORRIS TOWNSHIP	-	-	-
MORRISTOWN TOWN	-	-	-
MOUNT ARLINGTON BOROUGH	395.42	-	395.42
MOUNT OLIVE TOWNSHIP	78.95	3,443.95	3,522.90
MOUNTAIN LAKES BOROUGH	-	-	-
NETCONG BOROUGH	37.08	-	37.08
PARSIPPANY-TROY HILLS TOWNSHIP	398.38	-	398.38
PEQUANNOCK TOWNSHIP		-	20.97

	20.97		
RANDOLPH TOWNSHIP	-	16.07	16.07
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	200.11	4,744.52	4,944.63
ROXBURY TOWNSHIP	332.56	1,395.17	1,727.73
WASHINGTON TOWNSHIP	3.00	778.10	781.10
WHARTON BOROUGH	-	-	-
Total	**3,543.00**	**19,348.00**	**22,891.00**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	0.20	2,046.98	2,047.18
POMPTON LAKES BOROUGH	152.87	-	152.87
RINGWOOD BOROUGH	-	4,904.44	4,904.44
WANAQUE BOROUGH	-	1,043.49	1,043.49
WEST MILFORD TOWNSHIP	-	15,201.38	15,201.38
Total	**153.07**	**23,196.29**	**23,349.36**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	-	17.50	17.50
BERNARDS TOWNSHIP	-	-	-
BERNARDSVILLE BOROUGH	-	-	-
FAR HILLS BOROUGH	-	-	-
PEAPACK GLADSTONE BOROUGH	-	-	-
Total	**-**	**17.50**	**17.50**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	5.55	3,281.57	3,287.12
FRANKLIN BOROUGH	91.90	0.04	91.93
GREEN TOWNSHIP	755.12	279.35	1,034.47
HAMBURG BOROUGH	41.05	-	41.05
HARDYSTON TOWNSHIP	166.93	4,969.76	5,136.69
HOPATCONG BOROUGH	915.27	-	915.27
JEFFERSON TOWNSHIP	0.01	-	0.01
OGDENSBURG BOROUGH	109.36	112.86	222.22
SPARTA TOWNSHIP	60.11	3,684.73	3,744.84
STANHOPE BOROUGH	257.50	-	257.50
VERNON TOWNSHIP	1,980.40	11,906.33	13,886.73
Total	**4,383.20**	**24,234.63**	**28,617.84**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	1,053.09	3,681.09	4,734.18
ALPHA BOROUGH	-	-	-
BELVIDERE TOWN	34.08	-	34.08
FRANKLIN TOWNSHIP	170.34	132.34	302.68
FRELINGHUYSEN TOWNSHIP	594.40	-	594.40
GREENWICH TOWNSHIP	-	-	-
HACKETTSTOWN TOWN	216.95	118.72	335.67
HARMONY TOWNSHIP	113.09	1,036.17	1,149.27
HOPE TOWNSHIP	1,364.71	-	1,364.71
INDEPENDENCE TOWNSHIP	54.26	584.06	638.32
LIBERTY TOWNSHIP	0.00	1,768.74	1,768.75
LOPATCONG TOWNSHIP	21.40	-	21.40
MANSFIELD TOWNSHIP	401.99	3,276.54	3,678.53
OXFORD TOWNSHIP	6.12	713.02	719.14
PHILLIPSBURG TOWN	11.28	-	11.28
POHATCONG TOWNSHIP	0.39	302.36	302.75
WASHINGTON BOROUGH	-	-	-
WASHINGTON TOWNSHIP	123.26	161.83	285.10
WHITE TOWNSHIP	877.75	1,502.69	2,380.44
Total	**5,043.12**	**13,277.57**	**18,320.69**

Highlands Total	**18,078.09**	**89,758.78**	**107,836.87**

PRESERVED WSMA LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	-	-	-
OAKLAND BOROUGH	-	-	-
Total	**-**	**-**	**-**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	-	-	-
BETHLEHEM TOWNSHIP	-	-	-
BLOOMSBURY BOROUGH	-	-	-
CALIFON BOROUGH	-	-	-
CLINTON TOWN	-	-	-
CLINTON TOWNSHIP	-	-	-
GLEN GARDNER BOROUGH	-	-	-
HAMPTON BOROUGH	-	-	-
HIGH BRIDGE BOROUGH	-	-	-

HOLLAND TOWNSHIP	-	-	-
LEBANON BOROUGH	-	-	-
LEBANON TOWNSHIP	-	-	-
MILFORD BOROUGH	-	-	-
TEWKSBURY TOWNSHIP	-	-	-
UNION TOWNSHIP	-	-	-
Total	**-**	**-**	**-**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	138.33	-	138.33
BOONTON TOWNSHIP	-	-	-
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	-	-	-
CHESTER TOWNSHIP	-	-	-
DENVILLE TOWNSHIP	-	-	-
DOVER TOWN	-	-	-
HANOVER TOWNSHIP	-	-	-
HARDING TOWNSHIP	-	-	-
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	3,964.04	3,964.04
KINNELON BOROUGH	-	896.16	896.16
MENDHAM BOROUGH	-	-	-
MENDHAM TOWNSHIP	-	-	-
MINE HILL TOWNSHIP	-	-	-
MONTVILLE TOWNSHIP	-	32.05	32.05
MORRIS PLAINS BOROUGH	-	-	-
MORRIS TOWNSHIP	-	-	-
MORRISTOWN TOWN	-	-	-
MOUNT ARLINGTON BOROUGH	-	-	-
MOUNT OLIVE TOWNSHIP	-	-	-
MOUNTAIN LAKES BOROUGH	-	-	-
NETCONG BOROUGH	-	-	-
PARSIPPANY-TROY HILLS TOWNSHIP	1,135.33	-	1,135.33
PEQUANNOCK TOWNSHIP	-	-	-
RANDOLPH TOWNSHIP	-	-	-
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	-	3,650.49	3,650.49
ROXBURY TOWNSHIP	-	-	-
WASHINGTON TOWNSHIP	-	-	-
WHARTON BOROUGH	-	-	-
Total	**1,273.67**	**8,542.72**	**9,816.39**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	-	222.58	222.58

POMPTON LAKES BOROUGH	2.44	-	2.44
RINGWOOD BOROUGH	-	4,757.62	4,757.62
WANAQUE BOROUGH	10.90	1,668.48	1,679.38
WEST MILFORD TOWNSHIP	-	15,993.43	15,993.43
Total	**13.34**	**22,642.12**	**22,655.46**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	-	-	-
BERNARDS TOWNSHIP	-	-	-
BERNARDSVILLE BOROUGH	-	-	-
FAR HILLS BOROUGH	-	-	-
PEAPACK GLADSTONE BOROUGH	-	-	-
Total	**-**	**-**	**-**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	-	-
FRANKLIN BOROUGH	-	-	-
GREEN TOWNSHIP	-	-	-
HAMBURG BOROUGH	-	-	-
HARDYSTON TOWNSHIP		3,902.90	3,902.90
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	-	-	-
SPARTA TOWNSHIP	-	582.56	582.56
STANHOPE BOROUGH	-	-	-
VERNON TOWNSHIP		6,182.45	6,182.45
Total	**-**	**10,667.91**	**10,667.91**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	-	-	-
ALPHA BOROUGH	-	-	-
BELVIDERE TOWN	-	-	-
FRANKLIN TOWNSHIP	-	171.74	171.74
FRELINGHUYSEN TOWNSHIP	-	-	-
GREENWICH TOWNSHIP	-	-	-
HACKETTSTOWN TOWN	-	-	-
HARMONY TOWNSHIP	-	2,505.02	2,505.02
HOPE TOWNSHIP	-	-	-
INDEPENDENCE TOWNSHIP	-	-	-
LIBERTY TOWNSHIP	-	-	-
LOPATCONG TOWNSHIP	-	2.48	2.48
MANSFIELD TOWNSHIP	-	-	-
OXFORD TOWNSHIP	-	-	-

PHILLIPSBURG TOWN	-	-	-
POHATCONG TOWNSHIP	-	-	-
WASHINGTON BOROUGH	-	-	-
WASHINGTON TOWNSHIP	-	-	-
WHITE TOWNSHIP	-	-	-
Total	**-**	**2,679.25**	**2,679.25**

Highlands Total	**1,287.01**	**44,532.00**	**45,819.01**

PRESERVED FARMLAND

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	48.54	270.26	318.81
OAKLAND BOROUGH	-	-	-
Total	**48.54**	**270.26**	**318.81**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	1,707.12	-	1,707.12
BETHLEHEM TOWNSHIP	775.579755	441.64	1,217.22
BLOOMSBURY BOROUGH	-	-	-
CALIFON BOROUGH	-	-	-
CLINTON TOWN	-	-	-
CLINTON TOWNSHIP	824.45	-	824.45
GLEN GARDNER BOROUGH	-	-	-
HAMPTON BOROUGH	-	-	-
HIGH BRIDGE BOROUGH	-	-	-
HOLLAND TOWNSHIP	1,651.03	-	1,651.03
LEBANON BOROUGH	23.62	-	23.62
LEBANON TOWNSHIP	-	1,066.23	1,066.23
MILFORD BOROUGH	-	-	-
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 (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	-	-	-
BOONTON TOWNSHIP	49.54	-	49.54
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	53.35	-	53.35
CHESTER TOWNSHIP	-	808.85	808.85
DENVILLE TOWNSHIP	-	-	-
DOVER TOWN	-	-	-

HANOVER TOWNSHIP	-	-	-
HARDING TOWNSHIP	319.00	-	319.00
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
KINNELON BOROUGH	-	-	-
MENDHAM BOROUGH	49.19	-	49.19
MENDHAM TOWNSHIP	144.53	-	144.53
MINE HILL TOWNSHIP	-	-	-
MONTVILLE TOWNSHIP	-	-	-
MORRIS PLAINS BOROUGH	-	-	-
MORRIS TOWNSHIP	-	-	-
MORRISTOWN TOWN	-	-	-
MOUNT ARLINGTON BOROUGH	-	-	-
MOUNT OLIVE TOWNSHIP	45.66	199.81	245.48
MOUNTAIN LAKES BOROUGH	-	-	-
NETCONG BOROUGH	-	-	-
PARSIPPANY-TROY HILLS TOWNSHIP	-	-	-
PEQUANNOCK TOWNSHIP	-	-	-
RANDOLPH TOWNSHIP	121.04	-	121.04
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	-	-	-
ROXBURY TOWNSHIP	-	-	-
WASHINGTON TOWNSHIP	715.57	3,800.31	4,515.87
WHARTON BOROUGH	-	-	-
Total	**1,497.88**	**4,808.97**	**6,306.85**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	-	-	-
POMPTON LAKES BOROUGH	-	-	-
RINGWOOD BOROUGH	-	-	-
WANAQUE BOROUGH	-	-	-
WEST MILFORD TOWNSHIP	-	-	-
Total	**-**	**-**	**-**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	1,744.71	83.33	1,828.04
BERNARDS TOWNSHIP	-	-	-
BERNARDSVILLE BOROUGH	-	-	-
FAR HILLS BOROUGH	-	-	-
PEAPACK GLADSTONE BOROUGH	-	-	-
Total	**1,744.71**	**83.33**	**1,828.04**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	-	-
FRANKLIN BOROUGH	-	-	-
GREEN TOWNSHIP	754.53	-	754.53
HAMBURG BOROUGH	-	-	-
HARDYSTON TOWNSHIP	68.69	-	68.69
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	-	-	-
SPARTA TOWNSHIP	156.03	38.68	194.70
STANHOPE BOROUGH	-	-	-
VERNON TOWNSHIP	-	812.69	812.69
Total	**979.24**	**851.37**	**1,830.61**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**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
HACKETTSTOWN TOWN	-	-	-
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
OXFORD TOWNSHIP	-	-	-
PHILLIPSBURG TOWN	-	-	-
POHATCONG TOWNSHIP	0.00	2,168.64	2,168.64
WASHINGTON BOROUGH	-	-	-
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 Total	**21,067.15**	**12,696.11**	**33,763.26**

COUNTY PRESERVED LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	308.54	5,039.67	5,348.20
OAKLAND BOROUGH	177.17	341.83	519.00
Total	**485.70**	**5,381.50**	**5,867.20**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	312.81	-	312.81
BETHLEHEM TOWNSHIP	-	792.90	792.90
BLOOMSBURY BOROUGH	-	2.09	2.09
CALIFON BOROUGH	-	26.86	26.86
CLINTON TOWN	17.05	-	17.05
CLINTON TOWNSHIP	701.17	-	701.17
GLEN GARDNER BOROUGH	-	-	-
HAMPTON BOROUGH	-	17.09	17.09
HIGH BRIDGE BOROUGH	13.55	-	13.55
HOLLAND TOWNSHIP	265.61	315.02	580.63
LEBANON BOROUGH	-	-	-
LEBANON TOWNSHIP	0.00	1,291.99	1,291.99
MILFORD BOROUGH	-	-	-
TEWKSBURY TOWNSHIP	189.06	20.33	209.39
UNION TOWNSHIP		439.40	439.40
Total	**1,499.26**	**2,905.68**	**4,404.93**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	-	-	-
BOONTON TOWNSHIP	257.02	45.00	302.01
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	-	-	-
CHESTER TOWNSHIP	-	1,602.06	1,602.06
DENVILLE TOWNSHIP	287.92	-	287.92
DOVER TOWN	64.43	-	64.43
HANOVER TOWNSHIP	30.87	-	30.87
HARDING TOWNSHIP	269.80	-	269.80
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	3,873.88	3,873.88
KINNELON BOROUGH	29.91	553.91	583.82
MENDHAM BOROUGH	-	-	-
MENDHAM TOWNSHIP	1,512.07	-	1,512.07
MINE HILL TOWNSHIP	272.80	-	272.80
MONTVILLE TOWNSHIP	7.37	733.07	740.45
MORRIS PLAINS BOROUGH	-	-	-

MORRIS TOWNSHIP	1,362.04	-	1,362.04
MORRISTOWN TOWN	75.75	-	75.75
MOUNT ARLINGTON BOROUGH	-	-	-
MOUNT OLIVE TOWNSHIP	571.24	48.43	619.67
MOUNTAIN LAKES BOROUGH	19.23	-	19.23
NETCONG BOROUGH	-	-	-
PARSIPPANY-TROY HILLS TOWNSHIP	361.06	-	361.06
PEQUANNOCK TOWNSHIP	218.29	-	218.29
RANDOLPH TOWNSHIP	1,140.20	399.72	1,539.92
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	54.16	592.31	646.47
ROXBURY TOWNSHIP	239.94	130.24	370.18
WASHINGTON TOWNSHIP	38.33	901.05	939.37
WHARTON BOROUGH	8.51	-	8.51
Total	**6,820.94**	**8,879.67**	**15,700.61**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	8.26	-	8.26
POMPTON LAKES BOROUGH	14.63	-	14.63
RINGWOOD BOROUGH	-	1,362.45	1,362.45
WANAQUE BOROUGH	-	-	-
WEST MILFORD TOWNSHIP	-	1,562.04	1,562.04
Total	**22.90**	**2,924.50**	**2,947.39**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	452.31	44.76	497.07
BERNARDS TOWNSHIP	1,233.41	-	1,233.41
BERNARDSVILLE BOROUGH	109.65	-	109.65
FAR HILLS BOROUGH	33.02	-	33.02
PEAPACK GLADSTONE BOROUGH	331.15	-	331.15
Total	**2,159.54**	**44.76**	**2,204.31**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	-	-
FRANKLIN BOROUGH	-	-	-
GREEN TOWNSHIP	-	-	-
HAMBURG BOROUGH	-	-	-
HARDYSTON TOWNSHIP	26.01	-	26.01
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	-	-	-

SPARTA TOWNSHIP	79.78	-	79.78
STANHOPE BOROUGH	-	-	-
VERNON TOWNSHIP	-	-	-
Total	**105.79**	**-**	**105.79**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	-	-	-
ALPHA BOROUGH	-	-	-
BELVIDERE TOWN	3.66	-	3.66
FRANKLIN TOWNSHIP	85.69	84.04	169.74
FRELINGHUYSEN TOWNSHIP	-	-	-
GREENWICH TOWNSHIP	97.33	-	97.33
HACKETTSTOWN TOWN	3.52	11.87	15.39
HARMONY TOWNSHIP	86.54	28.40	114.94
HOPE TOWNSHIP	-	-	-
INDEPENDENCE TOWNSHIP	0.01	4.95	4.96
LIBERTY TOWNSHIP	-	-	-
LOPATCONG TOWNSHIP	247.93	-	247.93
MANSFIELD TOWNSHIP	-	81.19	81.19
OXFORD TOWNSHIP	4.20	368.42	372.62
PHILLIPSBURG TOWN	-	-	-
POHATCONG TOWNSHIP	-	-	-
WASHINGTON BOROUGH	-	-	-
WASHINGTON TOWNSHIP	-	263.21	263.21
WHITE TOWNSHIP	18.25	-	18.25
Total	**547.14**	**842.09**	**1,389.23**

Highlands Total	**11,641.26**	**20,978.20**	**32,619.45**

PRESERVED MUNICIPAL LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	85.77	545.54	631.31
OAKLAND BOROUGH	46.99	237.38	284.38
Total	**132.77**	**782.92**	**915.68**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	107.90	9.05	116.94
BETHLEHEM TOWNSHIP	-	489.14	489.14
BLOOMSBURY BOROUGH	-	33.87	33.87
CALIFON BOROUGH	-	13.53	13.53
CLINTON TOWN	59.17	-	59.17
CLINTON TOWNSHIP	712.59	56.47	769.06
GLEN GARDNER BOROUGH	-	93.11	93.11
HAMPTON BOROUGH	13.33	3.34	16.68
HIGH BRIDGE BOROUGH	372.66	-	372.66
HOLLAND TOWNSHIP	132.28	-	132.28
LEBANON BOROUGH	4.13	-	4.13
LEBANON TOWNSHIP	1.12	99.73	100.85
MILFORD BOROUGH	81.93	-	81.93
TEWKSBURY TOWNSHIP	330.14	751.46	1,081.60
UNION TOWNSHIP	209.14	154.05	363.19
Total	**2,024.40**	**1,703.74**	**3,728.14**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	114.07	-	114.07
BOONTON TOWNSHIP	396.75	-	396.75
BUTLER BOROUGH	28.86	-	28.86
CHESTER BOROUGH	53.53	0.06	53.59
CHESTER TOWNSHIP	104.98	771.35	876.33
DENVILLE TOWNSHIP	875.92	1.30	877.22
DOVER TOWN	202.58	-	202.58
HANOVER TOWNSHIP	560.66	-	560.66
HARDING TOWNSHIP	162.43	-	162.43
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	405.79	914.64	1,320.43
KINNELON BOROUGH	5.83	383.07	388.90
MENDHAM BOROUGH	182.66	-	182.66
MENDHAM TOWNSHIP	863.76	0.00	863.76
MINE HILL TOWNSHIP	113.12	-	113.12
MONTVILLE TOWNSHIP	1,034.10	480.36	1,514.47

MORRIS PLAINS BOROUGH	178.20	-	178.20
MORRIS TOWNSHIP	504.40	-	504.40
MORRISTOWN TOWN	76.58	-	76.58
MOUNT ARLINGTON BOROUGH	59.67	86.10	145.77
MOUNT OLIVE TOWNSHIP	151.49	2,029.72	2,181.21
MOUNTAIN LAKES BOROUGH	616.21	-	616.21
NETCONG BOROUGH	21.07	-	21.07
PARSIPPANY-TROY HILLS TOWNSHIP	1,266.05	-	1,266.05
PEQUANNOCK TOWNSHIP	189.32	254.83	444.15
RANDOLPH TOWNSHIP	1,329.10	6.79	1,335.88
RIVERDALE BOROUGH	8.37	-	8.37
ROCKAWAY BOROUGH	50.80	-	50.80
ROCKAWAY TOWNSHIP	275.67	882.17	1,157.84
ROXBURY TOWNSHIP	859.99	1,099.44	1,959.43
WASHINGTON TOWNSHIP	45.61	1,381.94	1,427.55
WHARTON BOROUGH	193.99	-	193.99
Total	**10,931.56**	**8,291.77**	**19,223.33**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	70.97	0.13	71.10
POMPTON LAKES BOROUGH	234.46	-	234.46
RINGWOOD BOROUGH	-	456.06	456.06
WANAQUE BOROUGH	41.74	158.42	200.17
WEST MILFORD TOWNSHIP	-	724.06	724.06
Total	**347.18**	**1,338.67**	**1,685.85**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	812.22	-	812.22
BERNARDS TOWNSHIP	1,243.01	-	1,243.01
BERNARDSVILLE BOROUGH	184.10	-	184.10
FAR HILLS BOROUGH	73.80	-	73.80
PEAPACK GLADSTONE BOROUGH	51.73	-	51.73
Total	**2,364.85**	**-**	**2,364.85**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	261.78	261.78
FRANKLIN BOROUGH	122.41	-	122.41
GREEN TOWNSHIP	198.70	-	198.70
HAMBURG BOROUGH	8.40	-	8.40
HARDYSTON TOWNSHIP	8.31	99.39	107.70
HOPATCONG BOROUGH	467.68	35.64	503.32
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	163.93	84.54	248.47

SPARTA TOWNSHIP	350.42	482.06	832.48
STANHOPE BOROUGH	91.39	-	91.39
VERNON TOWNSHIP	265.93	75.40	341.34
Total	**1,677.18**	**1,038.82**	**2,716.00**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	297.52	129.82	427.34
ALPHA BOROUGH	89.28	-	89.28
BELVIDERE TOWN	43.76	-	43.76
FRANKLIN TOWNSHIP	67.72	-	67.72
FRELINGHUYSEN TOWNSHIP	-	-	-
GREENWICH TOWNSHIP	208.20	-	208.20
HACKETTSTOWN TOWN	70.75	-	70.75
HARMONY TOWNSHIP	164.74	0.18	164.92
HOPE TOWNSHIP	27.52	-	27.52
INDEPENDENCE TOWNSHIP	210.51	26.93	237.44
LIBERTY TOWNSHIP	-	69.54	69.54
LOPATCONG TOWNSHIP	172.00	-	172.00
MANSFIELD TOWNSHIP	213.74	0.95	214.68
OXFORD TOWNSHIP	198.72	150.71	349.43
PHILLIPSBURG TOWN	67.82	-	67.82
POHATCONG TOWNSHIP	27.82	194.42	222.25
WASHINGTON BOROUGH	29.52	-	29.52
WASHINGTON TOWNSHIP	207.11	544.84	751.95
WHITE TOWNSHIP	40.20	187.92	228.12
Total	**2,136.93**	**1,305.31**	**3,442.24**

Highlands Total	**19,614.86**	**14,461.23**	**34,076.09**

PRESERVED NONPROFIT LANDS

Bergen County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
MAHWAH TOWNSHIP	0.52	204.57	205.09
OAKLAND BOROUGH	-	-	-
Total	**0.52**	**204.57**	**205.09**

Hunterdon County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALEXANDRIA TOWNSHIP	-	-	-
BETHLEHEM TOWNSHIP	-	203.09	203.09

BLOOMSBURY BOROUGH	-	-	-
CALIFON BOROUGH	-	-	-
CLINTON TOWN	9.67	-	9.67
CLINTON TOWNSHIP	56.94	-	56.94
GLEN GARDNER BOROUGH	-	-	-
HAMPTON BOROUGH	-	-	-
HIGH BRIDGE BOROUGH	0.22	-	0.22
HOLLAND TOWNSHIP	50.63	-	50.63
LEBANON BOROUGH	-	-	-
LEBANON TOWNSHIP	-	309.70	309.70
MILFORD BOROUGH	-	-	-
TEWKSBURY TOWNSHIP	-	188.74	188.74
UNION TOWNSHIP	-	-	-
Total	**117.46**	**701.54**	**818.99**

Morris County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BOONTON TOWN	-	-	-
BOONTON TOWNSHIP	68.04	-	68.04
BUTLER BOROUGH	-	-	-
CHESTER BOROUGH	-	-	-
CHESTER TOWNSHIP	-	231.30	231.30
DENVILLE TOWNSHIP	14.27	-	14.27
DOVER TOWN	-	-	-
HANOVER TOWNSHIP	6.86	-	6.86
HARDING TOWNSHIP	282.04	-	282.04
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	224.86	224.86
KINNELON BOROUGH	-	332.19	332.19
MENDHAM BOROUGH	393	-	39.93
MENDHAM TOWNSHIP	521.53	-	521.53
MINE HILL TOWNSHIP	-	-	-
MONTVILLE TOWNSHIP	24.27	-	24.27
MORRIS PLAINS BOROUGH	-	-	-
MORRIS TOWNSHIP	-	-	-
MORRISTOWN TOWN	12.32	-	12.32
MOUNT ARLINGTON BOROUGH	-	-	-
MOUNT OLIVE TOWNSHIP	-	-	-
MOUNTAIN LAKES BOROUGH	-	-	-
NETCONG BOROUGH	-	-	-
PARSIPPANY-TROY HILLS TOWNSHIP	1,368.84	-	1,368.84
PEQUANNOCK TOWNSHIP	0.90	-	0.90
RANDOLPH TOWNSHIP	1.60	-	1.60
RIVERDALE BOROUGH	-	-	-
ROCKAWAY BOROUGH	-	-	-
ROCKAWAY TOWNSHIP	185	848.12	866.87
ROXBURY TOWNSHIP	-	-	-
WASHINGTON TOWNSHIP	127.34	69.99	197.33

WHARTON BOROUGH	-	-	-
Total	**2,486.69**	**1,706.46**	**4,193.16**

Passaic County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BLOOMINGDALE BOROUGH	37.92	2.64	40.56
POMPTON LAKES BOROUGH	-	-	-
RINGWOOD BOROUGH	-	578.45	578.45
WANAQUE BOROUGH	7.14	-	7.14
WEST MILFORD TOWNSHIP	-	535.96	535.96
Total	**45.06**	**1,117.04**	**1,162.10**

Somerset County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BEDMINSTER TOWNSHIP	200.37	-	200.37
BERNARDS TOWNSHIP	42.52	-	42.52
BERNARDSVILLE BOROUGH	246.17	-	246.17
FAR HILLS BOROUGH	59.40	-	59.40
PEAPACK GLADSTONE BOROUGH	40.73	-	40.73
Total	**589.20**	**-**	**589.20**

Sussex County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
BYRAM TOWNSHIP	-	832.87	832.87
FRANKLIN BOROUGH	-	-	-
GREEN TOWNSHIP	127.16	-	127.16
HAMBURG BOROUGH	-	-	-
HARDYSTON TOWNSHIP	54.37	193.01	247.38
HOPATCONG BOROUGH	-	-	-
JEFFERSON TOWNSHIP	-	-	-
OGDENSBURG BOROUGH	-	-	-
SPARTA TOWNSHIP	188.24	112.27	300.51
STANHOPE BOROUGH	-	-	-
VERNON TOWNSHIP	8.63	-	8.63
Total	**378.40**	**1,138.15**	**1,516.55**

Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	214.28	-	214.28
ALPHA BOROUGH	-	-	-
BELVIDERE TOWN	-	-	-
FRANKLIN TOWNSHIP	-	-	-
FRELINGHUYSEN TOWNSHIP	1,021.06	-	1,021.06
GREENWICH TOWNSHIP	-	-	-
HACKETTSTOWN TOWN	-	-	-

HARMONY TOWNSHIP	-	-	-
HOPE TOWNSHIP	-	-	-
INDEPENDENCE TOWNSHIP	156.10	-	156.10
LIBERTY TOWNSHIP	-	-	-
LOPATCONG TOWNSHIP	-	-	-
MANSFIELD TOWNSHIP	-	-	-
OXFORD TOWNSHIP	-	-	-
PHILLIPSBURG TOWN	-	-	-
POHATCONG TOWNSHIP	-	128.87	128.87
WASHINGTON BOROUGH	-	-	-
WASHINGTON TOWNSHIP	-	-	-
WHITE TOWNSHIP	-	-	-
Total	**1,391.44**	**128.87**	**1,520.31**

Highlands Total	**5,008.76**	**4,996.64**	**10,005.40**

PRIVATE EASEMENT PRESERVED LANDS			
Warren County			
Municipality	**Planning Area (acres)**	**Preservation Area (acres)**	**Total**
ALLAMUCHY TOWNSHIP	-		-
ALPHA BOROUGH	-		-
BELVIDERE TOWN	-		-
FRANKLIN TOWNSHIP	-		-
FRELINGHUYSEN TOWNSHIP	-		-
GREENWICH TOWNSHIP	-	42.24	42.24
HACKETTSTOWN TOWN	-		-
HARMONY TOWNSHIP	-		-
HOPE TOWNSHIP	-		-
INDEPENDENCE TOWNSHIP	-		-
LIBERTY TOWNSHIP	-		-
LOPATCONG TOWNSHIP	-		-
MANSFIELD TOWNSHIP	-		-
OXFORD TOWNSHIP	-		-
PHILLIPSBURG TOWN	-		-
POHATCONG TOWNSHIP	-	13.18	13.18
WASHINGTON BOROUGH	-		-
WASHINGTON TOWNSHIP	-		-
WHITE TOWNSHIP	-		-
Total	-	55.42	55.42

Highlands Total	**-**	**55.42**	**55.42**

Appendix B

DESCRIPTION OF FILES: Open Space
Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator:
New Jersey Highlands Water Protection and Planning Council (NJ Highlands Council)
Publication_Date: 20080110
Title: Open Space
Edition: 1.0
Geospatial_Data_Presentation_Form: vector digital data
Publication_Information:
Publication_Place: Chester, NJ
Publisher:
New Jersey Highlands Water Protection and Planning Council (NJ Highlands Council)
Online_Linkage: <http://www.highlands.state.nj.us/>
Description:
Abstract:
This file represents open space within the NJ Highlands Region. This file is a compilation of many different data sources that include federal, county, local, and non-profit groups.
Purpose:
This data layer is important in determining existing open space within the Highlands Region. It will serve as the basis of compiling and maintaining open space lands within the NJ Highlands Region.
Supplemental_Information:
Throughout the NJ Highlands Region, open space continually evolves. This file was compiled from numerous sources and the currentness is based on the date data was received from a particular source. Sources and currentness are referenced in the cross reference section of this metadata. All data was attributed to 2007 MODIV records.
Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Currentness_Reference: Data Collection Dates as referenced
Status:
Progress: Planned
Maintenance_and_Update_Frequency: As needed

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -75.205777
East_Bounding_Coordinate: -74.122244
North_Bounding_Coordinate: 41.285351
South_Bounding_Coordinate: 40.535834
Keywords:
Theme:
Theme_Keyword: New Jersey Highlands Council
Theme_Keyword: Open Space
Theme_Keyword: Publicly Held Lands
Theme_Keyword: Public Lands
Theme_Keyword: Easements
Theme:
Theme_Keyword_Thesaurus: ISO 09115 Topic Category
Theme_Keyword: planningCadastre, 015
Place:
Place_Keyword: New Jersey Highlands
Access_Constraints: None
Use_Constraints:
Data Distribution Agreement The Highlands Council Agrees to abide by the terms and conditions of the following: I. Description of Data to be provided

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Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization:
New Jersey Highlands Water Protection and Planning Council (NJ Highlands Council)
Contact_Address:
Address_Type: mailing and physical address
Address: 100 North Road
City: Chester
State_or_Province: New Jersey
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Hours_of_Service: normal business hours
Data_Set_Credit:
Grant F. Walton Center for Remote Sensing and Spatial Analysis, The North Jersey District Water Supply Commission, NJDEP Green Acres Program & Division of Science, State Agriculture Development Committee, National Park Service Water Resources Division, US Fish and Wildlife Service, New Jersey Conservation Foundation, The Nature Conservancy, Civil Solutions, and NJ Highlands Counties and Municipalities.
Native_Data_Set_Environment:
Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.2.1350
Cross_Reference:
Citation_Information:
Originator: NJDEP, Green Acres Program
Publication_Date: 2003

Title: local-np
Geospatial_Data_Presentation_Form: vector digital data
Publication_Information:
Other_Citation_Details: Collected 2007
Cross_Reference:
Citation_Information:
Originator:
New Jersey Department of Environmental Protection (NJDEP), Green Acres
Publication_Date: 1995
Title: NJDEP State-Held Conservation Easements
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2007
Cross_Reference:
Citation_Information:
Originator:
New Jersey Department of Environmental Protection (NJDEP), Green Acres
Publication_Date: 1999
Title:
NJDEP State Owned, Protected Open Space and Recreation Areas in New Jersey
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2007
Cross_Reference:
Citation_Information:
Originator: State Agriculture Development Committee
Publication_Date: 20051024
Title: njfarms_pf
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2007
Cross_Reference:
Citation_Information:
Originator: National Park Service Water Resources Division
Publication_Date: 20010101
Title:
Delaware Water Gap National Recreation Area Small-Scale Base GIS Data
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005
Cross_Reference:
Citation_Information:
Originator: National Park Service Water Resources Division
Publication_Date: 20010101
Title: Morristown National Historical Park Small-Scale Base GIS Data
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005
Cross_Reference:
Citation_Information:
Originator:
USFWS, Region 9, Information Technology Management, Branch of Data and Systems Services
Publication_Date: 200110

Title: USFWS, Revised Refuge Boundaries (Interactive mapping version)
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005

Cross_Reference:
Citation_Information:
Originator: New Jersey Conservation Foundation
Publication_Date: 20050822
Title: NJCF_openspace
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005

Cross_Reference:
Citation_Information:
Originator:
NJ Department of Environmental Protection (NJDEP), Division of Science, Research and Technology
Publication_Date: 20011109
Title: golf_pub
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005

Cross_Reference:
Citation_Information:
Originator:
New Jersey Department of Environmental Protection (NJDEP), Green Acres
Publication_Date: 20010104
Title: Federal Lands
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2007

Cross_Reference:
Citation_Information:
Originator: The Nature Conservancy
Publication_Date: 20040106
Title: Tnc_oshl
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details: Collected 2005

Cross_Reference:
Citation_Information:
Publication_Date: Varies
Title: County Open Space Data
Geospatial_Data_Presentation_Form: vector digital data
Other_Citation_Details:
Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex, Warren.

Collected 2006

Data_Quality_Information:
Logical_Consistency_Report:
Topology on the dataset was run utilizing the following rules: Must not overlap Must not have gaps must be covered by feature class of HighlandsBoundary (the Highlands Defined boundary)
Completeness_Report:

Some values were left blank because either they were non-applicable or unknown.

Lineage:

Process_Step:

Process_Description:

This file is a compilation of many different data sources that include federal, county, local, and non-profit groups. The data also includes the MODIV data from 2007. (NJ Highlands, November 2007).

Process_Date: 20071115

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: New Jersey Highlands Water Protection and Planning Council

Contact_Person: Roger D. Keren

Contact_Position: GIS Director

Contact_Address:

Address_Type: mailing and physical address

Address: 100 North Road

City: Chester

State_or_Province: NJ

Postal_Code: 07930

Country: USA

Contact_Voice_Telephone: 908-879-6737

Contact_Facsimile_Telephone: 908-879-4205

Contact_Electronic_Mail_Address:

roger.keren@highlands.state.nj.us

Hours_of_Service: normal business hours

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 6022

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: State Plane Coordinate System 1983

State_Plane_Coordinate_System:

SPCS_Zone_Identifier: 2900

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999900

Longitude_of_Central_Meridian: -74.500000

Latitude_of_Projection_Origin: 38.833333

False_Easting: 492125.000000

False_Northing: 0.000000

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000
Planar_Distance_Units: survey feet
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000010
Altitude_Encoding_Method:
Explicit elevation coordinate included with horizontal coordinates

---

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: OpenSpace
Entity_Type_Definition:
As defined by the Technical Report Addenda (NJ Highlands Council, November 2007)
Entity_Type_Definition_Source: NJ Highlands Council
Attribute:
Attribute_Label: FID
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: PID
Attribute_Definition: Parcel Identification
Attribute_Definition_Source: NJ Highlands Council
Attribute:
Attribute_Label: OS_NAME
Attribute_Definition: Open Space Name
Attribute_Definition_Source: NJ Highlands Council
Attribute:
Attribute_Label: OS_CLASS
Attribute_Definition: Open Space Classification
Attribute_Definition_Source: NJ Highlands Council
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: COUNTY
Enumerated_Domain_Value_Definition: County Owned Open Space

Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: EASEMENT
Enumerated_Domain_Value_Definition: Property with an easement
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: FARMLAND
Enumerated_Domain_Value_Definition: Preserved farmland
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: FEDERAL
Enumerated_Domain_Value_Definition: Federally owned open space
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: MUNICIPAL
Enumerated_Domain_Value_Definition: Municipally owned open space
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: NONPROFIT
Enumerated_Domain_Value_Definition: Nonprofit owned open space
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: STATE
Enumerated_Domain_Value_Definition: State owned open space
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Enumerated_Domain:
Enumerated_Domain_Value: WSMA
Enumerated_Domain_Value_Definition: Watershed management area
Enumerated_Domain_Value_Definition_Source: NJ Highlands Council

Attribute:
Attribute_Label: OS_USE
Attribute_Definition:
Open space use. See USE in NJDEP State Owned, Protected Open Space and Recreation Areas in New Jersey.
Attribute_Definition_Source: NJDEP

Attribute:
Attribute_Label: EASEMENT
Attribute_Definition: Type of Easement

Attribute_Definition_Source: NJ Highlands Council

Attribute:

Attribute_Label: OWNER
Attribute_Definition: Owner Name in the MODIV 2007 Tax list
Attribute_Definition_Source: NJ Highlands Council

Attribute:

Attribute_Label: FACILITY
Attribute_Definition:
Type of Facility for exempt properties in the MODIV 2007 Tax list
Attribute_Definition_Source: NJ Highlands Council

Attribute:

Attribute_Label: STATUTE
Attribute_Definition: Statute Number for exempt properties in the MODIV 2007 Tax list
Attribute_Definition_Source: NJ Highlands Council

Attribute:

Attribute_Label: Acres
Attribute_Definition: Area in Acres
Attribute_Definition_Source: NJ Highlands Council

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:
Contact_Organization: Highlands Council
Contact_Address:
Address_Type: mailing and physical address
Address: 100 North Road (Route 513)
City: Chester
State_or_Province: New Jersey
Postal_Code: 07930
Country: USA
Contact_Voice_Telephone: 908-879-6737
Contact_Facsimile_Telephone: 908-879-4205
Contact_Electronic_Mail_Address: highlands@highlands.state.nj.us
Contact_Instructions:
Contact the Distributor if you have any questions or concerns regarding the distribution and/or download of this data. If you have questions or concerns regarding the data itself, please contact the Metadata Contact person listed in the Metadata Reference Section.

Resource_Description: Downloadable Data
Distribution_Liability: See "Use Constraints"
Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:
Transfer_Size: 0.600

Metadata_Reference_Information:

Metadata_Date: 20080109

Metadata_Contact:

Contact_Information:

Contact_Person_Primary:
Contact_Person: Roger D. Keren
Contact_Organization: Highlands Council
Contact_Position: GIS Director
Contact_Address:
Address_Type: mailing and physical address
Address: 100 North Road
City: Chester
State_or_Province: New Jersey
Postal_Code: 07930
Country: USA
Contact_Voice_Telephone: 908-879-6737x123
Contact_Facsimile_Telephone: 908-879-4205
Contact_Electronic_Mail_Address: roger.keren@highlands.state.nj.us
Hours_of_Service: normal business hours
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

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Appendix C

A Forest Stewardship Plan includes the following planning criteria:

The forest management plan must meet certain guidelines and criteria as laid out in N.J.A.C. 18:15-2.7.

1. The cover page with the following:
    a. The owners name and mailing address;
    b. The municipality and county where the woodland is located;
    c. All blocks and lots of the property;
    d. Total acreage of the property and the acreage covered in the plan;
    e. Name and address of the approved forester who prepared the plan if not prepared by the owner;
    f. Date the plan was prepared and period the plan covers;
    g. A Stewardship pledge signed by the landowner.
2. A clear and concise statement of the owner's objectives in managing the woodland.
3. A description of how the property boundaries are or will be marked and delineated.
4. A brief description of past activities that had had an effect on the woodland including but not limited to, wildfire, insect and disease outbreaks, timber sales, plantings, thinnings and weedings.
5. A statement describing each defined forest stand in some combination of the following factors:
    a. The number of acres;
    b. The species composition including overstory and understory;
    c. The general condition and quality;
    d. The structure including age classes, DBH classes and crown classes;
    e. The overall site quality;
    f. The condition and species composition of advanced regeneration when applicable;
    g. The stocking levels, growth rates and volumes.
    h. Invasive plant species must be discussed and managed where possible;
6. Soil characteristics and erodibility;
7. Recommendations and a short discussion of the effects of such actions on forest health and protection, soil, water, wildlife and fish habitat, recreation, aesthetics and timber resources;
8. Discussions concerning invasive species must address quantitative data (i.e. amount per acre, percentage of area covered or acres affected) the effect of forest management activities on the spread of these species;
9. Best Management Practices must be followed for all forestry activities.

10. A description of the silvicultural prescriptions, management recommendations, activities and practices specified and planned for each stand, and an explanation of how these sequences of treatment are integrated in to the overall coordinated plan and time frame to meet the stated management objectives. Such management recommendations and practices shall be prepared for a period of not less than ten years.
11. A statement of the overall productivity capabilities of the woodland.
12. Maps of the property will be prepared to include, but not necessarily be limited to the following:
    a. The owner's name and address and the date the map was prepared;
    b. An arrow designating the North direction;
    c. The map should be of sufficient size with a scale no smaller than 1"=1320' not larger than 1"=400' and fit on a page not to exceed 8.5"X14";
    d. A legend defining the symbols appearing on the maps;
    e. The location of the property boundaries and corners using GPS latitudes and longitude coordinates if possible. Do not use surveying coordinates;
    f. An identification of the forest stands which are keyed to the written prescriptions;
    g. A delineation of physical features such as roads, streams, structures, etc;
    h. An identification of soil group classes on a separate map. A verbal description of the forest soils must accompany the map;
    i. A brief description and an accurate location map using county of municipal maps for the purpose of locating the property in relation to the local areas. If the property does not have a street number, any identifiable feature should be noted for locating the property for site inspection purposes;
    j. All lines and map features will be clear and legible and not repeated photocopies.
13. A detailed annual schedule of meaningful and measurable forest management activities outlining all tasks that will be carried out in the 10 year period covered by the plan;
14. All plans submitted to the NJ Forest Service should be stapled only. No binders or heavy covers.

Supplied by NJDEP Div of Parks and Forestry, Forest Service Northern Region office.

A Forest Stewardship Plan also requires a search of the Natural Heritage database and a section which discusses non-native invasive plants. The potential presence or absence of species of concern, rare, threatened, or endangered species or possible habitat does not prevent the implementation of forest management practices. The Forest Stewardship Plan has to address the potential effect on the

ecosystem and the species listed. Completion of a Forest Stewardship Plan meets the criteria for Farmland Assessment.

In 2002, about 5,600 acres were managed through Forest Stewardship Plans representing less than 1 percent of New Jerseys Highlands forests *(NYNJ Highlands Study Update 2002)*