

SANDYSTON TOWNSHIP MASTER PLAN



September 2008

Prepared by:

The Sandyston Township Land Use Board

with technical assistance from

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&

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SANDYSTON TOWNSHIP MASTER PLAN
TOWNSHIP OF SANDYSTON
SUSSEX COUNTY, NEW JERSEY

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Sandyston Township, New Jersey

Master Plan Report

2008

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INTRODUCTION

Purpose

The New Jersey Municipal Land Use Law (N.J.S.A. 40:55D-28) establishes the requirement for each municipality to prepare a Master Plan and to formally review the plan a minimum of once every six years.

The Sandyston Township Master Plan is the primary document which establishes how the Township will grow in the future through sustainable development and redevelopment. The plan considers a variety of factors, both natural and manmade, that impact the community including land use and centers, resource conservation, housing, circulation, economic development, recreation, farmland and historic preservation, and recycling. After addressing the applicable planning issues, goals and objectives for addressing those issues are provided for implementation.

Sandyston Township's Vision for the Future

At the beginning of this Master Plan project, the Sandyston Township Planning Board developed "Sandyston Township's vision for the future". The visioning process was modeled after the visioning process utilized in developing the Sussex County Strategic Growth Plan. Sandyston Township's vision is to:

"Retain its rural and small town character, agricultural community, and abundant open space; conserve its natural resources; maintain a high quality, active life for its citizens; provide adequate and affordable housing for its citizens; and provide a feeling of purpose, place, and belonging for its citizens; and, in cooperation with the state and federal land management agencies, develop an economic base tailored to agricultural and natural resources tourism."

The four steps that needed to be addressed in the visioning process were:

1. Where are we now?
2. Where are we going?
3. Where do we want to be?
4. How do we get there?

In step one, it was determined that Sandyston Township is a community of former dairy farms and vacation homes that has slowly been converting to a bedroom community. In step two, it was recognized that the proposed Highlands regulations coupled with the continued out migration from urban and suburban areas appear to have shifted growth pressure westward to the Township. Developers are showing an increased interest in the Township's remaining vacant residential and commercial property; forecasting accelerated upscale development. Additionally, Sandyston is adjacent to Pike and Monroe Counties in Pennsylvania, two of the most rapidly growing counties in the country. The development echo of these two counties will undoubtedly place additional pressure on Sandyston's remaining developable land. In step three, the vision statement,

as set forth above, was formulated. The statement is a compilation of the 16 goals developed by the Planning Board. They are listed in no particular order of importance on pages 17 and 18. The final step, step 4, is the subject of this Master Plan, “How do we get there?” The purpose of the Master Plan is to identify the goals and objectives that will lead the Township toward achieving its vision for the future.

Location

Sandyston Township is located in northwestern Sussex County, New Jersey, and comprises just over 27,000 acres covering 42.3 square miles. It is bordered on the west by the Delaware River and Pennsylvania, on the east by Frankford Township, on the north by Montague Township, and on the south by Walpack Township. The Township roughly takes the shape of a north-south rectangle tilted 45 degrees to the east. Like Montague and Walpack, Sandyston is isolated from much of the rest of Sussex County by the bold Kittatinny Mountain Ridge and a continuous band of federal and state owned open space, which spans more than 30 miles from the New York State line to the Delaware Water Gap.

Landscapes

Sandyston Township is in the Ridge and Valley physiographic province, so named for its topographic features of long parallel ridges and valleys. Sandyston Township basically consists of two natural landscapes: forested moderate to very steep slopes with thin soils, boulder fields, and rock outcrops; and stream valleys where deep fertile soils are intermixed with extensive forested and open wetlands. The landscapes are generally in four alternating linear bands that run northeast to southwest. From east to west, these bands are the Kittatinny Ridge (that is double crested in the northern half of the Township), the Flatbrook Valley, the Walpack Ridge, and the Delaware Valley. Elevations in the Township range from over 1,650 feet along the Kittatinny Ridge to less than 350 feet in the Delaware and Flatbrook Valleys. All the landscapes of Sandyston are crisscrossed with mile upon mile of manmade stone rows that serve as a silent testimony to the Township’s rich agriculture past.

Municipal Profile

Sandyston Township is a rural community with a small town atmosphere. Federal and state permanently preserved public open spaces comprise approximately 70 percent and surround the primary residential neighborhood of Kittatinny Lake and the two state designated centers of Layton and Hainesville. Sandyston’s approximately 1,900 citizens reside in roughly 910 housing units¹. Approximately 97 percent of the housing units are single-family detached homes, many of which are converted weekend/summer retreats. The Township continues to have a relatively high percentage of vacation homes, as evidenced by the approximately 24 percent vacancy rate² in housing units. Of the

¹ Information in this section is taken from the 2000 US Census Data.

² Vacancy rate is compiled by the US Census and includes homes that are not primary residences.

occupied housing units, about 88 percent are owner occupied and the remaining 12 percent are renter occupied.

The median household income in the Township, according to the 2000 US Census was \$55,667. Those who work, do so primarily outside of the Township. About 50 percent of the Township's commuters stay within Sussex County to work, while 50 percent commute to jobs outside of the County. The mean commute time in 2000 was about 38 minutes. This has likely increased along with the commute times of most other workers across the state. Many Township businesses are family-owned and operated and depend upon tourists, sportsmen, and commuters for their livelihood. For the most part, the citizens of Sandyston favor low impact, slow growth that will preserve the unique rural character of the Township.

History of Planning in Sandyston Township

The first Sandyston Township Master Plan was adopted in 1961. The plan envisioned that Sandyston would remain a rural and agricultural community with very slow growth or even negative growth as a result of the pending Tocks Island Dam Project.

In 1973, the Sandyston Township Planning Board recognized that times were changing and that continued out-migration from the metropolitan centers would place increasing development pressures on the Township. As a result, a Master Plan update was started to include more careful, advanced, and scientific planning.

The 1973 Master Plan started with a survey of the Township's topography, geology, and potable water resources, the suitability of the soils for individual sewage disposal systems, the location of prime farmlands and woodlands, the existing land use patterns, and demographic trends. The Land Use Plan presented was based on the analysis and interpretation of the information generated during the survey. The concepts developed in the Land Use Plan were based in part on the State of New Jersey recommended lot size standards, which in turn were based on the ability of the existing natural resources to sustain specific development densities. As a result, the Land Use Plan recommended residential densities ranging from 60,000 square foot to 200,000 square foot building lots, depending on the suitability of the land. The Master Plan was adopted and implemented by a new Zoning Ordinance³.

In 1992, the Sandyston Township Planning Board undertook a detailed re-examination of its 1973 Master Plan. The re-examination recognized a number of areas that needed updating and changing. A planning consultant was retained to prepare an updated Lot Line Base Map and conduct a current land use survey. After the analysis of the updated information, the Planning Board decided to readopt the 1973 Land Use Plan substantially unchanged. The planning consultant also prepared an updated Housing Element and Fair

³ One exception is the Kittatinny Lake area, which was subdivided prior to the advent of planning and zoning in the Township. The required minimum lot size in the Kittatinny Lake Zone remained 10,000 square feet.

Share Plan and a Historic Preservation and Economy Survey as supporting elements of the updated Master Plan.

The current update will formulate a plan that takes into account the newly mandated environmental regulations concerning fresh water wetlands protection, Category 1 Waters anti-degradation standards, and storm water management. It will incorporate the two State of New Jersey designated town centers and the applicable segments of the State of New Jersey endorsed Sussex County Strategic Growth Plan. The plan will also attempt to integrate the development plans and management plans of the state and federal land management agencies that control approximately 70 percent of the Township's landmass. The Plan will also provide recommendations as to how state and federal plans can be updated to better coordinate with the land use goals of the Township.

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NATURAL RESOURCES INVENTORY

Purpose

One of the principal concerns underlying any municipal planning program is the ability of the natural resources to support and sustain the proposed development and redevelopment within the municipality. The Natural Resources Inventory section of the Master Plan document will attempt to identify, quantify, and map Sandyston's natural resource base so that the Township's strengths, weaknesses, and limiting factors are readily discernable. Further refinement of the Township's carrying capacity for development and redevelopment will become apparent when the manmade elements are factored in, analyzed, and interpreted.

Permanently Preserved Open Space

Land, like abundant and clean water and air, is one of our most valuable natural resources. Unlike most municipalities in New Jersey, Sandyston Township is approximately 72 percent permanently preserved public open space. The vast holdings by the State of New Jersey (11,717 acres) and the Federal government (6,101 acres) constitute the largest and most significant constraint to future land development (see map # 1, Preserved Open Space). There are also 444 acres of preserved farmland in the Township, as of the writing of this plan, and more farms are slated to be brought into preservation. Farmland preservation in conjunction with conservation easements on privately held land, will further limit the total build out for the Township. Given the ever increasing pressure to develop, permanently preserved land is recognized as a benefit to the Township, rather than a detriment.

Although the plan will focus on the approximately 28 percent of the municipality that remains in private and nonprofit unencumbered ownership, it is important to remember that property boundaries are porous to water, wind, wildlife, pollutants, visual images, noise, regulations, and almost everything that impacts our lives. Therefore, even though the state and federal holdings are beyond the scope of municipal control in terms of land management practices, they will nevertheless be appropriately considered in the planning process, and strategies for the implementation of mutually beneficial programs will be recommended.

Bedrock Geology

Sandyston Township is underlain by several major geologic formations, which date from 440 to 400 million years before present. The easternmost section consists of the Shawangunk conglomerate, a mixture of white quartz and reddish slate pebbles in a gray silicate matrix. The conglomerate is resistant to erosion and forms the crest of Kittatinny Ridge and the steep rocky slopes. The Kittatinny Ridge is substantially uniform and is broken only once at Culver's Gap. There are several conflicting theories as to the formation of the gap; however, there is agreement that its transformation from a water gap to a wind gap is the result of stream piracy. West of the ridge crest is the High Falls formation, consisting of alternating red-green and olive colored sandstones and shales.

The Shawangunk and the High Falls were formed during the Silurian Period and the transformation from one formation to the other is not sharply defined. Devonian Period formations of limestone, shale, and sandstone underlie the western third of the Township occurring along the Walpack Ridge and in the Delaware Valley. The formations are all of sedimentary origin having been deposited horizontally in a shallow sea. Following exposure to intense heat and pressure, the formations were uplifted, tilted to the west, and eroded. Because the beds are tilted, they can have great depth even if they are relatively thin.

The Devonian limestone was formed at a time when lime secreting organism were predominant and is the most important formation in terms of ecological diversity, biological productivity, ground water recharge, and potential aquifer discharge. Characteristic of this formation are features such as caves, solution caverns, sinkholes, vernal ponds, sinkhole ponds, sinking creeks, and springs. These characteristics make such areas unstable and susceptible to subsidence and surface collapse. As a result, the alteration of drainage patterns in these areas by the placement of impervious coverage, grade changes, or increased loads from site improvements can lead to land subsidence and sinkholes. Fractures or solution openings and fissures in the limestone rock may lead to public or private water supplies, making those sources especially susceptible to groundwater contamination. The Devonian Limestone is an important source of groundwater in the Township. Special regulations, in addition to the Residential Site Improvement Standards, should govern development over this limestone formation (see map # 2, Bedrock Geology).

Surficial Geology

During the last million years, three different continental glaciers covered Sandyston Township. The most recent glacier was the Wisconsin Glacier and its pulses which occurred about 10,000 years ago. As the ice advanced southward, it worked a two-fold operation on the landscape. First, it cut down much of the rock strata by erosion; second, it built up other areas with scoured material deposition. The physically heterogeneous material, which was pushed forward and left behind when the glacial ice retreated, is known as morainic deposits. There are two recessional moraines in Sandyston each being about a quarter of a mile in width and rising as much as 40 feet above the surrounding land in some areas. The oldest forms a plug in Culver's Gap and is interesting because it appears to have been formed by ice moving south to north. The second and more extensive moraine zig zags across the northern third of the Township from the Frankford Township line to the Delaware River. The physically heterogeneous material that was deposited by and under the ice in several broad expansive sheets is called till. Most of the Township is covered by till of varying depth from a few feet up to as much as 100 feet.

The landscape was additionally altered by the floodwaters of the melting ice. The periglacial streams and rivers eroded unconsolidated material and transported it to other areas of deposition. Water-deposited material is called stratified drift, the various sizes in the layers being determined by the volume and velocity of the water involved. Major

deposits of stratified drift in Sandyston Township are found in the Big Flatbrook, Little Flatbrook, and Delaware Valleys. These deposits are important areas for ground water recharge and potential aquifer discharge, yielding perhaps the highest figures in Sussex County.

Sandyston Township abounds in glacial features (see map # 3, Glacial Sediment). Recessional moraines, outwash plains, kames, kame terraces, kettles, boulder fields, rock outcrops, striations, and till are the most common. Of these, till is by far the most troublesome. Since till was laid down beneath the ice, at times up to a mile high, it was subjected to intense pressure and thus densely compacted. Over the past 10,000 years, congelation, or the stirring of the soil layers by frost during the annual freeze thaw cycle has loosened the upper 30 to 48 inches of soil. As water moves downward through the upper soil layers it carries with it suspended particles of fine silt and clay. When the water reaches the densely compacted subsoil, its downward movement is greatly reduced and much of the clay and fine silt particles precipitate out. The deposition of the clay and fine silt results in an even denser fragipan or hardpan which in turn results in seasonally high perched water tables, reduced drainage, increased lateral movement, slides, slumps, flooding and generally poor percolation. Development on lands with these characteristics increases the chances for erosion, flooding, ground water contamination and decreased groundwater recharge. Special regulations and engineering techniques, especially on slopes, must be employed to confront these restrictive characteristics.

Slopes and Rock Outcrops

Slopes in Sandyston Township have been divided into five categories. They are gentle (0-5%), mild (5-15%), moderate (15-25%), steep (25-35%), and very steep or severe (over 35%). The gentle slopes are found mainly along the Delaware River and in the valleys of the Big Flatbrook and Little Flatbrook. The mild slopes are generally found on the fringes of the Delaware, Little Flatbrook, and Big Flatbrook valleys. Gentle and mild slopes are also found in the upland areas, particularly over thick deposits of glacial till. Moderate slopes are restricted to the Walpack Ridge and to the Kittatinny Ridge on both sides of the Big Flatbrook valley. Steep slopes are restricted to portions of the Walpack Ridge and Kittatinny Ridge. Significant rock outcrops are also associated with the steep slope areas. The very steep or severe slopes and numerous rock outcrops, some of which form almost vertical ledges, are found along the extreme eastern edge of the Township on and just west of the Kittatinny Ridge crest (see map # 4, Slope by Percent - Colored & Shaded Relief and map # 5, Hillshade Relief).

Steep and very steep or severe slopes are a concern to the planning process for a number of reasons. The rapid elevation change over a short distance makes them highly susceptible to erosion when disturbed. Typical disturbances of concern would include poor agricultural and logging practices as well as clearing and grading for roads, driveways, parking lots, septic systems, lawns, and buildings. Changes in natural cover types (forest, grassland, bare soil, rock outcrops), the amount and character of manmade impervious cover added, and seasonal variations (frozen, frozen at depth with a thawed surface, thawed throughout) in the soils cover have a considerable impact on storm water

flows. Additionally, septic systems in some soils perform less efficiently on steep and very steep or severe slopes than they do in the same soil on moderate slopes. To reduce the possible negative impacts from development on slopes over 15 percent, special regulations governing development in these areas should be developed.

Surface Water Resources

All of Sandyston Township lies in Watershed Management Area 1, also known as the Upper Delaware River Watershed Management Area (see map #6, Watershed Management Area). The principle waterways in the watershed are the Little Flatbrook, the Big Flatbrook, and the Delaware River. Significant impoundments are Kittatinny Lake, Lake Ashroe, Deer Lake, Lake Shawanni, Stony Lake, Lake Ocquittunk, Lake Wapalanne, Rooke Lake, Camp Kittatinny Pond, and a portion of Duck Pond.

The NJDEP Surface Water Quality Standards classifies each of the state's surface freshwater bodies using three different sets of criteria to yield a three-tiered classification system. They are Fresh Water1 (FW1) and Fresh Water 2 (FW2), and Trout Production, Trout Maintenance, and Non-Trout Waters, and Category 1 (C1) and Category 2 (C2) Waters.

FW1 Waters or Outstanding Natural Resource Waters are to be maintained in their natural state of quality in perpetuity and cannot be subjected to any manmade wastewater discharges or increases in runoff as a result of human activity. Waters not classified as FW1 are classified as FW2. There are three sub categories of the FW classification: trout production, trout maintenance, and non-trout. The third tier is the anti-degradation category of C1 and C2.

C1 Waters are classified using many of the same criteria that are used for the FW1 classification, with the addition of criteria such as recreational utility, water supply importance, clarity, color, ecological importance, and setting. C1 Waters can contain wastewater and many FW2 Waters are classified as C1 Waters. The most important aspect of C1 Waters is that the quality cannot be measurable reduced below the established quality at the time it received C1 designation. The designation provides protections that discourage development, such as the 300 foot stream buffer. Any water body that is not either FW1 or C1 is designated as C2. The abundance of C1 Waters in Sandyston Township and the 300 foot buffers afforded these waters will have a significant impact on the development and redevelopment potential on large segments of the Township (see map # 7, C-1 Streams).

As stated earlier, Sandyston Township is covered with extensive wetlands (see map # 8, Wetlands). The NJDEP has classified most of these wetlands as "exceptional value wetlands" and affords them the highest level of protection. The 150 foot buffer area established around these wetlands that prohibits disturbances of any type will have an additional significant impact on the development and redevelopment potential of large segments of the Township.

Flood plains and flood hazard areas line many of the waterways in Sandyston, particularly the Delaware River (see map #9, FEMA Floodplains and NJDEP FHA). Building within flood plains and flood hazard areas creates risks to life and property during flood events, but may also increase the extent of future flood impacts to surrounding and downstream properties. Development in flood plains and flood hazard areas should be avoided when possible, and if unavoidable, should adhere to state and federal regulations.

Groundwater Resources

All of Sandyston's residents rely on groundwater provided by private on-site wells for water consumption. Groundwater is any precipitation that percolates into the soil. Groundwater recharge is water that moves as subsurface runoff to wetlands, lakes, streams, and rivers or into porous layers of geologic formations called aquifers. The rate of groundwater infiltration into the aquifer is a factor of slope, soil type, surficial geology, and bedrock geology. Human influences such as the installation of impervious surfaces, changes in ground cover, or the conversion of sheet flow to channel flow will affect groundwater recharge rates. The vast majority of the Township, including most of the approximately 28 percent of land in the Township remaining for development and redevelopment, has excellent groundwater recharge (see map # 10, Ground Water Recharge).

Potential aquifer productivity is the ability of the aquifer to yield groundwater to wells, which is expressed in gallons of water per minute. The yield is an indicator of the aquifer's ability to absorb, store, and transmit groundwater. Sandyston has two aquifer ranks. One which can potentially produce yields between 251 and 500 gallons per minute and the other which can potentially produce yields of between 25 and 100 gallons per minute. It is significant that a portion of the aquifer with the highest potential yield is found under, or in close proximity, to Sandyston's two designated centers (see map # 11, Well Yield).

The long-term sustainability of Sandyston's groundwater supply will depend on how well the groundwater aquifers are safeguarded. Of particular concern are those aquifers that are located in the Devonian limestone formation, hence the need for added protective measures. Also of concern, is the addition of new wells that impact the surrounding wells on existing lots. There may also come a time when pollution, draw down, residential density, or other unforeseen factors may necessitate the employment of community wells or municipal wells in selected areas of the Township. For these reasons, it is important to carefully test surrounding wells when multiple wells are proposed for a subdivision or a water system is proposed for a larger commercial or residential development. The safeguarding of groundwater quality and quantity through proper land use practices in areas of high groundwater recharge, potential high aquifer productivity, and areas prone to degradation is critical.

Natural Communities and Other Land Use Cover

Sandyston Township lies in the botanical transition zone where many southern species are at their northernmost range and many northern species are at their southernmost range. Typically, local environmental conditions such as bedrock, soils, microclimate, exposure, moisture, and elevation influence the types of flora and fauna communities found in transition zones.

Ten significant upland and wetland natural forest types and their associated shrub and herbaceous layers can be identified in the Township. They are: Pitch Pine-Scrub Oak (upland), Pine-Oak (upland), Chestnut Oak (upland), White Oak-Hickory (upland), Northern Hardwoods-Hemlock (upland), Northern Hardwoods w/o Hemlock (upland), Mixed Oak-Hardwoods (limestone forest), Mixed Hardwoods-Conifers (limestone forest), Red Maple-Swamp White Oak (wetland), and Red Maple- Swamp White Oak with Hemlock (wetland). Substantial amounts of White Pine (formerly called Old Field Pine) may be found in each of the communities listed above, particularly if the area had once been in agriculture or subjected to intense clear cutting. Each forest type supports its own characteristic assemblage of wildlife communities.

In addition, there are many areas where past human activities have altered the natural conditions and the various stages of secondary succession can be found or where invasive species are overrunning the landscape. On the large tracks of federal and state land where the exotic species are overwhelming the landscape, the open space values initially sought to be preserved through acquisition are thus being destroyed. Both the state and federal government land management agencies must take immediate proactive measures to implement programs, which will not only stop the spread of invasive exotics but restore the natural environment as well.

It should be noted that during the 1930's, the State Forest Service, Civilian Conservation Corps, and other federal government work programs planted approximately 675,000 trees in Sandyston Township. The vast majority of those trees were planted as monoculture plantations of Red Pine, Norway Spruce, or White Pine on former farm fields in Stokes State Forest; however, plantations from this period also exist on private land holdings. Currently, both the natural plant communities and the man-influenced plant communities are under assault from a variety of parasites, pests, and pollutants (mainly acid rain) that will ultimately further alter the composition of the Township's forest cover.

Rounding out the other significant land use cover categories are areas of open water, marshes, cultivated fields, lawns and pastures, and manmade structures and amenities (see map # 12, Land Use Land Cover).

Soils

Of all the elements of nature that are called upon to support human activities, none is more varied, more complex, and ultimately more misunderstood than the soil. The differences in soil, from the subtle to the bold, are a function of the parent material and

how it has been acted upon by the other elements of the environment over geologic time. Consequently, the more varied the parent material and the more varied the environment, the more varied will be the soils of a given area. Sandyston's soils are either formed from bedrock (conglomerate, sandstone, shale, or limestone) that weathered in place, or from bedrock that was ground, blended to varying degrees, and deposited by the glacial ice (moraine and till) or the glacial melt-waters (stratified drift), or from the sediments (organic) of eutrophicated lakes and other associated lowland drainage areas.

From the deep, well drained, fertile soils of the Delaware River terraces to the thin, bedrock dominated soils of the Kittatinny Ridge, no less than 45 different soils were identified, described, and mapped in Sandyston Township during the 1975 Soil Survey of Sussex County. Each of these soils has its own assemblage of external and internal characteristics that support, limit, and otherwise affect human activities. For well over 300 years, these soils supported a wide variety of agricultural pursuits that were the corner stone of the municipality and its economic base. Today, and in the future, these same soils will be called upon to both support, and keep in check, the slow but steady development of the Township.

The soils with the least potential and most severe limitations for development are those that experience occasional flooding (OF), frequent flooding (FF), or a seasonally high water table at the surface (SHWTS). Most of these soils are found in the lowland depressions and along the numerous stream courses. They are generally deep, nearly lacking in slope, poorly drained, and high in organic matter. Most of these soils are categorized as exceptional value wetlands and are protected against disturbance with 150-foot buffers. Additionally, the watercourses flowing through these wetlands are classified as Category-1 Waters and are, therefore, protected against anti-degradation disturbances with 300-foot buffers. The soils that are included in this group are shown in Figure 1. (See map #13, Soils).

Several soils experience a seasonally high water table (SHWT) within 3 feet of the soil surface. These soils can produce severe limitations to development especially if the buildings require basements or individual sewage disposal systems are to be used. These soils may or may not be classified as wetlands and may or may not be in close proximity to Category-1 waters. When proposing development on these soils, a detailed investigation should be conducted early on to determine the site-specific conditions and the severity of the limitation those conditions present. The soils that have been included in this group are shown in Figure 2.

Figure 1. Soils prone to occasional flooding (OF), frequent flooding (FF) and/or a seasonally high water table at the surface (SHWTS).

1975 Nomenclature	2003 Nomenclature	Condition
Alluvial land	Fluvaquents, loamy	OF & SHWTS
Atherton loam	Atherton muck silt loam	SHWTS
Carlisle muck	Catden mucky peat	FF & SHWTS
Lyons silt loam	Alden silt loam, extremely stony	SHWTS
Lyons very stony silt loam	Alden silt loam, extremely stony	SHWTS
Middlebury loam	Hazen-Hosic complex, very stony	OF & SHWTS
Norwich silt loam	Chippewa silt loam, extremely stony	SHWTS
Norwich very stony silt loam	Chippewa silt loam, extremely stony	SHWTS
Preakness sandy loam	Pompton sandy loam	OF & SHWTS
Sloam silt loam	Alden silt loam, extremely stony	FF & SHWTS
Swamp	Catden mucky peat	FF & SHWTS

Figure 2. Soils with a seasonally high water table (SHWT) within 18 inches of the soil surface.

1975 Nomenclature	2003 Nomenclature	Condition
Braceville gravelly sandy loam	Hazen-Hoosic complex, very stony	SHWT 18-36"
Wurtsboro gravelly loam	Hazen-Hoosic complex, very stony	SHWT 18-30"

Similar to soils with a seasonally high water table, soils with rock outcrops and/or a shallow depth to bedrock (0-42" below the soil surface) present varying degrees of limitations for development. The limitations, particularly for individual sewage disposal systems, structures with basements, and storm water management requirements become more severe when these soils occur on increasingly steep slopes. Areas being considered for development where soils in this category are present may require a detailed site-specific investigation as to the suitability of the soil to support the type of development and density being proposed. These soils are predominantly found along the Kittatinny and Walpack Ridges and are shown in Figure 3.

The remainder of the soils found in Sandyston Township fall into two categories; those where the bedrock can approach within 48" of the soil surface and those that are deep and well drained. Development limitations on these soils are either slope dependent or are related to rapid permeability in the substratum that can result in a ground water pollution hazard. These soils are shown in Figures 4 and 5 along with any conditions that may pose development limitations. Where limiting conditions are noted, a detailed site-specific investigation may be appropriate to ensure that the soil can support the type and density of a proposed development.

Figure 3. Soils with rock outcrops and a shallow depth to bedrock (0-42" below the soil surface). The % slope shown is from the 2003 data.

1975 Nomenclature	2003 Nomenclature	% Slope	Depth to Bedrock	Rock outcrop %
Oquaga rock outcrop association	Oquaga-Rock outcrop complex	35-60%	At soil surface	10-20%
Oquaga extremely stony loam	Oquaga-Rock outcrop complex	0-15%	25"	N/A
Oquaga extremely stony loam	Oquaga-Lackawanna complex	15-35%	0-24"	N/A
Washington loam	Farmington-Wassaic Rock outcrop complex	8-15%	40"	N/A
Washington-Wassaic complex	Rock outcrop-Farmington-Galway complex	8-15%	At soil surface	5-10 %
Washington-Wassaic complex	Rock outcrop-Farmington-Galway complex	15-35%	At soil surface	5-10%
Wassaic rock outcrop association	Rock outcrop-Farmington-Galway complex	15-35%	At soil surface	15-35%
Wassaic silt loam	Rock outcrop-Farmington-Galway complex	15-35%	20-40'	N/A
Wassaic silt loam	Rock outcrop-Farmington- Galway complex	8-15%	24"	N/A
Rock outcrop-Oquaga association	Oquaga-Rock outcrop complex	35-60%	At surface	N/A

Figure 4. Soils where the depth to bedrock can approach 48" below the soil surface. The % slope is from the 2003 data.

1975 Nomenclature	2003 Nomenclature	% Slope	Limiting Conditions
Swartswood gravelly loam	Swartswood loam, extremely stony	0-15%	N/A
Swartswood gravelly loam	Swartswood loam, extremely stony	15-35%	Slope
Swartswood very stony soil	Lackawanna fine sandy loam, extremely stony	0-15%	N/A
Swartswood very stony soil	Lackawanna fine sandy loam, extremely stony	15-35%	Slope
Wooster loam	Wallpack silt loam	3-15%	N/A
Wooster loam	Wallpack silt loam	15-25%	Slope

Figure 5. Soils that are deep and well drained. Since the only variables of these soils within a given series are slope and texture, soils that possessed the same characteristics except for slope were combined in this table. Only when a limiting condition was noted or changed did the soil within a series get multiple listings. Most of these soils can display rapid permeability in the substratum (RPSS) regardless of slope and can pose challenging construction issues (CCI) at specific slopes (septic systems, foundations, roads, storm water management, etc.). The % slope is from the 2003 data.

1975 Nomenclature	2003 Nomenclature	Limiting Conditions
Chenango gravelly fine sandy loam	Hazen-Hoosic complex, very stony	RPSS, CCI on slopes above 15%
Chenango cobbly sandy loam	Hazen-Otisville complex, very stony	RPSS, slopes from 25-60%
Colonie loamy fine sand	Colonie loamy fine sand	RPSS
Hazen gravelly sandy loam	Hazen-Hoosic complex, very stony	RPSS
Hazen gravelly sandy loam	Hazen-Otisville complex, very stony	All slopes over 25%
Unadilla very fine sandy loam	Unadilla silt loam	N/A

Threatened and Endangered Species

The abundant open spaces and preserved public lands provide ideal habitats for many species of animals and plants. Of particular interest when planning for land use, is the occurrence of threatened and endangered species in areas of potential development. Nearly 100 State Threatened and Endangered Species have been observed and recorded as existing within the Township. The State of New Jersey Natural Heritage Database tracks and records sightings of these species and has provided this information to the Township.

The State Natural Heritage Database and Landscape Project habitat mapping identified 55 records of occurrences of rare plant species and 44 occurrences of rare animal species in the Township (see Appendix 1). The State Threatened and Endangered Animal Species noted on the list included: the silver-bordered fritillary, bald eagle, barred owl, bobcat, bobolink, bog turtle, eastern box turtle, long tail salamander, northern goshawk, red-headed woodpecker, red-shouldered hawk, timber rattlesnake and wood turtle.

The New Jersey Department of Environmental Protection identifies the state's most significant natural areas through a comprehensive inventory of rare plant and animal species and representative ecological communities. Three natural heritage priority sites were identified within Sandyston: the Dingmans Ferry Bridge Site, the Hainesville Woods site and the Steam Mill site (see Appendix 2). The Dingmans Ferry Bridge Site is listed because it is a good example of a rare wetland natural community and has a concentration of state imperiled plants. The Hainesville Woods Site is listed because it includes habitat for rare plant species and is the location of one federally listed endangered plant, the Small Whorled Pogonia. The Steam Mill Site is listed because it contains five State-listed Endangered Plant Species and one State-listed Endangered Animal Species.

Natural Resources Summary Statement

It must be remembered that when describing and mapping natural resources, there are always exceptions and deviations. However, if a series of no more than five straight line transects were drawn in Sandyston Township from the crest of the Kittatinny Ridge to the Delaware River, all of the natural resources described in this section would be encountered along their combined routes⁴. Additionally, the limits and boundaries of the natural resources shown on the maps are statistically accurate within the acceptable established margins of error for planning of this type and at this scale. This information should, however, not be relied upon for a particular site-specific condition or conditions. A detailed and professional site-specific investigation, evaluation, and interpretation of on-site conditions must be conducted for the purposes of site-specific planning and/or development.

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⁴ Possible exceptions include the State Threatened and Endangered Species whose occurrences are rare.

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SANDYSTON MASTER PLAN GOALS

The Master Plan is predicated on the following goals:

1. To preserve the Township's character for the short and long term so as to protect and enhance the high quality of life now enjoyed by both its residents and its visitors in the face of land use decisions.
2. To provide opportunities for growth and development in appropriate areas that complement rather than destroy or negatively impact the Township's significant and diverse natural, historical, cultural, and manmade resources.
3. To provide opportunities for cultural enrichment, active and passive recreation, and community involvement; thus promoting an active life style for all age groups in a safe, healthy, and scenic environment.
4. To ensure that the development within the Township complements the vision and general welfare of neighboring municipalities, is consistent with the Sussex County Strategic Growth Plan, encompasses applicable elements of the State Development and Redevelopment Plan, and takes into account Sandyston's relationship to the tri-state area.
5. To promote among its citizens a feeling of place, purpose, and pride through the establishment of appropriate population densities and concentrations in neighborhood, community, and village settings.
6. To encourage the efficient and effective expenditure of public funds by controlling development and sprawl through sound land use policies and smart growth principles.
7. To provide for a diversified land use pattern that appropriately meets the residential, agricultural, commercial, industrial, recreational, and open space needs of the Township.
8. To ensure the relocation of transportation corridors away from developed areas and promote the continued safe free flow of traffic by discouraging strip development and other inappropriate uses along existing and proposed transportation corridors.
9. To ensure a controlled rather than a chaotic manmade environment through the application of sound growth and development principles, visual and design standards, creative techniques, adaptive reuse, and technological advances.
10. To promote the preservation of historic sites and districts, agricultural lands, open space, view sheds, and the rural landscape and to promote the conservation of natural resources and wildlife habitat through proper land use practices.

11. To provide the potential for the construction of affordable housing units for low and moderate income families through a Fair Share Housing Plan certified by the Council on Affordable Housing.
12. To promote the maintenance and enhancement of surface and ground water quality and quantity through the protection of wetland, flood plain, and stream corridor transition areas and buffers, protection of steep slopes from excessive disturbance, through the enactment and implementation of a comprehensive Storm Water Management Plan, and by embracing appropriate site improvement standards for karst topography.
13. To support farmland preservation efforts, right to farm programs, and the preservation of the rural/agricultural landscape by endorsing the Sussex County Farmland Preservation Program, cooperating with the County and State Agricultural Development Boards, and encouraging the state and federal land management agencies to lease additional land in the Township for agricultural purposes.
14. To promote economic development by encouraging small commercial recreation and tourism based businesses that are consistent with the principles and elements of the Township's Agricultural and Natural Resources Based Business Plan.
15. To promote consistency with the Sussex County Strategic Growth Plan and the State Development and Redevelopment Plan by obtaining Plan Endorsement from the State Planning Commission for the designated centers of Layton and Hainesville, encouraging high density mixed use development in these centers, and pursuing the necessary infrastructure to support these centers.
16. To encourage the reuse, recovery, and recycling of materials consistent with all applicable laws, rules, and regulations.

LAND USE ELEMENT

The purpose of the Land Use Element is to serve as a long-range guide for development and use of land within the Township. The Land Use Element is the official policy document, which translates the Township's vision for the future as it relates to the physical form and appearance of the Township, its villages, neighborhoods and environs.

Sandyston Township's Vision is to:

“Retain its rural and small town character, agricultural community, and abundant open space; conserve its natural resources; maintain a high quality, active life for its citizens; provide adequate and affordable housing for its citizens; and provide a feeling of purpose, place, and belonging for its citizens; and, in cooperation with the state and federal land management agencies, develop an economic base tailored to agricultural and natural resources tourism.”

Population Growth⁵ and Build Out

Sandyston Township covers 42.3 square miles and has a population of 1,825 people, according to the 2000 US Census. Based on past growth, Sandyston Township's population is expected to grow by approximately seven percent per decade resulting in 1,956 people in 2010 and 2,100 people in 2020.

In 2000, the Township had 907 housing units and an average household size of 2.63 people. Based on the average household size, the projected population growth will require 49 additional housing units by 2010 and 55 additional housing units by 2020, for a total of 104 new housing units by 2020. This equates to approximately five new housing units per year or an annual increase of about half a percent in the housing stock.

The Sussex County Strategic Growth Plan projected that Sandyston Township could build an additional 1,097 residential units under current zoning. This is a considerably rough estimate, given the environmental and other constraints to development in the Township. Even so, it is important to look at a potential build out for planning purposes. The projected additional units would equate to an additional population of approximately 2,885. At the current rate of growth, Sandyston Township will take 219 years to build out. At full build out, the projected population is 4,710 people.

While Sandyston Township's current growth rate is modest. Future growth is determined by a multitude of unforeseen factors. For this reason, Sandyston Township is engaging in multiple efforts to alleviate population sprawl and preserve the rural character of the Township. The Conservation and Farmland Preservation Elements of this Master Plan address just a few methods that the Township is employing to preserve and protect farmland and environmentally sensitive lands from development.

⁵ Data for this section is from the 2000 US Census and the Sussex County Strategic Growth Plan.

Village Centers

Sandyston Township applied to the State Planning Commission for Center Designation for five existing centers within the Township including Layton, Hainesville, Kittatinny Lake, Tuttle's Corner and Peters Valley. The villages of Layton and Hainesville were designated as Village Centers by the State Planning Commission on April 23, 2003. The Land Use Element focuses growth in the designated centers as well as other existing centers within the Township and strip development is specifically discouraged along transportation corridors, in keeping with the State Development and Redevelopment Plan. Sandyston Township center designations are set to expire on April 23, 2009. The Township is preparing to submit a petition for Plan Endorsement to the State Planning Commission following the completion of this Master Plan Update.

Existing Land Uses

The most extensive land use in the Township is permanently preserved open space, which encompasses approximately 72 percent of the Township land area. Including the following public and private uses listed below:

Public Open Space	Acres	Percent of Total
Delaware Water Gap National Recreation Area	6,101	22.6%
Stokes State Forest	9,142.7	33.9%
N.J. Division of Fish and Wildlife	2,575.1	9.6%
Boy Scouts of America (Green Acres)	487.5	1.8%
Private Open Space	Acres	Percent of Total
Benedictine Abbey of Newark	64.3	0.2%
YMCA, Nature Conservancy & Golf Course	915.3	3.4%
Total Open Spaces	19,285.9	71.6%

The remaining 7,714 acres of land comprises the privately held land that is developed and currently agricultural, residential, commercial or industrial land or vacant developable land. This developed and developable land is the primary subject of this Land Use Element. The acres of lands and their current respective uses are listed below (see map #12, Land Use Land Cover Types):

Use	Acres	Percent of Total
Agricultural/Farm Assessed	4,639	17%
Preserved Farmland	444	1.6%
Residential	1,034	3.8%
Commercial/Industrial/Other Developed	296	1.1%
Other undeveloped (unprotected) lands	1,745	6.5%
Total	7,714	28.4%

Land Use Plan

The Township proposes the following land use categories as depicted on the Land Use Plan Map (see Map #14):

CONSERVATION DISTRICTS

The Township is comprised of approximately 72 percent of public and privately owned parks and preservation land. The Township's two conservation areas apply to these areas which are intended primarily for passive recreation and preservation uses. Where private in holdings exist, minimum lot standards are recommended.

Conservation District W – Delaware Water Gap National Recreation Area

This district includes all land and property that has been, or is purchased, by the federal government for inclusion in the Delaware Water Gap National Recreation Area. The minimum lot size recommended in this area is 120,000 square feet.

Conservation District E – Stokes State Forest

This district includes all land and property that has been or is going to be purchased by the New Jersey Department of Environmental Protection and the Boy Scouts of America Camp, comprising the areas in and around Stokes State Forest. The minimum lot size in this area is 200,000 square feet.

RESIDENTIAL DISTRICTS

Two low and two medium density residential districts and one lake community district are planned for residential needs. Proposed lot sizes were based on accessibility, topography, soils characteristics as affecting septic systems and drainage, and geologic formations as affecting potable water supply. Lot sizes in the lake communities are grandfathered.

Mountain Residential – Agricultural (minimum 200,000 square foot lot area)

The Mountain Residential – Agricultural District is proposed for low density residential – agricultural with a minimum lot area of 200,000 square feet. This district encompasses most of the steepest slope areas in Sandyston Township including mountain ranges abutting Stokes State Forest lands in the north and other “islands” surrounded by public lands, such as the Scout Reservation and the Kittatinny Lake neighborhood.

The steep slopes in the Mountain Residential District also comprise some of the poorest soils for septic disposal systems, because they typically have a very shallow depth to bedrock. For these reasons, this area is the lowest density residential district in the Township.

Walpack Ridge Residential – Agricultural (minimum 120,000 square foot lot area)

The Walpack Ridge Residential – Agricultural District is proposed for low density residential and agricultural along the eastern slopes of the Walpack Range. Lot areas of 120,000 square feet or more are recommended in this area because the sloping hillsides are not as steep as in the Mountain Residential.

The slopes in this area tend to be moderate with the exception of steep escarpments southwest of Hainesville and west of the Little Flat Brook. The soils, however, are relatively poor for septic systems and the Natural Resource Conservation Service advises against higher density development on these soils without access to sewers.

Ridge and Valley Residential (Formerly Medium Mountain Residential - minimum 80,000 square foot lot area)

The Ridge and Valley Residential District lies west of Stokes State Forest, including the area around Tuttles Corner and extending to the north to Hotalen and Hiram's Grove Roads. The geologic formation, High Falls Sandstone, assures a moderate water supply. The slopes are moderately steep, and the soils are predominantly poor for septic disposal systems, with the exception of Flatbrook Road area and several other smaller pockets of well drained good soils. This area can be accessed with relative ease from US Route 206. For these reasons, a minimum lot area of 80,000 square feet is recommended in this district.

Valley Residential – Agricultural (minimum 60,000 square foot lot area)

The Valley Residential – Agricultural District lies along the Little Flat Brook Valley and encompasses some of the best farmland in Sandyston. The surficial geologic formations consist of Glacial Outwash or Stratified Drift and Recessional Moraine, which are relatively the best formations in Sandyston. The topography is predominantly level at zero to five percent slope range, with the exception of a few steeper, but still well drained areas, where the Recessional Moraine occurs in the hilly areas situated generally east of the Sandston-Walpack Consolidated School. Most of the soils, with some exceptions, are well drained and suitable for septic disposal systems. Access is good from US Route 206 and Bevans and Hainesville Roads. For these reasons, a minimum lot size of 60,000 square feet is recommended in the Valley Residential – Agricultural District.

Lake Community District

The Lake Community District comprises the small lot subdivisions which were created prior to zoning, which surround Kittatinny Lake and Deer Lake. The minimum lot size in this district is recommended at 10,000 square feet. Because of the small lot size a maximum impervious coverage of 60 percent is recommended. The primary permitted use in this district is single family residential with non-profit private clubs allowed to serve the communities.

VILLAGE DISTRICTS

There are three Village Districts recommended to provide for mixed use commercial, office, services, light industrial and residential needs. Two Village Centers have been designated in the Township by the State Planning Commission: Layton and Hainesville. The Village Districts are proposed to regulate land uses in these centers. While the Village Districts promote a more compact mixed use development pattern, public sewer and water systems are not provided, nor planned for at this time. The resulting Village District development pattern recommended is still bound by lot sizes suitable for septic systems and wells and supports densities accordingly. Design standards should be developed to promote harmony of design in the village areas (see Appendix #3 for photographic examples for the recommended design standards). Historic preservation should be considered for historic structures located within the village areas.

Highway Village District

The Highway Village District is comprised of land fronting along US Route 206, County Route 645, 654 and Layton-Hainsville Road in Hainsville Center and at Tuttle's Corner (at the intersection of US Route 206 and County Route 560). The purpose of this district is to provide for mixed use commercial, office, services, light industrial and residential needs in two compact areas along the US Route 206 corridor. Minimum lot sizes in this district are flexible and should be determined based on the use(s) and planning and engineering requirements to provide for well and septic systems. More than one use should be allowed per lot and design standards should be applied to provide harmony of design in the Highway Village District.

Neighborhood Village District

The Neighborhood Village District includes lands along County Route 645 in Hainsville Center and all of Layton Center. The purpose of this district is to provide for mixed use commercial, office, services, light industrial and residential needs, including single family residential in the designated Center areas within the Township. The recommended minimum lot size is 50,000 square feet. Design standards should be applied in this district to promote the harmony of design in the Township's Centers.

Lakeside Village District

The Lakeside Village Area includes lands along US Route 206 directly adjacent to Kittatinny Lake. The purpose of this district is to provide for neighborhood commercial uses with one single family residential unit permitted on the second floor of each building. Minimum lot sizes in this area are flexible and should be determined based on the use(s) and planning and engineering requirements to provide for well and septic systems. Design standards should be applied to provide harmony of design.

Relationship with Adjacent Municipalities

Sandyston Township is bordered by Frankford Township to the southeast, Walpack Township to the southwest, the Delaware River and Pike County, Pennsylvania to the northwest and Montague Township to the northeast. The proposed land use districts are generally compatible with bordering municipalities' zoning, with the exception of residential districts along the border with Montague abutting a C-2 district and some conservation areas. Otherwise, all proposed land uses are completely compatible.

Frankford Township

Lands along the Frankford Township border are proposed to be in the Conservation E District. This area includes all land and property that has been or is purchased by the New Jersey Department of Environmental Protection and New Jersey Division of Fish and Wildlife Land and private land adjacent Stokes State Forest. The minimum lot size in this district is 200,000 square feet (4.59 acres). The adjacent lands in Frankford Township are zoned Agricultural Residential with a minimum lot size of five acres.

Walpack Township

Along the boundary with Walpack Township from north to south, the proposed land uses are conservation (Delaware Water Gap National Recreation Area), New Jersey Division of Fish and Wildlife lands and Conservation E for Stokes State Forest. Along the border on the Walpack Township side, the area is zoned for conservation, which is compatible.

Delaware River

Along the northwestern boundary of the Township lies the Delaware River and Pike County, Pennsylvania. Along the Delaware River, the area is designated for conservation and is part of the Delaware Water Gap National Recreation Area, which spans both the New Jersey and Pennsylvania sides of the river.

Montague Township

Along the border with Montague Township, the land use districts are proposed to be (from west to east) Conservation W (Delaware Water Gap National Recreation Area), Walpack Ridge Residential, New Jersey Division of Fish and Wildlife lands, Valley Residential Agricultural, and Conservation E for Stokes State Forest. Along the same border on the Montague side, from west to east, is Conservation District, C-2 Commercial along Route 206, R-1 Residential and Conservation District. The adjacent land uses are generally compatible with conservation as the primary land use and either commercial or residential development adjacent each other.

RESOURCE CONSERVATION ELEMENT

Previously, the Township's matrix of natural resources were identified and discussed in the Natural Resources Inventory. The primary focus of this section will be the conservation of the abundant and significant natural, cultural and historical resources of the Township. Their importance, management issues, and strategies for the implementation of conservation practices will be addressed. Sandyston Township identifies the following resource conservation objectives:

1. Provide adequate light, air and adequate space for agriculture, recreation and open space.
2. Ensure compatible land uses, densities and aesthetic designs.
3. Conserve historic, cultural and natural resources and energy.
4. Prevent sprawl and degradation of the environment.

The word conservation is a much misunderstood, and as such, an often misused word. Although conservation does have preservation as a component, it is by no means synonymous with preservation. Conservation in its simplest form means "the wise use of resources in such a manner that insures they are not destroyed and remain available for future generations to use and enjoy". Another key component of conservation, especially resource conservation is management. Management not only protects against misuse and uncontrolled exploitation, but also helps to insure that the various competing resources do not get out of balance, gain a competitive advantage, and/or become detrimental to it or other resources. Unfortunately, one of the biggest misconceptions is the assumption that left alone resources will manage themselves. This is a misconception that often leads to the destruction of the very resources that were intended to be conserved.

That Sandyston Township is blessed with abundant cultural and historical resources has long been known. The paleo record as evidenced by pollen analysis from local bogs indicates that both deciduous and coniferous forest occupied the area almost immediately following the retreat of the glacial ice. The remains of a Mastodon, extracted from a peat bog near Tuttles Corner in the late 1930's is a clear indication that megafauna once roamed the area. An exhibit in the Trenton Museum depicting Native American life in a rock shelter is based on the research and interpretation of the Bevans rock shelter near the village of Peters Valley. The Indiana Historical Society and the Rochester Museum of Arts and Science conducted the most complete and scientific archeological exploration of a Native American site in New Jersey on the Bell-Philhower farm in Sandyston Township in 1947⁶. The published results of this study are still referenced today and confirm that stable Native American communities were able to flourish in the Township.

Sandyston Township is home to four cultural and historic resources of national significance. Nine miles of the 2,175-mile long Appalachian Trail hug the eastern boundary of the Township. Conceived in 1921 and completed in 1937 the trail runs from Maine to Georgia and was designated as the nation's first National Scenic Trail. The trail

⁶ Ritchie, William A.: The Bell-Philhower Site, Sussex County, New Jersey, Prehistoric Research Series, Volume III, No. 2, October 1949, Indiana Historical Society.

is protected against encroachment by 1,000-foot buffers. The Delaware River, the last major free flowing river in the east forms the western boundary of the Township for a distance of seven miles. The Delaware was designated as a National Scenic River in 1976 with nearly all of the shoreline in Sandyston being owned by the National Park Service. Adjacent to the Delaware River lays the Old Mine Road. The 140-mile long road was built by the Dutch around 1650 and is the oldest road of any substantial length in America. The Old Mine Road, sections of which have remained basically unchanged for hundreds of years, is on both the National and State Register of Historic Places. Peters Valley, a classic example of an early village of rural America, is now home to a well established and highly regarded art and craft colony. Peters Valley is on both the National and State Register of Historic Places.

There are a number of important regional resources that are located in Sandyston Township. Culver's Gap is a classic example of a wind gap and by far the largest and best formed in New Jersey. The Big Flatbrook has long been designated as the premier trout fishing stream in New Jersey. Sunrise Mountain is the most popular location in the tri-state area to view the fall raptor migration as well as to view the fall foliage coloration. The New Jersey School of Conservation is one of the largest field facilities in the country, teaching environmental science and outdoor pursuits. It is also the best preserved former Civilian Conservation Corp camp in the state. The Central New Jersey Boy Scout Camp and the Newark YMCA Camp are among the last of the hundreds of youth camps of this type that once flourished in the state. The flowing well in Stokes State Forest is probably the largest provider of free bottle your own water in the state, providing about 700,000 gallons of water for off-site consumption annually. The Westbrook-Bell house, built about 1725, is the oldest surviving house in the county. The Roper cabin, built with hand hewn logs and chinked with mud and horse hair, was the home of the last person hung in the Sussex County Court House.

One hundred years ago, articles appeared in the New Jersey Herald lamenting the shortage of wildlife. Today, this same newspaper is filled with articles claiming that we now have too much wildlife. When turkeys and bobcats were reintroduced to New Jersey in the 1970's, the first release sites for both species were in Sandyston Township. Bears, coyotes, and eagles have returned to the Township in record numbers on their own. Both the Fisher and the Blandings Turtle, extirpated from New Jersey well over 100 years ago, have had recent confirmed sightings in the Township. As discussed in the Natural Resources Inventory, dozens of rare, threatened, and endangered species of flora and fauna can be found in the Township, and there is suitable habitat for the return of many more extirpated species.

Cultural and historic resources of local importance include both active and fallow farms, sites of former mines, mills, industry and commerce, former and current hunting and fishing camps, old cemeteries, 18th, 19th, and early 20th century structures with their period architecture, old woods roads and stone rows, hamlets from the bygone eras, and the location of those events and memories that help to define the community of Sandyston apart from Anywhere, USA. A more detailed discussion of these resources will be put forth in the Historic Preservation Element.

Like all municipalities, our cultural and historical resources are important to our heritage, economy, and future. Unfortunately, unlike most communities the majority of our cultural and historical resources lie on state and federal lands and are thus beyond the management of local government. Of even greater concern is the quality of stewardship afforded to these resources on the state and federal lands. The NJDEP, which vigorously regulates the use on thousands of acres of privately owned property in Sandyston Township, ignores its own stewardship responsibility on the over 45% of the Township it owns. For example, the 100th birthday of Stokes State Forest has come and gone and yet there is no General Management Plan to guide either the current day to day operation or long term care and custody of the area. The NJDEP Fish and Wildlife Management Areas also have no General Management Plans; a condition which is further complicated by the fact that they provide not even the most basic amenities for the thousands of annual visitors.

Although the National Park Service has comprehensive plans for all the programs it administers the application and implementation of these plans is lacking in many respects. As with New Jersey Fish and Wildlife, amenities for the tens of thousands of visitors annually are almost totally absent. On both state and federal land structures fall victim to benign neglect, roads, bridges, and campsites are closed, trails become overgrown with exotic invasive species, programs and services are curtailed, and the users are subjected to a confusing assemblage of conflicting regulations as they pass from one government jurisdiction to the next. These land management agencies were conceived with the conservation ethic in mind, however, they often fail when it comes to practicing conservation. For example, with an energy and financial crisis looming at both the state and federal level, there are over 100,000 cords of firewood and tens of thousands of board feet of lumber in the form of standing dead timber on state and federally owned lands in the Township with no harvest plans proposed. To a great extent the heritage, economic viability, and the future of Sandyston are tethered to the unknown destiny of the state and federal land management agencies. As such, the Township encourages joint planning efforts wherever possible between the Township and the state, and federal agencies, which manage public lands within the Township.

The Sandyston Township Master Plan advocates the following:

1. The implementation of all elements of the Parklands and Wildlife Management Areas Landscape that are set forth in the Sussex County Strategic Growth Plan, which has received Plan Endorsement by the State Planning Commission. Of particular importance are the Parklands and Fish and Wildlife Management Areas Landscape Visitor Center at Culver's Gap, the need to coordinate future state and federal land acquisitions with the municipality, and the preservation and interpretation of significant cultural and historical resources.
2. The implementation of the Open Space Element of the Sussex County Strategic Growth Plan. Of particular importance is the preservation and interpretation of those cultural and historic resources that provide the basis upon which the area was developed.

3. The implementation of the Historic Preservation Element of the Sussex County Strategic Growth Plan. Of particular importance are the stabilization, restoration, and interpretation of the Roper Cabin in Stokes State Forest.
4. During the life span of this Master Plan there will be a collaborative effort between the County of Sussex, Township of Sandyston, and the NJDEP to develop and adapt General Management Plans for Stokes State Forest and the Fish and Wildlife Management Areas.
5. During the life span of this Master Plan there will be developed a mechanism that enables the Township of Sandyston to provide input and obtain binding commitments on the conservation of cultural and historic resources under the administration of the National Park Service. The implementation of the recommendation by the Sussex County Open Space Committee that the NJDEP construct three sanitary facilities along the Big Flatbrook south of Route 206.

A more detailed discussion of the importance of resource conservation by the state and federal land management agencies as it applies to the economic vitality of Sandyston Township will be put forth in the Economic Development Element.

While there are extensive public land holdings in the Township, which are preserved for open space, parks, and scenic resources, many environmental resources exist on privately held land within the Township. As growth pushes north from large population centers in central New Jersey and the New York Metropolitan region, residential subdivisions pose the greatest threat to environmental, cultural and historic resources in the Township. Clearing land with steep slopes can result in increased erosion and stormwater run off. Groundwater resources can be reduced and/or contaminated with increased development. Wildlife habitat, farmland and scenic vistas can be degraded slowly over time as more and more land is subdivided and cleared for housing.

As such, the Township encourages continued use and refinement of existing ordinances and creation of new ordinances that protect steep slopes, wetlands, stream corridors, wildlife habitat, groundwater recharge areas, scenic and historic resources and farmland open space and greenways. The Township currently has a constraints ordinance that limits development on steep slopes, wetlands and soils with a shallow depth to bedrock and seasonally high water table. The Township also has a well protection ordinance that requires testing of well capacity on the proposed development and on surrounding properties to protect the water table in the area. The lack of municipal water and sewer limits the use of other ordinances, such as clustering, to protect environmentally sensitive areas. The following action items when implemented will offer additional protection for the critical areas in the Township (see Critical Areas Map):

1. Environmental impact statement ordinance; and
2. Tree protection and replacement ordinance.

RECYCLING ELEMENT

One of the negative effects of growth and development is the generation of ever increasing amounts of solid waste. The disposition of this waste has become an increasing and serious problem facing the state and its political subdivisions. In an effort to mitigate the problem the legislature passed the “New Jersey Statewide Mandatory Source Separation and Recycling Act of 1987”.

Under the statute the NJDEP has the overall authority to regulate recycling with the ultimate goal to preserve natural resources and reduce pollution. Sussex County is required to address recycling in its Solid Waste Management Plan by adopting a countywide recycling plan to include the types of materials to be recycled. Each municipality is obligated by the statute to do the following:

1. Adopt a municipal recycling ordinance and designate a recycling coordinator.
2. Provide a system for the collection of recyclable materials so as to recycle a minimum of 25% of the previous year’s total solid waste.
3. Revise the Municipal Master Plan to address the recycling issues.
4. Update the Land Use Ordinance to require subdivisions and site plans to be in compliance with the municipal recycling ordinance.

In order to comply with both the state and county mandates the Township⁷ adopted a recycling ordinance in 1993 with subsequent applicable amendments. The elements of the ordinance are as follows:

1. Requires all owners, lessees, and occupants of property to separate and recycle all newspapers, glass containers, aluminum and bimetal containers, magazines, and junk mail. The manner in which each type of material must be presented for recycling is also specified.
2. Provides options for the collection by private haulers or drop of the recycled items at the SCMUA recycling facility.
3. Provides for the collection of leaves during the month of October.
4. Created the position of Recycling Coordinator.
5. Requires all commercial, industrial, and other non-residential institutions to comply with the recycling requirements for all recyclable material that they generate.
6. Provides for the progressive enforcement of all violations and violators of the recycling provisions of the ordinance.

In order to better comply with the New Jersey Statewide Mandatory Source Separation and Recycling Act, the Township should update the Land Use Ordinance to require subdivisions and site plans to be in compliance with the municipal recycling ordinance.

⁷ The state and federal government are responsible for conducting the recycling programs on the lands that they administer.

ECONOMIC DEVELOPMENT ELEMENT

The purpose of the Economic Development Element is to evaluate the current business environment of the Township, to identify areas of strengths and weaknesses, to identify trends and opportunities, and to ensure that land use policies provide for realistic, attainable, and sustainable growth in the business sector.

The vast amount of permanently preserved public open space, environmentally constrained land, limited infrastructure, and lack of developable land leaves the Township at a competitive disadvantage for most traditional types of future economic development. Additionally, the Township is located in State Planning Areas 4B (rural-environmentally sensitive), 5 (environmentally sensitive), 7, (National Park lands) and 8 (State Park lands) which are considered non-growth areas. Economic development can occur in state mandated non-growth areas; however, it is a formidable and expensive layer of adversity to overcome. Neighboring Pike County Pennsylvania, with its development friendly environment and favorable tax structure, is one of the fastest growing counties in the nation, which further hinders Sandyston's economic development potential.

In 2003, Sussex County was being considered as one of the eleven locations in New Jersey for a business incubator. In an effort to be selected as the site of the Sussex County business incubator, Sandyston targeted the one sector of the economy where it has a competitive advantage, Eco-tourism. An ad hoc Business Incubator Steering Committee was appointed to explore the possibility of developing a business incubator based on ecological and agricultural tourism. The committee produced a forward looking document titled, "Township of Sandyston Outdoor Recreation and Agriculture Business Report". Although the business incubator initiative never materialized in the county, many elements of the report still have merit. Therefore, concurrent with the master plan review, the business incubator elements are being edited from the report, and it is being updated and revised as a stand alone business initiative report.

Existing Economic Conditions

Currently commercial development in Sandyston Township occurs in small clusters along the primary transportation corridors of Routes 206 and 560. These commercial clusters are present at Kittatinny Lake, Tuttles Corner, Layton, and greater Hainesville. Most of the businesses in these clusters are typically small, family-owned highway commercial establishments catering to the needs of residents, commuters, and tourists, with a limited range of goods and/or services provided. Other typical small businesses in the Township include agricultural related products, construction, home improvements, recreation, light industry and other service related businesses. Although the jobs generated from these small businesses make up a major portion of the employment base in the Township, the jobs generated are typically replacing the jobs lost as a result of the decline in agriculture and the conversion of private property to public open space. One advantage of having very small businesses is that the loss of one or more in a given time period, although

devastating to the owner and the employees, has very little real impact on the Township as a whole. The opportunity for the Township to attract a medium size manufacturing industry, large scale retail outlet, or a major provider from the service sector is too remote to warrant discussion.

Economic Development Potential

No municipality can be considered complete or expect to retain long-term viability without an economic base. There is the potential in Sandyston for three areas to sustain generally low intensity economic development. The first two areas are geographic and comprise the designated centers of Layton and Hainesville. These two traditional rural centers, both having been settled over 200 years ago, are first and foremost important cultural connections between the past and future of the Township. Upgrades to pedestrian traffic, additional parking, reductions in high volume commuter traffic, adaptive reuse of existing structures, mixed use development, and architectural standards for new construction will make these centers accommodating to the existing businesses and attractive to additional small businesses looking to locate in a small town environment. Businesses that do not need extensive infrastructure such as neighborhood business establishments, professional service providers, outdoor recreation outfitters, antique shops, arts and craft artisans, and specialty shops related to eco-tourism or value added to agricultural commodities are all viable candidates. With design controls that require new or rehabilitated buildings to mimic existing historic buildings, the advent of these small businesses could be a tremendous asset to the existing centers.

Sandyston's third area for potential economic development is in eco-tourism with an agricultural component, the one sector of the economy where it has a competitive advantage. The most obvious and best potential for this niche market to be successful is in the service industry and retail sales. The 100,000 plus acres of contiguous public open space, outstanding scenery, abundant wildlife, historic sites, multiple use recreation opportunities, and tens of millions of potential users with large amounts of disposable income to spend, living within an hour and a half drive of Sandyston is an asset waiting to be exploited. The bringing together of Peters Valley Craft Village, the Old Mine Road with proposed scenic by-way status, the Delaware River, Appalachian Trail, active farms, campgrounds, historic sites, and countless opportunities to hike, bike, hunt, and fish will create the synergy needed to provide economic development in a rural setting.

Eco-tourism can and should enable the Township to grow and its citizens to prosper while retaining its traditional culture and character. Bed and breakfasts, upscale eateries, recreational equipment rental shops, guide services of all types, specialty shops, outdoor related festivals, historic tours, and endless lists of support businesses are all possible. Those businesses now existing in Sandyston should be targeted for retention and encouraged to adjust and adapt to the niche market so that they ultimately benefit as well.

The following objectives should be pursued by the Township to achieve the goals of the Economic Development Element:

1. Adopt land use policies that make Sandyston attractive for eco-tourism, agri-tourism and related industries.
2. Promote the retention and expansion of existing eco-tourism and agri-tourism and related industries.
3. Partner with other public and private agencies to begin a marketing and promotional campaign to attract businesses to Sandyston.
4. Facilitate enhanced communication and cooperation with government land management agencies with the goals of becoming more user friendly, creating seamless open space regulations and a “linger longer” approach to the visitor.
5. Lobby county, state, and federally elected officials for upgraded and additional amenities on public land.
6. Work with county, state and federal agencies to create workable public/private partnerships in the form of lease backs of government owned agricultural land to create locations for potential businesses with compatible uses.
7. Update the Sandyston Township Business Initiative Report on an annual basis to implement the economic objectives of the Master Plan.⁸

⁸ A more detailed discussion of the concepts put forth above can be found in the 2008 edition of the “Sandyston Township Business Initiative Report”.

CIRCULATION PLAN ELEMENT

Roadway Network

The circulation patterns in Sandyston Township are a function of the state and county roadway network, upgraded country lanes (some of which are hundreds of years old), new roads serving housing developments, private roads serving private communities, and access roads serving state and federally owned lands. The New Jersey Department of Transportation (NJDOT) identifies 52.04 miles of roads in the Township including: 7.27 miles of state roads; 16.8 miles of county roads; and 27.97 miles of municipal roads. NJDOT has developed a road classification system generally based on design, function, and traffic volume. The categories include freeways, principal arterials, major arterials, minor arterials, major collectors, minor collectors, and local roads. The classifications are further broken down into urban and rural categories. The following table identifies the state and county roadways in the Township according to their NJDOT classification:

Figure 6: Township Roadway Classifications

Jurisdiction	Street Name	Direction	NJDOT Classification
NJDOT	US Route 206	South to North	Rural Principal Arterial
County	Route 560 Tuttles Corner Road – Dingman’s Road	East to West	Rural Major Arterial
County	Route 615 Sandyston- Flatbrookville Road	South to North	Rural Local Road
County	Route 636 Upper North Shore Road	West to East	Rural Minor Collector
County	Route 640 Bevans Road	South to North	Rural Local Road
County	Route 645 Layton-Hainsville Road	South to North	Rural Minor Collector
County	Route 646 Jager Road	East to West	Rural Local Road
County	Route 652 Lertora Road	West to East	Rural Local Road
County	Route 654 Towle Road	West to East	Rural Local Road
County	Route 656 Shaytown Road	West to East	Rural Local Road
County	Route 675 Degroat Road – Cemetery Road – New Road	South to North	Rural Minor Collector

Business and residential growth in Pennsylvania, travel to weekend and vacation destinations in both New York and Pennsylvania, travel to the state and federal lands in and around Sandyston, and the overall regional population growth, are all placing increasing traffic demands on the roadways in the Township. The Township's main traffic artery is US Route 206, which is a principal arterial running North-South through the Township. The land uses along this corridor are a combination of permanently preserved public open space, residential, commercial, and agricultural uses. Most of the commercial development in Sandyston is found along this corridor; however, it does not detract from the rural character of the Township because commercial uses can be found in small clusters which are dispersed along the roadway and separated by open space, farms and residences.

Sussex County Route 560 (Tuttles Corner-Dingmans Road) is a major arterial running through the Township and serves as a primary connector between New Jersey and Pennsylvania. While development is sparse along Route 560, it does pass through the Village of Layton and also passes the local elementary school. The ever increasing volume of traffic flowing back and forth between New Jersey and Pennsylvania on Route 560 is becoming problematic and needs to be addressed. The replacement of the missing bridge on Route 615 along with a new link from Route 615 North of Peters Valley to Walpack Road would be a functional and effective bypass around the Village of Layton. To gain the most utility from this bypass a section of Route 560 in the Delaware Water Gap National Recreation Area may have to be closed to vehicular traffic (see map #15, Circulation Plan Map).

Route 645 (Layton-Hainsville Road), Route 675 (DeGroat-Cemetery-New Road) and Route 636 (Upper North Shore Road⁹) are collectors located within the Township that provide access between local roads and arterials. Despite their classification as collectors, preservation of these roads in a rural setting is critical to maintaining the character of the Township.

The remaining roads in the Township are local roads which carry a low volume of traffic and are generally suited for bicycle and foot traffic. As with the other road classifications, these and proposed roads must retain their rural nature to maintain the character of the Township.

The local roads administered by the NJDEP and National Park Service provide access to and circulation within the sprawling multi-use recreation areas. Within recent years, on both state and federal land, there has been an increase in the number of bridges closed because of age or damage and roads closed due to a lack of maintenance. These closures often shift traffic onto county or municipal roads, creating quality of life issues for local residents. The existing closures must be addressed and further closures prevented.

⁹ Only a small portion of this road is within Sandyston Township.

Alternative Transportation

The rural and natural landscape in Sandyston combined with the approximately 100 miles of existing trails and abandoned roads on the surrounding state and federal lands create an opportunity to expand and improve the pedestrian and bicycle transportation facilities within the Township. The Delaware River also offers the opportunity for transportation by boat, canoe, kayak, and raft. The linking of river launch sites with trailheads would provide for a multiple recreational experience in a single outing.

Pedestrian facilities in the Layton and Hainesville Centers can be improved by expanding the sidewalk in Layton and adding sidewalks in Hainesville. A pedestrian/bicycle greenway that links Hainesville, Layton, and Peters Valley utilizing existing road right of ways and both state and federal lands should be considered. The greenway should connect with both the state and federal trail systems at several key locations.

The gentle topography of the Flatbrook Valley provides the perfect opportunity for an ADA compliant barrier, free trail that would afford disabled users a multitude of outdoor recreation experiences.

All trails within the Township should be shown on a single map, with connectors established where needed, to provide for an integrated system of loops. Since trails provide the greatest utility when they are multi-use compatible (hiking, biking, horseback riding, etc), it is imperative that the regulatory use boundaries between the different agencies be uniform as to use, and seamless as to regulation. Other elements to improve the Township's trail system include environmental protection, trail maintenance and upkeep, visitor amenities, and regulation enforcement.

Currently, there are a number of unofficial bicycle routes on roadways within the Township. These should be formalized, expanded where appropriate, and integrated with other bicycle routes. Where possible, bicycle lanes should be added to the state and county road systems. As with other types of activities, visitor amenities such as parking and sanitary facilities must be provided for large-scale use of the bicycle routes.

An integrated and seamless multi-use and multi-agency trail system in Sandyston Township and the greater region, strengthened by a public-private partnership, would provide enhanced recreational opportunities for the residents and an increased number of tourists to the area. Combined with a 'linger longer" initiative, the eco-tourism industry could be expanded within the Township.

RECREATION PLAN ELEMENT

Providing adequate open space for community recreational needs is an essential consideration when planning for the future growth and development of a community. Open space, parks, and an active recreation program benefit the municipality and its residents by making the community more attractive to potential businesses and residents, raising property values, and adding to overall prosperity. Parks and recreation programs provide opportunities for quality family time, education, recreation and exercise, community involvement for all age groups, and volunteerism. Parks and recreation programs also promote community health by providing residents with beautiful outdoor settings where they can relax, exercise and stay in shape, participate in sports and other recreational activities, and meet and interact with others in the community. Communities with parks and recreation programs benefit from an improved sense of place and belonging.

Sandyston is unique in that approximately 70 percent of the Township is comprised of land owned by state and federal agencies. These publicly owned lands provide fishing, hunting, hiking, boating and other passive recreational opportunities for both the residents of the community as well as visitors and tourists. Additional facilities within some of these lands should be provided to increase access to and use of the large amounts of passive parkland within the Township. Additional facilities should include boat ramps along the Delaware, bath room facilities, parking areas at trail heads and boat ramps, and interpretive signage to guide users through natural areas.

Sandyston's active recreation program is provided in part through a partnership with the local elementary school and school board. The school has willingly made their facilities available to community recreation programs for Sandyston residents, including both after school hours and during the summer months. This joint cooperative effort has been a great benefit to the local community. However, the scope of the arrangement is limited due to the time and size constraints of the local elementary school. The long-term viability of the program is uncertain as the program is subject to the discretion of the School Board. The Township has also recently developed additional recreation facilities at the municipal complex that will be available for residents and will provide opportunities for civic groups to serve the community.

The National Recreation and Park Association (NRPA) recommends 10 acres of active parks for every 1,000 people within a community. With a population of approximately 1,900, the Township should have a minimum of 20 acres of active parkland. An adequate mix of active recreation facilities is also important. An active recreation program should include sports fields, multi-use courts, tot lots and playgrounds, a skate park, an ice rink, walking/running tracks, and other similar facilities, in order to encompass a full of array of active recreation activities.

The following objectives should be pursued by the Township to insure a sustained, viable, and functional community recreation program:

1. Provide opportunities for active and passive recreation and community involvement; thus promoting an active lifestyle for all age groups in a safe, healthy, and scenic environment.
2. Promote additional facilities within passive recreation areas, i.e. boat ramps, public bathrooms, beach access, parking at trailheads, etc., to provide additional passive recreation opportunities for residents of the Township and visitors alike.
3. Develop a more formal school-park program with the school board to ensure continuation of the programs currently in place, as well as establish and share any future programs, maintenance needs, and facility improvements.
3. Pursue a park acquisition and development program that would address and provide for the future needs of the Township and its residents.
4. To possibly pursue, via municipal referendum, a dedicated tax for municipal open space acquisition and recreation facility development. A dedicated tax would enable the Township to take full advantage of the State Green Acres matching grant and loan program and the Sussex County Open Space grant program.
5. To explore the possibility of long term leases on surplus or underutilized State and Federal land for municipal recreation purposes. (*Frankford Township's Municipal Park is a good example of what can be accomplished on leased State land.*)

Large amounts of state and federal park land in Sandyston provide for a vast amount of passive recreation opportunities within the Township. Improved access and additional facilities could improve the passive recreation experience in the Township. Active recreation opportunities are provided in conjunction with the School District and recently new facilities have been constructed adjacent to the Municipal Building. Additional active park and recreation facilities are needed and should be pursued by the Township.

FARMLAND PRESERVATION ELEMENT

Farm settlements in Sandyston Township date back to the early 1700's and continue to shape the rural and natural landscape within the Township. The presence of active farms within the Township not only contributes to the local economy, it also preserves the natural and cultural heritage of the community. While approximately 70 percent of the Township is publicly owned, these areas predominantly include the wooded ridgelines of the Township, leaving the fertile farmland in the valleys subject to possible subdivision and development. Farmland is typically the first to be developed because it generally lacks slopes, wetlands and other development constraints. As more farmland is developed, residential and commercial uses adjacent to farms often conflict over dust, odors and noises associated with farming practices. In order to protect and support farming activities within the Township, the Township Committee adopted a Right to Farm Ordinance in September 2001.

The Sussex County Comprehensive Farmland Preservation Plan, updated in November 2007, outlines Sussex County's Farmland Preservation programs, which Sandyston Township acknowledges and promotes within the Township. According to the Plan, of the approximately 9,000 privately held acres in Sandyston Township, 4,639 acres is Qfarm assessed property. The Plan divides the County into ten project areas, which were created based on soils data, tillable land areas and existing productive and preserved farmland. Land in the Township that fits these criteria is located in the Upper Delaware 2 project area, which includes 7,163 acres of land located primarily within Sandyston, with a small section also located in Montague Township. Within the Upper Delaware 2 project area, the County identifies 395.39 acres of farmland with final approvals for farmland preservation, 283.36 acres which have completed County easement purchases and 48.44 acres of permanently preserved open space compatible with agriculture. Of the 7,163 acres in the Upper Delaware 2 project area, 1,933.28 are identified as prime soils, soils of statewide importance and/or unique agricultural soils. Currently, 444 acres of farmland in Sandyston has been preserved through the County Farmland Preservation Program.

The draft Sussex County Comprehensive Farmland Preservation Plan Update identifies several programs for preserving farmland in the County. The most widely used is the County Easement Purchase Program, which involves the sale of farmland development rights to the County. After the sale, a permanent deed restriction is placed on the land for agricultural use. The landowner retains ownership of the land and can sell it at any time. County Planning Incentive Grants (PIG) are provided by the State Agricultural Development Committee to purchase development easements over large contiguous tracts of farmland. The County must follow specific State guidelines to receive PIG money including maintaining an agricultural advisory committee, providing a dedicated source of funding and completing a farmland preservation plan. The County is currently completing an update to its Farmland Preservation Plan to maintain compliance with the County PIG program. Municipal Planning Incentive Grants are also available to municipalities that follow similar rules as the County PIG program. Interested municipalities must establish an agricultural advisory committee, provide a dedicated

funding source for farmland preservation, approve a right to farm ordinance and adopt a farmland preservation plan that identifies target properties for preservation. The State Agricultural Development Committee also has a direct easement purchase program which administers the State's Farmland Preservation Program. The State will engage in cost sharing with municipalities for development easement purchases, direct and fee simple purchases of farms, provide grants to non-profit programs to purchase fee simple or development easements on farms, administer soil and water conservation projects and administer transfer of development rights programs.

In order for farmland to qualify for State and County preservation programs, the State Agricultural Development Committee has established minimum eligibility criteria. The land must be developable, have soils capable of supporting agricultural or horticultural production and meet minimum tillable land standards. The specific minimum criteria include:

For tracts 10 acres or less:

- At least \$2,500 worth of agricultural or horticultural products must be produced from the land annually.
- A minimum of 75%, or 5 acres of the land, (whichever is less), must be tillable.
- A minimum of 75%, or 5 acres of the land (whichever is less), must be capable of supporting agriculture or horticulture.
- The land must have development potential, as defined by the State Agricultural Development Committee, including: appropriate zoning, ability to be subdivided, less than 80% wetlands and less than 80% steep slopes.
- The land must either meet all of the above criteria or be eligible for allocation of development credits pursuant to a Transfer of Development Credits program.

For tracts greater than 10 acres:

- A minimum of 50%, or 25 acres of the land (whichever is less), must be tillable.
- At least 50%, or 25 acres of the land (whichever is less), must have soils capable of supporting agriculture or horticulture.
- The land must have development potential, as defined by the State Agricultural Development Committee, including: appropriate zoning, ability to be subdivided, less than 80% wetlands and less than 80% steep slopes.
- The land must either meet all of the above criteria or be eligible for allocation of development credits pursuant to a Transfer of Development Credits program.

Of the 4,639 acres of Qfarm assessed property in Sandyston Township, the County found that about 50% meets the eligibility criteria for inclusion in State and County farmland preservation programs. The County notes that combining parcels may increase eligibility and farms can be evaluated on a case by case basis to create an individual farm rank score. Farms can be qualified for farmland preservation programs if their individual rank score is equal to or greater than 70% of the county's average quality score of all farms granted preliminary approval by the State Agricultural Development Committee through

the County Easement Purchase Program and/or the County Planning Incentive Grant Program within the previous three years.

Sandyston Township is not currently considering establishing eligibility for the Municipal Planning Incentive Grant program and prefers to work with the County through the County Easement Purchase Program and the County Planning Incentive Grant Program, as well any other appropriate State funding programs, to pursue farmland preservation within the Township. Sandyston recognizes the success of the County's Farmland Preservation Program in the Township, as well the County as a whole, and promotes the continued success of the program.

HISTORIC PRESERVATION ELEMENT

Sandyston Township was established by Royal Patent in 1762. Prior to this, Sandyston was part of Walpack Township, one of the four original Sussex County municipalities. The Historic Delaware River runs the full length of the Township on the west and the picturesque Blue Mountain range flanks the eastern side of the Township, creating an almost isolated area from the rest of Sussex County.

The Old Mine Road, which is believed to be the oldest road of any length in America, runs the full length of the Township. This road is rich in Lenni-Lenape Indian Culture, and the site of the very early established Minisink Village (1701) is located along the Delaware River in Sandyston Township. This road was used by the early Dutch Miners carrying copper ore from the mines in Paraquarry, NJ (Warren County), to Kingston, NY on the Hudson River. The site of the oldest standing home in Sussex County known as the Westbrook/Bell House (circa 1725) still sits on the Old Mine Road in Sandyston Township.

Sandyston Township is broken up into many defined areas named primarily by the families that settled in the areas. Hainesville was originally known as Sandyston and was settled by Simon Courtright shortly before the Revolutionary War. Courtright sold the property to John Hotalen and the village of “Sandyston” was created. Sandyston sat on what is known as the “Old Stage Road”, which was part of the main route from Newark, NJ to Oswego, NY. The name of Sandyston was changed to “Hainesville” in 1845 to honor New Jersey’s governor at the time, Daniel Haines.

Centerville was the original name for what is now known as Layton. This area was first settled by the Layton Family in the early 1800's. John Layton petitioned Washington for mail service in 1850, and thus the village’s name was changed to Laytons, and then later to Layton. Many villages were named after the person that was responsible for getting the mail service to their towns.

Bevans was first known as “Peter’s Valley” and was settled by Peter VanNeste in the mid 1700's. This village also went by the name of “Hen’s Foot” and the “The Corners”, because of the fact that four roads meet at the center of the hamlet. James C. Bevans was responsible for bringing mail service to this hamlet and thus the name was changed to “Bevans” in the late 1820's. After the Tocks Island Project of the 1960-1970's the name was changed back to “Peter’s Valley”, and the village today is under the control of the National Park Service.

Kittatinny Lake is a man-made lake located just North of Culver’s Gap in Sandyston Township. This entire area, which today includes part of Stokes State Forest, was first known as Normanock. Normanock had a post office in the 1890's, which sat along the Old Stage Road. Early references make mention of a small hamlet with a store and sawmill on the nearby creek. Today, many areas within Stokes State Forest carry the name of “Normanock”(Normanoch), named for the mountain range that runs through both Sandyston and Frankford Townships.

Other sections of Sandyston Township have the names of: Abertown, Shaytown, Hiram's Grove, Forty Acres, Stokes State Forest, and the Delaware Water Gap National Recreational Area (DWGNRA).

The earliest school by historic record dates back to a deed dated 1731 on the property of Johannes Westbrook, which was located along the Old Mine Road in the early Minisink Village in Sandyston Township. As time passed, the Township was divided into many districts. In the year 1865, Sandyston Township had as many as nine (9) school districts, with 420 students in total. By the year 1902, enrollment was at 254 students. In 1940, all one-room school houses were abandoned and a school was erected in Layton, NJ. Sandyston and Walpack Townships consolidated in 1950 and the first addition to the school was completed in 1954. The second addition was started in 1957 and finished in 1958, creating the school building still used today.

A more in-depth inventory of historic resources and recommendations for preservation can be found in Sandyston Township's Historic Resources Inventory.

APPENDIX 1

NATURAL HERITAGE DATA BASE

SANDYSTON TOWNSHIP THREATENED & ENDANGERED SPECIES TABLES

Project Site: Sandyston Township Natural Resources Inventory

Table 1 (on referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
a silver-bordered fritillary	<i>Boloria selene myrina</i>		T	G5T5	S2
bald eagle nest buffer	<i>Haliaeetus leucocephalus</i>		E	G4	S1B,S2N
barred owl	<i>Strix varia</i>		T/T	G5	S3B
beaverpond clubtail	<i>Gomphus borealis</i>			G4	S1
black-throated green warbler	<i>Dendroica virens</i>		Special Concern	G5	S3B
bobcat	<i>Lynx rufus</i>		E	G5	S3
bobolink	<i>Dolichonyx oryzivorus</i>		T/T	G5	S2B
bog turtle	<i>Clemmys muhlenbergii</i>	LT	E	G3	S2
broad-winged hawk	<i>Buteo platypterus</i>		Special Concern	G5	S3B
Canada warbler	<i>Wilsonia canadensis</i>		Special Concern	G5	S3B
cerulean warbler	<i>Dendroica cerulea</i>		Special Concern	G4	S3B
cobblestone tiger beetle	<i>Cicindela marginipennis</i>			G2G3	S1
Cooper's hawk	<i>Accipiter cooperii</i>		T/T	G5	S3B,S4N
eastern box turtle	<i>Terrapene carolina carolina</i>		Special Concern	G5	S3
bog turtle	<i>Clemmys muhlenbergii</i>	LT	E	G3	S2
Fowler's toad	<i>Bufo woodhousii fowleri</i>		Special Concern	G5	S3
golden-winged warbler	<i>Vermivora chrysoptera</i>		Special Concern	G4	S3B
great blue heron	<i>Ardea herodias</i>		S/S	G5	S2B,S4N
Jefferson salamander	<i>Ambystoma jeffersonianum</i>		Special Concern	G4	S3
Kentucky warbler	<i>Oporornis formosus</i>		Special Concern	G5	S3B
least flycatcher	<i>Empidonax minimus</i>		Special Concern	G5	S3B
longtail salamander	<i>Eurycea l. longicauda</i>		T	G5T5	S2
Maine snaketail	<i>Ophlogomphus mainensis</i>			G4	S2
marbled salamander	<i>Ambystoma opacum</i>		D	G5	S3
northern copperhead	<i>Agkistrodon contortrix contortrix</i>		Special Concern	G5T5	S3
northern goshawk	<i>Accipiter gentilis</i>		E/E	G5	S1B,S4N
northern parula	<i>Parula americana</i>		Special Concern	G5	S3B
northern spring salamander	<i>Gyrinophilus p. porphyriticus</i>		Special Concern	G5T5	S3
red-headed woodpecker	<i>Melanerpes erythrocephalus</i>		T/T	G5	S2B,S2N
red-shouldered hawk	<i>Buteo lineatus</i>		E/T	G5	S1B,S2N
rusty snaketail	<i>Ophlogomphus rupinsulensis</i>			G5	S2S3
sable clubtail	<i>Gomphus rogersi</i>			G4	S1S2
sharp-shinned hawk	<i>Accipiter striatus</i>		Special Concern	G5	S2B,S3N
solitary vireo (blue-headed vireo)	<i>Vireo solitarius</i>		Special Concern	G5	S3B
southern pygmy clubtail	<i>Lanthus vernalis</i>			G4	S2S3
spotted turtle	<i>Clemmys guttata</i>		Special Concern	G5	S3
superb jewelwing	<i>Calopteryx amata</i>			G4	S1
tiger spketail	<i>Cordulegaster erronea</i>			G4	S2
timber rattlesnake	<i>Crotalus h. horridus</i>		E	G4T4	S2
veery	<i>Catharus fuscescens</i>		Special Concern	G5	S3B
winter wren	<i>Troglodytes troglodytes</i>		Special Concern	G5	S3B,S4N
wood turtle	<i>Clemmys insculpta</i>		T	G4	S3
yellow-breasted chat	<i>Icteria virens</i>		Special Concern	G5	S3B

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Rare Plant Species and Ecological Communities Presently Recorded in
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Scientific Name	Common Name	Federal Status	State Status	Regional Status	G Rank	S Rank	Last Observed	Ident
Subterranean Community - Other Classification								
<i>Cave terrestrial community</i>	Cave Terrestrial Community				G4?	S2	1977-??-??	Y
Terrestrial Community - Other Classification								
<i>Calcareous riverside seep community</i>	Calcareous Riverside Seep Community				G3?	S1	1985-09-22	
Vascular Plant								
<i>Anemone virginiana</i> var. <i>alba</i>	Riverbank Anemone			HL	G5T4T5	S2	1997-09-08	Y
<i>Asclepias verticillata</i>	Whorled Milkweed			HL	G5	S2	1886-07-14	Y
<i>Aster ericoides</i> var. <i>prostratus</i>	Prostrate White Heath Aster			HL	G5TNR	S3	1997-09-17	Y
<i>Aster prenanthoides</i>	Crooked-stem Aster			HL	G4G5	S2	1985-09-22	Y
<i>Aster trudescentii</i>	Trudescant's Aster			HL	G4Q	S2	1985-09-22	?
<i>Betula papyrifera</i> var. <i>papyrifera</i>	Paper Birch			HL	G5T5	S2	1993-AUTUMN	Y
<i>Carex arcuata</i>	Drooping Wood Sedge		E	LP, HL	G5?	S1	1994-06-28	Y
<i>Carex crumeyi</i>	Crawe's Sedge		E	LP, HL	G5	S1	1985-06-29	Y
<i>Carex crawfordii</i>	Crawford's Sedge			HL	G5	S2	1985-06-21	Y
<i>Carex cryptolepis</i>	Small Yellow Sedge			HL	G4	S2	1998-07-14	
<i>Carex deweyana</i>	Dewey's Sedge		E	LP, HL	G5T5	S1	1994-05-24	Y
<i>Carex disperma</i>	Soft-leaf Sedge			HL	G5	S1	1912-07-21	Y
<i>Carex leptoneuria</i>	Fine-nerve Sedge		E	LP, HL	G4	S1	1994-06-28	Y
<i>Carex viridula</i> ssp. <i>viridula</i>	Green Sedge			HL	G5T5	S2	1985-06-19	Y
<i>Castilleja coccinea</i>	Scarlet Indian-paintbrush			HL	G5	S2	1998-06-09	Y
<i>Castilleja coccinea</i>	Scarlet Indian-paintbrush			HL	G5	S2	1995-09-15	Y
<i>Cinna latifolia</i>	Slender Wood-reed		E	LP, HL	G5	S1	1986-08-??	Y
<i>Crataegus calpodendron</i>	Pear Hawthorn		E	LP, HL	G5	S1	1987-??-??	Y
<i>Crataegus chrysocarpa</i> var. <i>chrysocarpa</i>	Fireberry Hawthorn			HL	G5TNR	S1	1997-09-08	Y
<i>Eleocharis compressa</i>	Flat-stem Spike-rush		E	LP, HL	G4	S1	1985-06-10	Y
<i>Eriophorum viridicarinatum</i>	Thin-leaf Cotton-grass			HL	G5	S3	1998-06-18	Y
<i>Galium palustre</i>	Marsh Bedstraw			HL	G5	S3	1997-09-??	Y
<i>Gentianella quinquefolia</i> var. <i>quinquefolia</i>	Stiff Gentian			HL	G5T4T5	S2	1985-10-10	Y
<i>Gentianella quinquefolia</i> var. <i>quinquefolia</i>	Stiff Gentian			HL	G5T4T5	S2	1979-09-23	Y
<i>Geum rivale</i>	Chocolate-root			HL	G5	S3	1998-06-18	Y
<i>Geum vernum</i>	Spring Avens			HL	G5	S2	1994-05-24	Y
<i>Glyceria grandis</i>	American Manna Grass		E	LP, HL	G5T5	S2	1987-??-??	Y
<i>Hypericum pyramidatum</i>	Great St. John's-wort			HL	G4	S3	1997-09-18	Y
<i>Isotria medeoloides</i>	Small Whorled Pogonia	LT	E	LP, HL	G2	S1	1997-06-04	Y
<i>Ledum groenlandicum</i>	Labrador Tea			HL	G5	S1	2006-05-15	Y
<i>Lemna trisulca</i>	Star Duckweed			HL	G5	S3	1998-09-15	
<i>Lilium philadelphicum</i> var. <i>philadelphicum</i>	Wood Lily			HL	G5T4T5	S3	1985-07-15	Y
<i>Listera cordata</i>	Heartleaf Twayblade		E	LP, HL	G5T5	S1	1987-05-??	Y
<i>Lysimachia hybrida</i>	Lowland Loosestrife			HL	G5	S3	1983-08-26	Y
<i>Mimulus moschatus</i> var. <i>moschatus</i>	Muskflower			HL	G4G5TNR	S2	1985-09-22	Y
<i>Ophioglossum pusillum</i>	Northern Adder's-tongue			HL	G5	S3	1985-07-07	Y
<i>Platanthera flava</i> var. <i>herbiola</i>	Tubercled Rein Orchid			HL	G4T4Q	S2	1985-07-07	Y
<i>Potentilla arguta</i> var. <i>arguta</i>	Tall Cinquefoil			HL	G5TNR	S3	1997-07-30	Y
<i>Ranunculus longirostris</i>	Long-beak Water Buttercup			HL	G5	S2	1985-09-19	Y

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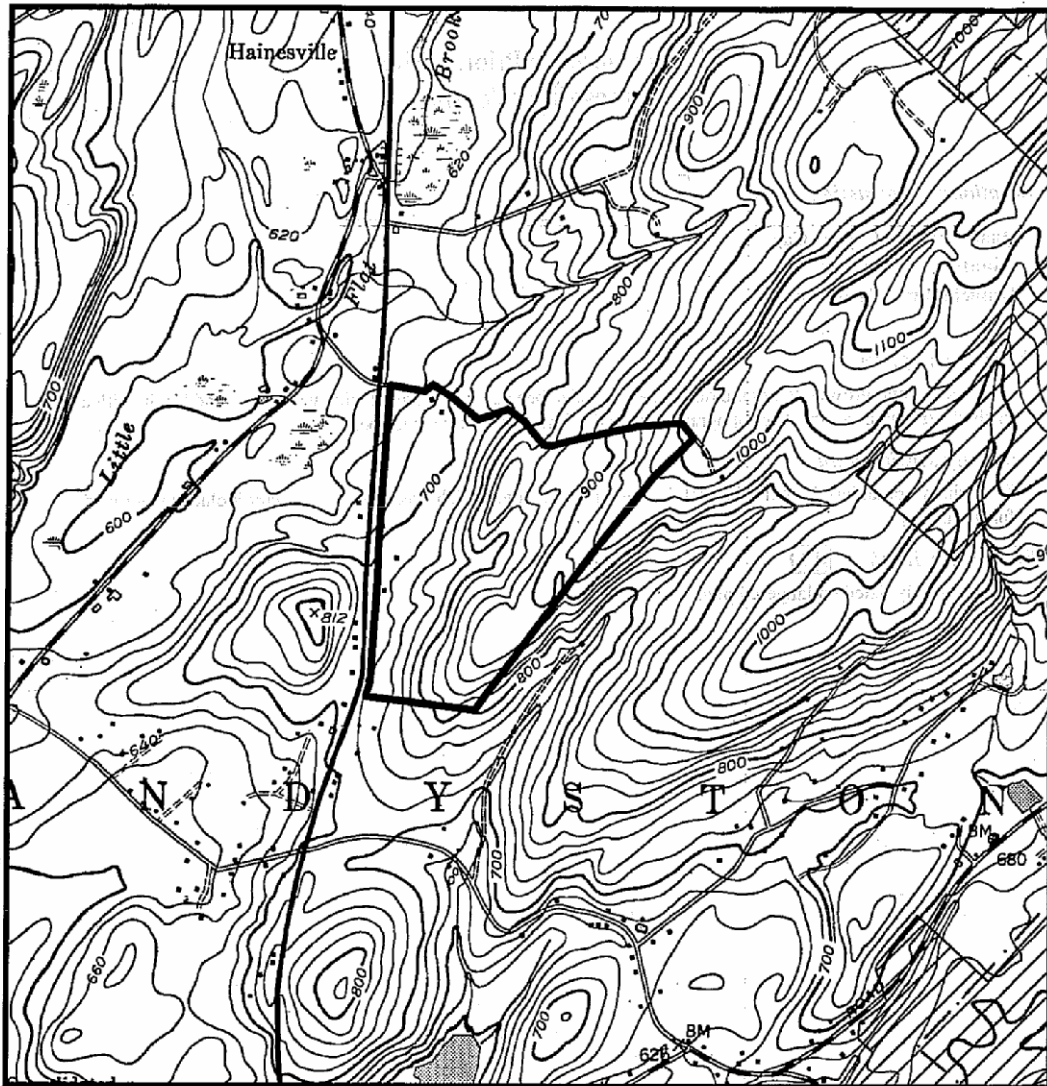
Scientific Name	Common Name	Federal Status	State Status	Regional Status	G Rank	S Rank	Last Observed	Ident
<i>Ranunculus trichophyllus</i> var. <i>trichophyllus</i>	Thread-leaf Water Buttercup			HL	G5T5	S2	1973-06-17	Y
<i>Rubus canadensis</i>	Smooth Blackberry		E	LP, HL	G5	S1	1987-??-??	Y
<i>Salix candida</i>	Hoary Willow			HL	G5	S2	1998-09-15	Y
<i>Salix lucida</i> ssp. <i>lucida</i>	Shining Willow			HL	G5T5	S1	1998-09-24	?
<i>Silene nivea</i>	Snowy Catchfly		E	LP, HL	G4?	S1	1985-07-28	Y
<i>Sisyrinchium montanum</i>	Strict Blue-eyed Grass		E	LP, HL	G5T4	S2	1988-07-14	Y
<i>Spiranthes lucida</i>	Shining Ladies'-tresses			HL	G5	S2	1998-05-28	Y
<i>Spiranthes lucida</i>	Shining Ladies'-tresses			HL	G5	S2	1985-06-19	Y
<i>Streptopus roseus</i>	Rosy Twisted-stalk		E	LP, HL	G5T5?	S1	1987-05-??	Y
<i>Tiarella cordifolia</i>	Foamflower		E	LP, HL	G5T5	S1	1987-05-??	Y
<i>Triadenum fraseri</i>	Fraser's St. John's-wort			HL	G4G5	S3	1935-08-09	Y
<i>Trollius laxus</i> ssp. <i>laxus</i>	Spreading Globe Flower		E	LP, HL	G4T3	S1	1998-06-23	Y
<i>Vicia americana</i> var. <i>americana</i>	American Purple Vetch			HL	G5T5	S1	1985-06-19	Y
<i>Waldsteinia fragarioides</i> var. <i>fragarioides</i>	Barron-strawberry			HL	G5T5	S2	1986-09-24	Y

55 Records Selected

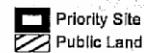
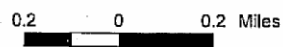
APPENDIX 2

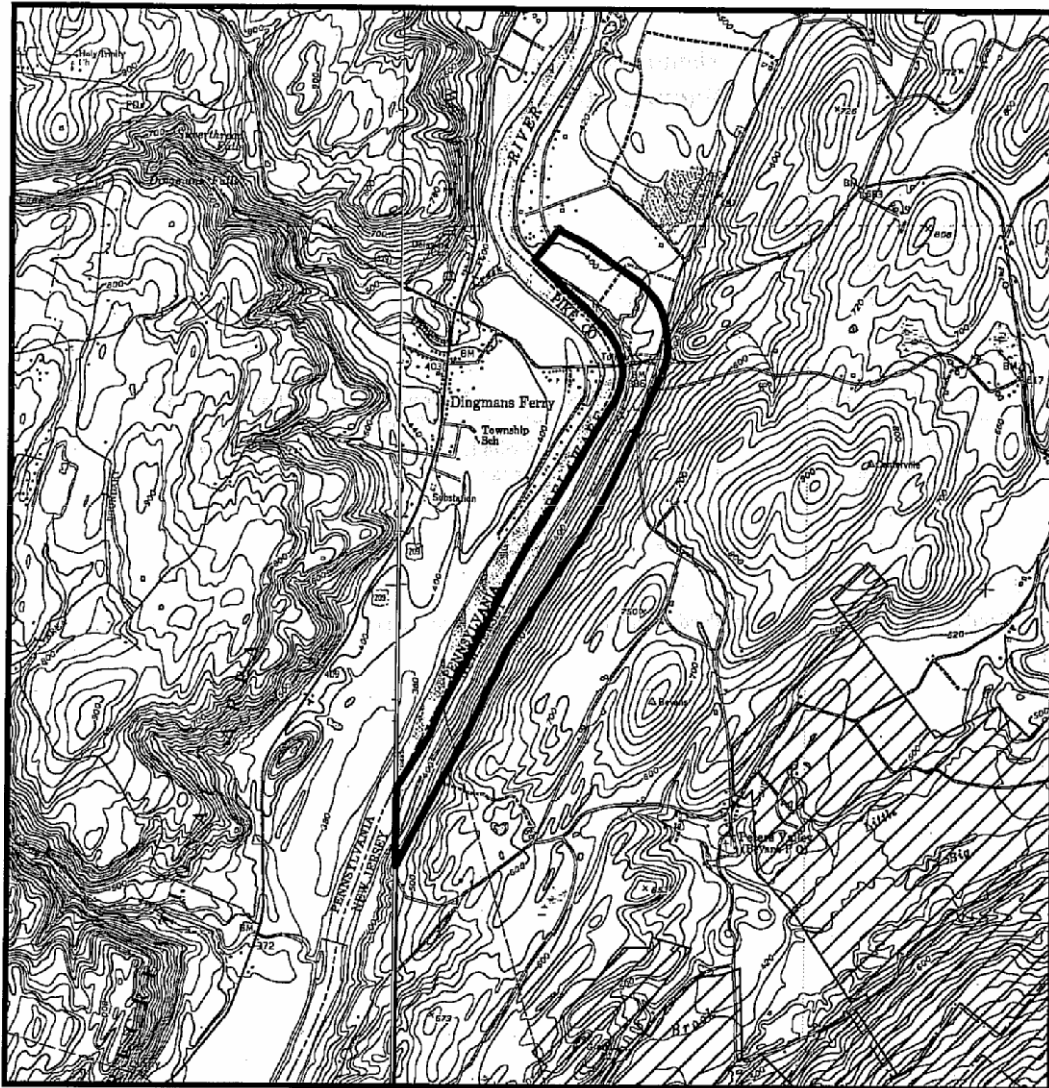
NATURAL HERITAGE DATA BASE

SANDYSTON TOWNSHIP NATURAL HERITAGE PRIORITY SITES



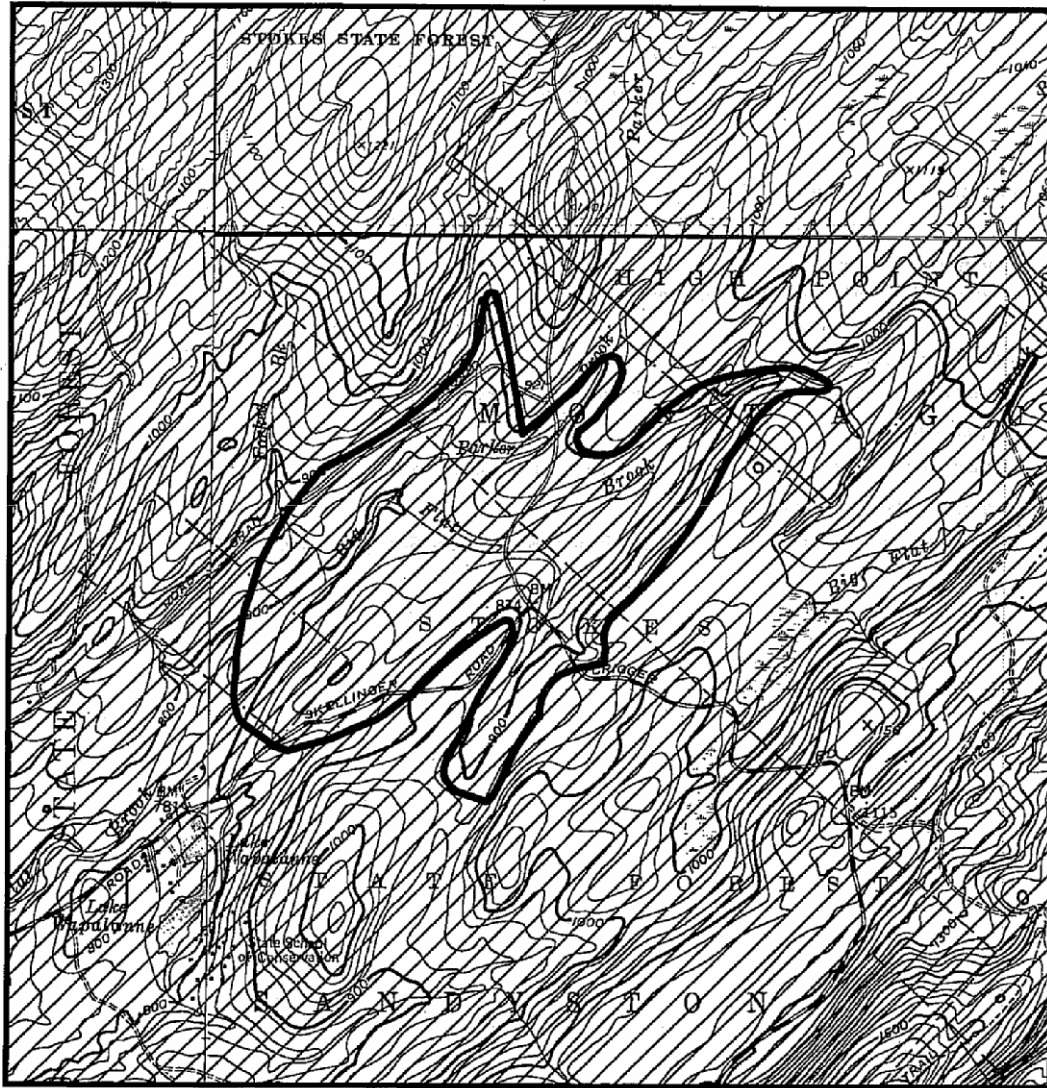
Natural Heritage Priority Site
Hainesville Woods
 Sussex County





Natural Heritage Priority Site
Dingmans Ferry Bridge Site
 Sussex County





Natural Heritage Priority Site

Steam Mill Site

Sussex County



NJ Department of Environmental Protection
Division of Parks and Forestry
Natural Lands Management

0.3 0 0.3 Miles



Priority Site
Public Land



APPENDIX 3

**PHOTOGRAPHIC EXAMPLES
OF
RECOMMENDED DESIGN STANDARDS**

Design Standards

Design Standards are recommended to be developed for the three Village Districts that are included in the Land Use Element of the Master Plan to provide for mixed use commercial, office, services, light industrial and residential needs. The design standards are recommended to apply to all building types within these districts, except single family residential, in order to promote harmony of design within the Village Centers. The following photographs provide examples of building and sign design that the design standards should encourage:



Hainesville Store



Sandyston Municipal Building



St. Thomas Church



Harper Family Barn



Eberhart's Store



Layton Garage



Sussex Bank (former Tanis homestead in Frankford)

SANDYSTON TOWNSHIP MASTER PLAN MAP LIST

- MAP 1. PRESERVED OPEN SPACE – STATE, FEDERAL, PRESERVED FARMS, CONSERVATION EASEMENTS.
- MAP 2. BEDROCK GEOLOGY
- MAP 3. GLACIAL SEDIMENT
- MAP 4. SLOPE BY PERCENT (COLORED & SHADED RELIEF)
- MAP 5. HILLSHADE RELIEF
- MAP 6. WATERSHED MANAGEMENT AREA
- MAP 7. C-1 STREAMS
- MAP 8. WETLANDS
- MAP 9. FEMA FLOODPLAINS & NJDEP FLOOD HAZARD AREAS
- MAP 10. GROUND WATER RECHARGE
- MAP 11. WELL YIELD
- MAP 12. LAND USE LAND COVER TYPES
- MAP 13. SOILS
- MAP 14. LAND USE PLAN MAP
- MAP 15. CIRCULATION PLAN MAP (Layton By-Pass Map)
- MAP 16. ROAD MAP