TOWNSHIP OF HAMPTON

MASTER PLAN

PREPARED BY:

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June 5, 2002
Adopted September 26, 2002

Prepared by:

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The original of this report was signed and sealed
in accordance with NJAC 13:41-1.3

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INTRODUCTION

Hampton Township lies in west central Sussex County bounded by the Townships of Fredon, Stillwater, Lafayette, Frankford and Andover and the Town of Newton with point adjacencies with the Townships of Walpack and Sandyston. See Exhibit 1, Regional Location.

Hampton Township was originally settled in approximately 1756. It was initially part of Burlington County, one of the eight original counties in New Jersey. In 1709, the current boundaries of all of Sussex County were part of Burlington County. Five years later, in 1714, the Sussex County area was incorporated as a part of Hunterdon County. This continued until 1739 when the northern part of Hunterdon County became Morris County. Sussex County was subdivided from the upper or northern section of Morris County in 1753, making it the thirteenth county in New Jersey. At that time, there were two municipalities within Sussex County, New Town and Walpack. As of 1834, the Town of Newton included Andover Township as well as present day Hampton. Finally, in 1864, Hampton Township was formed from a portion of the Town of Newton. It was generally an agricultural municipality, having little in the way of commercial establishments. Newton Town and what later became Andover Borough were the centers of commerce due to the fact that the major highways intersected in those municipalities and, in the early 1900's, the rail lines were constructed. The principal service for Sussex County was the Lackawanna Railroad, later the Erie-Lackawanna and then Conrail, before it was abandoned.

The first concentrations of residential development were the lake communities. Kemah Lake was the first, followed by the northern portion of Paulinskill Lake, Crandon, Mecca, Clearview Lakes and Lake Ann. Since its creation in 1864, Hampton Township has emerged as a major commercial focal point within Sussex County, serving as a strong co-equal element of the regional center of the Town of Newton, the County seat.

Master Plan Process

Hampton Township embarked on its Master Plan revision process at the end of the year 2000. forming a Master Plan Committee comprising representatives of all of the identified neighborhoods within the Township as well as members of the official boards and bodies of the Township, Township Committee, Planning Board, Zoning Board, Recreation Committee, Historical Commission, Public Works Department and the administration. As previous planning documents were felt to have become outdated, an entirely new Master Plan was needed. The Municipal Land Use Law requires any municipality wishing to zone to have first adopted a Master Plan containing at least a Housing Element and Land Use Plan Element. More particularly, the MLUL, at NJSA 40:55D-28, provides as follows:

> Preparation; contents; modification.
>
> a. The planning board may prepare and, after public hearing, adopt or amend a master plan or component parts thereof, to guide the use of lands within the municipality in a manner which protects public health and safety and

promotes the general welfare.

b. The master plan shall generally comprise a report or statement and land use and development proposals, with maps, diagrams and text, presenting, at least the following elements (1) and (2) and, where appropriate, the following elements (3) through (13):

(1) A statement of objectives, principles, assumptions, policies and standards upon which the constituent proposals for the physical, economic and social development of the municipality are based:

(2) A land use plan element (a) taking into account and stating its relationship to the statement provided for in paragraph (1) hereof, and other master plan elements provided for in paragraph (3) through (13) hereof and natural conditions, including, but not necessarily limited to, topography, soil conditions, water supply, drainage, flood plain areas, marshes, and woodlands; (b) showing the existing and proposed location, extent and intensity of development of land to be used in the future of varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and private purposes or combination of purposes; and stating the relationship thereof to the existing and any proposed zone plan and zoning ordinance; and (c) showing the existing and proposed location of any airports and the boundaries of any airport safety zones, delineated pursuant to the "Air Safety and Zoning Act of 1983," PL 1983,c.260 (C.6:1-80 et seq.); and (d) including a statement of the standards of population density and development intensity recommended for the municipality;

(3) A housing plan element pursuant to section 10 of PL 1985,c.222 (C.52:27D-310), including, but not limited to, residential standards and proposals for the construction and improvement of housing;

(4) A circulation plan element showing the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about, and through the municipality, taking into account the functional highway classification system of the Federal Highway Administration and the types, locations, conditions and availability of existing and proposed transportation facilities, including air, water, road and rail;

(5) A utility service plan element analyzing the need for and showing the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities, and including any storm water management plan required pursuant to the provisions of PL

1981, c.32 (C.40:55D-93 et seq);

(6) A community facilities plan element showing the existing and proposed location and type of educational or cultural facilities, historic sites, libraries, hospitals, firehouses, police stations and other related facilities, including their relation to the surrounding areas;

(7) A recreation plan element showing a comprehensive system of areas and public site for recreation;

(8) A conservation plan element providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, energy, open space, water supply, forests, soil, marshes, wetlands, harbors, rivers and other waters, fisheries, endangered or threatened species wildlife and other resources, and which systemically analyzes the impact of each other component and element of the master plan on the present and future preservation, conservation and utilization of those resources;

(9) An economic plan element considering all aspects of economic development and sustained economic vitality, including (a) a comparison of the types of employment expected to be provided by the economic development to be promoted with the characteristics of the labor pool resident in the municipality and nearby areas and (b) an analysis of the stability and diversity of the economic development to be promoted;

(10) A historic preservation plan element: (a) indicating the location and significance of historic sites and historic districts; (b) identifying the standards used to assess worthiness for historic site or district identification; and (c) analyzing the impact of each component and element of the master plan on the preservation of historic sites and districts;

(11) Appendices or separate reports containing the technical foundation for the master plan and its constituent elements;

(12) A recycling plan element which incorporates the State Recycling Plan goals, including provisions for the collection, disposition and recycling of recyclable materials designated in the municipal recycling ordinance, and for the collection, disposition and recycling of recyclable materials within any development proposal for the construction of 50 or more units of single-family residential housing or 25 or more units of multi-family residential housing and any commercial or industrial development proposal for the utilization of 1,000 square feet or more of

land; and

(13) A farmland preservation plan element, which shall include: an inventory of farm properties and a map illustrating significant areas of agricultural land; a statement showing that municipal ordinances support and promote agriculture as a business; and a plan for preserving as much farmland as possible in the short term by leveraging monies made available by PL 1999, c.180 (C.4:1C-43.1) through a variety of mechanisms including, but not limited to, utilizing option agreements, installment purchases, and encouraging donations of permanent development easements.

c. The master plan and its plan elements may be divided into subplans and subplan elements projected according to periods of time or staging sequences.

d. The master plan shall include a specific policy statement indicating the relationship of the proposed development of the municipality, as developed in the master plan to (1) the master plans of contiguous municipalities, (2) the master plan of the county in which the municipality is located, (3) the State Development and Redevelopment Plan adopted pursuant to the "State Planning Act," sections 1 through 12 of PL 1985, c.398 (C.52:18A-196 et seq.) and (4) the district solid waste management plan required pursuant to the provisions of the "Solid Waste Management Act," PL 1970, c.39 (C.13:1E-1 et seq.) of the county in which the municipality is located.

EXHIBIT 1

REGIONAL LOCATION

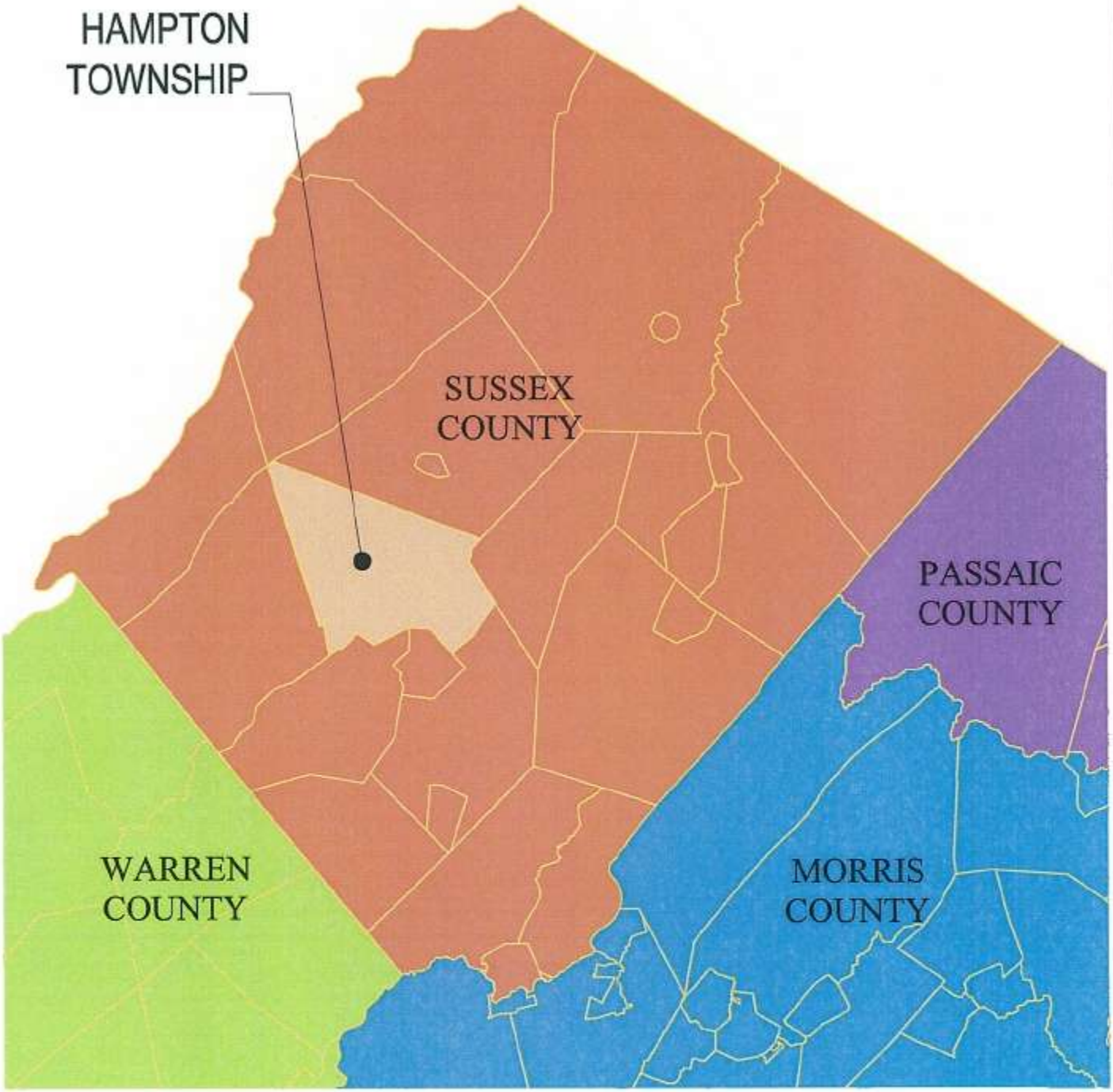

EXHIBIT 1

KEY MAP

Township of Hampton
Sussex County, NJ

Scale: N.T.S. Date: 05/28/02

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GOALS AND OBJECTIVES

The goals and objectives of the Township as outlined below are the guiding principals behind the land use policies adopted in the Land Use Element of the Master Plan. These goals and objectives are as follows:

Goal 1

Provide for a balance of new development and redevelopment over a ten year period at appropriate densities taking into account projections of population, economic growth, and availability of infrastructure.

Objectives:

a. Prepare a map and pertinent statistics of existing land use for Hampton Township.

b. Prepare estimates of existing population and economic activity.

c. Determine the extent and capacity of existing infrastructure (sewer, water supply).

d. Develop projections for population, household, and economic activity for a ten year period.

e. Prepare projections of land use needs and infrastructure capacity to accommodate anticipated demand.

f. Prepare a proposed Land Use Map and data, and a revised Zoning Map, and techniques to aid in fulfilling of the Master Plan recommendations.

g. Recommend revisions to the Land Development ordinances to provide for and locate land uses deemed to be suitable for Hampton at densities that can be accommodated within adopted environmental standards; provide for effective buffering between incompatible land uses; consider the redistribution of land uses at densities consistent with the provisions of the Municipal Land Use Law and its interpretation by recent court decisions.

h. Consider the inclusion in the Master Plan of Town Centers in Hampton, including the two proposed by the Township to the Office of State Planning, and additional areas which may be deemed suitable for designation.

Goal 2

Provide for an amount and variety of residential development and redevelopment which meets existing and projected demands.

Objectives:

a. Determine the number, type, lot size, value and condition of the present housing stock.

b. Develop projected demand for housing by type, lot size and cost, factoring in ways of meeting Hampton's COAH obligations.

c. Determine the extent and location of land needed to accommodate projected new residential development, and areas suited for redevelopment and reuse.

Goal 3

Provide a circulation system to serve all properties in Hampton, safely and conveniently incorporating movement to and from employment, recreation opportunities, and commercial and institutional services.

Objectives:

a. Develop an information base of existing local, county and State roads in Hampton using maps, straight line diagrams, traffic volumes, cartway and right-of-way width, road conditions, traffic accident information and hazardous locations.

b. Determine currently expected road improvements by jurisdiction.

c. Evaluate current public transportation systems as to how they serve Hampton Township and project needs for the ten year period.

d. Identify road and traffic improvements and new roads needed to alleviate existing traffic bottlenecks and hazardous conditions, taking into consideration anticipated traffic conditions for the ten year period.

e. Review the jurisdictional and traffic situation of unimproved roads, such as those in the Lake communities, and Old Stage Coach Road, to determine when and how they may be improved to current standards.

f. Prepare a circulation element of the Master Plan and a road and traffic improvement section of a Capital Improvements Program with projected priorities and costs.

Goal 4

A. Support protection of current open space resources and additional resources where found appropriate.

B. Support the retention and continued viability of farm and forest activities and resources.

C. Provide for recreation and cultural facilities, providing a variety of programs to meet the levels of community interest.

D. Support the identification of sites and areas of historic and cultural importance and aid in their conservation, maintenance and usefulness to the community.

Objectives:

a. Utilize the Open Space and Recreation Plan developed by the Morris County Land Conservancy and the Hampton Township Open Space Committee in August 2000, as an information, planning, and capital programming source.

b. Evaluate the Open Space and Recreation Plan in the context of the overall projections, needs and public fiscal resources of Hampton Township.

c. Prepare a revised Open Space, Recreation and Historic element of the Master Plan to support the Capital Improvement Program with projected priorities.

Goal 5

Maintain and improve the level of contact and response with regard to adjoining municipal, county and State development and planning activities and their impact on the community.

Objectives:

a. Review the Master Plan, development ordinances, and other relevant documents and activities of adjacent municipalities, Sussex County and the State of New Jersey to determine their impact on Hampton Township.

b. Encourage continuing dialogue with officials from the municipalities, the county and the State in order to mitigate conflicts in existing and proposed land development circulation and transportation, and community related activities, and to foster cooperation and coordination of public activities wherever economically and practically feasible.

Goal 6

Maintain and improve the level of educational opportunity for local residents appropriate for this community.

Objectives:

a. Contact the local and regional school boards to determine their projected school populations and capital improvement programs in elementary and secondary schools.

b. Determine private school use by Hampton residents, and location of private school facilities in Hampton, project use for the ten year period and how this affects the public school system.

Goal 7

Support increases of safety and health related activities such as fire, emergency squad, police protection and public health in order to meet and improve service to the community.

Objectives:

a. Evaluate safety and health facilities, and their levels of activity which are located in or serve Hampton Township, and evaluate their effectiveness in relation to generally recognized norms.

b. Indicate where corrective measures may be needed to better serve the Hampton community.

Goal 8

Identify and protect lands which may be needed to locate or expand public facilities, or to protect for future expansion of open space and recreation lands.

Objectives:

a. Prepare an Official Map identifying existing and proposed location of public facilities including, roads, right-of-way widths, drainage basins and drainage rights-of-way and their widths, the location of existing and proposed public buildings, and existing and proposed open space and recreation lands.

Goal 9

Encourage the concept of a community identity for Hampton.

Objectives:

a. Investigate those elements of community activities which foster a sense of identity within Hampton, i.e. history, town-wide activities, government.

b. Suggest types of activities where the Township can foster community identification and cohesion such as architectural and site design standards, and streetscape and signage measures in commercial areas, and improved pedestrian circulation.

Goal 10

Maintain a high level of performance and economy in the provision of municipal services.

Objectives:

a. Evaluate present activities in the provision of municipal services.

b. Project the level of services which may be needed in the ten year target period.

c. Project staffing and capital needs in order to meet service needs.

d. Suggest alternate means of service provisions.

HOUSING AND POPULATION

Introduction

For more than two decades, the courts and legislature in New Jersey have wrestled with the question of the municipal obligation to provide affordable housing for its current and future citizens. After the New Jersey Supreme Court's 1983 ruling that municipal zoning must provide realistic opportunities for low and moderate income housing, the State Legislature passed and the Governor signed, the Fair Housing Act (Chapter 222, Laws of 1985).

The act establishes a nine member Council on Affordable Housing (COAH). The Council is directed to promulgate a set of procedures and guidelines to assist municipal governments in meeting their responsibility under the Act.

In order to provide structure to the Fair Housing Program, COAH divided the State into six housing regions. The regions are defined by tying residential areas to the predominant employment centers for residents of those areas. The Township of Hampton lies within the Northeast Region as defined by the COAH. This region includes Bergen, Passaic, Hudson and Sussex Counties. This is a change from its original inclusion in the Northwest Region which was composed of Essex, Morris, Union and Sussex Counties.

Considering expected residential, commercial and industrial growth of the region from 1986 through 1993, COAH projected a total housing shortfall for low and moderate income households in the region of 28,773 units. Of this total, Hampton was assigned an indigenous need of sixteen (16) units. The Fair Housing Act requires each municipality to provide the opportunity, through its land use controls, for the market to meet the obligation. The Township is not required to construct any low or moderate income units.

Housing assistance provided to low or moderate income residents since April 1980 may be counted toward the municipal obligation. In the case of Hampton, grant monies totaling $200,000 has been spent to assist 15 families. Later sections of this Housing Element will evaluate the extent to which this assistance, along with other activities, may offset the Township's obligation in meeting revised allocations, approved by COAH on May 13, 1994 for the 1993 through 1999 period.

Under the Fair Housing Act and the Municipal Land Use Law, each municipality has the obligation to prepare a Housing Element.

The regulations promulgated by COAH require that the Housing Element cover the following:

1. An inventory of the municipality's housing stock by age, condition, purchase or rental value, occupancy characteristics, and type, including the number of units affordable to low and moderate income households and substandard housing capable of being rehabilitated.

2. A projection of the municipality's housing stock, including the probable future construction of low and moderate income housing, for the next six years, taking into account, but

not necessarily limited to, construction permits issued, approvals of applications for development and probable residential development of lands.

3. An analysis of the municipality's demographic characteristics, including but not limited to, household size, income level and age.

4. An analysis of the existing and probable future employment characteristics of the municipality.

5. A determination of the municipality's present and prospective fair share for low and moderate income housing and its capacity to accommodate its present and prospective housing needs, including its fair share for low and moderate income housing.

6. A consideration of the lands that are most appropriate for construction of low and moderate income housing and of the existing structures most appropriate for conversion to, or rehabilitation for, low and moderate income housing, including a consideration of lands of developers who have expressed a commitment to provide low and moderate income housing.

1. HOUSING INVENTORY

The Township of Hampton, as of the 1990 Census, contained 1,965 housing units. This includes apartments as well as single family detached homes. Since that time (1990-1999) additional development has occurred as shown below.

TABLE 1
HOUSING GROWTH

1990 Total Units	Building Permits Issued	Demolition Permits Issued	Net Develop-ment	1999
1,965	88	5	83	2,048

Source: 1990 Census; Municipal Construction Reports (N.J.)

As with any municipality, the housing stock of Hampton Township is a mix of old and new, single and multiple family, owner and renter occupied. Tables 2 through 9 outline the makeup of the housing stock as it existed in 1990. Some totals may be different as some questions on the census were only answered on sample basis and then projected to a municipal total.

TABLE 2
HOUSING UNITS BY TENURE

	Number of Units	Percentage
OWNER	1,431	72.7
RENTAL	187	9.5
VACANT	347	17.7
TOTAL:	1,965	100.0

Source: 1990 Census

Tables 3 and 4 outline the general age distribution and type of housing in Hampton Township.

TABLE 3
AGE OF STRUCTURE

Year Built	Number of Units	Percentage
1989 - March 1990	33	1.7
1985 - 1988	491	25.0
1980 - 1984	122	6.2
1970 - 1979	431	21.9
1960 - 1969	436	22.2
1950 - 1959	216	11.0
1940 - 1949	64	3.3
1939 or earlier	172	8.7
TOTAL	1,965	100.0

Source: 1990 Census

TABLE 4
TYPES OF STRUCTURES BUILT

Type	Number of Units Built	Percentage
Single, detached	1,499	76.3
Single, attached	282	14.4
Duplex	14	0.7
Three and four units	12	0.6
Five to nine units	0	0.0
Ten to nineteen units	0	0.0
Twenty or more units	0	0.0
Mobile homes or trailer	152	7.7
Other	6	0.3
TOTAL	1,965	100.0

Source: 1990 Census

The above tables indicate that 87 percent of the existing housing units in 1990 were built since 1950, with a significant spurt, 32 percent of all units, in the 1980-1990 decade. Over 90 percent of all units were single family homes. The census data does not offer unit type by year built. However, it does provide a good picture of the growth of Hampton's housing stock.

Some of these homes are used seasonally; some, previously used seasonally have been converted to fulltime use. Many of these units have major inadequacies including lack of proper heating, poor insulation, and general structural problems and improperly operating septic and potable water systems.

The 1990 Census provides information regarding the vacancy status of housing units at the time the Census was taken. In Hampton Township 347 units (17.7 percent) were vacant. Of these vacant units, 150 units were of seasonal, recreational or occasional use. Table 5 shows the status of vacant housing units.

TABLE 5
STATUS OF VACANT HOUSING UNITS

	Housing Units	Percentage
For rent	6	1.7
For sale only	146	42.1
Seasonal, recreational or occasional use	150	43.2
All other vacant	45	13.0
TOTAL:	347	100.0

Source: 1990 Census

In addition to the structural character of housing and availability, the value of the unit is important in determining its affordability to various segments of the housing market. Tables 6 and 7 provide the market value of owner occupied structures and the value by contract rent of renter occupied units.

TABLE 6
OWNER OCCUPIED UNITS BY VALUE

	Number of units	Percentage
Less than $15,000	0	0.0
$ 15,000 - 19,999	0	0.0
20,000 - 24,999	0	0.0
25,000 - 29,999	0	0.0
30,000 - 34,999	0	0.0
35,000 - 39,999	0	0.0
40,000 - 44,999	9	0.8
45,000 - 49,999	0	0.0
50,000 - 59,999	0	0.0
60,000 - 74,999	12	1.0
75,000 - 99,999	72	6.2
100,000 - 124,999	147	12.6
125,000 - 149,999	251	21.6
150,000 - 174,999	255	21.9
175,000 - 199,999	152	13.1
200,000 - 249,999	141	12.1
250,000 - 299,999	96	8.2
300,000 - 399,999	29	2.5
400,000 - 499,999	0	0.0
500,000 or more	0	0.0
TOTAL	1,064	100.0
MEDIAN VALUE	$ 158,900	

Source: 1990 Census

TABLE 7
RENTER OCCUPIED UNITS BY GROSS RENT
(Cash $ per month)

	Number of Units	Percentage
Less than $100	0	0.0
$ 100 - 149	0	0.0
150 - 199	0	0.0
200 - 249	6	3.3
250 - 299	0	0.0
300 - 349	8	4.4
350 - 399	0	0.0
400 - 449	6	3.3
450 - 499	14	7.7
500 - 549	6	3.3
550 - 599	5	2.7
600 - 649	0	0.0
650 - 699	0	0.0
700 - 749	19	10.4
750 - 999	43	23.6
1,000 or more	62	34.1
No cash rent	13	7.2
TOTAL	182	100.0

MEDIAN GROSS RENT $869

Source: 1990 Census

Housing conditions are not defined solely by cost or type and age of structure. Decent housing must have complete plumbing facilities, heating plant, be in a reasonable state of repair, and not be overcrowded.

Overcrowded and substandard housing conditions include:

1. Occupancy by more than 1.01 persons per room.
2. Lack of complete plumbing facilities for exclusive use.
3. Physical dilapidation.
4. Age greater than 40 years.
5. Lack of proper heating plant.

A home meeting any two or the above criteria is considered substandard.

Tables 8 and 9 show the condition of occupied units as of 1990.

TABLE 8
LACKING COMPLETE PLUMBING FOR EXCLUSIVE USE

Owner Occupied	0
Renter Occupied	0
Vacant	0

Source: 1990 Census

TABLE 9
OCCUPIED HOUSING UNITS BY TENURE BY PERSONS PER ROOM

	Total	Owner	Renter
1.00 or fewer	1,609	1,428	181
1.01 - 1.50	3	3	0
1.51 or more	6	0	6

Source: 1990 Census

The above data indicates that there are a number of households (9) which are overcrowded. However, this is a substantial decrease from 1980 when 30 were considered overcrowded. As for units lacking complete plumbing facilities there were 8 units in 1980; none in 1990.

In order to more accurately determine the housing conditions of Hampton Township a housing conditions survey was undertaken in February and March of 2000. This survey incorporates the survey performed in Crandon Lakes as part of the application for rehabilitation funds in 1998. Homes were rated on a good, fair, poor scale. Where one significant defect was observed a fair rating was given. More than one defect resulted in a rating of poor.

Seventeen hundred and fifty eight houses were surveyed, about 85 percent of the current housing stock. The survey viewed the exterior of the buildings. It does not show structural problems that may be present in the interior, nor does it indicate problems with wastewater, potable water or heating systems. It does provide an indication of these possible problems. Experience has shown that housing units with need of exterior improvements often indicate other problems not readily visible.

The survey shows the following:

Of the 1,758 houses surveyed:

- 1,612 were considered in good condition, 91.7 percent of the surveyed units;
- 117 were considered in fair condition – in need of painting and minor exterior repairs, 6.7 percent;
- 29 were considered in poor condition – in need of major exterior repairs, 1.6 percent of surveyed units.

An evaluation of the study indicates that, though structurally inadequate housing conditions are not a major problem in Hampton Township, there are housing units which should be rehabilitated to bring them to standard condition.

In order to see, on average, what housing was available to persons of low or moderate income, we need to look at value, rent, and income. The following outline shows a significant segment of the population with incomes in 1989 insufficient to secure housing at the median value.

Median Value Home	$ 158,900
Down Payment (10%)	15,890
Mortgage	143,000
Principal and Interest @ 8.6%, 30 year mortgage *	$ 1,190/month
Property tax @ $2.58 per $100 of value	339/month
Total Monthly Payment	$ 1,529/month

* Housing payment should be no more than 28% of gross income. $ 1,529 x 12 = $18,348 per year divided by 28% = $65,529, the income which could afford the median priced home.

The median household income in 1989 was $47,104. Of the 1,621 households in Hampton, 72.7 percent could not afford the median priced home.

Median rent in Hampton in 1989 was $869. Using this, and 30% of income for shelter, the median rental opportunity would be available to households with an income of $34,760 or more.

Using the COAH guidelines, an average household (2.77 persons) of low income (50% of the median income of $47,104 = $23,552) could not afford the median rental. The average sized moderate income household at 80% of median income could afford rentals up to $942 per month at 30% of gross income.

From the 1990 Census we find that, of low/moderate income households earning less than $10,000 in 1989, 85% of the respondents were paying 30 % or more of total income for housing costs as owners. Of those earning between $10,000 and $19,999, just under 55% were paying 30% or more of total income. For these households in rental units in the same income categories

the number paying a higher amount is even greater – 100% paying greater than 30% of income in the less than $10,000 category; 83% in the $10,000 to $19,000 category. These data reflect only cost and do not indicate levels of crowding or other indicators of inadequacy.

In evaluating the information above, the Township does appear to have a need to provide housing opportunities to some of its current residents (indigenous need). Table 10 shows the percentage of the population of families at or below the poverty level.

TABLE 10
FAMILIES AND PERSONS BELOW POVERTY LEVEL

Families	Percent	Persons	Percent
29	2.3	129	2.9

Source: 1990 Census

It is well documented that lower income persons and families are the least mobile within any area. In the light of the increase in market values of houses and market rents since the 1990 Census, the status of the indigenous poor population has undoubtedly deteriorated.

TABLE 11
FAMILIES AND MEAN FAMILY INCOME
BY NUMBER OF WORKERS IN FAMILY

Number of Workers	Families	Mean
No workers	132	$27,578
1 worker	251	$42,707
2 workers	652	$56,709
3 or more workers	253	$81,079
TOTAL:	1,288	$55,782

Source: 1990 Census

Statistics provided by the real estate industry indicate the average closing price of a house in Hampton in 2000 was $ 169,677. Rental data from the same source indicates that new leases are now averaging $ 1,000.

2. PROJECTED HOUSING STOCK

In projecting housing stock for Hampton Township for 2010 the following assumptions were used.

- A population projection of 5,897 (Sussex County Planning Department)
- Thirty people will be housed in group quarters (13 in 1990)
- An average household size of 2.5 persons (2.76 in 1990)
- A vacancy rate of 7.0 percent for housing units for sale, rent or other use (10.03 percent in 1990)
- One hundred housing units for seasonal, recreational or occasional use (150 in 1990)
- Conversion of 50 housing units to full-time residential use
- Twelve demolitions
- Each household occupies its own housing unit

For comparison purposes, in 1990 there were 1,965 housing units of which 1,618 were occupied. It was estimated that in 1999 there were 2,048 housing units, a net increase of 83 units since 1990.

Using the above assumptions the following is the projected housing stock for Hampton Township in 2010.

- Persons living in households (5,897 - 30)	5,867
- Number of households (5,867 ÷ 2.5)	2,359
- Occupied housing units	2,359
- Vacant, for sale, rent or other use (7.0%)	185
Seasonal, recreation or occasional use	100
Total Housing Units, 2010	2,644
Total Housing Units, 1990	1,965
	679
Less Conversions	50
	629
Plus demolitions	12
New Housing Units, 1990 – 2010	641

3. DEMOGRAPHY

Hampton Township's population was 4,494 in 1990. For the purposes of this element, the 1990 Census is the best source of data to provide an adequate picture of the population in Hampton.

TABLE 12
PERSONS BY SEX AND AGE

Age	Female	Male	Total	Percent
0 - 4 years	181	164	345	7.7
5 - 9 years	120	197	317	7.1
10 - 14 years	161	137	298	6.6
15 - 19 years	139	139	278	6.2
20 - 29 years	274	243	517	11.5
30 - 34 years	226	240	466	10.4
35 - 44 years	423	448	871	19.4
45 - 54 years	297	271	568	12.6
55 - 59 years	86	101	187	4.2
60 - 64 years	109	86	195	4.3
65 - 74 years	152	120	272	6.1
75 - 84 years	69	46	115	2.5
85 years and over	38	27	65	1.4
TOTAL	2,275	2,219	4,494	100.0
Median Age	35.8	34.8	35.3	

Source: 1990 Census

The population increased by 578 persons from 1980 to 1990 though the population age distribution shows a significant percentage shift in the 35-44 category from 13.6 in 1950 to 19.4 in 1990, with minor shifts in the other age categories. The median age increased 3.2 years from 32.1 to 35.3.

Table 13 shows the distribution of income by family and household as of 1989. As might be expected, family incomes were somewhat higher than household incomes. Households, which combine families and non-family households, tend to have fewer wage earners than families. Table 14 Mean Household Income by Tenure, shows that the income of renter households was less than half that of owner households.

TABLE 13
HOUSEHOLD AND FAMILY AND NON-FAMILY INCOME

Income Level	Households	Families	Non-Family Households
$ 0 - 4,999	27	12	15
5,000 - 9,999	100	17	83
10,000 - 12,499	10	5	5
12,500 - 14,999	60	33	27
15,000 - 17,499	49	25	24
17,500 - 19,999	14	9	5
20,000 - 22,499	25	16	9
22,500 - 24,999	30	22	8
25,000 - 27,499	31	15	16
27,500 - 29,999	59	36	23
30,000 - 32,499	60	34	26
32,500 - 34,999	37	37	0
35,000 - 37,499	33	33	0
37,500 - 39,999	104	77	27
40,000 - 42,499	97	91	11
42,500 - 44,999	40	34	6
45,000 - 47,499	41	41	0
47,500 - 49,999	45	45	0
50,000 - 54,999	111	107	4
55,000 - 59,999	101	97	15
60,000 - 74,999	286	278	8
75,000 - 99,999	163	146	12
100,000 - 124,999	42	31	0
125,000 - 149,999	35	35	0
150,000 or more	21	12	9
TOTAL	1,621	1,288	333
MEDIAN INCOME	$47,104	$52,737	$22,083
MEAN INCOME	$50,964	$55,782	$30,090

Source: 1990 Census

TABLE 14
MEAN HOUSEHOLD INCOME BY TENURE

Owner Occupied	$ 50,872
Renter Occupied	$ 56,319

Source: 1990 Census

In order to further develop an understanding of the population of Hampton, Table 15 outlines the sources and average amounts of income received during 1989.

TABLE 15
HOUSEHOLDS WITH INCOME IN 1989
BY INCOME TYPE

	Total	Mean
EARNING:		
Wage or salary	1,361	$52,259
Self-employed non-farm	157	$11,081
Farm employment	40	$ 4,235
Interest, dividend or rental income	754	$ 4,145
Social Security	340	$ 8,865
Public Assistance	64	$ 3,187
Retirement	280	$ 8,874
Other sources	151	$ 4,978

Source: 1990 Census

4. EMPLOYMENT CHARACTERISTICS

There has been substantial economic growth in Hampton Township over the past three decades. This is the result of expansion of commercial and residential development, particularly in the Route 206/94 Corridor.

This development has occurred as an extension of the Newton business district. It reflects both a limit on land within Newton to accept expansion, as well as a desire to accommodate the automobile and avoid traffic congestion. At the present time we estimate that, within the Hampton 206/94 Corridor, 2,830,000 square feet of floor space has been built on approximately 239 acres. The uses located in the Corridor include professional offices, government agencies, auto dealerships, fast food establishments, supermarkets, construction materials, large shopping centers, and two "stand-alone" retail stores, and a WalMart.

The commercial developments in the 206/94 Corridor are mostly serviced by individual on-site septic systems. The exception to this is a small sewage treatment plant which serves the Hampton Plaza shopping center on Route 206.

The following tables describe the labor force in Hampton.

TABLE 16
LABOR FORCE STATUS

	Total	Male	Female
Persons 16 years and over	3,495	1,691	1,804
Labor force:			
Armed forces	0	0	0
Civilian employed	2,385	1,264	1,121
Civilian unemployed	89	38	51
Unemployment rate	3.6%	2.9%	4.4%
Not in labor force	1,021	389	632

Source: 1990 Census

It is difficult to obtain completely accurate employment figures for small and middle sized communities such as Hampton. One source is the "Private Sector Covered Jobs" published quarterly by the Division of Labor Market and Demographic Research of the New Jersey Department of Labor. This lists jobs and wages covered by Unemployment Insurance. Up until the last several years, the reports did not cover government employment.

Some firms report improperly, assuming that their mailing address and municipality are the same. This can lead both to over counting in a municipality in which its postal address covers areas adjacent to them, and undercounting in municipalities covered by adjacent postal areas. The State Department of Labor attempts to correct this distortion on an ongoing basis.

The Census provides information on the location of employment of persons residing in a municipality. In Hampton, in 1990, of the 2,347 employed residents, 53 worked in the Township, 1,287 worked in the rest of Sussex County and 949 in the balance of the State. Of those working in Hampton, 32 worked at home.

Information on private employment over the past eight years shows a steady increase in the number of jobs in Hampton Township. The following are from the third quarter reports for 1988, 1990, 1992, and 1994.

Much of this increase is due to the aforementioned rapid expansion of retail and commercial development along the Route 206/94 Corridor.

TABLE 17
COVERED EMPLOYMENT

	Hampton		Sussex County	
	Places of Employment (% of County)	Covered Jobs (% of County)	Places of Employment	Covered Jobs
1988	30 (1.15%)	146 (0.58%)	2,597	24,896
1990	29 (1.12%)	153 (0.62%)	2,589	24,344
1992	36 (1.27%)	257 (1.09%)	2,828	23,471
1994	43 (1.36%)	428 (1.61%)	3,145	26,584

Source: "Private Sector Covered Jobs", N.J. Department of Labor

In 1997, Covered Employment information was expanded to include covered public employees. Table 18 shows information for both private and public covered jobs.

TABLE 18
COVERED EMPLOYMENT, 1997

	Hampton	Sussex County
	Annual Average Covered Jobs (% of County)	Annual Average Covered Jobs
Private	472 (1.79%)	26,289
Government	259 (4.33%)	5,981
TOTAL	731 (2.26%)	32,270

Source: "Covered Jobs," N.J. Department of Labor

Projecting employment for small areas like Hampton Township is probably more problematical than projecting population.

The following is the methodology used to arrive at an employment projection:

	1997			2010		
Private	Gov't Emp.	Emp.	Private Total	Gov't Emp.	Emp.	Total
Hampton	472[1]	259[1]	731[1]	1,005[5]	295[4]	1,300[3]
Sussex County	26,289[1]	7,724[1]	34,013[1]	27,959[6]	8,215[7]	36,174[2]

[1] Covered Employment Trends, N.J. Department of Labor.
[2] Table 1, State Development and Redevelopment Plan.
[3] 3.59% of County projected employment.
[4] Projected increase based upon a projected population of 5,350 in 2010, a 14 % increase over the 1997 estimate of 4,697.
[5] Subtraction of government employment from total employment.
[6] Derived from % of County private employment in 1997.
[7] Subtraction of private employment from total employment for 2010.
The base information was derived from the following sources:
1997 Covered Employment Trends, N.J. Department of Labor

Table 1, Projection of New Jersey Population, Employment and Households: 1990 and 2010, State Development and Redevelopment Plan, 1993

Population Projections for Sussex County, 1990 – 2010, Sussex County Planning Department, May, 1995

Employment projections for Hampton for 2010 were based on the assumption that there will be a increase in Hampton's proportion of the County's employment from 2.15 percent in 1997 to 3.59 percent in 2010.

Government employment in Hampton is projected to increase from 259 persons in 1990 to 295 persons in 2010 using the following assumptions: with the lowering birth rate, smaller families and aging population school employment will be stable; population increase and provision of sewer and water services to a portion of the Township will require additional employees; as will County employment, some of which is located in Hampton Township. These increases were developed by taking the number of employees per 1,000 people in Hampton in 1997 and assigning that ratio to the 2010 projected population. For Sussex County, private employment in 2010 was projected to remain at the same percentage of total employment as it was in 1997, 77.29 percent.

Hampton therefore projects employment for 2010 at 1,300, a 77.8 percent increase over the 1997 estimate of 731.

5. PRESENT AND PROSPECTIVE FAIR SHARE

The Council on Affordable Housing (COAH), in its recently adopted "Low and Moderate Housing Need for 1993-1999", which allocates state, regional and local needs to municipalities, allocated 162 units to Hampton. Several elements are involved in arriving at this figure:

1.) Indigenous Need - the local need for low and moderate income housing, including deteriorated units.

2.) Reallocated Present Need - that portion of the regional need allocated to the municipality on a formula basis.

3.) Prospective Need, 1993-1999 - that share of future low and moderate income households expected to require non-market housing.

4.) Prior Cycle Prospective Need - the recalculated prospective need for the 1987-1993 period.

5.) Demolitions - a six year projection for 1993-1999 based on reported demolitions for 1988-1990; to be added to municipal need.

6.) Filtering - an estimate of housing now used by low and moderate income households, previously occupied by the higher income sector; a reduction in municipal need.

7.) Residential Conversion - creation of dwelling units from existing residential structures; a reduction to municipal need.

8.) Spontaneous Rehabilitation - measure the private market's ability to rehabilitate deficient low and moderate income housing units; a reduction to municipal need.

9.) Reduction - a one-for-one reduction of cumulative 1987-1999 need for affordable housing undertaken from 1987-1993; for units zoned or transferred whether or not the units have been constructed.

10.) Twenty Percent Cap - a cap on 20 percent of the estimated 1993 occupied housing stock. No more than this percentage can be required for a new construction.

11.) Calculated Need: 1987-1999; the sum of total need, prior cycle prospective need, and demolitions; minus filtering, conversion and spontaneous rehabilitation, yielding precredited need; minus the reduction, prior cycle credits and 20 percent cap.

Hampton was assigned a Calculated Need of 58 units by COAH in 1994 for the 1993-1999 period. The following is the breakdown by housing units used by COAH in reaching that figure:

	Housing Units
Indigenous Need, plus	16
Reallocated Present Need, plus	15
Prospective Need, 1993-1999, plus	11
Prior Cycle Prospective Need, plus	17
Demolitions, less	3
Filtering, less	-1
Residential Conversion, less	0
Spontaneous Rehabilitation, less	-3
Reduction, less	0
Credits, less	0
Undeveloped Land Cap, equals	0
Calculated Need	58

The above calculation does not take into consideration the fifteen low and moderate income housing units rehabilitated by Hampton Township using the Small Cities Grant from the New Jersey Department of Community Affairs. This would reduce the Indigenous Need to zero. The non-indigenous component, 45 units would still require filling by the development of new units.

Hampton considers the allocation of 58 units by COAH to be flawed in that the region into which Sussex County was shifted has created a skewed total of regional need which has increased the Present and Prospective Need for the Township beyond that which it would have expected had it remained in its original region. Hampton has reviewed the revised regional configuration, which places Sussex County in with Hudson, Bergen and Passaic Counties instead of Essex, Morris and Union Counties. The links with Hudson, Bergen and Passaic Counties are far less significant than with the original grouping.

Probably the strongest link is that of commuting patterns. The 1990 Census indicates that:

23,378 residents of Sussex County commute to Essex, Morris or Union counties, while 8,921 Sussex County residents commute to Bergen, Passaic or Hudson Counties;

2,378 residents of Essex, Morris or Union counties commute to Sussex County, while 873 residents of Bergen, Hudson or Passaic Counties commute to Sussex County.

Hampton Township, along with others who have been involved with the COAH process, was led to understand that a major element in determining housing related regions was the commuter shed link. Given the above information, the new regional configurations flies in the face of this understanding.

In the Substantive Rules of the Council on Affordable Housing, a "Housing Region" is defined as "...a geographic area, determined by the Council, of no less than two nor more than four contiguous, whole counties, which exhibit significant social, economic and income similarities

and which constitute, to the greatest extent practicable, the Primary Metropolitan Statistical Areas (PMSA) as last defined by the United States Census Bureau."

Sussex County is part of the Newark PMSA - which is co-terminus with its original Housing Region, Essex, Morris, Sussex and Union Counties.

In COAH's Substantive Rules, Appendix A, Methodology of the Substantive Rules, under Procedures: Developing Housing Regions, the discussion relates journey-to-work as the primary source of constructing such regions, first using travel times during prime commuting periods. However, because of the need for data presentation purposes and the use of recognizable areas for data collection, a permanent market area had to be constructed. COAH indicates that a procedure called CLUSTER was used to group counties, with certain qualifying controls, such as the counties in a group had to be contiguous, and group size had to be no less than two nor more than four counties. We are not informed as to what data were used in the procedure.

1990 census data for Sussex County, of the place of work of workers 16 years and over, indicates that 58.5 percent work outside of Sussex County. Of these, 60.1 percent work in the balance of the PMSA, Essex, Union and Morris Counties; 22.9 percent work in the three counties in the "Housing Region" into which Sussex County was placed; Bergen, Hudson and Passaic Counties. It must have been factors other than "journey-to-work" which influenced COAH to dismiss the intent of the Fair Housing Act and its own rules, which proposes the use of PSMA's "to the greatest extent practicable", as well as the guidelines, and the census information available, to place Sussex County as they have done.

Under the heading of Housing Regions in New Jersey, mention is made that the approved distribution of counties also reflects vacant land concentrations and growing commuter ties between Sussex and the remaining counties in Group 1 (the Northeast Housing Region of Bergen, Hudson, Passaic and Sussex). No data is presented which reflects growing commuter ties. As for vacant land, there is considerable vacant land in Sussex County, but this is true for other counties as well, such as Warren and Hunterdon. The only seemingly logical reason to place Sussex County in the Northeast Region and out of its original Housing Region is the Board and staff of COAH's perceived need to lower the regional impact of distribution of low and moderate income housing from counties like Hudson and the urbanized parts of Passaic and Bergen to the suburban municipalities of Passaic and Bergen. This expedient action has had an undue and unfair impact on Sussex County.

As for open land, although it is true that there is a large quantity of open land in Sussex County and Hampton Township, COAH did not seem to truly evaluate the quality and tenure of the land and its supporting infrastructure.

Most of this land is classified Rural Planning Area (PA4) and Environmentally Sensitive Planning Area (PA5) by the State Development and Redevelopment Plan. This means that it is suitable only for limited development. There is little chance of substantial intensive development given the present zoning and infrastructure. Lack of public sewage and potable water facilities makes development at densities suitable for low and moderate income housing, at

the least, difficult to achieve. Minimal public transportation and employment also work against locating low and moderate housing in Sussex County.

Communications regarding the matter of the housing region and its impact on the allocation for Hampton and the other Sussex County municipalities have been forwarded to COAH from the Sussex County Planning Department. The township will continue to press for a reevaluation, on the part of the COAH Board, of both the Regional Housing Areas, the 1993-1999 allocations, and new allocations for the 2000-2006 period.

6. OPPORTUNITIES TO MEET FAIR SHARE OBLIGATION

As indicated earlier, a principal housing concern facing Hampton has been the conversion of small, summer cottages into year round use. Cottages designed may years ago for summer use generally have inadequate insulation, heating, plumbing and septic components.

The Township has actively assisted 15 low and moderate income households in rehabilitation of substandard dwellings and improving failing septic systems in the Crandon Lakes area. This assistance was provided through the U.S. Department of Housing and Urban Development Small Cities Block Grant Program administrated by the New Jersey Department of Community Affairs.

The Township had, in 1998, applied for an additional Small Cities Grant in conjunction with Stillwater Township to rehabilitate 25 units in the Crandon Lakes area. This is a summer lake community where many of the homes are now used for year-round residence. This application was not funded.

Means other than rehabilitation must be used in order to receive credit towards meeting the 45 units in the reallocated present and prospective need component. Techniques being considered by Hampton include the following:

- Regional Contribution Agreements (RCA's). Up to half the fair share obligation can be met using this procedure, excluding the rehabilitation component. This would require contacting municipalities within the region who may be willing to be a receiving municipality and contracting with them to provide funding of at least $20,000 per transferred unit.

- Alternative living arrangements such as residential health care facilities, group homes for the disabled, and congregate housing. There are two such facilities located in Hampton Township, both serving the developmentally disabled. They have a combined total of six bedrooms. These are operated by Center for Humanistic Change and the Sussex County ARC. Two credits are available for each bedroom. At six bedrooms, twelve credits are claimed by the Township.

- Housing for senior citizens.

- Buy down/write down program. This program, if accepted by COAH would include purchase of homes for price restricted resale, provision of down payment funds and funds for security deposits for rentals.

- Survey all municipally owned property with the objection of working with non-profit organizations to develop housing.

7. DESIGNATION OF NEW SITES

Discussions have begun between the Township and a private landowner to consider an inclusionary development in the vicinity of Route 94 in eastern Hampton Township. At this time the exact scope of the development is not certain.

Other means of meeting the COAH allocation would be the development of a housing trust fund by imposing a fee of one-half of one percent to six percent of assessed valuation of new residential units, and/or one percent on new non-residential development. The money collected can be used to help in addressing the municipal fair share by providing funds to subsidize rental, home purchase or other means to make housing affordable to low and moderate income families.

CIRCULATION

A key element in crafting a development strategy in any municipality is an understanding and analysis of means by which people move from one place to another. The Circulation Element of the Master Plan comprises a discussion of existing circulation patterns and components, a review of the strengths and weaknesses of the existing system, a discussion of trends in transportation which may affect the township, and a series of recommendations designed to improve circulation, increasing the safety and convenience of travel within the township.

At one time in Hampton Township, there were more options for transportation than simply motor vehicles. The Township had rail service. The New York, Susquehanna and Western Railroad had two stops in Hampton. The rail line no longer exists and is now a State owned rail/trail, known as the Paulinskill Trail.

The nearest commuter rail service, New Jersey Transit's Morris and Essex Line, can be accessed in Netcong for weekday service to Hoboken or New York City. Weekend service terminates in Dover.

The Sussex County Board of Chosen Freeholders operates an in-county bus service, the Sussex County Transit System (SCTS). However, this is not particularly well used. In order for it to contribute significantly as a mass transit option it would have to be available to out-of-county commuters. There are relatively few persons in Hampton Township or Sussex County who work within the County. As a result, this service has little impact on alleviating traffic congestion or providing alternatives to owning a motor vehicle.

The type of service provided by the SCTS is oriented towards people for whom private transportation is not available; people who do not own or cannot drive a car. The SCTS operates three "loops" operated out of Newton. Routes A and B use the same route, but operate in opposite directions, five days per week; Route 2 operates on Thursday in Newton, Hampton, Frankford, Branchville and Lafayette; Route 5 operates from Newton south on Route 206 to Hopatcong, Byram and Stanhope on Monday, Wednesday and Friday. These routes provide access to health and social service facilities.

Routes A and B and Route 2 provide service to Hampton Township residents and the commercial areas along Route 206.

The Lakeland Bus Company operates a commuter bus service to New York City. However, because its origin and destination are fixed, with no intermediate destination stops, the service has a limited impact on traffic in the Township.

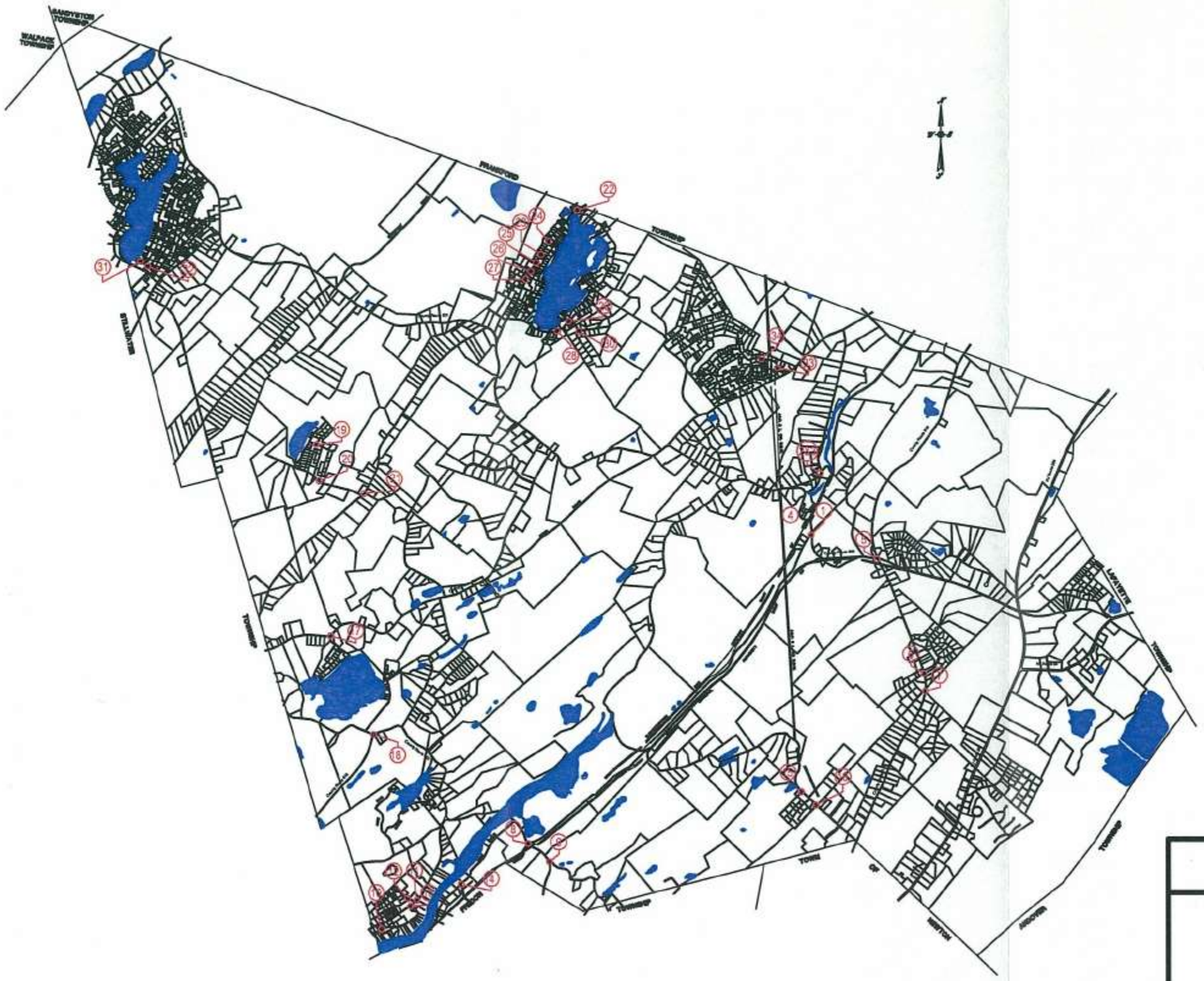
Hampton is served by US Route 206, New Jersey State Highway 94 and various county and local streets. County Route 519 is the principal county artery serving the Township, running from Route 206 at Culver's Lake in Frankford Township into Hunterdon County to the southwest. Within Sussex County, Route 519 is a two lane rural minor arterial. Some segments (e.g. Halsey to

Newton) are more heavily used than others (e.g. between Newton and Johnsonburg in Warren County).

The road network has developed in response to changes in land use rather than through any specific plan. As a result there are numerous areas where it could and should be improved. An analysis has been prepared of the municipal road network within the Township, with a particular focus on areas where improvements to a given road or intersection should be considered. See Exhibits 2, Road Hazards and Exhibit 3, Road Hierarchy and Expansion. Exhibit 3 indicates the locations of additions to the road network which will support a rational land use plan and the revised Center Designation Petition submitted by Hampton. Despite limited resources, the Township has upgraded a substantial proportion of the existing network in response to concerns raised by the Township Administration and affected residents.

EXHIBIT 2

ROAD HAZARDS



2000 0 2000 4000 6000

EXHIBIT 2

ROAD HAZARDS

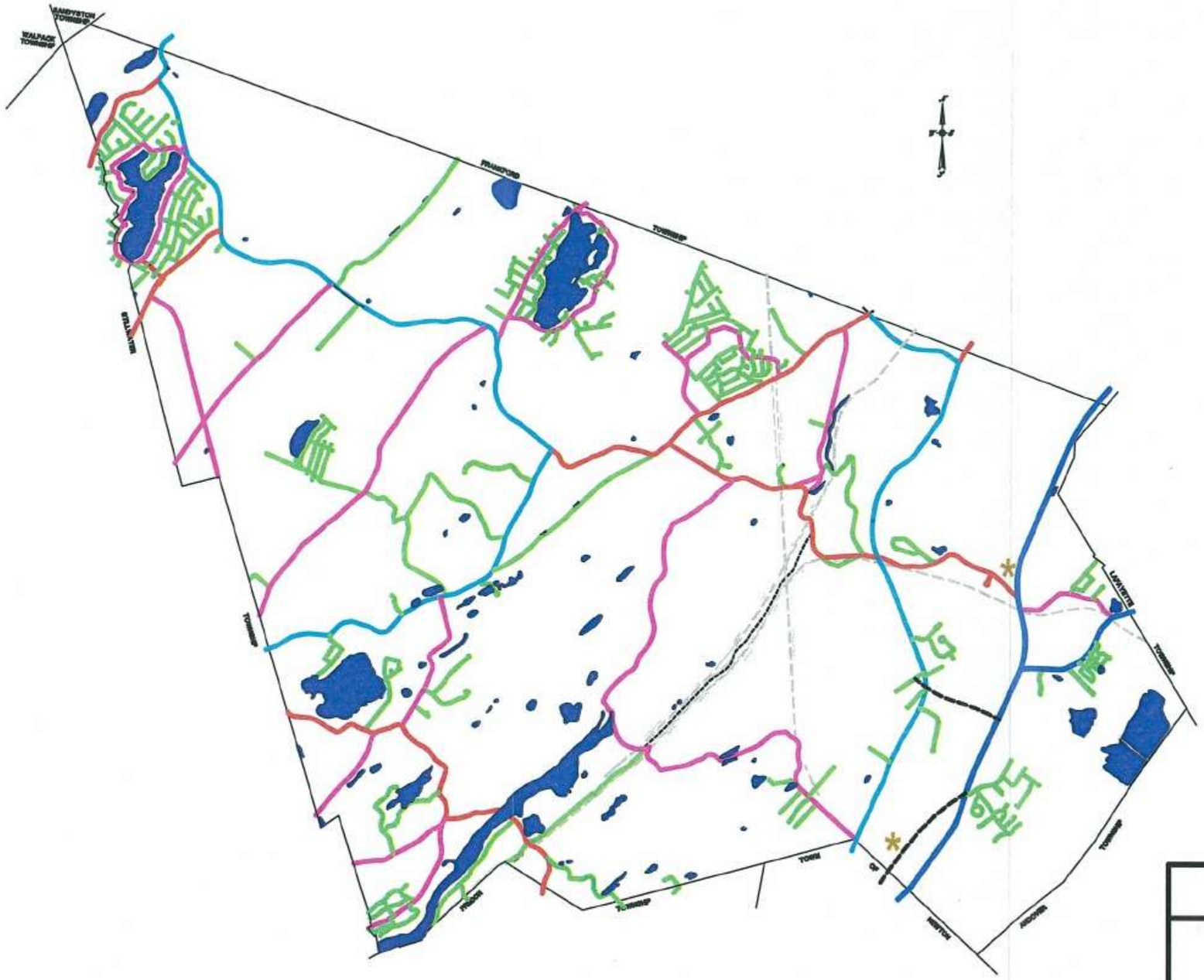
Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street (973) 300-0000
Newton, NJ 07860 Fax (973) 300-1524

EXHIBIT 3

ROAD HIERARCHY AND EXPANSION



LEGEND	
ROAD	DESCRIPTION
	MAJOR ARTERIAL
	MINOR ARTERIAL
	COLLECTOR
	SUB COLLECTOR
	ACCESS
	NEW ROAD
*	PROPOSED CENTER

2000 0 2000 4000 6000

EXHIBIT 3

ROAD HIERARCHY AND EXPANSION

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street (973) 300-6600
Newton, NJ 07860 Fax (973) 300-1524

Roadway Hierarchy

In order to effectively analyze and plan the road system, the various components of the roadway network must be defined and located. (See Exhibit 3).

Roadways are classified according to function and traffic volume.

Arterial. An arterial is a high-volume street that should have no residences on it. Its function is to conduct traffic between communities and activity centers and to connect communities to major state and interstate highways.

Collector. As the principal traffic artery within residential or commercial areas, the collector carries relatively high traffic volumes and conveys traffic from arterial streets to lower-order streets. Its function is to promote the free flow of traffic; as such, zoning should not encourage parking or residential access along a collector. The collector's secondary function is to serve abutting land uses. A collector street may also accommodate public transit such as buses.

Subcollector. The subcollector provides passage to access streets and conveys traffic to collectors. Like the access street, the subcollector provides frontage and access to residential lots but also carries some through traffic to lower-order (local) streets. The subcollector is a relatively low-volume street.

Access Street. Sometimes called a place or lane, the access street is designed to conduct traffic between dwelling units and higher-order streets. As the lowest-order street in the hierarchy, the access street usually carries no through traffic and includes short streets, cul-de-sacs, and courts. The cul-de-sac, a dead-end street with a turnaround area at the end, is used extensively because it provides a quiet, low-traffic environment, eliminates through traffic, and permits the efficient use of land. While some observers classify residential streets as either collectors or local streets, we further subdivide local streets into subcollectors and access streets because of the desirability of distinguishing between the function and needs of these two significantly different street types. Access streets are noteworthy for their complete lack of through traffic and for the fact that they serve only a few dwelling units. Subcollectors usually serve more dwellings and carry a small volume of through traffic to one or more access streets.

See Exhibit 4 for a list of roads in Hampton Township by road hierarchy.

HAMPTON TOWNSHIP
ROAD LIST

ACCESS STREETS
ALDERGATE LANE
ANDOVER ROAD
APPLE BLOSSOM COURT
ARCADIA DRIVE
BASSETT LANE
BAYBERRY ROAD
BEAR LANE
BIRCHWOOD LANE
BLUE HERON LANE
BLUEBERRY DRIVE
BLUEBERRY HILL ROAD
BLUEBIRD COURT
BRIARWOOD
CAMRE DRIVE
CARDINAL LANE
CHANCE WAY
CHANDOGA DRIVE
CHANWOOD DRIVE
CHELSEA COURT
CHERRY LANE
CHERRY ROAD
CHESTNUT PATH
CLEARVIEW CIRCLE
CONCORD PLACE
COVENTRY COURT
CREAMERY ROAD
CRESCENT DRIVE
CREST ROAD
CYPRESS DRIVE
DEERFIELD DRIVE
DICKSON ROAD
DOGWOOD DRIVE
DOWNER ROAD
EAGLE DRIVE
EAST BEACH DRIVE
EAST SIDE DRIVE
EASTBROOK LANE
ECHO LANE
EDGEWATER ROAD
ELM DRIVE
ELM TERRACE
EMMANS LANE
FAIRCLOUGH LANE
FENNER ROAD
FIELDSTONE DRIVE
FIELDSTONE STREET
FIR COURT
FOLEY DRIVE
FOREST DRIVE
FOREST STREET
FRANCIS DRIVE
FRANK'S LANE
FULHAM COURT
GATE COURT
GEORGE ROAD
GLENBROOK DRIVE
GLENCREST DRIVE
GRANDVIEW DRIVE
GRANITE PLACE
GREEN ROAD
GROVE DRIVE
GROVE STREET
HAMPTON DOWNS
HAMPTON DRIVE
HAMPTON HEIGHTS ROAD
HAMPTONLANE
HAMPTON MUNICIPAL COMPLEX ROAD
HAMPTON SPRING ROAD
HAZELNUT DRIVE
HEATHER LANE
HEIGHTS LANE
HEMLOCK DRIVE
HEMLOCK WOODS
HICKORY ROAD
HIGHLAND AVENUE
HIGHVIEW DRIVE
HILL TOP
HILLSIDE AVENUE
HOLLY DRIVE
HORSESHOE DRIVE
HYPER - HUMUS PATH
IKE WILLIAMS ROAD
IRVING COURT
IVY STREET
JUNCTION ROAD
JUNIPER LANE
KELLY LANE
KENT ROAD
KNOLL ROAD
LAKE POINT COURT
LAKE ROAD
LAKETOP DRIVE
LAKEWOOD TERRACE
LANDAUER LANE
LARCH COURT
LAUREL LANE
LENA ROAD
LINDA DRIVE
LITTLE CIRCLE DRIVE
LOCUST DRIVE
LOGWOOD TRAIL
LONE PINE TRAIL
LONGVIEW ACRES COURT
LONGVIEW DRIVE

LOVE ROAD
LOWER LAKE WEST
MAPLE DRIVE
MAPLE PATH
MAPLE TERRACE
MAPLE TREE LANE
MEADOW ROAD
MIDLAND AVENUE
MULBERRY LANE
MYRTLE COURT
MYRTLE STREET
NETCONG LANE
NEW LANE
NORTH BAYBERRY ROAD
NORTH CROSSING ROAD
NORTH GATE
OAK COURT
OAK DRIVE
OAK ROAD
OLD STAGE COACH ROAD
OLD SWARTSWOOD ROAD
OLD WOOD LANE
ORCHARD STREET
ORIOLE TERRACE
OVERLOOK COURT
OVERLOOK ROAD
PALMETTO TRAIL
PARK PATH
PAULINSKILL LANE
PELICAN POINT
PERAGINO ROAD
PEREGRINE POINT
PERKINS DRIVE
PINE DRIVE
PINE ISLAND WAY
PINE LANE
PLAZA DRIVE
POND ROAD
POPLAR DRIVE
POPLAR TERRACE
PORTER DRIVE
R.O.W. 1
R.O.W. 2
R.O.W. 3
R.O.W. 4
RED OAK AVENUE
RHEA RUN
ROCKY WAY
ROLLING ACRES DRIVE
ROSE STREET
ROSELLI AVENUE
SARAH COURT
SCENICVIEW ROAD
SCHOOL ROAD
SHAMROCK DRIVE
SHARON COURT
SHAW ROAD
SHORE ROAD
SLATE PENCIL HILL ROAD
SLEEPY HOLLOW ROAD
SMITH HILL ROAD
SOUTH CROSSING ROAD
SOUTH FIELD TERRACE
SPARROW CIRCLE
SPIROL ROAD
SPRING BROOK LANE
SPRING LAKE TRAIL
SPRUCE ROAD
STEMPERT ROAD
STONY WAY
SUNRISE TRAIL
SUSSEX ROAD
SWAN PATH
SYCAMORE TRAIL
TALL OAKS DRIVE
TANIS ROAD
TESS DRIVE
TIMBER COURT
TIMBER LANE
TOOLEY DRIVE
TULIP STREET
TULIP TRAIL
UNNAMED ROAD 1
UPPER DAM ROAD
VAIL DRIVE
VALLEYVIEW TERRACE
VAN AUKEN ROAD
VAN ATTA DRIVE
WALNUT STREET
WALPACK DRIVE
WATERSIDE WAY
WEST LAKESIDE LANE
WESTBROOK LANE
WILDWOOD TRAIL
WILLOW DRIVE
WINTERMUTE DRIVE
WITT LANE
WOOD COURT
WOOD RUN
WOODCLIFF TRAIL
WOODY LANE
YETTER ROAD

MAJOR ARTERIALS	*MINOR ARTERIALS*
HAMPTON HOUSE ROAD ROUTE 206 ROUTE 94	COUNTY ROUTE 521 COUNTY ROUTE 519 KEMAH-MECCA LAKE ROAD (C.R. 521)
COLLECTOR ROADS	*SUBCOLLECTOR ROADS*
AUGUSTA HILL ROAD BRANCHVILLE-LAWSON ROAD (C.R. 627) COPELEY ROAD FAIRVIEW AVENUE (C.R. 633) HALSEY ROAD (C.E. 626) KLINE ROAD LAKEVIEW DRIVE MOUNTAIN ROAD (C.R. 617) NEWTON-SWARTSWOOD ROAD (C.R. 622)	CHURCH ROAD CLEARVIEW DRIVE DOVE ISLAND ROAD EAST SHORE DRIVE FRANK CHANDLER ROAD HAGGERTY ROAD KINGS ROAD MARY JONES ROAD MINISINK ROAD PARSONS ROAD PLOTTS ROAD POSSAGHI ROAD PRICE ROAD RIDGE ROAD SID TAYLOR ROAD SWARTSWOOD EAST SIDE ROAD (C.R. 619) WEST SHORE DRIVE

Existing Roadway Character

Exhibit 5 indicates the cartway and right-of-way of the road network as it exists in Hampton Township today. The exhibit shows that the road network varies widely, from relatively narrow streets in the Crandon, Little Swartswood, Kemah, Paulinskill, Clearview Lakes and Lake Ann communities, to the widest streets typical of the County road network as well as some of the new subdivision streets. The State's residential road standards (RSIS) are a modification of some general recommendations provided by Rutgers University in its model subdivision and site plan ordinance. The idea behind the model ordinance was to provide guidance to local governments in adopting standards which, tailored to local conditions, would serve as a basis for a safe and efficient roadway circulation network.

The most narrow roadway permitted in those standards has an 18-foot cartway. The cartway is the actual paved part of the street. From the data on Exhibit 5, it is clear that many of the roads in the lake communities are slightly less then this standard. Some are as narrow as ten feet in width. Nowhere else in the Township are there roads which fall below this minimum paved width.

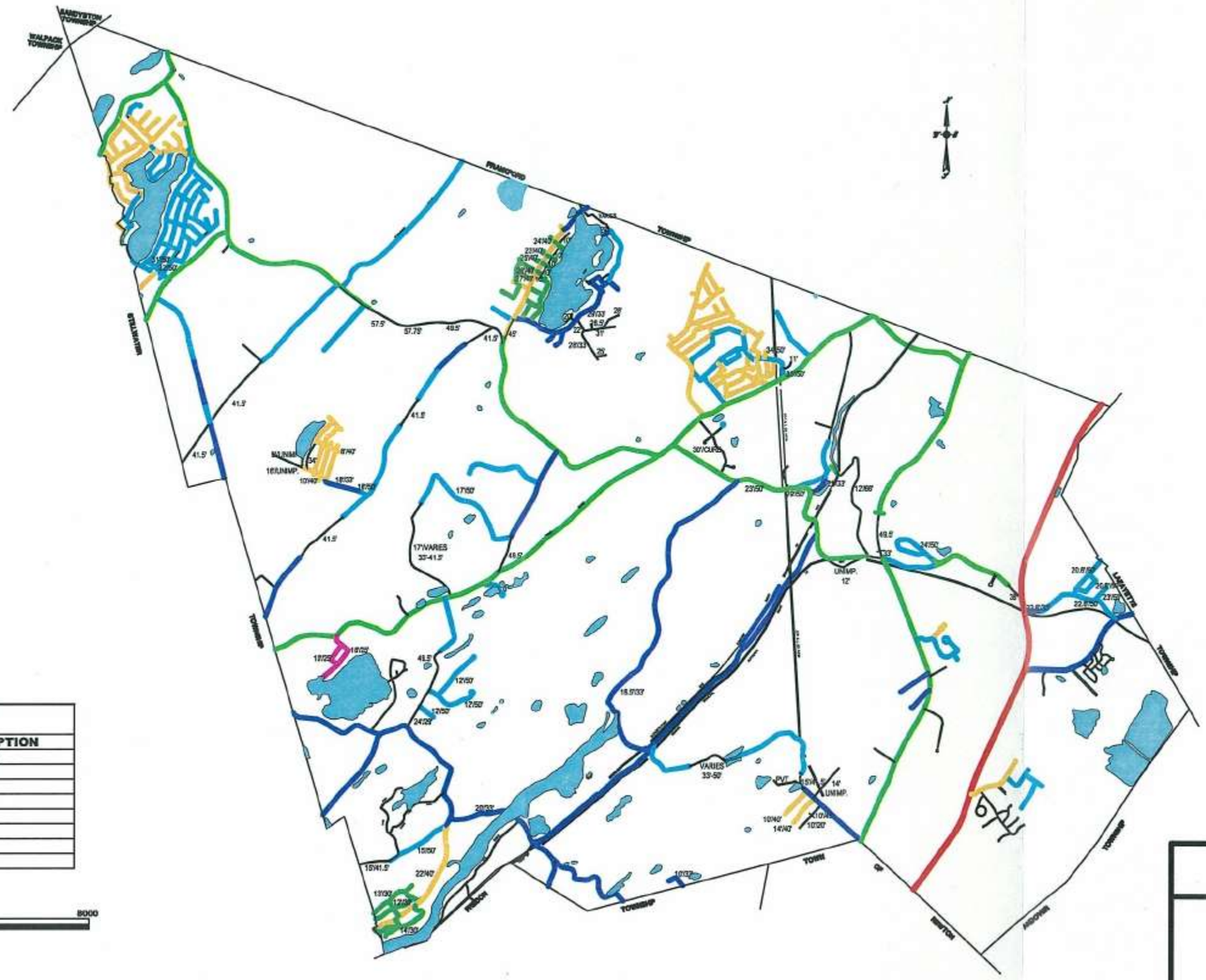
Roadways in the next category, collector roads, are a combination of County and local roads, some of which are an extension of local streets. The majority of the collector roads have a cartway of between 20 and 25 feet in width. The arterial roadways in Hampton are similarly developed with US 206, a multi-lane roadway part of its length, having a right-of-way of 80 feet and a cartway width of 56 feet to 40 feet.

It is instructive to note that the county highways, whether arterial or collector have a travel lane width of 12 feet, for a total of 24 feet. These appear to operate safely for traffic, including heavy truck traffic, with speeds of 55 to 60 miles per hour.

In Hampton Township, the principal safety concerns are based not on roadway width but on roadway geometry. Sight distances, particularly in the lake communities are often very poor. Exhibit 2 notes points on the road network which, for reasons of geometry or other obstacles (i.e. railroad tunnel), merit consideration in municipal and intergovernmental road improvement programs.

EXHIBIT 5

CARTWAY AND RIGHT-OF-WAY



LEGEND

RIGHT-OF-WAY WIDTH	DESCRIPTION
	AS ANNOTATED
	25 FEET
	30 FEET
	33 FEET
	40 FEET
	50 FEET
	66 FEET
	80 FEET

4000 0 4000 8000

EXHIBIT 5

ROAD WIDTHS

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/29/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street (973) 300-0500
Newton, NJ 07860 Fax (973) 300-1524

Land Use and Circulation Facilities

Land use decisions and development patterns should be consistent with the existing and proposed function of the various elements within the road network. Generally, direct access to arterial roads should be limited. Emphasis should be placed on service roads. Wherever possible, where a property has frontage on both a higher and a lower order street, access should be from the lower order street.

Setbacks from higher order streets should be greater than those required for lower order streets. The intensity of use on an arterial street has a greater impact on adjacent land uses than does use of a collector or local access street. Road widths, shoulders, and construction also must take into account the varying characteristics of the land uses and the traffic which they are designed to serve.

New Jersey Residential Site Improvement Standards

The State of New Jersey has adopted a set of residential construction/site improvement standards (RSIS). Contained within these standards are road standards to be used when new roads are constructed in connection with residential uses. These standards are contained in the New Jersey Residential Site Standards. It is important to note that there is a conflict between the Township's goal of retaining a rural atmosphere and typical engineering standards for road construction. Engineering standards for road construction as promulgated by AASHTO (American Association of State Highway and Transportation Officials) and the ITE (Institute of Traffic Engineering) place a premium on free flow and elimination of elements of which reduce a driver's ability to utilize the roadway most efficiently. This approach tends to emphasize roadways which are relatively wide, flat and straight. They also incorporate large areas of cleared land outside the roadway, effectively eliminating any and all impediments to vision. Rural streets, on the other hand, tend to wind, be narrow, roll up and down and are lined with stone rows, mature trees, historical elements such as lime kilns, buildings built to the edge of the roadway and the like. Sight distances in some cases are extremely limited as a result. Hampton Township's policy has been to negotiate a reasonable compromise between these functions and insofar it controls the local road network, the Township has been able to retain much of its rural character. It is important to note that, as a key element in the makeup of the Township, local streets are not required to facilitate rapid traffic flow and maximum convenience for drivers. Specifically, relatively low speeds are far more appropriate to residential developments, drivers may be expected to yield to oncoming traffic where the road may be narrow, affected by snow, or where emergency traffic demands the right-of-way.

County Roads

An important county objective for county roads is to ensure that critical areas in the road network are improved so as to eliminate safety hazards. The county's vision for its roads is that they serve as collector or arterial roads. As such they are to be upgraded as much as possible, depending on funding, to meet the standards for efficient traffic flow. Discussions with the County Engineer, Eric Grove, point out that the county engineering department is aggressively pursuing a repaving program and a bridge repair program which has for many years suffered from lack of funding. It is

important for municipal planners and governing body members to participate in this process in order to avoid serious deterioration of these facilities, and the accompanying high cost of major repairs. By the some token, intersection improvements which involve both county and municipal roadways should be addressed on a joint basis, thereby improving the potential for securing outside sources of funding as well as addressing concerns which may be more apparent at the local level than at the State or Federal level.

Other Elements of the Circulation System

In addition to the limited commuter bus service and the distant access to rail service, pedestrian, bicycle and intra county bus transit are means by which municipal residents travel within and without Hampton Township.

Street Function

Notwithstanding the State's decision to become involved in street design at the local level, there are a number of functions which residential streets serve beyond simply providing access and conveying traffic. In a residential setting, streets constitute a significant visual element of a neighborhood. In low density developments, streets often serve as pedestrian pathways, play areas and generally have a great deal to do with defining the character of a neighborhood. Because of these additional functions, often overlooked, a number of factors should go into street design. Traffic should be kept to a minimum in residential areas. Specifically, direct access to county or other major collector/arterial roads should be minimized and local access provided. Street alignments should follow the natural contours, preserving natural features or important cultural features (e.g. lime kilns, stone rows). Streets should be curvilinear to the greatest extent possible. This works to control speeds. Additional means by which speeds can be controlled are narrowing of roads and the installation of traffic calming devices at strategic points.

Residential streets should be planned so as to avoid attracting through traffic. Loop streets and designs where intersections are off-set are acceptable in avoiding unnecessarily large numbers of culs-de-sac. Streets should be designed to avoid excessive generation of storm water runoff and concentration of that runoff. Curbing should be utilized only when necessary to control runoff and to stabilize the edge of roads. Curbing installed for stabilization purposes may be depressed or mountable curb. Residential streets should be designed with the minimum width possible under the Residential Site Standards to avoid unnecessarily high speeds, cost both to developer for initial construction and to the municipality for eventual operation and maintenance. This reduction in impervious coverage and storm water runoff also yields an increase in available area for ground water recharge. Streets should be kept in scale with development so as to blend harmoniously with the neighborhood. Specifically, neighborhood streets should, by their design, result in safe accessways serving all the functions noted previously.

Separation of traffic by function and character is recognized as a significant contributor to overall traffic safety. It will be important to incorporate this understanding in preparation of the land use plan.

The State's standards notwithstanding, average daily traffic flow is not necessarily the appropriate measure to evaluate a local residential street. If local residential streets are designed properly, they encourage a willingness to pause to allow traffic to get by rather than insisting on the ability to allow wide vehicles to pass at the design speed. They foster an awareness of the life of a residential neighborhood which affects the street, specifically children playing, people of all ages on bicycles, roller skates, etc. There should be a sense of leaving the high pressure flow of traffic normally found on arterial and collector streets. Accordingly, the typical standard of two large vehicles being able to pass each other without reducing speed while at the same time allowing parking on the street is not appropriate in this context. Residential traffic often should be expected to yield to drivers backing from driveways or vice versa. This is a brief pause and is acceptable in the residential street context. It is much less so in connection with higher order streets. As such, direct driveway access to such higher order streets should be minimized.

Street layout is critical to the success of a community as a place to live and has a direct impact on the marketability of the homes. It is integral to maximize solar access, interaction between neighbors and segments of the community. The Institute of Transportation Engineers suggests the following:

- Paved access should be provided to all developed parcels.
- Street system design should discourage through traffic on local residential streets.
- The layout of a local street system should not create excessive travel lengths.
- Local street system should be logical and understandable, the street system should be easily "read" by the user.
- Local circulation systems and land development patterns should not detract from the efficiency of adjacent major streets.
- The local circulation system should not have to rely on extensive traffic regulations or control devices to function efficiently and safely.
- Traffic generators such as schools, churches, or neighborhood shops within residential areas should be considered in the local circulation pattern.
- Residential streets should clearly communicate their local function and place in the street hierarchy.
- The local street system should be designed for a relatively uniform low volume of traffic. Collectors, however, should be planned to accommodate peak periods of demand.

- To discourage excessive speeds, streets should be designed with curves, changes in alignment, and shout lengths. Further, streets should not be designed to be wider than in necessary.

- Conflict points between pedestrians and vehicles should be minimized.

- Consistent with safety and livability, a minimum area should be devoted to streets.

- The number of intersections should be minimized.

- Local street layout should permit economical development of land and efficient lot layout.

- Local streets should be responsive to topography and other natural features from the standpoint of both economics and amenity.

- Residential areas should provide for public transit service where appropriate.

- Streets should be designed to accommodate local emergency services.

- Pedestrian movements, non-motorized vehicle (i.e., bicycle) movements, and truck deliveries should be accommodated.

- The residential street should enhance the community's visual image.

Control of Traffic Speed

The question of speed on local access streets is critical. Higher speeds increase the likelihood that accidents will happen in a street which serves a variety of functions as distinct from the decreasingly complex role of higher order streets. The American Society of Civil Engineers (ASCE) recommends that residential streets be designed for a speed limit of twenty miles per hour. This is consistent with the relatively short length of residential streets, the likelihood that there would be some vehicles parked on the street, the presence of children, pets, etc. The ASCE recommends stopping sight distances as follows:

Safe Stopping Sight Distances

Design Speed (mph)	Distance (feet)
20	110
25	150
30	200
35	250

These distances are calculated for wet pavement conditions.

Public paths and sidewalks should always be located in a public right-of-way, a public easement or a common area. The current standard holds that a sidewalk should be located at least one foot inside the right-of-way line. A three to five foot border area or grass strip between the street edge of the sidewalk or other walk area should be provided for most residential areas where space permits. The grass strip will provide a visual break between paved surfaces of the street and the sidewalk as well as the following benefits:

- Children walking and playing enjoy increased safety from street traffic.
- Conflicts between pedestrians and trash receptacles awaiting pickup at the edge of the street are eliminated by using the border for temporary storage.
- The sloped transition area necessary for an appropriate driveway gradient is minimized by locating a major portion of the gradient within the border.
- Danger of collision between pedestrians and out-of-control vehicles is minimized by placement of the walk at maximum practical distance from the curb.
- Conflict with storage of snow plowed off the roadway is minimized.
- In rainy weather, pedestrians are less likely to be splashed by passing vehicles.
- Space is available to plant street trees.

Sidewalks do not need to rigidly follow the alignment of the street. They may curve to accommodate the existence of large and desirable trees or increase the utility of traffic calming devices where they may extend into the road and provide a larger grassed area.

Bicycle paths should be at least five feet wide and segregated from sidewalk areas where heavy use is expected. Alternatively, a portion of the paved road may be striped and signed so as to indicate to drivers that cyclists may be encountered.

Recommendations for Improvements to the Circulation System

Roadway Additions

Traditionally, a circulation plan will suggest that new roads be constructed or at least laid out in order to provide interconnections between existing points which may not be as well served. However, referring to the maps found in the Conservation Element, it is clear that topography and surface hydrology together combine to eliminate nearly all possibilities for significant new road construction between major elements of the system. While there is room for construction of local access streets running from one of the existing arteries or collectors, there does not appear to be a reasonable means by which significant new road construction could be effected.

Correction of Road Hazards

The road network in Hampton Township is a mixed network operated by the Township, County of Sussex and the New Jersey Department of Transportation. The road hazards indicated on Exhibit 2 are, for the most part, issues which must be addressed jointly between Sussex County and Hampton Township as they involve elements under both jurisdictions.

Conclusion

The circulation pattern as it currently exists generally serves the Township well. However, Route 206 is at or near capacity. Further increases in congestion will make the commercial core less attractive. Alternatives set out as part of the proposed center plan will be critical to the long term health of the local economy.

With regard to other than motor vehicle transportation, the Township strongly supports the reactivation of the Erie Lackawanna Cut-off as a means by which its residents, availing themselves of the proposed Andover Railroad Station, could be provided appropriate transportation to places of employment to the south and east, alleviating traffic congestion to the south on Route 206 and Route 80 and improving the quality of life for those commuting.

Efforts should also be focused on requiring bicycle lanes on all new streets and, to the extent possible, working with the County of Sussex to re-stripe portions of the County network, incorporating a four or five foot bike lane on at least one side of all County highways. Municipal streets, while they are not generally susceptible to this treatment, can, in the case of the newer streets, be so modified, as well.

Following up on the desirability of bikeways, the regional rail/trail system should be further improved, increasing its attraction and utility. Further discussion of this issue is found in the Community Facilities Element.

The proposed Center plan provides two alternatives for the Township in approaching transportation. The first, concentrating development, both residential and non-residential, in a center will provide a more precise focus of demand for mass transit than currently exists today.

The current non-residential development pattern runs along Route 206 and, for all intents and purposes, is confined to a relatively shallow strip of land on either side of the highway. Development at depth will increase the efficiency of the highway frontage with currently exists and, by locating residential development in conjunction with the expanded commercial center, greater density of trip ends will be generated making mass transit a realistic option. As indicated earlier, a small scale transit operation currently exists, the Sussex County Transit System. The general emphasis of center development throughout Sussex County will have a beneficial impact on the efficiency of this county transit operation.

The second alternative, which is presented by the Center Designs, will result in a change in the focus of development from the highway to the core of the new centers located west of the existing Hampton Plaza. The configuration of the new boulevard street running from the intersection of Cherry Lane and Route 206 to the intersection of the internal service road with North Park Drive will permit traffic to avoid some of the congestion resulting from the existing strip development pattern and the various signalized intersections associated with that pattern. By the same token, the Hampton Center North will have the same effect, perhaps forestalling the need for additional traffic signalization.

Additionally, the utilization of other points of access to the center of Newton will have a limited, but beneficial impact on current traffic congestion.

As a follow-up to the above, it is clear that the single most critical transportation issue in Hampton Township is the near total reliance on individual passenger vehicle for travel throughout the Township. Lying in the center of Sussex County at the intersection of Routes 94 and 206, traffic and circulation in Hampton Township is largely a function of development and commuter patterns outside the Hampton Township boundary.

The most effective tack which the Township may take in dealing with transportation will be to focus on development in centers, connection of municipal facilities through an expanded trail system, encouraging the connection of residential and non-residential development such that employment of local residents is facilitated and commutation time, currently in excess of 30 minutes, is reduced thereby eliminating significant traffic congestion, associated air and water pollution, and improving the quality of life for the Township residents.

EXHIBIT 6

Hampton Township
Intersection Survey
December 2001 & January 2002

1. Spirol Road and Halsey-Myrtle Grove Road - no sight distance coming off of Spirol Road onto Halsey-Myrtle Grove Road. This is a dangerous intersection. However, it is closed off at this point and nothing needs to be done until that road becomes used.

2. Old Stage Coach and Church – There are two intersections of Old Stage Coach and Church. The northern intersection has moderate sight distance to the left and no sight distance to the right. Sight distance is obscured by brush.

3. The southern intersection provides greater sight distance even though the road comes out at an angle making it safer to make turns in both directions.

4. Kline Road and Halsey Road – sight distance is limited to the left by the bridge railings of the first of the two single lane bridges.

5. Intersection of Halsey and Route 519 – this is a controlled intersection, however, sight distance for travelers moving north on Route 519 turning west onto Halsey Road is limited as to oncoming north bound traffic.

6. Yetter Road and Route 519 – sight distance is limited particularly for left hand turns to the north.

7. Smith Hill Road and Route 519 – sight distance is fine to the north, somewhat limited by a bank and a pair of trees to the south.

8. County Route 622 (Swartswood Road) and Junction Road – sight distance to the east is very very short. Sight distance to the west is fair.

9. Old Swartswood and Swartswood – sight distance to the west is marginal. Sight distance to the east is fine.

10. Woodcliff Trail and Overlook Road – sharp vertical curve to the left (south) providing no sight distance, also blocked by trees and a telephone pole. There is no problem to the right.

11. Overlook and Ridge Road – some limitation to sight distance by the guide rail to the south. No problem to the north.

12. Southfield and Valley View Terrace – limited sight distance due to a vertical curve just past the intersection.

13. Southfield and Ridge – sight distance is limited in both directions. Embankment to the right (west) and an embankment also to the left (east) as well as a horizontal curve.

14. Rocky Way and Vail Drive – sight distance to the left is somewhat limited by a vertical and horizontal curve.

15. Plotts Road and Shaw Road – sight distance is limited to the right by a vertical curve.

16. Plotts and Sunrise - sight distance limited by a vertical curve.

17. West Lakeside and Route 521 – making a left turn onto West Lakeside there is a sight distance problem from oncoming traffic. Coming off West Lakeside onto Route 521 sight distance to the right is limited by a vertical curve.

18. Eastside Drive and Swartswood Road - sight distance is somewhat limited to the left coming from Eastside Drive coming onto Swartswood Road.

19. Scenic View and Oak Road - sight distance is limited at both directions.

20. Blueberry onto Lake – no sight distance whatsoever to the left, blocked by a spruce.

21. Lake and Mary Jones – sight distance to the left from Lake onto Mary Jones is limited by fences and trees, sight distance to the right is limited by trees.

KEMAH LAKE AREA

22. Lakeview Drive and Fairview Avenue (Route 633) – sight distance is poor in both directions. From Lakeview it is very bad – very hazardous intersection!

23. Fairview Avenue and Forest Street – Dangerous intersection. Coming from Forest Road onto Fairview Avenue there is nearly no sight distance to the north and none to the south.

24. Edgewater and Fairview Avenue – poor sight distance, to the right are trees and a horizontal curve, to the left are mail boxes which should be relocated south of the catch basin.

25. Orchard Street and Fairview Avenue – this street should be a one way going in, very steep at Fairview Avenue with no sight distance in either direction.

26. Walnut Street and Fairview Avenue – sight distance to the left is poor due to trees.

27. Maple Tree Lane and Fairview Avenue – sight distance is poor to the left due to a vertical curve.

28. Hemlock Woods and Lakeview Drive – vertical curve to the left.

29. Elm Terrace and Lakeview Drive – poor sight distance in both directions.

30. Forest Drive and Wit Lane – vertical curve to the right from Forest to Wit.

CRANDON LAKE AREA

31. East Shore Drive and Minisink Road – Limited sight distance to the right, shrubs and trees.

32. Lone Pine Trail and Minisink Road – sight distance limited to the left due to hedges and trees.

CLEARVIEW LAKE AREA

33. Tall Oaks and Clearview Drive – the first 150 feet of Tall Oaks is very steep, there is a blind vertical curve.

34. Hampton Drive and Clearview Drive – from Hampton Drive onto Clearview Drive sight is nearly nonexistent to the left, and is adequate to the right.

Capital Budget

In addition to the locations noted above, Harold Pellow and Associates, Inc., Township Engineer, prepared in December of 1992, a comprehensive program of Capital Improvements for the Township. Many of those improvements involve repaving, and number of the improvements concerned safety improvements to the road network as well as engineering and design issues. Among them and reinforcing the concerns raised in the intersection survey are the following:

1. Intersection of Junction Road and Newton-Swartswood Road - sight impediments removed.

2. Heather Road and Smith Hill Road at County Route 519 - sight improvements.

3. Swartswood Road at Junction Road - sight improvements.

4. Kline Road at Church Road and Kinney Road at Church Road – sight improvements.

5. Lakeview and Kemah Lake.

6. Horseshoe Drive at Kemah Lake.

7. The West Brook Road.

8. Parsons and Mary Jones Roads.

9. Dixton Road and Ike Williams Road.

Additionally, a ten year capital improvement road Master Plan prepared this November 27, 2001 incorporates Old Swartswood Road for safety improvements, Copely Road for engineering design and Dixton and Ike Williams Road – safety improvements.

COMMUNITY FACILITIES

The following are descriptions of the community facilities located in Hampton Township or which serve the Township. For the purposes of this element the facilities are categorized by jurisdiction and use. These facilities are located on Exhibit 7.

MUNICIPAL FACILITIES

Municipal Complex

This site, 6.5 acres in size, is composed of the Municipal Building, Senior/Community Center and the Public Works Department. It is located off of Halsey Road in the hamlet of Balesville.

Municipal Building
The Municipal Building was built in 1995. It houses the offices and meeting place for the Hampton Township Mayor and Committee, the elected officials of the Township; and the Clerk/Administrator, other appointed officials of the Township, and their staff. This includes offices for the Tax Assessor, Tax Collector, Finance Officer, Construction Official, Planning Board, Zoning Board of Adjustment, Health Board and Recreation Department.

Besides the regular meetings of the Township Committee the building is used for meetings of the Township Planning Board, the Zoning Board of Adjustment, Board of Health, and Recreation Committee, and other Township related meetings.

Senior/Community Center
This building houses many community functions. It is partially operated by the Hampton Township Seniors, a non-profit corporation which organizes senior oriented activities in the center.

A large number of other groups use the center as well. These include the Recreation Committee which uses the facility for its meetings regarding the various sport groups in the Township. Several of the Lake Associations use the facility for their meetings; the local Boy Scout and Girl Scout Troops have their meetings here; the Sussex and Warren Arts Foundation holds water color classes here; the Moms Club, a local support group also meets in the building.

The Public Works Department
This department has its storage and maintenance facilities in the complex, to the rear of the Municipal Building. The Department's primary function is the maintenance of municipal roads and other municipal facilities.

The materials stockpiled are salt and sand used during the winter to lessen the effects of snow and ice on the municipal roads; and two grades of stone used in road maintenance. Over 50 pieces of equipment used by Public Works are stored in the facility including seven dump trucks.

Other Municipal Facilities

Hampton Township Park
This 8.96 acre parcel is located adjacent to the Municipal Complex and the McKeown School in Balesville. There are six ball fields which are used for various sports as well as a picnic grove, a pavilion, and a playground. There is a cooperative working agreement with Kittatinny Regional High School, the Hampton Board of Education and the Recreation Committee allowing for the use of school facilities. The Recreation Committee sponsors various sport clubs and coordinates "field-time" usage. These clubs include the following:

Kittatinny Little League Baseball
Softball organizations – girl's softball
The Mat Club – wrestling
Kittatinny Midget football
Hampton Recreation Soccer
Hampton Basketball

The Recreation Committee sponsors a summer recreation program for elementary age children during the month of July.

Fire Department
The Hampton Fire Department was formed in March, 1999 and started operating in January, 2000. It has 54 volunteer members. Its service area includes all of Hampton Township and it provides back-up service for Newton, Lafayette, Frankford, Stillwater and Branchville. The fire departments in these municipalities provide similar back-up service in Hampton. In addition, the department belongs to the "Mutual Aid System", the 911 emergency call center operated by Sussex County at the Newton dispatch center.

At present the department's equipment is located at two facilities; a fire house located at 186 Halsey Road, about 1,000 feet west of the Route 206 intersection, and at the Public Works garage in the Municipal Complex.

The firehouse was built in 1999. It contains three truck bays, a small kitchen, two small meeting rooms and an office for the fire chief. Approximately 75 percent of the building is used for equipment and maintenance. The firehouse houses the following equipment:

- a tanker truck with a 3,200 gallon capacity and a pumping capacity of 1,250 gallons per minute;

- a pumper with 1,000 gallon capacity and a pumping capacity of 1,250 gallons per minute;

- an old ambulance converted into a utility truck with generators, etc.

The Public Works garage houses the following equipment:

- a pumper with 1,000 gallon capacity and a 1,250 gallon per minute pumping capacity;

- a pumper with 750 gallon capacity and a 750 gallon per minute pumping capacity.

The Fire Department has received approval to erect a second firehouse to be located in the Crandon Lakes area in the northwest quadrant of Hampton Township.

Emergency Services
Three emergency squads, all housed outside of Hampton Township, service the Township;

First Aid of Newton
Stillwater Emergency Rescue Squad
Blue Ridge Rescue Squad

First Response
First Response is a volunteer organization based in Hampton Township which supplements the work of emergency squads. Its function is to precede the emergency squad and provide patient stabilization until the squad is able to respond. At present time the organization has 16 persons.

At least one person is scheduled to be on call each day. They are alerted by 911. Currently the volunteers are using their own vehicles. They are trained in CPR, AED (defibrillation), use of oxygen, ambulance driving, etc, and basic first aid training.

SCHOOLS

Hampton Township Board of Education
McKeown Elementary School
This is the one facility operated by the Hampton Township Board of Education. It is located in Balesville on Church Road. The school serves grades K through six. Its enrollment for 2001 was 481 with 88 teachers, support and administration staff. In 2000 the enrollment was 469, with 71 teachers, support and administration staff. The school site consists of 19.72 acres. In addition, the Board of Education owns three other vacant parcels, totaling 10.39 acres.

Kittatinny Regional Board of Education
The Kittatinny Regional Board of Education operates one facility, the Kittatinny Regional High School located in Balesville on a 96.14 acre site. The school serves Hampton, Fredon, Stillwater, Sandyston and Walpack Townships, from seventh through twelve grades. In 2001 there were 1,259 students with teacher, support and administrator staff of 165.5. In 2000 there were 1,213 students, with teacher, support and administrative staff of 157.

Private Schools
There is one private school in Hampton Township, the Northwest Christian School, located on a 14 acre site on Route 519 between Plotts and Halsey Roads. It serves grades pre-K through eighth grade. In 2001 it had 198 students with a teacher, support and administrative staff of 21. in 2000 it had 193 students with the same sized staff.

COUNTY FACILITIES

There are three properties in Hampton Township owned by Sussex County. Two of them are located in the north central portion of the Township along the Frankford Township border, adjacent to county properties in Frankford. Together with the properties in Frankford these are location of the Homestead Farm Nursing Home, the Juvenile Detention Center, the main building of the County Library and the Civil Defense and Fire Training Center. The portion of this area in Hampton Township totals 22.27 acres.

The Sussex County Administrative Building is located off Plotts Road. Part of its land, 9.9 acres, is located in Hampton Township, though most of the actual building and parking is located in Newton.

Sussex County College is located on property which lies in both Hampton Township and Newton. Most of the buildings are located in Newton, though there are 51.54 acres in Hampton.

The Sussex County Municipal Utilities Authority owns two facilities in Hampton Township. Both are located adjacent to the Hampton Commons townhouse development. They comprise the site of a sewage treatment plant and a water tower. Together they measure 2.11 acres.

SOCIAL SERVICE AGENCIES

There are several group homes, operated by private organizations whose facilities are licensed by the State of New Jersey. They cover such groups as children, the developmentally disabled, the mentally ill, victims of domestic violence, persons with head injuries, and terminally ill persons. These are covered in 40:55D-66, et al of the Municipal Land Use Law (MLUL). A local zoning ordinance cannot discriminate against these uses if the applicant follows the standards specified in the MLUL.

The following are the group homes located in Hampton Township:

Center for Humanistic Change
342 Lakeview Drive
3 bedrooms, 4 adults, mentally ill

Sussex County Association for Retarded Citizens (SCARC)
46 Glencrest Drive
3 bedrooms, 5 adults, developmentally disabled

11 Tooley Road
3 bedrooms, 4 adults, developmentally disabled

Willowglen Academy
22 Route 519
3 bedrooms, 4 adolescent boys

Newton Hospital, Prime Care
91 Plotts Road
8 bedrooms, 8 adults, mentally ill

RETREATS AND CAMPGROUNDS

Camp Aldersgate (Block 901, Lots 12 and 14) – Located on Aldersgate Lane, it comprises 44.96 acres. It is operated by the Commission on Camps of the Methodist Church. During the summer months it is used as a children's camp, accommodating 150 to 200 children per week. On weekends during the year the facility is used as a retreat and conference center for groups of 50 to 100 persons.

Camp Auxilium (Block 3301, Lot 19) – Located on Old Swartswood Road, this 20 acre site is operated by the Missionary Society of Salesian Sisters as a private non-profit camp.

CHURCHES

The following are church-owned properties in Hampton Township:

Chapel, the Missionary Society of Salesian Sisters, Old Swartswood Road (Block 3301, Lot 18), 8.8 acres.

Our Lady of Mount Carmel Roman Catholic Church, Newton-Swartswood Road (Block 1901, Lot 6.02), 7.12 acres.

The Balesville Congregational Church owns three properties, totaling 7.45 acres. Church (Block 2702, Lot 8) – 2.75 acres, cemetery (Block 2702, Lot 7) – 4.4 acres, and an unimproved lot (Block 3103, Lot 1) – 0.3 acres.

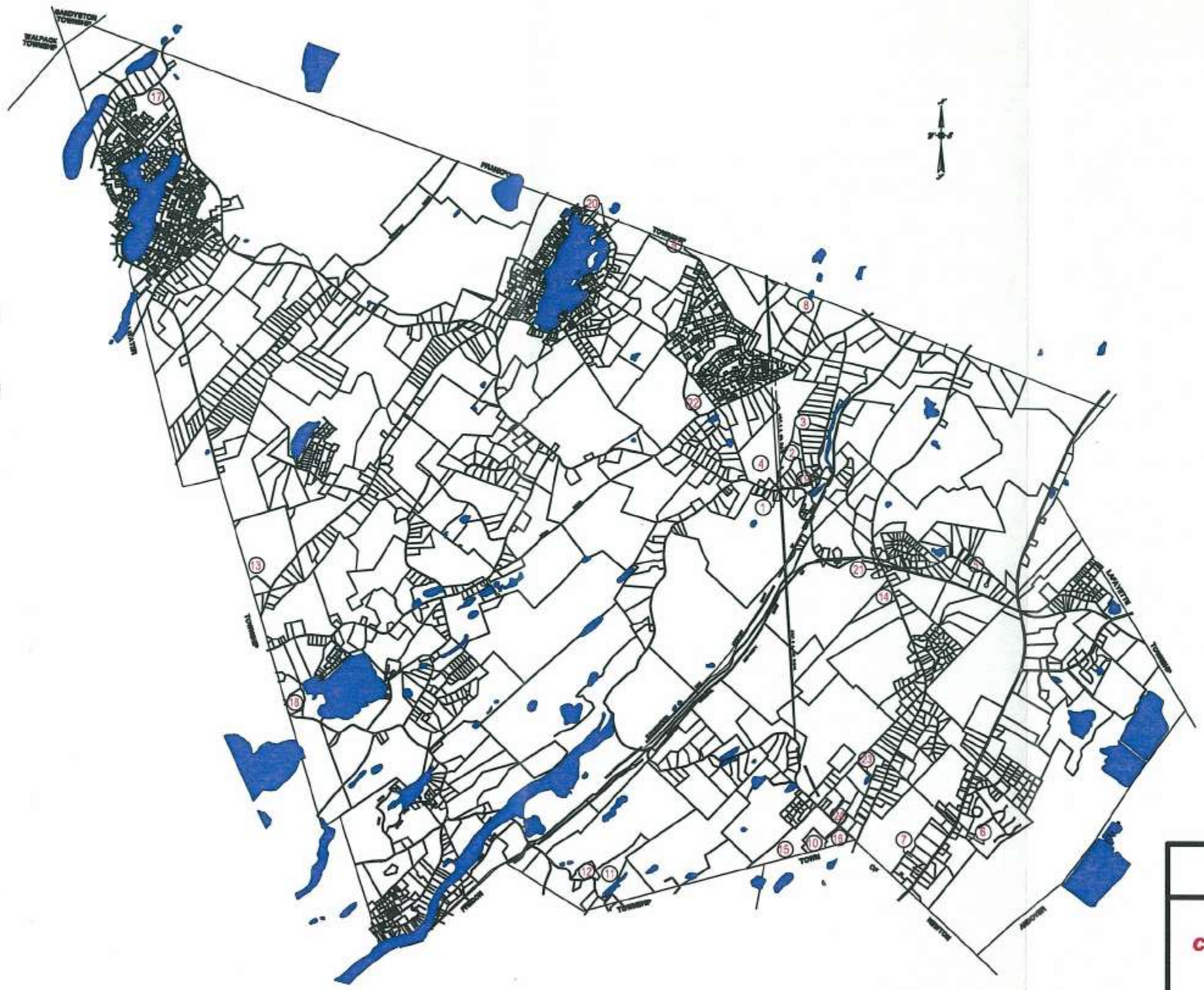
FEDERAL AGENCIES

Social Security Administration (Block 3105, Lot 30.08) – 3.52 acres. The Social Security Administration leases this facility in Hampton Plaza, adjacent to Route 206 which is used as a regional service center for residents of Sussex County and surrounding area. There are eleven persons employed, servicing about 75 people per day. There is about 4,000 square feet of floor space.

EXHIBIT 7

COMMUNITY FACILITIES

1. Municipal Complex
2. Hampton Township Park
3. McKeown Elementary School
4. Kittatinny Regional High School
5. Firehouse, Halsey road
6. Sussex County Municipal Utilities Authority, sewage treatmen plant and water tower
7. Social Securities Administration, Regional Center
8. Sussex County Civil Defense Center and Fire Training School
9. Sussex County Homestead Farm Nursing Home, County Library
10. Sussex County Administration Bulding
11. Camp Auxilium
12. Society of Salesian Sisters Chapel
13. Camp Aldersgate
14. Northwest Christian School
15. Sussex County College
16. Sussex County College
17. Future Firehouse, Crandon Lakes
18. Our Lady of Mount Carmel R.C. Church
19. Balesville Congregational Church and Cemetery
20. Center for Humanistic Change
21. SCARC
22. SCARC
23. Willowglen Academy
24. Prime Care



2000 0 2000 4000 6000

EXHIBIT 7

COMMUNITY FACILITIES

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street (973) 300-5600
Newton, NJ 07860 Fax (973) 300-1524

CAPITAL IMPROVEMENTS PROGRAM

The Capital Improvements Program is the schedule of future capital improvements to be carried out by the Township of Hampton for a ten-year period, listed in order of priority, together with cost estimates and the sources of funding. The first year would be the Capital Budget for the current fiscal year.

Exhibit 8 is the proposed Capital Improvement Program for 2002 through 2011. It includes improvements to roads, parks, and municipal property; and purchases of major equipment (those vehicles and equipment expected to have a useful life of three years or more).

The information used to develop this program comes from the following documents:

1) 10 Year Capital Improvements Road Program, prepared by Harold E. Pellow and Associates, Inc., November 2, 2001.

2) Open Space and Recreation Plan for Hampton Township, prepared by the Morris Land Conservancy and the Hampton Township Open Space Committee.

3) Capital Budget, 2002, an element of the fiscal 2002 Township Budget adopted by the Hampton Township Committee on March 12, 2002.

4) A list of prioritized intersection improvements, obtained from the Intersection Survey done by Eric K. Snyder and Associates, Inc. in December, 2001 and January, 2002.

EXHIBIT 8

CAPITAL IMPROVEMENTS PROGRAM

EXHIBIT 8

HAMPTON TOWNSHIP
CAPITAL IMPROVEMENTS PROGRAM

I. Road Improvements	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	Remarks
A. Resurfacing												
1. Copley Road	150,000										150,000	
2. Ridge Road	135,000										135,000	NJDOT grant, 2002
3. Frank Chandler Road												NJDOT grant, 2002
4. Forest Drive		75,000									75,000	
5. Sleepy Hollow Road		13,000									13,000	
6. Maple Terrace		8,000									8,000	
7. Overlook Court		25,000									25,000	
8. Witt Lane		15,000									15,000	
9. Drainage Imp., 4-8 above		30,000									30,000	
10. Possaghi Road			177,452								177,452	
11. Mary Jones Road (from Lake Anne Road to Kemah-Mecca Lake Road)				165,000							165,000	
12. Chelsea Court, Coventry Court, Fulham Court, Kings Road, Wood Run, Cherry Lane, Yetter Road, Green Road, Longview Drive					175,000						175,000	
13. Parsons Road						62,500					62,500	Resurface where houses are located
14. Dickson Road						55,000					55,000	Reclaim and oil and stone
15. Ike Williams Road						35,000					35,000	Reclaim and oil and stone
16. Haggerty Road Kemah-Mecca Lake Road							150,000				150,000	NJDOT grant
17. Lakeview Drive, Sharon Court, Chandega Drive, Chanwood Drive									150,000		150,000	

I. Road Improvements	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	Remarks
B. Reconstruction												
1. Old Swartswood Road								150,000		150,000	300,000	
C. Safety Improvements												
1. Old Swartswood Road	25,000	10,000									35,000	
2. Mary Jones Road				10,000							10,000	
3. Dickson Road and Ike Williams Road												
D. Engineering Design												
1. Copley Road	17,000										17,000	
2. Forest Drive, Sleepy Hollow Road, Maple Terrace, Overlook Court, Witt Lane		17,000									17,000	
3. Possaghi Road			17,000								17,000	
4. Mary Jones Road				17,000							17,000	
5. Chelsea Court, Coventry Court, Fulham Court, Kings Road, Green Road, Landview Drive, Wood Run, Yetter Road, Cherry Lane					10,000						10,000	
6. Parsons Road, Dickson Road, Ike Williams Road						15,000					15,000	
7. Haggerty Road, Kemah-Mecca Lake Road – Sec. I							10,000				10,000	
8. Old Swartswood Road								15,000		15,000	30,000	
9. Lakeview Drive, Sharon Court, Chandega Drive, Chanwood Drive									10,000		10,000	

I. Road Improvements	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	Remarks
E. Intersection Improvements												
1. Halsey Road & Route 519												With Sussex County, estimated cost to be determined by Municipal Engineer.
2. Lakeview Drive & Fairview Avenue (Route 633)												With Sussex County, estimated cost to be determined by Municipal Engineer.
3. Tall Oaks Drive & Clearview Drive												Estimated cost to be determined by Municipal Engineer
4. Yetter Road & Route 519												With Sussex County, estimated cost to be determined by Municipal Engineer.
5. Blueberry Drive onto Lake Road												Estimated cost to be determined by Municipal Engineer
6. Orchard Street & Fairview Avenue												Estimated cost to be determined by Municipal Engineer
7. Old Stagecoach Road & Church Road												Estimated cost to be determined by Municipal Engineer
8. Swartswood Road (Route 622) & Junction Road												With Sussex County, estimated cost to be determined by Municipal Engineer.
9. Hampton Drive & Clearview Drive												Estimated cost to be determined by Municipal Engineer
10. Fairview Avenue & Forest Street												Estimated cost to be determined by Municipal Engineer

II. Fire Department	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	Remarks
A. Crandon Firehouse												
B. Equipment												
1. Fire Truck	45,000										245,000	
III. Road Department												
1. Road Equipment	100,000										600,000	
IV. Recreation, Parks, Open Space, Farmland Preservation												
A. Parks & Recreation												
1. Improvements to Park	4,500										27,000	
B. Open Space and Farmland	*Preservation*											
1. Paulenskill Greenway 2. Elizabethtown Gas ROW Trail 3. Farmland Preservation												
V. Municipal Facilities												
1. Improvements	15,000										10,000	
Yearly Total	*491,500*	*193,000*	*194,452*	*192,000*	*185,000*	*167,500*	*160,000*	*165,000*	*160,000*	*165,000*	*2,790952*	

Funding Sources:

Annual Municipal Capital Budget
Municipal Capital Improvement Fund
New Jersey Department of Transportation
New Jersey Department of Environmental Protection

RECREATION AND OPEN SPACE

"Parks are the cultural, historical, and economic centers of the community."
Steve Ellis, Swartswood State Park Superintendent, June 2000

PUBLICLY OWNED FACILITIES

This section of the Master Plan is based upon the Hampton Township Open Space plan. The facilities discussed are shown on Exhibit 9.

Municipal

The Township owns 8.92 acres of park land adjacent to the Municipal Complex. In addition, the public school, located on land adjacent to the park, also owns and manage active recreation facilities available to Township residents, particularly school-aged children. The Township also shares recreational facilities with Kittatinny Valley Regional High School located on land adjacent to the park and school. This sharing of resources increases the amount of available recreational facilities for both the Township and the School.

Hampton Township Park includes a concession area with a picnic area and grills, basketball courts, five baseball diamonds, interior practice/soccer fields, and a playground. There is land toward the rear portion of this property where additional fields may be constructed.

The recreational complex at the High School consists of tennis courts, ball fields, and an indoor pool that is open to the public.

Standards have been developed related to the amount of land and the types of recreation facilities needed to serve a community. The standards for the amount of land relate to the service area (distance from the site), types of activities proposed, and the target population. Hampton Township Park presently meets, in types of facilities, size, location and in its relationship to complementing facilities at the adjacent elementary school, and the Kittatinny Regional High School, the standards of a Community Park as described in Recreation, Park and Open Space Standards and Guidelines, published by the National Recreation and Park Association.

As the Township grows it should also consider needs at the neighborhood level, particularly in the higher density areas now under consideration.

State

The Division of Fish and Wildlife operates two Wildlife Management Areas in Hampton Township. Hunting, fishing, mountain biking and hiking are recreational activities offered at both wildlife management areas. There is no formal trail system at Bear Swamp. The Paulinskill Trail runs through the Paulinskill Wildlife Management Area.

The Paulinskill is stocked with trout north of the wildlife management area. The water becomes too warm in the wildlife management area to maintain a trout population. The lake itself is an excellent habitat for carp, and people come to the lake to bow fish for carp.

The Paulinskill Trail lies along the railroad right-of-way of the Susquehanna Railroad. This trail begins at the Sparta Junction and terminates in Blairstown. The State would like to acquire additional tracts between the trail and the Paulinskill to provide an additional buffer to the river from development (Rocky Gott, Kittatinny State Park, July 2000). Biking, hiking, horseback riding, dog sledding, cross-country skiing and snowshoeing are among the recreational pursuits enjoyed along the trail. The Paulinskill Trail is 66 feet wide and is 27 miles long, of which 5.2 miles is located in Hampton. The trail is heavily used and increasing in popularity.

Swartswood State Park is one of the oldest State parks, donated to the State in 1918. The park has 250,000 visitors per year and offers camping (on 70 campsites), swimming, boating, picnicking, and hiking. Between five and six hundred people use the campgrounds at this State park. An entrance fee is charged at $5 per carload during the week and $7 per carload on weekends. The park offers a "Stillwater Day" where the admission is free to residents of Stillwater Township to use the park facilities. The park superintendent would like to offer the same to Hampton Township residents (Steve Ellis, Park Superintendent, June 2000). There are three miles of trails in the park, including a one-mile trail accessible for the handicapped. This is the only paved handicapped accessible trail in Sussex County. The boating activities offered by the State park include use of sailboats, paddleboats, canoes and kayaks. Hunting is also allowed at certain times in specific places in the park.

TOWNSHIP OWNED LAND

Hampton Township owns a significant number of properties acquired through foreclosures. These are scattered throughout the Township and are mostly small vacant lots. These lots are located on the Open Space Map and listed on Table 2 (see Property Tax Data in Appendix). Hampton Township owns a total of 48.25 acres of vacant property. Most of these lots are less than one acre in size, except for Block 901/Lot18 which is 16.33 acres.

Hampton Township does not currently have a Recreation and Open Space Inventory (ROSI) filed with NJ Green Acres. Listing a property on a RSI gives that property the highest level of protection from future development currently in the State of New Jersey. The Township's Hampton Park, behind the Municipal Building, consists of 8.92 acres and contains a playground, picnic area, pavilion and a variety of playing fields.

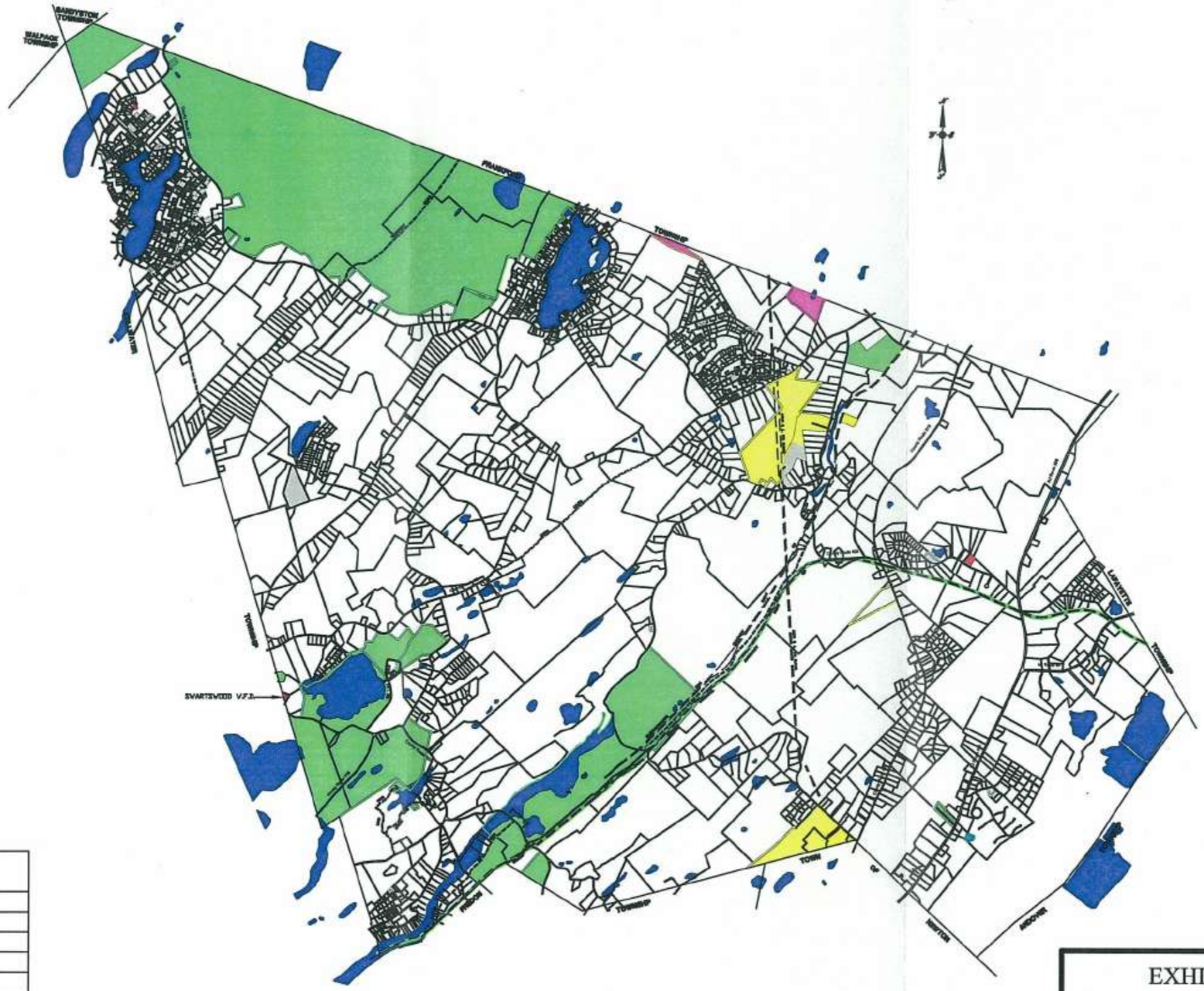
In summary the lands owned by Hampton Township include:

Municipally owned vacant land	48.25 acres	
Township Municipal Complex	6.50 acres	Block 2702/Lot 4
Hampton Township Park	8.92 acres	Block 2702.Lot 16.04
Firehouse	3.00 acres	Block 3105/Lot 23
Future Firehouse	30.74 acres	Block 102/Lot 1

Total Township owned property is 97.41 acres. Of this total acreage, 82.65 acres is uncommitted for future Township development, and 8.92 is an existing Township park.

EXHIBIT 9

RECREATION AND OPEN SPACE



LEGEND	
AUTHORITY	DESCRIPTION
	NEW JERSEY D.E.P.
	SCHOOL
	FIRE DEPARTMENT
	SUSSEX COUNTY
	TOWNSHIP
	S.C.M.U.A.

2000 0 2000 4000 6000

EXHIBIT 9

OPEN SPACE AND RECREATIONAL AREAS

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/20/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
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NATURAL RESOURCES

Introduction

The natural resource base of a municipality is of utmost importance in arriving at an understanding of the type, intensity, and distribution of development which may be sustained without significant environmental and social damage. All development of land has an impact. That impact is generally negative to the extent that additional soil erosion and storm water runoff occur along with a reduction in recharge to the subsurface aquifers. Plant and animal communities are reduced, pollution of light, air and water increases and the quality of life for existing populations may also be adversely affected by increased traffic congestion, loss of historic sites and alteration of the visual landscape.

Notwithstanding the effects of development, development can and will occur within the Township. The principal function of the planning effort is to ensure that development, when it does occur, does so with the least negative impact and, where possible, is designed to provide a positive impact. Support for agricultural operations, public recreation and creative development techniques are the tools both developer/applicants and Township officials may use to permit development in Hampton Township to take place in a manner which can be accommodated by the built and natural communities.

The resource base is described in various elements; physiography, topography, soils, geology, vegetation, and wildlife. Each of these within Hampton Township exhibits a highly variable character. The impact of modification and use of these various resources within the Township varies accordingly.

The essential point to be made in connection with any discussion and evaluation of natural resources is that human settlements are completely dependent on those resources. We can not afford to lose sight of that point. Development and the use of natural resources only works to the point where they become abused. This issue touches not only safe housing densities but also clean air, traffic congestion, surface water quality, wildlife habitat, and historic preservation.

The development of any municipality is shaped by many elements. As a group, the natural features of Hampton Township are one of the more important elements which have shaped development. Topography, geology, soils, and hydrology act as the framework within which land use decisions have been and continue to be made. This section discusses the characteristics of the Township and the ways they have affected land use and will continue to affect land use in the future.

Physiography

Hampton Township lies within the Ridge and Valley physiographic Province. The Ridge and Valley Province is generally characterized by a series of ridges and valleys trending northeast/southwest. The actual ridges and valleys of Northern New Jersey are much less abruptly separated then is the case in this province farther to the south by virtue of the action of the reduced continental glacier which advanced and retreated in this area approximately 10,000 years ago. Glaciation strongly affected the surficial character of Hampton leaving glacial till and cutting deeply leaving a landscape of lakes, bogs and swamps and intervening ridges. These ridges run in a northeast/southwest direction reflecting the glaciation, the underlying bedrock and its differing susceptibility to weathering.

Topography

The topographic character of any municipality is an important element considering its ability to sustain various land use activities. Some of the physical features which may have influenced development patterns as they exist today, generally provide greater understanding of the kinds of development impact analyses which should be undertaken in the land use planning process as well as the application review process at the municipal level.

Hampton Township demonstrates a wide range of topographic characteristics, from the low lying wetlands along the Paulinskill in the easternmost corner of the Township, through to the highlands along the Kittatinny Ridge in the westernmost portion of the Township. Elevations in the former are approximately 560 feet above mean sea level where the Paulinskill crosses the Newton Town boundary, and 1,400 feet above sea level at the high point at the Walpack Township boundary in the vicinity of the east/west Jersey line and the Appalachian Trail. Between these extremes, the Township rises and falls as part of the Ridge and Valley physiographic province of Northwest New Jersey. A review of Exhibit 10 (USGS Topography) exhibits the irregular relief expected in an area glaciated and underlain by significantly different geologic formations, rising and falling with the northeast-southwest trending ridges and valleys.

Relief is an important concern as issues such as storm water, soil stability, visual impact, depth of bedrock, wetlands are all immediately related to topography, in addition to soils hydrology and the other generalized natural resource categories. The slopes are more severe and the generation of storm water runoff is more important as the velocity of runoff increases. As the velocity of runoff increases the impact on soils, particularly shallow soils, is magnified. Where this is the case, the removable vegetation and the increase in the vulnerability of the underlying soil strata is of particular concern in development analysis.

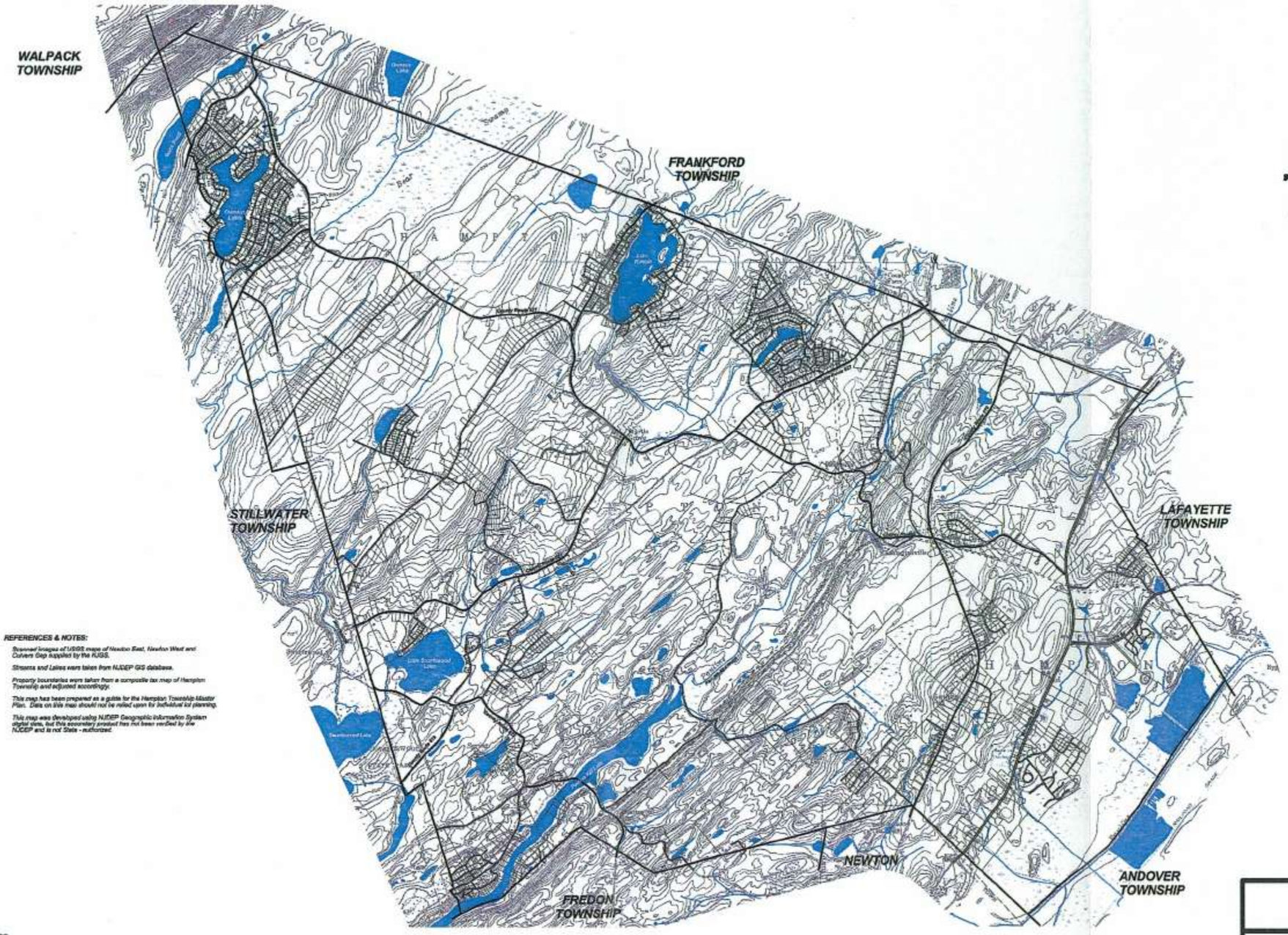
Development regulations which rise from the consideration of topography involve reduction of densities in the vicinity of steep slopes, limitations on clearing, and avoidance of disturbance of steep slopes in general. This aids in retention of vegetation and reduces storm water runoff.

Areas of significant relief have a strong visual component. Development along the tops of ridgelines tends to have far greater impact on the visual environment than does development when it is kept below the ridgelines. This should be required.

In sum, topography is important from a land use perspective as it not only affects transportation routes but also has a direct effect on soil stability, aquifer recharge, and the impact of storm water flows on the land generally. Soils which form on steep slopes tend to be less stable as they tend to be thinner than those that form in the valleys. Aquifer recharge, which is a direct function of the infiltration of precipitation into the subsurface aquifer, is generally much greater in areas in low relief (i.e. the valleys and other relatively level areas) than it is on steep slopes. Finally, the velocity of storm water flows is significantly greater in steeper areas than it is in the flats. From these perspectives development in areas of steep slopes is generally less desirable than in the flats.

EXHIBIT 10

TOPOGRAPHY



REFERENCES & NOTES:

Scanned images of USGS maps of Newton East, Newton West and Culvers Gap supplied by the RJGS.

Streams and Lakes were taken from NJDEP GIS database.

Property boundaries were taken from a composite tax map of Hampton Township and adjusted accordingly.

This map has been prepared as a guide for the Hampton Township Master Plan. Data on this map should not be relied upon for individual lot planning.

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not State - authorized.

WHITE
ENVIRONMENTAL SERVICES, INC.
NATURAL RESOURCE INVENTORIES
GIS MAPPING - NJDEP PERMITS
ENVIRONMENTAL IMPACT STUDIES
WETLANDS DELINEATIONS

EXHIBIT 10

TOPOGRAPHY

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/26/92

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
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Newton, NJ 07860 Fax (973) 300-1524

Geology

The geology of an area is of particular importance as it relates directly to water supplies, and land stability. In Hampton Township, the bedrock geology can be subdivided into three separate categories, based on the rock characteristics themselves. See Exhibit 11.

The first grouping is the Valley and Ridge Province, located in the northwestern corner of the Township. These are the youngest rocks in the Township, having been laid down during the Devonian and Silurian periods. See Exhibit 11, Geologic Timetable. These rocks are characterized as sand and siltstone with conglomerate, consisting of quartz pebbles in a sandstone matrix. These are hard, highly resistant to weathering and occupy a very small portion of the Township.

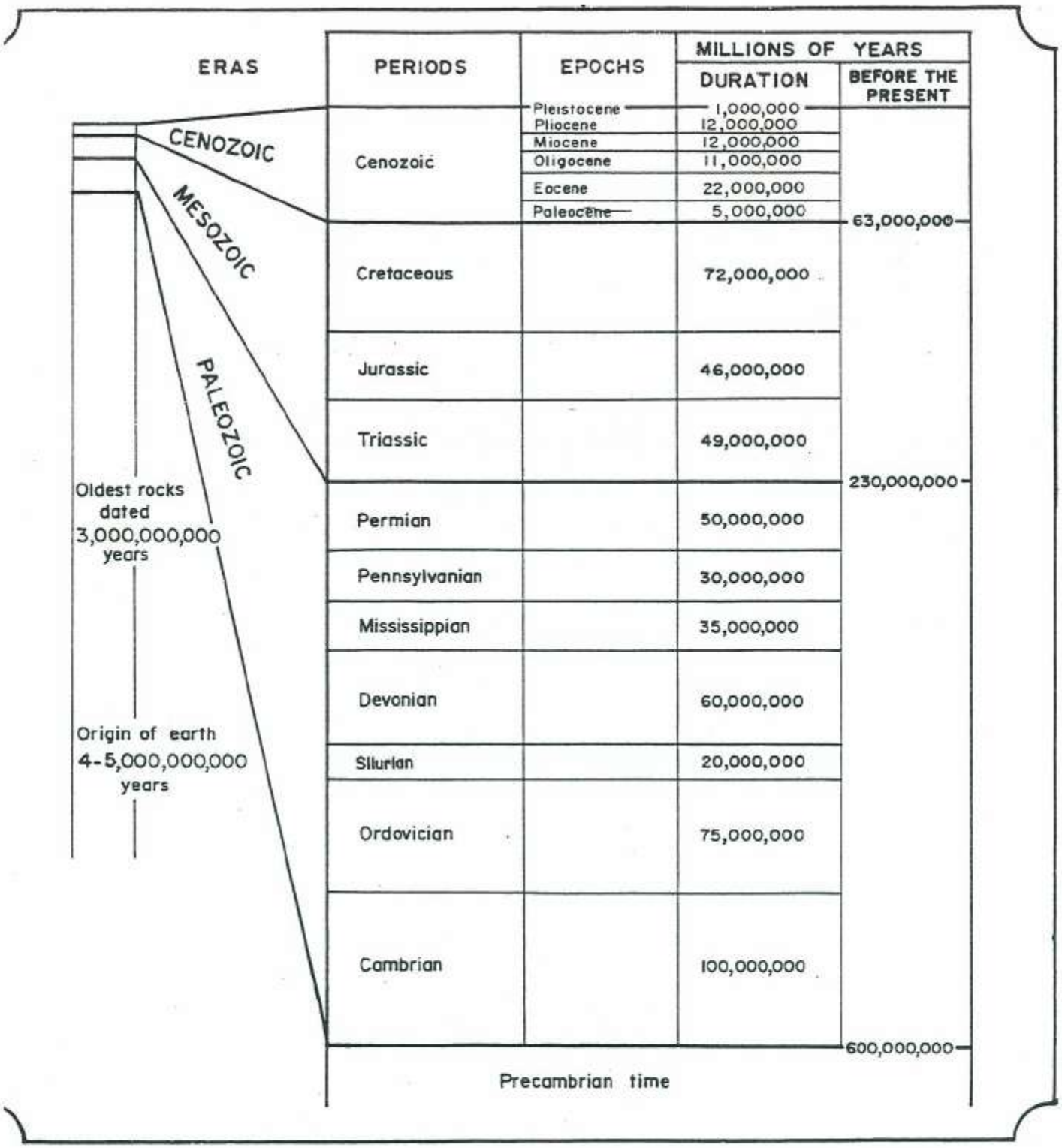
The second group found in the Township are those rocks found in the Kittatinny Rock Sequence, specifically the Ramseyburg and Bushkill members of that sequence. These formations are comprised of sand and siltstone along with slate and shale. These formations occupy approximately two-thirds of the Township. As a result of the alternately massive and sheet-like structure of the rock, water supply is restricted.

The third major group of rocks found in the Township is the Kittatinny Super group. This, the oldest rock in the Township, is represented by the Beckmantown group and the Allentown Dolomite members. Both of these are relatively soluble. The Beckmantown group is subdivided into the upper and lower parts. These rocks, laid during the Ordovician period, are a somewhat more productive aquifer than the slate, shales and sandstones of the Kittatinny Valley Sequence. Finally, the Allentown Dolomite in the lowest elevations is the most highly productive aquifer. The topographic relief shown on Exhibit 10, and on Exhibit 12, also shows a very clear northeast-southwest trending in the individual formations.

The degree of weathering exhibited by the three different groups is consistent both with age and composition. The older and less resistant rock is found in the valleys while the more resistant rock forms the ridge areas.

EXHIBIT 11

GEOLOGIC TIMETABLE



GEOLOGIC TIMETABLE

EXHIBIT 12

BEDROCK GEOLOGY

WALPACK TOWNSHIP

FRANKFORD TOWNSHIP

STILLWATER TOWNSHIP

LAFAYETTE TOWNSHIP

NEWTON

FREDON TOWNSHIP

ANDOVER TOWNSHIP

LEGEND

Bedrock Geology

VALLEY AND RIDGE PROVINCE
Rickenberg Group (Lower Devonian and Upper Silurian)
- Bloomsburg Red Beds
- Shawangunk Formation

KITTATINNY VALLEY SEQUENCE
- Martinsburg Formation
- High Point Member
- Ramseyburg Member
- Bushkill Member
- Jacksonburg Limestone
- Wantage Sequence

KITTATINNY SUPERGROUP (LOWER ORDOVICIAN AND CAMBRAIN)
Beekmantown Group (Lower Ordovician and Cambrain)
- Beekmantown Group - Upper Part
- Beekmantown Group - Lower Part
- Allentown Dolomite

- Geologic Dikes
- Geologic Folds

REFERENCES & NOTES:

Bedrock Geology based upon NJGS GIS database coverages CONTACTS, DIKES & FOLDS and the NJGS publication "Bedrock Geology of New Jersey", 1998.

Property boundaries were taken from a composite tax map of Hampton Township and adjusted accordingly.

This map has been prepared as a guide for the Hampton Township Master Plan. Data on this map should not be relied upon for individual lot planning.

This map was developed using NJGS Geographic Information System digital data, but this secondary product has not been verified by the NJGS and is not State - authorized.

1500 0 1500 3000 4500

WHITE
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WETLANDS DELINEATIONS
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Phillipsburg, NJ 08865
(908) 387-1501
Fax: (908) 454-2262
GARY@whitenviro.net

EXHIBIT 12

BEDROCK GEOLOGY

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
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Fax (973) 300-1524

Surficial Geology

Glacial deposits (Exhibit 13), are categorized by their dominant texture, which is a function of the processes that formed the deposits. Melt water carrying rock particles from the retreating glacier deposited layers of coarse and fine sediments, known as stratified drift. In high-energy environments such as streams and deltas, coarse sediments were deposited. In low-energy environments such as lakes, ponds and swamps, fine-grained sediments were laid down. Deposits laid down directly by the ice in the absence of melt water are well mixed (heterogeneous) and are labeled glacial till.

Stratified drift deposits are well-sorted, tend to lack clay and silt, and are well-drained. These deposits form prolific aquifers where they are sufficiently thick. Stratified drift permits good infiltration of water and serves to store ground water, often contributing large volumes of high-quality recharge to underlying bedrock aquifers. The well-drained soils in the township are found on top of stratified drift deposits. The water table is often moderately deep in these deposits. The most significant deposits of stratified drift are found in the Pequest River watershed, in the central part of the township, where they overlie limestone bedrock.

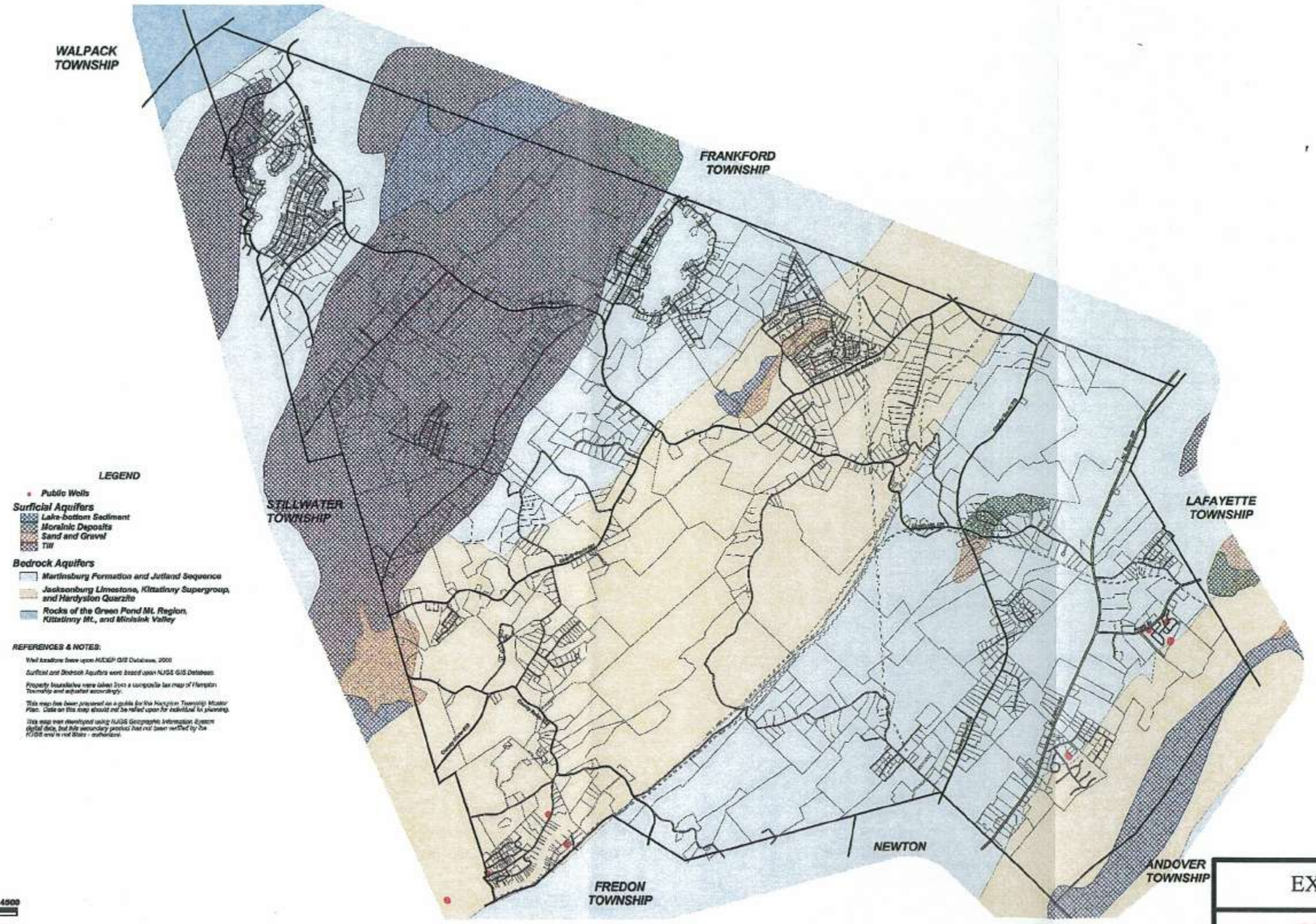
Poorly drained glacial deposits include glacial lake beds, glacial till and swamp deposits. Glacial lake bed sediments are deposited downstream of melting ice, in low-energy environments where fine silt and clay are settled out. These fine lake-bed sediments often underlie better-drained stratified drift deposits, which causes springs to form at the base of the sand and gravel deposits. Fine sediments also underlie the larger swamps in the region. Although thick in places, glacial lakebed deposits are not prolific aquifers but can supply water to some wells. Ground water in these sediments is often of objectionable quality due to a high content of organic material as well as high iron and sulfur concentrations in lake-bed sediments.

Glacial till is material deposited by gravity from the glacier as debris. Till deposits in the Township are thin, although in places till may reach 25 feet in thickness. Till generally has a high clay content and a high percentage of gravel. The high clay content and poor grain size sorting within the till reduce its permeability, which causes poor internal drainage and a shallow seasonal water table within a few feet of ground surface.

Other important surficial deposits within the township include post-glacial or recent stream alluvium and swamp deposits. The alluvial deposits are laid down in modern stream valleys. Alluvium has a variable composition depending on the terrain being drained by the stream. Alluvium can have a high silt content or a high percentage of organic material – both of which reduce the permeability of the alluvial deposit. These deposits are usually thin and the water table occurs at shallow depths within the alluvium.

EXHIBIT 13

AQUIFERS AN PUBLIC WELLS



WHITE
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ENVIRONMENTAL IMPACT STUDIES
WETLANDS DELINEATIONS
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(908) 387-1551
Fax: (908) 454-8262
GAW@bellatlantic.net

EXHIBIT 13

AQUIFERS AND PUBLIC WELLS

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/25/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
155 Spring Street
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Surface Hydrology

Surface hydrology is a function of all of the elements discussed above. Water flows down grade, collects in areas of low relief and ponds in areas where soils are relatively tight and percolation is limited. Exhibit 14, Surface Hydrology, depicts the streams, lakes and ponds in Hampton Township as well as transitional features such as wetlands. Wetlands are termed transitional features, as a wetland is most often a pond in the process of evolution into dry land.

Swamps/wetlands are formed by underlying glacial lakebed sediments and/or impervious bedrock, that trap surface drainage. Swamp deposits contain a very high percentage of organic material. The water table is at or near the surface most of the year.

Where thin surficial deposits overlie the township's less resistant limestone bedrock, careful planning must be used to assure that water supplies are not inadvertently contaminated. These areas are susceptible to unfiltered recharge from surface run off and population from incompatible land use. Only sound land use planning of these vulnerable areas can prevent the pollution of the ground water.

Hampton Township lies almost entirely within the Paulinskill Watershed with a small portion of the westernmost corner lying in the Flatbrook Watershed. The principal surface drainage features in Hampton Township are the Bear Swamp in the northwest corner of the Township, and the Paulinskill stream system which runs from the southeastern corner of the Township through the Town of Newton to Paulinskill Lake. It then runs down to the Blairstown area before it empties into the Delaware River. Hampton is home to numerous lakes, Kemah Lake, Crandon Lake, Quick Pond, Little Swartswood Lake, Swartswood Lake, Paulinskill Lake and smaller streams, such as Troy Brook.

Protection of these important water resources is a priority of the planning effort in Hampton Township. Stream corridor buffers and greenway connections between stream corridors serve to protect water quality and provide wildlife routes, edge habitat, and preserve the scenic qualities of Hampton Township.

As Hampton Township is wholly dependent on subsurface water supplies, protection of aquifer recharge areas is another important land use policy emphasized in the Land Use Plan. In Hampton Township, surficial aquifers are relatively extensive. Sand and gravel, and till are the most productive of these aquifers. These aquifer recharge areas are important in a regional scale, and lie primarily in the western third of the Township.

To the east, the Township is dependent on bedrock aquifers. Overall, the Martinsburg formation and associated Jutland sequence occupy approximately two-thirds of the Township. The remaining valley areas are composed of the Kittatinny supergroup, Jacksonburg limestone and Hardyston Quartzite. A small portion of the Kittatinny Ridge in the westernmost corner of the Township is occupied by the Kittatinny Mountain, Green Pond Mountain and Minisink Valley Rock formation. These are highly resistant rocks and are of limited water supply capability.

EXHIBIT 14

SURFACE HYDROLOGY

REFERENCES & NOTES:

Wetland boundaries based upon the 1988 NJDEP Freshwater Wetlands Inventory.

Streams and Lakes were taken from NJDEP GIS database.

Drainage basins were based upon 1994 NJDEP GIS database (HUC14).

Property boundaries were taken from a composite tax map of Hampton Township and adjusted accordingly.

This map has been prepared as a guide for the Hampton Township Master Plan. Data on this map should not be relied upon for individual lot planning.

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not State - authorized.

WHITE ENVIRONMENTAL SERVICES, INC.
NATURAL RESOURCE INVENTORIES
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ENVIRONMENTAL IMPACT STUDIES
WETLANDS DELINEATIONS

990 Belvidere Road
Phillipsburg, NJ 08865
(908) 287-1501
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EXHIBIT 14

SURFACE HYDROLOGY

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000'
Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street
Newton, NJ 07860
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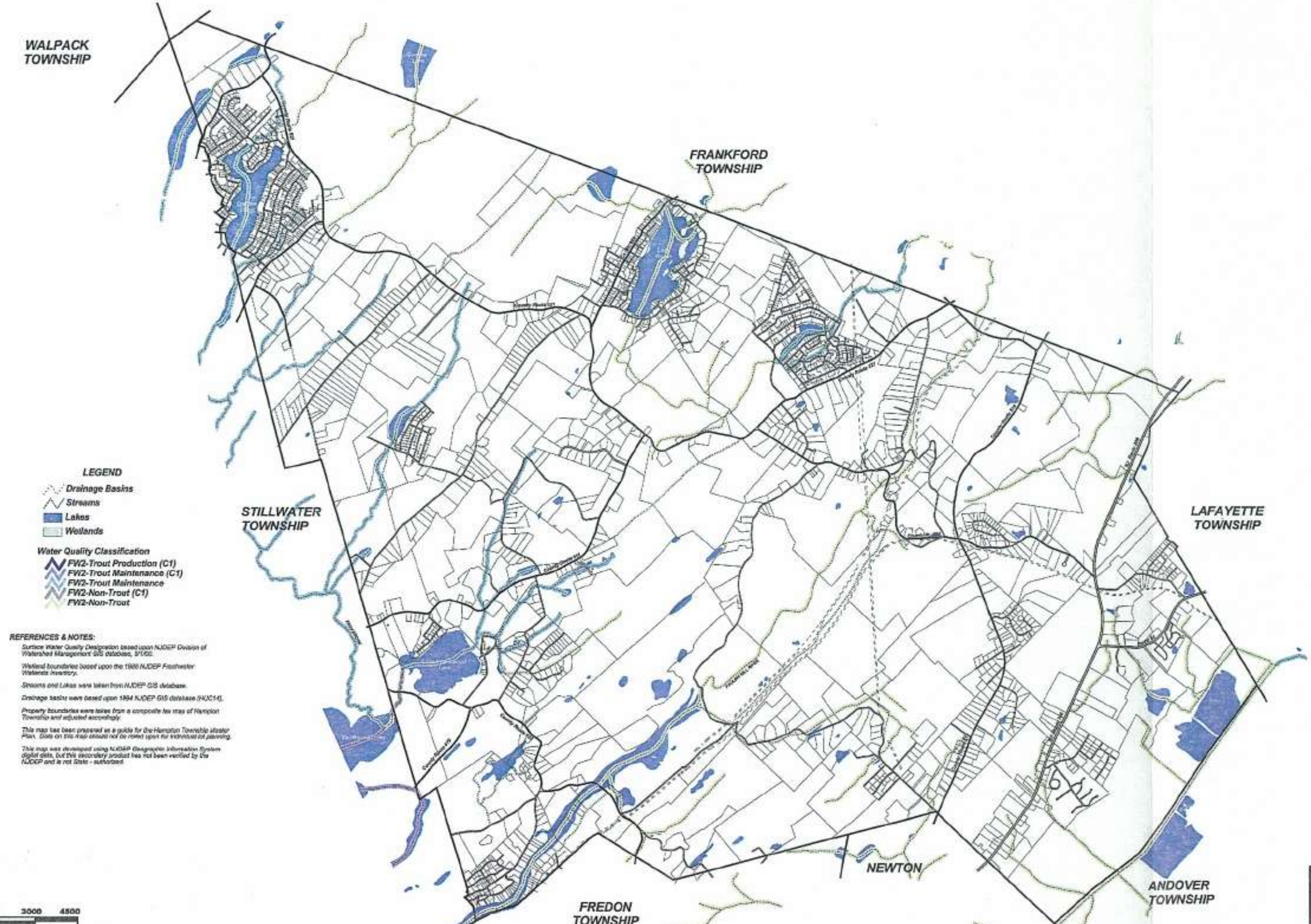
EXHIBIT 15

SURFACE WATER QUALITY



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GIS MAPPING - NJDEP PERMITS
ENVIRONMENTAL IMPACT STUDIES
WETLANDS DELINEATIONS

EXHIBIT 15

SURFACE WATER QUALITY

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000'

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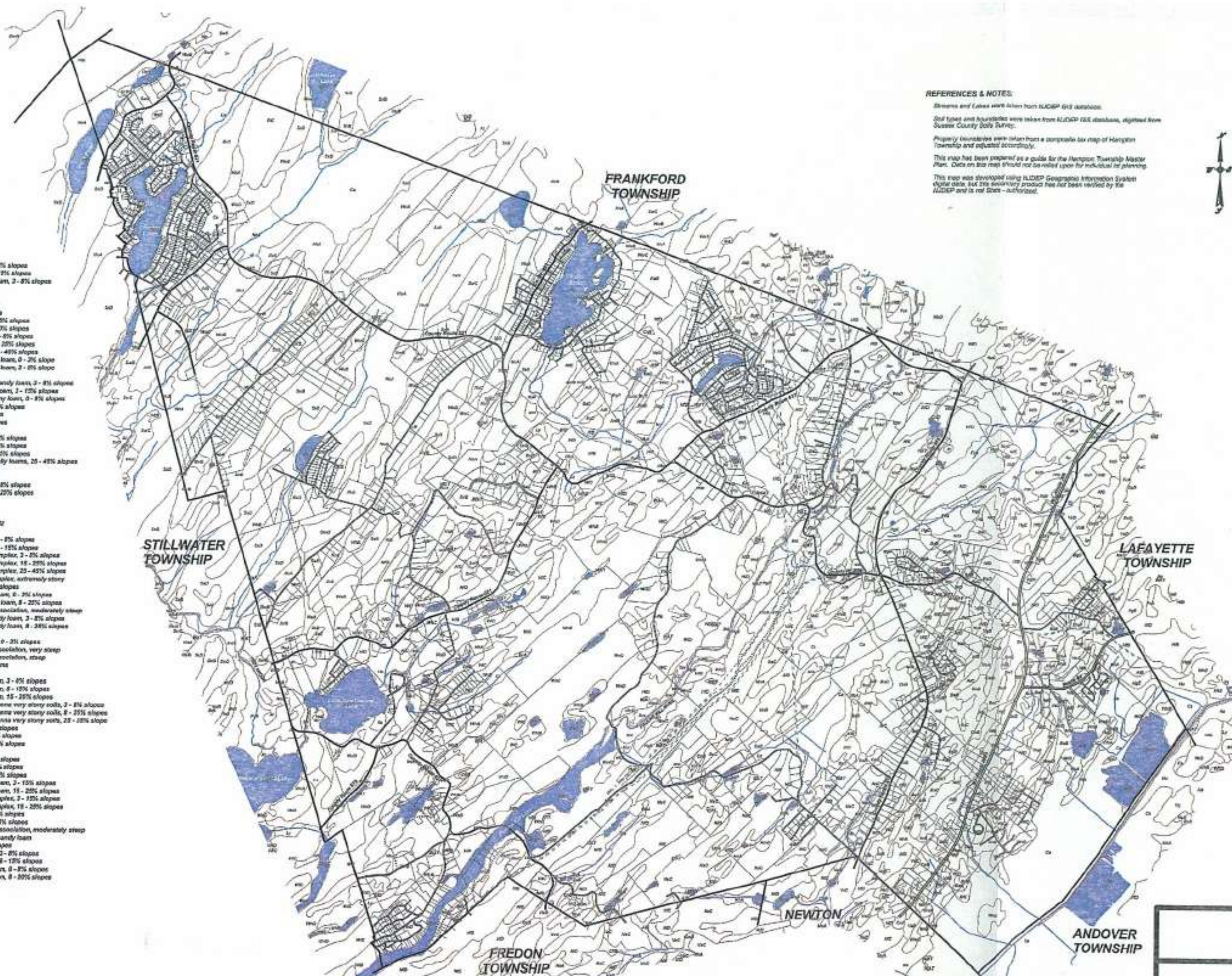
Soils

There are seventy-eight different soil types found within Hampton Township. See Exhibit 16. These soils vary in thickness, permeability, fertility and slope. These differences have a dramatic impact on their ability to sustain human activities, agriculture, through road and building construction. The individual soil series are described in Appendix A.

The New Jersey Department of Environmental Protection has recently published a model based on soil series (a grouping of soil types) which provides general guidelines for development where individual subsurface disposal systems (septic systems) are used rather than central sanitary sewer collection and treatment systems. This model evaluates the input of septic waste from residential uses. The ability of the soil to accept precipitation. Water which enters the soil then may be utilized to dilute effluent discharges to the point to where they may exceed drinking water standards. At this point, there is little negative impact on subsurface water quality. This model will be further discussed in the Land Use Element.

EXHIBIT 16

SOILS



Soil Types

- AlB - Alblo gravelly loam, 3 to 8% slopes
- AlC - Alblo gravelly loam, 8 to 15% slopes
- AmB - Alblo extremely stony loam, 3 - 8% slopes
- Ar - Alluvial land, wet
- At - Atherton loam
- BaB - Bath loam, 3 - 8% slopes
- BaC - Bath loam, 8 - 25% slopes
- BfD - Bath gravelly loam, 15 - 25% slopes
- BfE - Bath gravelly loam, 25 - 40% slopes
- BgB - Bath very stony loam, 3 - 8% slopes
- BgD - Bath very stony loam, 8 - 25% slopes
- BgE - Bath very stony loam, 25 - 40% slopes
- BrA - Braceville gravelly sandy loam, 0 - 3% slope
- BrB - Braceville gravelly sandy loam, 3 - 8% slope
- Ca - Carlisle muck
- ChB - Chenango gravelly fine sandy loam, 3 - 8% slopes
- CfC - Chenango cobbly sandy loam, 3 - 15% slopes
- CmB - Chippewa extremely stony loam, 0 - 8% slopes
- CnB - Chippewa silt loam, 3 - 8% slopes
- FrA - Fredon loam, 0 - 3% slopes
- FrB - Fredon loam, 3 to 8% slopes
- Ha - Halsey loam
- HfA - Hazen gravelly loam, 0 - 3% slopes
- HfB - Hazen gravelly loam, 3 - 8% slopes
- HfD - Hazen gravelly loam, 8 - 25% slopes
- HgE - Hazen and Palmyra gravelly loams, 25 - 45% slopes
- HkA - Hero loam, 0 - 3% slopes
- HkB - Hero loam, 3 - 8% slopes
- HoB - Hoosic gravelly loam, 3 - 8% slopes
- HoD - Hoosic gravelly loam, 8 - 25% slopes
- Lr - Livingston silty clay loam
- Ly - Lyons silt loam
- Lz - Lyons very stony silt loam
- Ma - Made Land, sanitary land fill
- Md - Middlebury loam
- NaB - Nassau rocky silt loam, 3 - 8% slopes
- NaC - Nassau rocky silt loam, 8 - 15% slopes
- NB - Nassau-Rock Outcrop Complex, 3 - 8% slopes
- ND - Nassau-Rock Outcrop Complex, 15 - 25% slopes
- NE - Nassau-Rock Outcrop Complex, 25 - 45% slopes
- Ng - Nassau-Rock Outcrop Complex, extremely stony
- NhA - Norwich silt loam, 0 - 3% slopes
- NoA - Norwich very stony silt loam, 0 - 3% slopes
- OnD - Oquaga extremely stony loam, 8 - 25% slopes
- OrD - Oquaga-Rock Outcrop Association, moderately steep
- PaB - Palmyra gravelly fine sandy loam, 3 - 8% slopes
- PaD - Palmyra gravelly fine sandy loam, 8 - 35% slopes
- Pi - Pits, sand and gravel
- PvA - Pompton fine sandy loam, 0 - 3% slopes
- RaF - Rock Outcrop-Nassau Association, very steep
- RdF - Rock Outcrop-Oquaga Association, steep
- Sn - Sloan and Wayland silt loams
- Sp - Swamp
- SwB - Swartswood gravelly loam, 3 - 8% slopes
- SwC - Swartswood gravelly loam, 8 - 15% slopes
- SwD - Swartswood gravelly loam, 15 - 25% slopes
- SxB - Swartswood and Lackawanna very stony soils, 3 - 8% slopes
- SxD - Swartswood and Lackawanna very stony soils, 8 - 25% slopes
- SxE - Swartswood and Lackawanna very stony soils, 25 - 35% slope
- VaB - Valois shaly loam, 3 - 8% slopes
- VaC - Valois shaly loam, 8 - 15% slopes
- VaD - Valois shaly loam, 15 - 25% slopes
- WAT - Water
- WhB - Washington loam, 3 - 8% slopes
- WhC - Washington loam, 8 - 15% slopes
- WhD - Washington loam, 15 - 25% slopes
- WkC - Washington very stony loam, 3 - 15% slopes
- WkD - Washington very stony loam, 15 - 25% slopes
- WlC - Washington-Wassaic Complex, 3 - 15% slopes
- WlD - Washington-Wassaic Complex, 15 - 25% slopes
- WmC - Wassaic silt loam, 3 - 15% slopes
- WmD - Wassaic silt loam, 15 - 35% slopes
- WnD - Wassaic-Rock Outcrop Association, moderately steep
- Ws - Whitman extremely stony sandy loam
- WoC - Wooster loam, 8 - 15% slopes
- WtB - Wurtsboro gravelly loam, 3 - 8% slopes
- WtC - Wurtsboro gravelly loam, 8 - 15% slopes
- WuB - Wurtsboro very stony loam, 0 - 8% slopes
- WuC - Wurtsboro very stony loam, 8 - 30% slopes

REFERENCES & NOTES:

Streams and Lakes were taken from NJDEP GIS database.

Soil types and boundaries were taken from NJDEP GIS database, digitized from Sussex County Soils Survey.

Property boundaries were taken from a composite tax map of Hampton Township and adjusted accordingly.

This map has been prepared as a guide for the Hampton Township Master Plan. Data on this map should not be relied upon for individual lot planning.

This map was developed using NJDEP Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not State - authorized.

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WETLANDS DELINEATIONS

EXHIBIT 16

SOIL TYPES

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000'
Date: 05/08/02

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Wildlife Habitat

Significant Vegetation Communities

Just as the variations in land characteristics (slope, wetness and aspect) are dramatic, so is the variation in vegetation types. The following are the major plant communities we may expect to find here in the Borough.

In this section we will move from lowlands to uplands in describing the various plant communities. In addition to general plant community descriptions, data have been derived from the 1974 Natural Resource Inventory, and rare and endangered species data furnished by the New Jersey Department of Environmental Protection.

Bog Community

Bogs are glacial offspring, as depressions with no drainage, caused by glacial action. Bogs differ from other wetlands in that there is no regular pattern of flooding, as in a marsh, and 'soils are highly acid and infertile. A bog is characterized by very poor drainage and incomplete decay of organic material. These conditions give rise to peat. Plant life found in this habitat include:

Swamp loosestrife
Sphagnam moss
Sedges
Sheep laurel
Swamp azalea
Huckleberry
Staggerbush
Bog rosemary
Marsh, chain, and other ferns
Pitcher plant
Sundew
Leatherleaf
Sweet Pepperbush
Blueberry
Black Aider
Fetterbush
Labrador tea
Herbs

Tree species include:

Red maple
Black gum
Black spruce
Larch
Hemlock
White pine
Yellow bush

Swamp Community

A swamp, unlike a bog, is found in and around springs and/or stream beds. It often exhibits a rise or fall of water level although its soils are always saturated.

Tree species include:

Yellow birch
Red maple
Ash
Chestnut Oak
Tulip
Black gum
Basswood
Grey Birch
Swamp White Oak
Silver Maple
White Oak

Shrub species include:

Alder
Buttonbush
Witch Hazel
Willow
Spirebush
Mountain Laurel
Silky Dogwood

Herbs include:

Skunk cabbage
Spring Herbs
Sedges and mosses
Bracken Fern
Sensitive Fern
Little Duckweeds
Arrowhead
Pondweeds
Watermeals
Sedges
Canary-Grasses
Buttonbush
Big Duckweeds

Mesic Upland Community

The habitat classified as Mesic Uplands lies between the wetter lowland bog and swamp environments, and the drier ridgetop and rock face environments. Upland sites retain a good supply of soil moisture and nutrients.

The following lists plant communities which are generally found on site in a mesic upland community.

Community Structure	Mixed Oak	Sugar Maple - Mixed Hardwoods
Tree Dominants	Red oak White oak Black oak Northern Red Oak	Sugar Maple and many of:
Other Typical Trees	Chestnut oak Scarlet oak Hickories Red maple Sugar maple Ash Beech Tulip tree American Chestnut White Ash	Sweet birch Yellow birch Basswood Beech Ash Red maple Red Oak Tulip tree Black Birch White Birch Grey Birch Black Cherry Shagbark Hickory White Ash White Oak
Tree Understory	Dogwood (dominant) Alternate leaf Dogwood Red-osier Dogwood Sassafras Hop hornbeam Ironwood Eastern Chinquapin	Hop hornbeam Striped Maple Sassafrass Dogwood Ironwood

Community Structure	Mixed Oak	Sugar-Maple - Mixed Hardwoods
Shrubs	Viburnum Spicebush Highbush Blueberry Late Low Blueberry Red Raspberry Blackberry Common Elderberry Azaleas Mountain Laurel	Viburnum Spicebush Witch Hazel Mapleleaf Viburnum Late Blueberry Red Raspberry Blackberry Common Elderberry Azaleas Mountain Laurel Highbush Blueberry
Herbs	Many spring & fall herbs	Many spring & fall herbs
Agricultural Field or Pasture	Blue Grass Brown Grass Milkweed Red Clover White Clover Goldenrod Ragweed	

A third forest community which may be found is known to exist only in undisturbed areas, particularly in the vicinity of the Kittatinny Ridge and State Parks. The Hemlock - Mixed Hardwoods community develops on cooler, north facing slopes in well drained soils. Once cleared for any reason, this type generally disappears, becoming Sugar Maple - Mixed Hardwoods. A general description of the community is provided:

Community Structure	Hemlock Mixed Hardwoods
Tree Dominants	Hemlock (dominant)and only a few of:
Other Typical Trees	Sweet birch Yellow birch Basswood Beech Ash Red oak Sugar maple Red maple
Tree Understory	Few
Shrubs	Few
Herbs	Few Partridge berry Mosses

Slope and Ridgetop Community

A significant percentage of Hampton is steeply sloping, rock outcrops and ridgetops; this last community is perhaps most representative of the area. These areas are drier than the mesic uplands for two reasons:

a. Runoff is more rapid at a steeper slope and that which does penetrate through this soil will evaporate more quickly due to exposure to wind and sun.

b. The soils themselves are thin and do not hold water well. As a result of these characteristics, this is a harsh, infertile environment.

Vegetation found in these areas is as follows:

Community Structure	Chestnut Oak Forest	Plants Growing On Rocks
Common Trees	Chestnut Oak Red oak White oak Scarlet oak Sweet birch Pitch pine	Lichen Moss Invasion: Crustose Lichens Foliose Lichens Mosses
Other Typical Trees	Black oak Red maple Hickory Black cherry White pine	Herb Invasion: Hair grass Cinquefoil Sedges & grasses Ferns
Understory	Chestnut sprouts Laurel Blueberry	Shrub Invasion: Blueberry, Huckle-berry, Laurel
Herbs	Few Wintergreen Wild sarsaparilla	Tree Invasion: Pitch pine Chestnut oak Sweet Birch

As indicated above, a wide variety of vegetation exists in the Township. It is the Township's goal to maintain this diversity not only for its positive environmental impact, for helping control storm water run-off and providing wildlife habitat, but also for the aesthetic pleasure it provides residents. It is also a concern and responsibility of the Township to be aware of and protect endangered plant species that exist within Hampton. A list of rare species and natural communities, provided by the New Jersey Natural Heritage Data Base, may be found in Appendix B.

Wildlife

In addition to the vegetative communities found in the Township, the following listing indicates common fauna also found associated with those vegetative communities.

Common Wildlife	Common Fowl	Endangered List Species
White Tail Deer	Mallard Duck	Timber Rattlesnake
Cottontail Rabbit	Black Duck	Long Tailed Salamander
Red Squirrel	Ring Necked Duck	Bog Turtle
Gray Squirrel	Merganser Duck	Wood Turtle
Flying Squirrel	Turkey	Red Shouldered Hawk
Eastern Brown Bat	Sparrow Hawk	Barred Owl
Black Bear	Woodcock	
Porcupine	Mourning Dove	
Muskrat	Swift	
Beaver	Flicker	
Opossum	Downy Woodpecker	
Raccoon	Phoebe	
Weasel	Barn Swallow	
Skunk	Blue jay	
Eastern Chipmunk	Common Crow	
Mole	Chickadee	
Shrew	Catbird	
Pine Mouse	Wh. Breasted Nuthatch	
White Footed Mouse	House Wren	
Deer Mouse	Mockingbird	
Eastern Red Fox	Robin	
Gray Fox	Wood Thrush	
	Starling	
	House Sparrow	
	Grackle	
	Black Bird	
	Cardinal	
	Junco	
	Goldfinch	
	Bank Swallow	
	Song Sparrow	

Open Space

As noted earlier in the Community Facilities Element, the Township has separately prepared an Open Space and Recreation Plan, compiled by the Morris Land Conservancy and the Hampton Township Open Space Committee. The plan was published in August 2000. The objectives of the plan are consistent with the objectives expressed in the goals and objectives section of this Master Plan, these being:

- To protect the cultural heritage and economic diversity of the Township, more farmland owners need to enroll their lands in the State Farmland Preservation program.

- To ensure the health of the natural areas of the natural areas already existing in the Township, a series of naturally vegetated linear corridors, or greenways, needs to connect these lands.

- As the Township continues to experience population growth, demand for a ball field and court facilities will surpass the supply of facilities currently provided for these active recreation pursuits.

- To improve and protect water quality of the Township's existing waterways and lakes, vegetated corridors that buffer these "blueways" are essential.

The plan first provides an inventory of "Natural and Recreational Resources." Those resources otherwise not covered in the Master Plan are as follows:

> The Paulinskill, from the Route 15 bridge to the Paulinskill Lake dam, is a freshwater, non-trout producing or maintaining dam (FW2-NT). This section of the Paulinskill is not of high enough water quality to support or maintain trout. The Paulinskill Lake Dam to the Delaware River is classified as a freshwater body that allows a habitat that maintains trout (FW20TM) (see Surface Water Quality Standards in Appendix). The State's Surface Water Quality Standards provide classifications corresponding to water quality and use. Trout Maintenance Waters TM are those waters designated for the support of trout throughout the year. Trout is used as a parameter because of their indication of high quality waters (A Natural Resource Management Guide for the County of Morris, Page 5-2). There are extensive floodplains along the Paulinskill in Hampton Township but this area is either sparsely developed or within the Paulinskill Wildlife Management Area (Sussex County Land Use Plan).
>
> All of the lakes in the Township are manmade. Two of these dams, at Paulinskill Lake and Kemah Lake, are in need of repair. Swartswood Lake in Stillwater Township is a modified kettle lake, formed from receding glaciers. The watershed of Swartswood and Little Swartswood Lakes is 12,000 acres. The watershed begins on the ridge of the Kittatinny

Mountains (about 1,450 feet elevation) and runs down to the lake at 480 feet elevation. The main stream that drains the area and feeds Swartswood Lake is Spring Brook.

The Ridge and Valley Conservancy has identified two unique forest ecosystems in the Appalachian Ridge and Valley Region in need of conservation. Both of these are forested communities. The first is the Limestone Forest, forested land atop limestone bedrock and thin glacial till. Sinkholes, sinkhole ponds, bedrock pinnacles, caves and springs are characteristic of this forested type. The sinkhole ponds host rare plants and animals adapted to the nutrient-poor soils and variable hydrology of the ponds. The forest consists of native deciduous trees and conifers. This project area in Hampton is located between Swartswood State Park and the Paulinskill Wildlife Management Area, northward into the interior of the Township. The second forested community identified by the Ridge and Valley Conservancy is comprised of the large contiguous stands of woodlands greater than 75 acres, and associated forest buffers of 50 acres or more. These stands have significant scenic value, being located on ridge tops. They also provide large volumes of high quality runoff and groundwater recharge to sustain streams and aquifers. The principal forested areas in Hampton Township are located north of Swartswood to the Bear Swamp Wildlife Management Area.

There are three sites in Hampton identified in the 1999 Atlas of Natural Heritage Priority Sites for the Preservation of Biological Diversity. These include:

- Lake Owassa Bear Swamp – This site is approximately 3.5 square miles of mixed hardwood/conifer swamp forest and adjacent upland hardwood forest in Frankford and Hampton Townships. The area includes undeveloped forested habitat for State Threatened bird species and a State endangered plant species.

- Swartswood Lake – Approximately 1.5 square miles in size, this site consists of a lake and adjacent shoreline wetlands and uplands. Also includes state endangered plant species and several other State rare species. Watershed management is important to avoid non-point source pollution to the lake.

- Swartswood Sinkhole Ponds – This area spanning approximately 1.5 square miles, consists of a series of limestone sinkhole ponds in close proximity to one another and are likely to be hydrologically connected in Hampton and Stillwater Townships. Includes several high quality globally rare wetland communities and several State rare plant species.

These sites represent critically important natural areas to conserve New Jersey's biological diversity. Natural Heritage Priority Sites contain some of the best and most viable occurrences of endangered and threatened species and natural communities, but they do not cover all known habitat for endangered and threatened species in New Jersey.

The State of New Jersey is the caretaker and owner of lands within Hampton Township that have state significance for natural resources: two wildlife management areas; Bear Swamp Wildlife Management Area with 1,340 acres, and 462 acres of the Paulinskill Wildlife Management Area. Two State parks in Hampton Township provide outdoor recreation including 607 acres of Swartswood State Park and 66 acres of Stokes State Park.

It turns out that there are a number of public benefits which result from the preservation of open space. These relate directly to those issues raised above in the Natural Resources Element. Reduction of land disturbance also reduces the levels of stormwater flows. The impact of stormwater on soils is reduced by retention of the vegetative cover. Water quality is enhanced as soils are retained on site, fertilizers and pollutants are not introduced into streams and waterways as the land is not cultivated. Open space also provides recreation opportunities and a strong visual element which is an important component of the character of Hampton Township.

A particularly effective open space preservation technique is the establishment of greenways. Greenways, particularly those along stream corridors, serve to protect streams and other water bodies from the impact of development. Acting as filters and buffers, they provide corridors for wildlife travel, reducing the conflicts between wildlife and the road network. They also provide the opportunity for linear recreation elements such as trails. For further details regarding open space preservation efforts, refer to the Hampton Township Open Space Plan.

Resource Based Facilities

Two State parks, Swartswood State Park and Stokes State Forest, incorporate parts of Hampton Township as well as neighboring municipalities. Additionally, it has been pointed out that there are numerous lakes within the Township. The largest of these lakes are Crandon Lake, Kemah Lake, Lake Ann, Swartswood Lake, Paulinskill Lake, and Clearview Lake. There are also some substantial wetlands areas within the Township. These serve not only as open space but as critical wildlife habitat. These, along with the limestone forests identified within the Township are extensive features meriting protection. These are identified as the Lake Owassa Bear Swamp, the Kittatinny Ridge Forest, and Swartswood Sinkhole Ponds.

Finally, there are wildlife management areas which incorporate 1,340 acres of Bear Swamp and 462 acres in the Paulinskill Wildlife Management area. Swartswood State

Park and the Stokes State Forest comprise 607 and 66 acres respectively in Hampton Township. Swartswood Sinkhole Ponds cover approximately 1 ½ square miles. They consist of a series of limestone sinkhole ponds in close proximity to one another and are likely to be "hydrologically connected in Hampton and Stillwater Townships. Included are several high quality globally rare wetlands communities and several State rare plant species".

The Bear Swamp is about 3 ½ square miles of mixed hardwood conifer swamp forest, includes undeveloped forest habitat for State threatened bird species and the State Endangered plant species.

Swartswood Lake is approximately 1 ½ square miles. Incorporates within it and its adjacent wetlands and uplands includes rare species and natural communities associated with the lake as well as endangered plant species and other rare species.

A discussion of recreation opportunities will be found in the Community Facilities section of this Master Plan.

This information was taken from the Hampton Township Open Space Plan, prepared in August, 2000.

Upper Delaware Watershed Management Project

The North Jersey Resource Conservation and Development Council is a six County regional non-profit organization supported by the Soil Conservation Districts and the County governments of Hunterdon, Somerset, Sussex, Morris, Warren and Union Counties. Organized at the local level, RC & D Councils receive technical and administrative support form the US Department of Agriculture – Natural Resources Conservation Service through the Resource Conservation and Development Program.

The North Jersey RC & D Council has been designated as the lead agency for the preparation of a Watershed Management Plan and Program for the Upper Delaware Watershed Management Area, one of twenty areas delineated by the New Jersey Department of Environmental Protection. These areas are regionalized as naturally formed regions of sufficient size to encompass major drainage basins while small enough to make unified planning and management activities feasible.

Within this watershed are fifty-four municipalities in portions of Sussex, Morris, Hunterdon, and all of Warren County.

Additional information is available from the RC & D offices located in Annandale, New Jersey.

HISTORIC ELEMENT

In Hampton Township, several geologic sites have been mined in the past and are a part of the cultural landscape. The area abounds in old lime kilns and gravel pits. Such areas should be given consideration and development planned without their loss.

Hampton Township was created when land from Newton was set off on March 10, 1864. It appears that the decision to create Hampton was prompted by the idea that Newton should have "... an independent government free of the drag of rural areas." (Bingham, page 6). The creation of Hampton Township was contrary to the wish of those living in the Hampton area at the time. At the first Township meeting in April 1864, a resolution was passed which expressed protest against the formation of the Township and a pledge was made to have the boundaries restored. No further concrete action as taken, however, and those opposing the formation of the Township soon came to accept it. It is thought that the Township was named by Robert Hamilton, in honor of Jonathan Hampton who had donated land to the Episcopal Church in Newton.

The early inhabitants of the region were the Lenni Lenape tribe of Indians. As the area is rich in limestone, it is believed that the many caves provided shelter. There are also claims of pictorial drawings in a cave known as Gum Hollow Rock south of Frank Chandler Road. Unfortunately, the site is no longer accessible due to a refuse center being located there at one time (Bingham, page 3).

Early European settlers are thought to have arrived in the area prior to the Revolution. The first is believed to be Michael Roof from Germany, who arrived sometime around 1756. Others came form the British Isles and in the 1800s, many settlers were of Italian descent. Michael Roof settled on a farm in the region of Paulinskill, and shortly after his arrival, the Hendershott family settled in the same region.

Peter and Henry Bale were Germans who arrived in the area known as Balesville shortly after the end of the Revolutionary War. Benjamin Barton had already established a grist mill there, which he ran until the Revolution broke out; he was forced to move from the area as a result of his Tory sympathies. A store was constructed, and a blacksmith shop was set up by Peter while Henry built a sawmill. In the 1800s Henry also built a gristmill, a carding mill and a woolen factory in order to manufacture cloth for people in the area.

Benjamin Halsey and George Finch settled in Washingtonville in 1808 and the area became known as Halesy's Corners. They established a hemp farm and opened a store. Colonel Fitch also built a tavern in the area sometime between 1810 and 1820. The hemp cultivation and store failed. Colonel Fitch went on to establish the New Jersey Herald. In 1848, Peter Case built another tavern in the area. Halsey was on the stagecoach route from Jersey City to Owego, New York

and, although these taverns were not a changing point on the route, they did generate business from travelers.

Near the present location of Kemah Lake, there was a turning mill, which produced gunstocks and turned chair and table rungs. A cooper's shop that produced butter tubs also existed in this area.

The early economy of Hampton Township was principally agrarian, concentrating mostly on farming and lumber. Most of the farms were subsistence farms with some products being sold or traded for goods not produced on this farm. Gristmills for flour production also existed, and the water power of the Paulinskill attracted a carding and fulling mill for the production of felt and wool cloth.

Records show that the first school to the area was located in a log house in the neighborhood of the Couse homestead in 1788, or possibly earlier. The Couse homestead was located in the Washingtonville District. It is also thought that there must have been a school located in the area of Laurel Grove before this time, as this area was the site of the first settlement in Hampton. The first recorded school in Laurel Grove was a log cabin built in 1810. In 1806, the first school at Myrtle Grove was located in a converted blacksmith shop. Benjamin Halsey managed to have a school built at Halsey's Corner in 1808, so that his children would not have to travel long distances to school. After their education, he then had the school moved to another location. It is also thought that two private schools were in operation for an undeterminable period at Halsey's Corner in 1845.

Records show that customers at the Bale's store in Balesville numbered 220. This gives an indication of the population in the area in the late 1700s and early 1800s. In 1871, the population was 1,023, but by 1880 it had decreased to 895. By 1920, the population had dwindled further to just 592. By 1950, the population has grown to 672, and by 1960 the number was 1,174. Population continued to increase so that by 1990, there were 4,438 residents with an estimated 4,719 by 1998. The 2000 Census reported that Hampton's population was 4,943.

This increase in population correlates to the development of residential areas, primarily located around lakes. The oldest lake development is at Kemah Lake. These developments were originally intended as summer residences but soon became year round, permanent homes for people who worked in Hampton and nearby areas. A further trend saw retirees build or purchase homes in the area. Another node of residential development took place in the 1970's with the construction of Hampton Commons off of Cherry Lane, a 300 unit townhouse condominium.

Although there are still many farms in the area, there has been a general move away from an agrarian culture due to the growth in residential areas, and as commercial areas were developed in the Township.

In 1976, Sussex County's Department of Planning, Conservation and Economic Development put together a list of 43 historic sites in Hampton Township (see Sussex County Master Plan Study Report No. 10 in Appendix). Most sites listed date from the mid 1800s.

RECYCLING PLAN ELEMENT

An optional element in a municipal Master Plan is a Recycling Plan Element as indicated in NJSA 40:55D-28b(12). This recycling plan element incorporates, by reference, the State Recycling Plan. Goals of the State plan include collection, disposition and recycling of recyclable materials as designated in the Township Recycling ordinance. Furthermore, the ordinance must require provisions for recycling in all development proposals for the construction of 50 or more single family housing or 25 or more units of multifamily housing as well as all non-residential development which include the utilization of more than 1,000 square feet of land.

Provisions meeting these requirements were inserted into the Hampton Township Code in 1988. Consequently, the Township's plan and ordinance structure are fully consistent with the State requirements.

LAND USE

Existing Land Use

Hampton Township is a relatively well balanced municipality in terms of land uses and their extent. While much of Sussex County is limited to being a bedroom community for the employment markets to the south and east, Hampton Township has a significant employment component contributing to its economic stability. The following section describes the various land uses within the Township, their impact, desirability for the future. See Exhibit 17.

Agricultural

Land actually in crops, pasture and agricultural has been losing its once preeminent position in the Township for many years. The turning point being generally the 1970 through 1988 building boom. Population in 1970 in Hampton Township was 2,091 persons; by 1980 the population had risen to 3,916. In 2000 the population was 4,943. Other agricultural activities comprises 2,495 acres or 15.5 percent of the area of the Township.

Agriculture also incorporates a significant area of land shown as vacant. Although these area may be farmland assessed, they are essentially in forest cover with little or no traditional farming being undertaken.

Vacant Land

The largest land use category in Hampton Township remains vacant land. This area is comprised of 51 acres of barren land, i.e. land which has been mined, 8,045 acres of forested land, 2,701 acres of wetland and 770 acres of surface water bodies. This comprises 71.8 percent of the total area of the Township.

Residential

Residential development in Hampton Township incorporates a range of types and densities from low density scattered single family detached housing to relatively high density multiple unit housing in the Hampton Commons neighborhood. Another community at density within this range, is Carriage Acres located off Route 94. The total area devoted to residential development in the Township comprises 1,520 acres.

Non-Residential

As noted in the introduction to this section, Hampton Township enjoys a significant component of non-residential development which serves to balance the significant area devoted to residential use. In the Township, 397 acres are devoted to commercial facilities principally located along the Route 206 corridor with some additional development found along Halsey-Myrtle Grove Road and NJ Route 94.

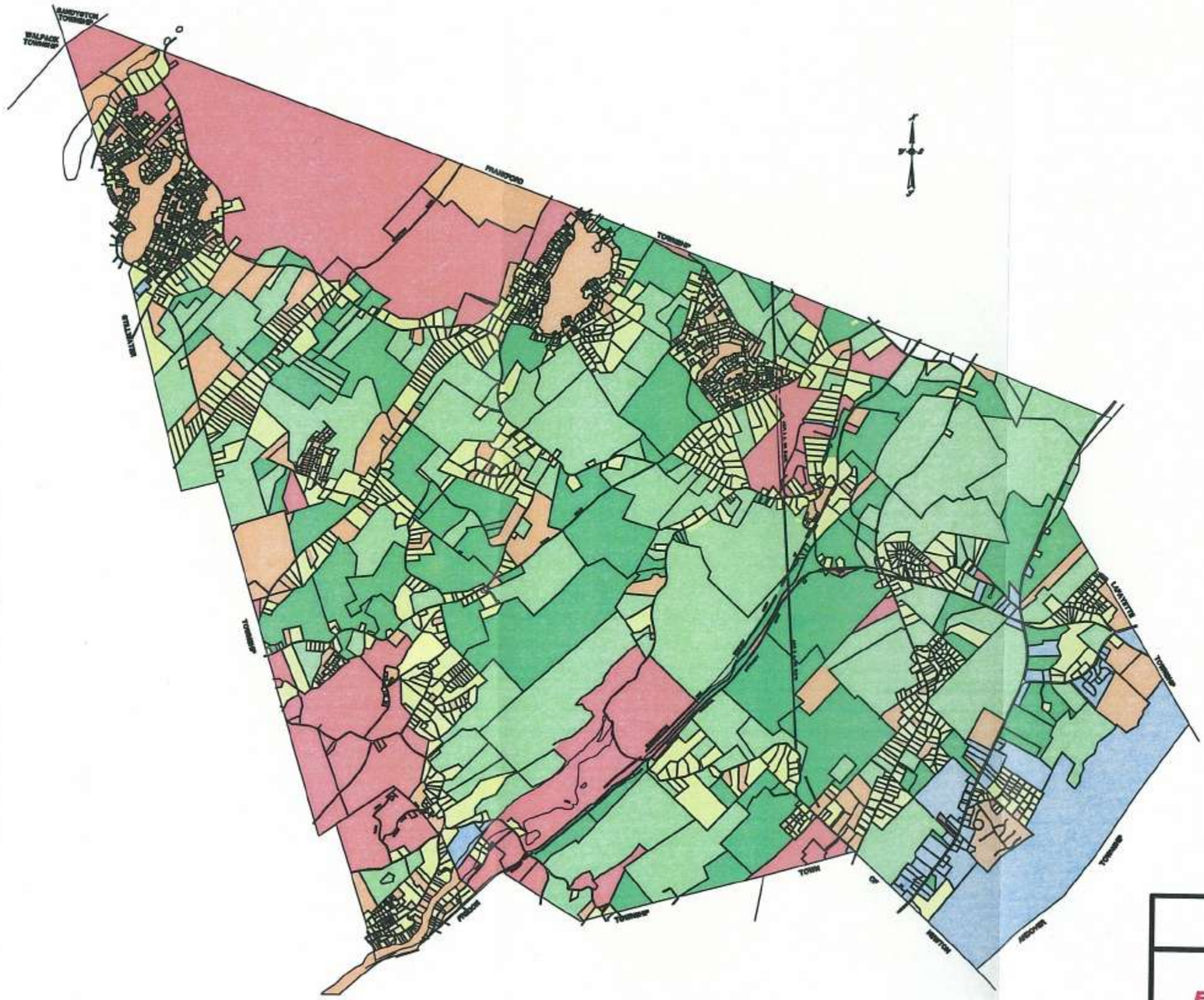
The remaining non-residential uses include transportation and communications facilities, recreation land, athletic fields, etc., which total 133 acres.

Existing Land Use

	Acres	Percentage
Agricultural	2,495	15.5%
Vacant land	11,567	71.8%
Residential	1,520	9.4%
Non-residential	530	3.3%
TOTAL	*16,112*	*100.0%*

EXHIBIT 17

EXISTING LAND USE



LEGEND	
LAND USE	DESCRIPTION
	VACANT
	UNKNOWN
	FARMLAND WITH HOUSE
	FARMLAND
	RESIDENTIAL
	MULTIFAMILY RESIDENTIAL
	COMMERCIAL
	PUBLICLY OWNED

2000 0 2000 4000 6000

EXHIBIT 17

EXISTING LAND USE

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 06/26/02

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Existing Zoning

The existing zoning scheme, Exhibit 17, in Hampton Township provides for essentially three single family development districts of 1.5 acres, 2 acres and 3 acres per unit. In addition to these zones, the Township provides for an apartment/townhouse zone which permits densities of not more than 5 units per acre for townhouses and 6 units per acre for garden apartments.

Hampton Township has a number of non-residential zones, typically denoted by highway commercial districts. Highway commercial district is broken up into four subdistricts; a general district, a commercial manufacturing industrial district, a commercial research development district and a commercial residential district. These areas are indicated by their title and are found along the US 206 and NJ 94, and are currently developed at a depth of approximately 400 feet with automotive dealerships, fast food restaurants, brand name stores such as Foot Locker, Block Buster, and other small retail uses. Notable exceptions to this development pattern are the WalMart, new Condit truck facility and Hampton Plaza, which although developed according to the same zoning scheme are located on lots with significantly greater depth from the road. Again, the orientation of the businesses is to the highway, leaving the "backlands" relatively inaccessible.

The critical issues relating to development in New Jersey are currently the focus of considerable debate. These issues are:

1. The patterns of development in New Jersey and the cumulative impact of development, particularly in areas where there is complete dependency on subsurface water supplies to support the community.

   This is an important issue in Hampton Township where traditional development as regulated through the current zoning ordinance has resulted in a sprawl pattern characterized by widely scattered residential development with commercial development located as a strip along the major transportation routes within the Township. The consequences of this development pattern are the near total reliance on motor vehicles to reach shopping and employment.

   a. A significant congestion occurs along the frontage of the arterial road network of the regions.

   b. Construction of miles of excess roadways to reach the far flung residential communities.

   c. Development of year round communities in the vicinity of the various lakes within the Township at densities far higher than can reasonably be sustained in the absence of central water and sewer facilities.

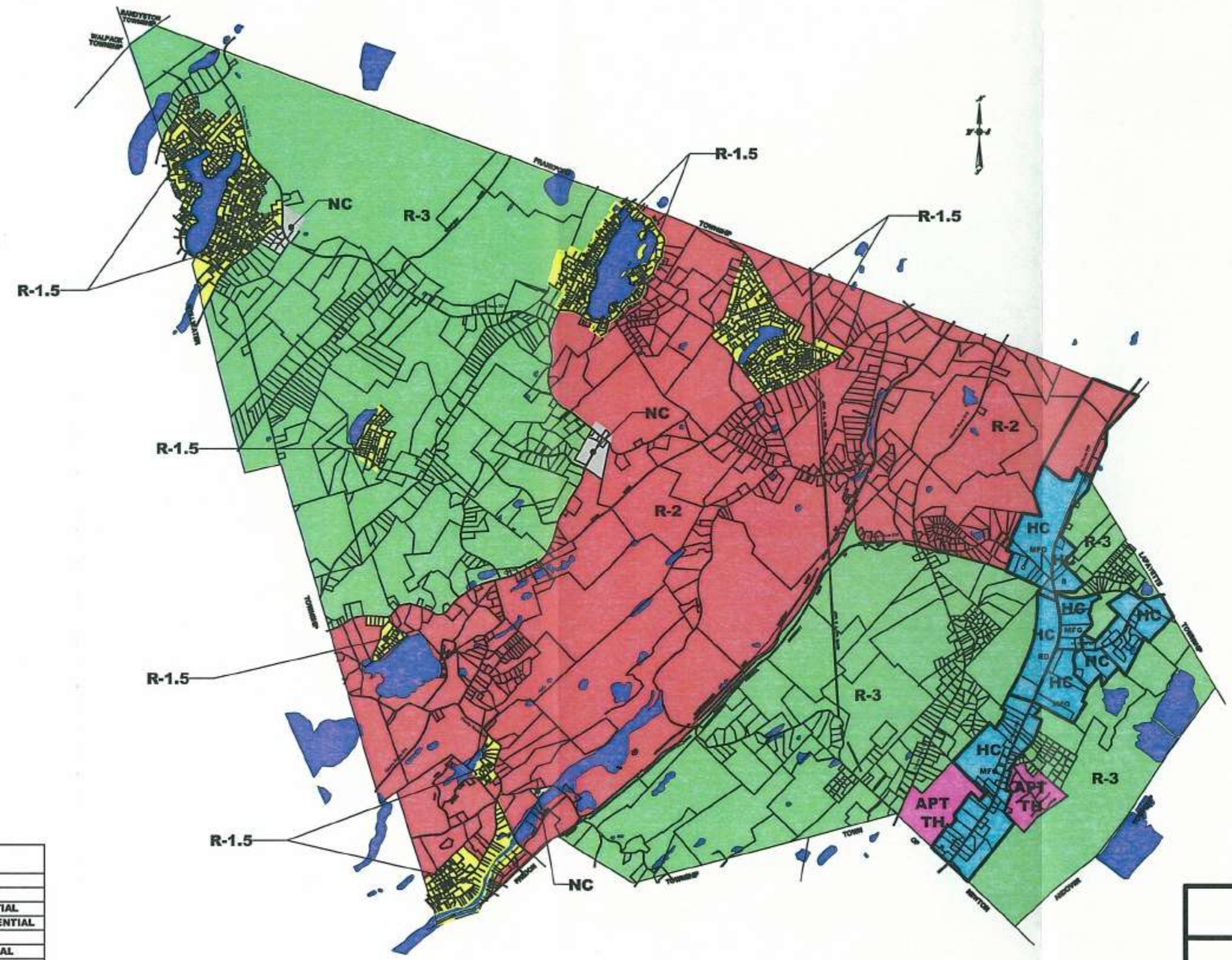
Additionally, the lands lying to the rear of the commercial strip are, for the most part, isolated and difficult to integrate into a coordinated community scheme.

2. The impact on natural resources. With the exception of the lake communities, comprised in large part of what were seasonal homes occupied during late spring through early fall, the overall densities in Hampton Township's single family residential scheme are consistent with the ability of the resource base to accept and renovate septic effluent without a significant negative impact on the critical water quality of the Township.

   The rule that is used to evaluate this impact is a model developed by the New Jersey Department of Environmental Protection known as the Nitrate Dilution Model. This model released in 2001 uses the ability of the various soil series to accept infiltration as a measure of their ability to dilute wastewater. The greater the permeability of the soil the greater the amount of precipitation which is allowed to percolate into the groundwater table and therefore the greater amount of septic effluent which can be satisfactorily rejuvenated.

EXHIBIT 18

EXISTING ZONING



LEGEND	
ZONING	DESCRIPTION
R-1.5	RESIDENTIAL DISTRICT
R-2	MEDIUM DENSITY RESIDENTIAL
R-3	MODERATE DENSITY RESIDENTIAL
APT TH	APARTMENT/TOWN HOUSE
NC	NEIGHBORHOOD COMMERCIAL
HC-MFG	HIGHWAY COMMERCIAL
HC-R	HIGHWAY COMMERCIAL
HC-RD	HIGHWAY COMMERCIAL

2000 0 2000 4000 6000

EXHIBIT 18

EXISTING ZONING

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 02/28/03

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The nitrate dilution model, as plotted using soils in Hampton Township (see Exhibit 19, Recommended Septic System Density), indicates that the range of the septic acceptability throughout the Township is approximately 2.2 to 3.5 acres per unit. These densities as may be seen by reference to the exhibit do not take into account land not to be developed (i.e. public lands) nor do they take into account lands which can not be built upon due to geologic, topographic and other natural resource constraints. Put more simply, the average yield of a property developed in a two acre zone is between 2.6 to 3.0 acres per unit. The average yield in the three acre zone is between 4.0 and 4.6 acres per unit. Even in the 1.5 acre zone, the average yield is between 2.0 and 2.3 acres per home. This is so that 30 to 35% of the acreage of any tract subdivided for single family detached homes is not available is approximately 65 to 70 percent of the acreage involved. Percentages are reduced in areas of steeper slopes and on tracts of significant irregular shape or which are restricted by virtue of significant wetlands and water bodies.

Based upon the existing zoning and our review of the results of the nitrate dilution model it is clear that the existing zoning scheme in the Township is compatible with maintenance of high quality water. In the nitrate dilution model it should be pointed out that the input data are conservative.

The standard for potable drinking water in the United State and in New Jersey is measured, in part, in terms of the concentration of nitrate. Nitrate is used as an indicator as it is a major component of septic effluent. It may, at concentrations in excess of 10 milligrams per liter, create the possibility that a baby could contract what is known as "blue baby syndrome". The input for the model is 5.2 milligrams of nitrate per liter, a level promulgated by the NJDEP, which is nearly one-half the safe level in drinking water. Rather than using the default population estimate of three persons per household, reasonably characteristic of the area, we have chosen to use 3.5 persons per household, adding a further level of conservatism to the calculation.

As indicated at the beginning of this section, the traditional development scheme in New Jersey and elsewhere in the Unite States, has resulted in what is termed sprawl with some significant inefficiencies in the provision of public services. It is more expensive to maintain 100 miles of road than it is to maintain 50 miles of road, it is more time consuming for emergency services to reach far flung areas then would be the case where population is more concentrated. Significant increases in storm water runoff, reduction in aquifer recharge, elimination and fragmentation of wildlife habitat are also the result of current development patterns in New Jersey, and in Hampton Township.

Most of the population in New Jersey has become enormously dependent on the automobile. The impact on air and water quality caused by the pollutants emitted by these vehicles is significant even though they have become much more

efficient and cleaner over the last two decades. The number of miles driven by residents of northern New Jersey between home, work and shopping continues to have a very large impact on the quality of life and the natural environment.

The New Jersey the State Development and Redevelopment Plan, "The State Plan", has reintroduced the concept of compact development forms. This is an attempt to rethink the approach to development taken over the past 40 or 50 years' with the view to providing residents and visitors an option not now available. The creation of centers is a key element of this plan. The center is defined as a mixed land use pattern combining residential and non-residential development rather than segregating it as is typically the case under current zoning practice. It provides for a concentration of employment and shopping opportunities which would allow persons to park a vehicle and avail themselves of a number of opportunities within reasonable walking distance, therefore reducing to some extent the overwhelming dependence on the individual passenger vehicle. This development form reduces the impact of development generally as it is at a higher density covering a smaller area, than that to which we have become accustomed. The principal impediments to its succeeding are the lack of central sewer facilities and the need to engage in long term outreach to the developer and user population to encourage both to buy into the economic and quality of life benefits of a different approach to development.

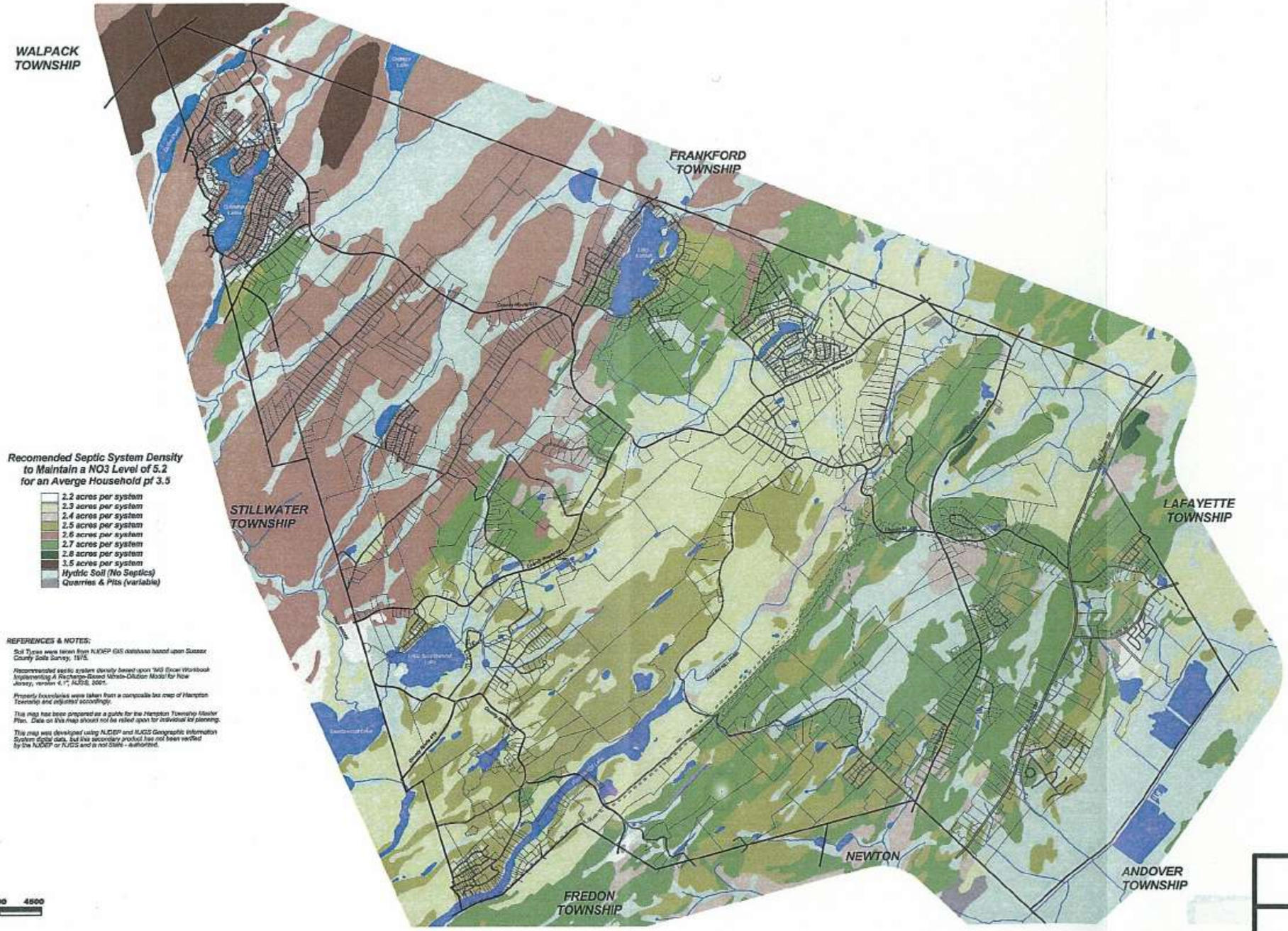
Proposed Land Use Plan

Hampton Township has an opportunity to reorient the focus of community activity from the inside of a passenger vehicle to town centers. The designs for these centers as shown as Exhibits 19 and 20, are conceptual but provide a very important element of community in the future. The focus of development and redevelopment is no longer the highway strip, but is reoriented inward, encouraging consumers, residents to come into the village, and get out of their cars as a significant portion of their daily activities.

Critical elements in the town center are as described in the Hampton North and Hampton South Centers below.

EXHIBIT 19

RECOMMENDED SEPTIC SYSTEM DENSITY



Recomended Septic System Density to Maintain a NO3 Level of 5.2 for an Averge Household pf 3.5

- 2.2 acres per system
- 2.3 acres per system
- 2.4 acres per system
- 2.5 acres per system
- 2.6 acres per system
- 2.7 acres per system
- 2.8 acres per system
- 3.5 acres per system
- Hydric Soil (No Septics)
- Quarries & Pits (variable)

REFERENCES & NOTES:

Soil Types were taken from NJDEP GIS database based upon Sussex County Soils Survey, 1975.

Recommended septic system density based upon "MS Excel Workbook Implementing A Recharge-Based Nitrate-Dilution Model for New Jersey, version 4.1", NJDEP, 2001.

Property boundaries were taken from a composite tax map of Hampton Township and adjusted accordingly.

This map has been prepared as a guide for the Hampton Township Master Plan. Data on this map should not be relied upon for individual lot planning.

This map was developed using NJDEP and NJGS Geographic Information System digital data, but this secondary product has not been verified by the NJDEP or NJGS and is not State - authorized.

1500 0 1500 3000 4500

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EXHIBIT 19

RECOMMENDED SEPTIC DENSITY

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/07/02

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Hampton Centers

Introduction

Traditional zoning over the last three decades of the twentieth century emphasized, the separation of residential uses from commercial uses and separation of those uses from industrial uses. The effect was to move residents away from the traditional town development pattern where people lived close to jobs, schools and shopping with some, but not exclusive reliance on the privately owned vehicle to get around. Over that thirty year period, with the continued growth of commercial strips and shopping centers with no connection to residential areas, a culture of dependency on motor vehicle transportation was created. As the shopping centers developed outside traditional town center, along major highways, all transportation options other than privately owned vehicle were eliminated. Soon commercial development occurred, running for miles, along highways like US 46, NJ Route 10, US 22.

The construction and expansion of the interstate highway systems made dependency on the state highway network a thing of the past, allowed families to leapfrog commercial development as they sought residences out of the cities and the suburbs. In doing so, the economic lifeblood of the older settlements was steadily drained leaving them to decline and become a serious drain on the state treasury (funded by all New Jersey tax payers) abandoned by nearly everyone whose economic circumstances allowed them to leave.

In 1992 and again in 2000, the New Jersey State Planning Commission adopted the State Development and Redevelopment Plan. The impetus behind the State Plan was twofold; to revitalize the cities and other older settlements and to minimize the drain on the State Treasury of the pattern of development which has come to be known as sprawl. Specifically enunciated State policy is that mixed use communities are the most desirable development form for the entire state and all efforts should be bent toward revitalizing existing communities and focusing development into communities both existing and proposed. All state funding and permitting functions are directed to foster this development approach.

Hampton Township has taken note of this change of philosophy and sent to the State, via the Sussex County Planning Department, its proposal to create a new center in the vicinity of US 206 and Halsey-Myrtle Grove Road and to revitalize and interconnect existing Cherry Lane and Hampton Commons residential neighborhoods with the existing commercial strip and shopping center development located south along US 206 to the Newton border.

Additional development within this general area is proposed to consist of a mix of residential and commercial uses with a circulation pattern designed to bring them together, reorient the focus of each center away from the highway. The attempt is the first in a long series of steps to reverse the overwhelming dependence of existing residents on the motor vehicle as a means to secure services and goods, to connect this part of the Township with the Sussex County Community College and increase the

density of interactions with the college and to bring back the mixed use aspects of the traditional town center.

Hampton traditionally has had Route 206 as its commercial focus. However, the viability of a commercial strip as a center is questionable. A one dimensional, relatively shallow entity such a strip does not begin to meet the design imperatives of a Town Center. A Town Center is to be comprised of mix of uses, it is to be pedestrian friendly, it is to have a life which extends beyond normal business hours and it is to provide a range of opportunities for residents of the center to meet not only commercial needs but also recreation and to foster community and neighbor to neighbor interaction. Commercial strips do none of these.

In order to recreate Hampton South Center as a viable center, it is necessary to reverse the focus of the center from the highway to what is currently the rear of the buildings which now make up Ames Plaza. Additionally, creation of a rational circulation plan connecting the Cherry Lane/Route 206 intersection with North Park Drive in Newton and County Route 519 in Hampton is a critical element of the plan. An equally important element is the low intensity boulevard and sectioned parking at the core of the center. It is understood that substantial earth moving, rock removal as well as development and redevelopment in the center will be necessary to insure the center's viability as a place where people feel "at home" and yet continues to meet regional needs. This last remains important. Newton has been designated a regional center and existing and proposed retail development within the center is comprised of facilities which meet both local and regional needs. Specifically, Wal-Mart, now in existence, caters to a regional market, as do the car dealerships, are located along Route 206 in the center and beyond, cater to a regional market. Proposals before the Hampton Township Planning Board include Home Depot and BJ's Warehouse, both of which cater to a regional market.

One of the challenges which is immediately apparent is the integration of these large regional facilities into a town center with long term compatibility. As it is the market which will influence the timing and location of construction, it is important that the design for the center, in particular the infrastructure and areas designated for residential and commercial development be defined in advance of proposals made to the Township.

The exhibit is a generalized plan indicating areas which are currently developed and in need of redevelopment, areas which are to be developed for new retail construction and areas which are to be developed for residential construction. It is also anticipated that a degree of flexibility will be required in reviewing projects as the planning and development process goes forward. Traditional zoning is not amenable to this approach. Accordingly, the Town Center design zone will be an overlay zone allowing the Township to override traditional zone boundaries in order to review Town Center development as a planned unit development.

The road network as originally envisioned has had to be altered in order to accommodate the Home Depot proposal. However, this relocation simply alters the immediate pattern

of development and does not affect the overall concept of the Town Center. The B.J.'s facility will have to be located so as not to break up the core of the center.

The second center, Halsey Center, is an altogether different approach. This is an area which is, by and large, undeveloped. Currently occupied by two fuel facilities, a municipal fire house and small scale commercial development, the center boundary incorporates a significant area of undeveloped fields which are topographically well suited to development. Consequently, the mixture of residential and commercial development, although smaller in scale than Hampton South Center, is far closer to the traditional village design. The focus is a central square, residential and commercial uses mixed within the center at relatively high densities moving to lower densities toward the periphery with additional commercial development fronting on Route 206.

In the event the sewer service becomes available for the Centers as proposed, and in particular the Hampton South Center, it is important that procedures be set in place which would provide the appropriate incentives for businesses to locate in those centers rather than along the Route 206 frontage. This frontage, currently zoned for highway commercial development, should be reconfigured perhaps incorporating substantially larger lot requirements, a more campus like setting for larger businesses with greater setbacks. This is important in order that the commercial component of development within the Township be encouraged to locate within the Centers as opposed to sprawling along the highway.

Goals and Objectives

1. Recognize the significant existing development along Route 206 from the Newton border north.

2. Recognize the existence of two large parcels undeveloped or in need of redevelopment, the owners of which have presented development proposals for portions of their properties; and the desire on the part of the Planning Board and other municipal officials these and future developments are carried out following the intent of the center designation process as described in the New Jersey State Plan.

3. Develop a plan to direct development and redevelopment in the center to:

   a. focus the orientation of the Center away from the Route 206 corridor to a new central artery in the western half of the center;

   b. provide for a circulation pattern which fosters pedestrian and non-automotive movements within the Center, and discourage short auto trips;

   c. create a positive interaction between the existing and proposed residential and commercial development;

   d. provide for a broad range of housing types, and rental and purchase opportunities;

   e. allow for a wide spectrum of commercial and professional activities which serve both local and regional needs and are deemed compatible with the Town Center concept;

   f. suggest architectural and landscaping guidelines which will help in creating a positive visual presence;

   g. lessen the development pressures on the environs of Hampton Township.

Prepare a set of regulations to carry out the above objectives, taking into consideration the existing development.

Hampton Center North

Located at the intersection of Route 206 and Halsey Road (Exhibit 20), it includes land on the west side of Route 206, and both the north and south sides of Halsey Road for about 2,000 feet west of the Route 206 intersection. The southern boundary is the abandoned railroad right-of-way, now owned by the State; the northern boundary is a line perpendicular to Route 206 about 2,200 feet north of the Halsey Road intersection.

The present zoning for the center is HC/MFG, which allows for retail and commercial uses, as well as light manufacturing and warehousing. Residential uses are not allowed.

The village center area is composed of approximately 92.6 acres as measured in the assessment records. The breakdown of improved and vacant property is as follows:

	Acres
Vacant	71.12
Improved	21.47
TOTAL	92.69

Improved property is composed of the following by assessment class:

	Acres
3A – farm (homestead)	0.50
4A – commercial	15.47
4B -	2.50
15C -	3.00
TOTAL	21.47

These properties include two fuel oil depots with gasoline stations at the Halsey Road intersection with Route 206, several small manufacturing and warehouse operations and a homestead on the south side of Halsey Road, and a municipal fire house on the north side of Halsey Road.

Vacant property is composed of the following, by class:

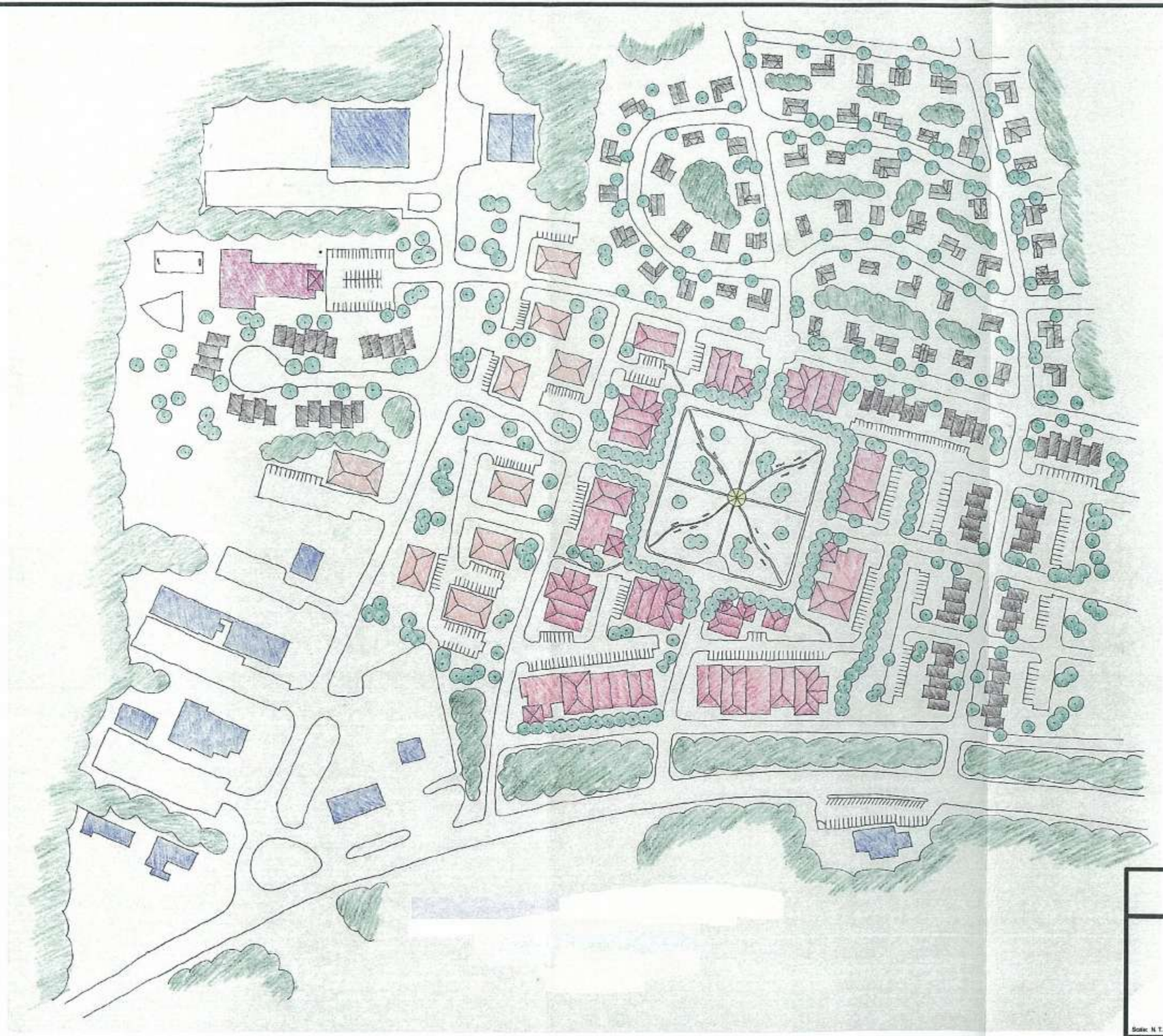
	Acres
15 – State property	3.33
3B – Farmland assessed	66.41
2 – undeveloped part of residential property	1.38
TOTAL	71.12

By far, the largest part of the vacant property is listed as farmland. The State property is part of an abandoned railroad right-of-way. Most of the vacant property, 79 percent, is located on the north side of Halsey Road.

This area was chosen as location for a village center for several reasons:

EXHIBIT 20

HAMPTON NORTH CENTER



Sowinski
Sullivan

Architects, PC

EXHIBIT 20

HAMPTON CENTER NORTH

Township of Hampton
Sussex County, NJ

Scale: N. T. S. Date: 05/28/03

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- Accessibility to the major highway in Hampton Township, Route 206, and close to the Route 94 intersection;

- Ease of access to local and regional schools and municipal facilities;

- Location of the fire station;

- Approximate mid-point from the Hampton South Center to Ross's Corner – the location of a proposed town center in Frankford Township;

- Availability of open land for development;

- Possibility for land disposal of treated wastewater at a suitable location.

These points support an amendment to the Master Plan of Hampton Township approving Hampton Center North, and the preparation of an Overlay Zone District for the Hampton Center North.

Hampton Center South

For Hampton Center South, the object is to work with the existing commercial facilities but reorient the focus of the center from Route 206 to an area west of the existing Hampton Plaza structures, developing a core roadway connecting to the marginal access road to the south, east of its connection to North Park Road and running north to a point behind the former Hampton House Restaurant, forming a new intersection with Route 206 opposite Cherry Lane. (Exhibit 21)

Other points of access from the marginal access road now in place to this new road will be created running between the buildings which currently house Ames Shopping Center and Sears and former Jamesway building. The proposal does not involve any new traffic signals. The intersections of Route 206 with North Park Road, the central accessway into the Ames Plaza, and the traffic signal currently located at Cherry Lane are considered adequate. Additional signals would more than likely cause congestion through unnecessary traffic stops with no significant safety benefit.

This new center will have, as its central focus, a plaza located west of the proposed new accessway. This plaza is designed to focus attention into the center and bring shoppers through the Ames Plaza into the new center. Additional commercial construction is anticipated with access to the new road. From the long term perspective, whatever can be done to modify the existing structures so as to facilitate a pass-through corridor in the Ames facility itself and orienting the commercial spaces such that frontage on the new roads/accessways may be developed, will also work to refocus that area.

Uphill and on the plateau to the west of this new construction, the Township has currently zoned the area for residential development as townhouses. This is appropriate. It will bring the necessary residential presence into the center and serve to balance the center to the east. An additional accessway should be constructed, affording access to North Park Drive and running down and intersecting with the first new roadway to be constructed at a point south of its intersection with Cherry Lane.

The center also incorporates development on the east side of Route 206, including the Hampton Commons Townhouse complex. It is important to understand that there are portions of this center which will not immediately permit easy pedestrian access as might be desirable under traditional design. However, it is anticipated that over the very long term, these relatively distant ends of the center will be more closely knit, perhaps through the advent of additional mass transit opportunities.

Looking at the map of the center, it is clear that the demarcation between Hampton and Newton is indistinct at best. The proposal currently offered by the Township is to create a separate center. However, it is clear that this center is an outgrowth of the Newton Regional Center and many of the issues which affect Newton also affect the Township of Hampton. The greatest of these are adequacy of circulation capacity and reinforcing the economic health of both communities through cooperative approaches to regional issues.

EXHIBIT 21

HAMPTON SOUTH CENTER

Sowinski
Sullivan

Architects, PC

EXHIBIT 21

HAMPTON CENTER SOUTH

Township of Hampton
Sussex County, NJ

Scale: N. T. S. Date: 05/20/02

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The concept proposed to accomplish the above objectives is to incorporate an overlay zone over the properties in the Hampton South Center, west of Route 206/94. The preponderance of the land in this area is owned by three property owners; Ken Martin, Sussex Elizabeth Shopping Center (Ames, Staples, etc.) and Sussex Properties (drive-in theatre).

Of the almost 196 acres in the area, the land ownership is the following:

	Improved	Vacant	Total	%
Martin	16.5	98.2	114.7	58.6
Sussex Elizabeth Shopping Center	17.0		17.0	8.7
Sussex Properties	1.6	52.2	53.8	27.4
Others	6.3	4.0	10.3	5.3
Total	40.4	154.4(78.9%)	195.8	100.0

Vacant land comprises almost 79% of the property in the overlay zone. Of this, Martin has 63.6% and Sussex has 33.8%.

Of the 195.8 acres in the area, 92.2 acres (47.0%) are in the APT/TH zone and 103.6 acres (53%) are in the HC/MFG zone.

	Acres	Improved	Vacant
APT/TH	92.2		92.2
HC/MFG	103.6	41.4 (40.0%)	62.2 (60.0%)
Total	195.8	41.4 (21.1%)	154.4 (78.9%)

Within these zones, 40% of the land in the HC/MFG zone is improved; 60% is vacant. All of the land in the APT/TH zone is vacant.

The overlay zone will allow for flexibility in locating residential, retail and office uses within the concept of providing for a Town Center. Design standards would allow for new residential and commercial activities oriented to a townscape which is pedestrian friendly, while also drawing in the existing commercial development through street design and landscaping. The proposed main street would be a boulevard with a landscaped median and wide sidewalks to allow access to the retail and office functions as well as residences above the street floor, to be built along the street. The buildings along this street should be set back from the right-of-way line to provide areas for outdoor dining, display of goods, and similar activities which would enhance the streetscape.

Martin Properties

	Acres	*Assessed Value*
Vacant	98.264	$ 83,800
Improved	16.477	$ 5,588,900
Total	114.741	$ 5,672,700

Sussex Elizabeth Shopping Center

Improved	16.999	$ 5,157,700

Sussex Properties

Vacant	52.21	$ 1,000,000
Improved	1.60	$ 180,000
Total	53.81	$ 1,180,000

Others

Vacant	4.0	$ 150,000
Improved	6.281	$ 1,824,700
Total	10.281	$ 2,324,700

Total

Vacant	154.74	$ 1,233,800
Improved	41.348	$12,751,300
Total	195.822	$13,985,100

Current Zoning	*Acres*	*Vacant*	*Improved*
APT/TH	92.2	92.2	
HC/MFG	103.6	62.2	41.4

Hampton Center South
Overlay Zone

Types of uses:

1. Retail
2. Office, professional service
3. Mixed (residential and retail and office)
4. Residential – single family, townhouses, multiplexes, garden apartments.

1. **Retail**

Location: first floor, possibly ½ floor below grade.
Uses: general retail and services uses found in neighborhood and downtown commercial locations, exclude uses requiring large open areas, e.g. auto service, auto dealer, garden centers.

2. **Office**

Location: stand alone buildings, second floor in "town center commercial" setting.
Uses: professional and service activities found in neighborhood and "downtown" commercial locations. Does not include anything which would involve large outdoor display or storage.

3. **Mixed**

Location: those areas within the overlay zone indicated for retail or office uses, on the ground (first) floor with residential apartments and/or office use on the above floors. These sites will be located facing the internal street.

4. Residential

Location: areas of the site, generally in the western third of the site, where a combination of single family, townhouse, multiplexes and garden apartments may be developed. Alternatively, townhouses may be constructed adjacent to retail/office structures, retaining a mix but with horizontal rather than vertical separation.

The concept proposed to accomplish the above objectives is to incorporate an overlay zone over the properties in the Hampton South Center, west of Route 206/94. The preponderance of the land in this area is owned by three property owners; Ken Martin, Susan Elizabeth Shopping Center (Ames, Staples, etc.) and Sussex Properties (drive-in theatre).

Of the almost 196 acres in the area, the land ownership is the following: (see Exhibit)

	Improved	Vacant	Total	%
Martin	16.5	98.2	114.7	58.6
Susan Elizabeth Shopping Center	17.0		17.0	8.7
Sussex Properties	1.6	52.2	53.8	27.4
Others	6.3	4.0	10.3	5.3
Total	40.4	154.4(78.9%)	195.8	100.0

Vacant land comprises almost 79% of the property in the overlay zone. Of this, Martin has 63.6% and Sussex has 33.8%.

Of the 195.8 acres in the area, 92.2 acres (47.0%) are in the APT/TH zone and 103.6 acres (53%) are in the HC/MFG zone.

	Acres	Improved	Vacant
APT/TH	92.2		92.2
HC/MFG	103.6	41.4 (40.0%)	62.2 (60.0%)
Total	195.8	41.4 (21.1%)	154.4 (78.9%)

Within these zones, 40% of the land in the HC/MFG zone is improved; 60% is vacant. All of the land in the APT/TH zone is vacant.

The overlay zone allows for the comprehensive development of the properties both for residential and commercial uses – those allowed in the APT/TH zone and the HC zone. At present there is a sharp demarcating between the two zones – no residences in the HC; no commercial in the APT/TH. A review of the overlay area as a whole indicates that there are portions of properties in both zones that may be suitable for uses that are currently non-conforming.

There are also uses currently allowed in the HC/MFG zone that would be incompatible with the Town Center concept – warehousing, manufacturing; and retail sales and service operations, such as auto dealerships and landscaping display and storage. There is sufficient space in appropriately zoned areas of Hampton Township to accommodate these uses.

The overlay zone would broaden the choices of residential development to include single-family detached houses and mixed development – residential apartments above commercial space.

An overall review of other factors has also been undertaken. There is the question of the need for all the parking required under the existing standards. A more thorough review of all parking in the study area may indicate a demand for fewer parking spaces overall. More concentrated development of commercial and residential space may justify construction of underground or above ground parking structures.

The overlay zone will allow for flexibility in locating residential, retail and office uses within the concept of providing for a Town Center. Design standards would allow for new residential and commercial activities oriented to a townscape which is pedestrian friendly, while also drawing in the existing commercial development through street design and landscaping. The proposed main street would be a boulevard with a landscaped median and wide sidewalks to allow access for the retail and office functions as well as residences above the street floor, to be built along the street. The buildings along this street should be set back from the right-of-way line to provide areas for outdoor dining, display of goods, and similar activities which would enhance the streetscape.

Added consideration of landscaping and streetscaping needs in the Town Center would require an increased level of site design and development. This should include the level of and location of street furniture, small sitting areas, walkways to and from the residential areas and from the existing commercial development.

In order to address, in part, the separation between the Hampton Commons residential complex along with the Cherry Hill single family development, it would be appropriate to expand the capacity of the Hampton Commons waste treatment facility owned and operated by the Sussex County Municipalities Utilities Authority. This has been discussed with the Authority. There are some hurdles which must be overcome in order to expand and upgrade the existing facility.

The State of New Jersey has taken the position that surface water discharges are to be discouraged in favor of groundwater replenishment. In addition to this policy position, the dwarf wedge mussel, a federally protected species, has been found in the Paulinskill River. It will be difficult to increase the flow into the river unless a significant upgrading of the treatment levels of the facility would provide additional capacity. Currently, 14,000 gallons per day of the 50,000 gallons per day capacity remains available for possible redevelopment along Route 206 beyond the reach of the treatment facilities now in existence and proposed for the Hampton South Center. The potential for an additional treatment plant to serve the remainder of the Hampton Center South using groundwater discharge depends upon the suitability of the soils as infiltration beds. Preliminary indications from the property owner are encouraging.

Provision of the town center as an alternative to the residential development pattern which focuses, in large part on scattered single family home on relatively large lots, can be supported if the town center concept includes central water and sewer services. It is for that reason the town centers are shown as overlay zones rather than the only available option. It is not the intent of this Master Planning effort to preclude development until such time as the State of New Jersey is able to adequately process applications for waste treatment facilities.

In the event, however, that the Township is able to redirect residential development to more compact forms in the centers, it is reasonable to assume that a reduction in densities in the environs would also be appropriate. This reduction coupled with incentive based cluster in the environs would serve to preserve large areas of open space, minimize the negative effect of development on the natural resource base, and lower the unit cost of servicing new residential and non-residential development, present a significant opportunity for current and future residents and businesses within the Township to reestablish a sense of community through the interaction of land uses not now available in the Township.

Other Non-Residential Land Use Issues

A substantial alteration of the non-residential land use scheme is part of this Master Plan document. As indicated earlier, wherever possible non-residential development should be reoriented to the proposed centers, integrated with residential development. This approach is dependent upon the ability of the development community to gain approvals for central water and sewer services. Even in the absence of those approvals, the traditional strip development should be rethought.

The proposed land use plan (Exhibit 22) shows an extension of the commercial zone running from existing development at what is currently Bell Automotive to the intersection of US 206 and Halsey-Myrtle Grove Road. Additional area of highway commercial development runs north from the existing zone line to the Frankford Township boundary on the west side of US 206, and along the east side of US 206 between 206 and the Lafayette Township boundary. A caveat must be attached to this last area because it may also be a wildlife habitat for a number of resident endangered species. (See Exhibit 23, Critical Wildlife Habitat) Any commercial development which would occur in this area would have to respect these habitat issues in order that the resident populations not be further disturbed.

An area on the north side of Route 94 between Route 206 and Sid Taylor Road is proposed to be added to the highway commercial zone from the current R-3 zone. Although this area is topographically difficult, there are sites within this stretch of highway which have excellent frontage and access to the highway. Those which suffer from severe topographic constraints will still be able to develop as residential properties and will remain conforming uses in the proposed highway commercial zoning scheme. It should be pointed out that where the current Carriage Acres development is located the plan proposes to rezone that property for high density single family detached residential use, making it a conforming use as currently developed.

There are three small neighborhood commercial zones. These are proposed to be eliminated as they no longer serve a local function.

Hampton Township is aware of its obligation to comply with the philosophy and spirit of the Federal Communications Act. Wireless communication is a service which has been deemed important by the federal government and those carriers which have been licensed to provide that service should be encouraged to locate in areas already considered appropriate by the Township. As the principal requirement for these carriers is corridor coverage it is not necessary that new towers be constructed in residential areas. In fact, co-location, a requirement for most use variances and certainly those, which have been granted in Hampton Township, is considered to be a very desirable approach. This co-location envisions the locating of more than one set of wireless communication antennae on any given structure currently in existence in the Township. As an alternative, the Township is considering utilization of municipally owned property in the event that additional facilities are required. It is the Township's specific objective to minimize the negative visual impact of wireless communication facilities, utilizing the criteria outlined above.

Residential Land Use Issues

The Land Use Plan is a reflection of the zoning analysis which we have performed with regard to residential development along with certain requests for rezoning consideration along Routes 206 and 94. The Land Use Plan is designed to be a general guide to development densities. As indicated in the analysis of Existing Land Use, the residential densities now incorporated in the zoning for single family detached homes are generally

adequate although the impact of the 1.5 acre zone in various lake communities is minimal. Densities as indicated on the Land Use Map are consistent with those densities now in place within the Township. Analysis of existing land use and residential zoning indicates that expected average residential densities in the various zones would be 4.0 to 4.6 acres per unit in the R-3 zone, 2.6 to 3.0 acres per unit in the R-2 zone, and 2.0 to 2.3 acres per unit in the R-1.5 zone.

The densities in the apartment/townhouse zone are relatively low for this type of construction. Typical apartment zoning may run between 15 and 30 units per acre. Typical townhouse zoning would expect to be in a range of 4 to 15 units per acre. These ranges reflect developing suburbs within the State and allow a reasonable unit yield and mix while at the same time preserving significant quantities of open space. One of the difficult choices a municipality must make is whether or not continued emphasis on auto dependency, and the kinds of development patterns which increase that dependency, should be reversed. This requires a revision to the perspective of the municipality, particularly one such as Hampton Township which has emphasized highway development and widely scattered residential communities.

The current multi-family densities of five units per acre for townhouses and six units per acre for garden apartments are inadequate and do not take advantage of the housing style and its important role in a mixed use center. It will be critical in the development of the center as a viable long term entity that the residential element be present at its inception and that it be maximized as the core of the patron base for the center which will also be pedestrian oriented and not have established the auto dependent pattern; this will create the atmosphere which would encourage others to get out of their vehicles and enjoy the center for more than typical one-stop shopping trip found in a typical regional commercial facility.

General Land Use Issues

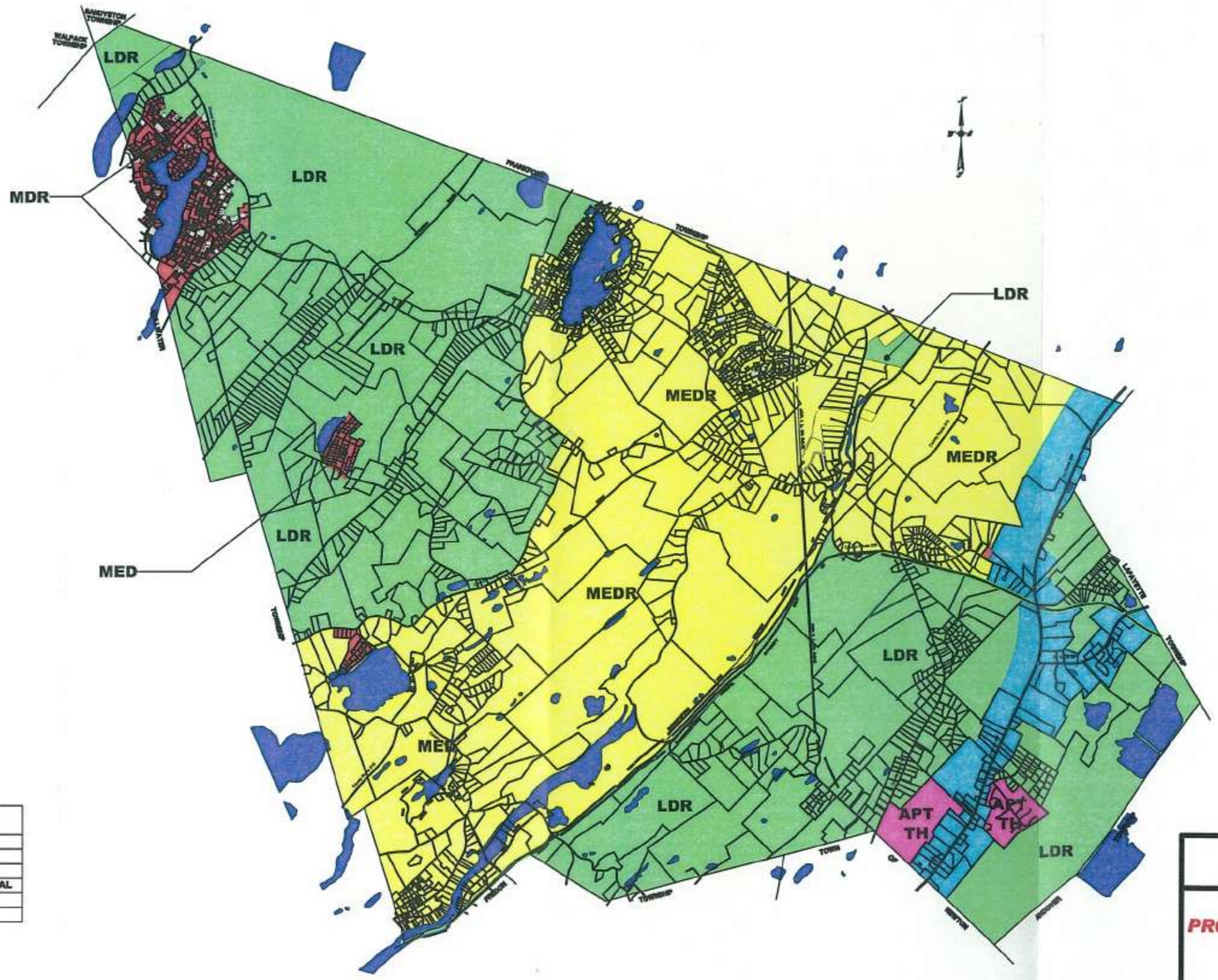
It is important that land use in Hampton Township, particularly with regard to the Hampton South Center, be discussed as a regional issue with the Town of Newton. These discussions are underway on a very small scale basis and should be continued with a view to mutual understanding and cooperation.

Newton is a designated Regional Center in the State Plan. The development along Route 206 from Newton into Hampton Township is seamless. The health of Newton as the county seat and developed center is important to Hampton Township as well as the rest of Sussex County. Wherever possible, development policies in each municipality should be supportive of each other and take into account the dynamics of development within each jurisdiction.

It is hoped that the ideas presented in this Master Plan aid in this process.

EXHIBIT 22

PROPOSED LAND USE PLAN



LEGEND	
LAND USE	DESCRIPTION
LDR	LOW DENSITY RESIDENTIAL
MEDR	MEDIUM DENSITY RESIDENTIAL
MDR	MODERATE DENSITY RESIDENTIAL
APT TH	APARTMENT / TOWN HOUSE
HC	HIGHWAY COMMERCIAL

2000 0 2000 4000 6000

EXHIBIT 22

PROPOSED LAND USE PLAN

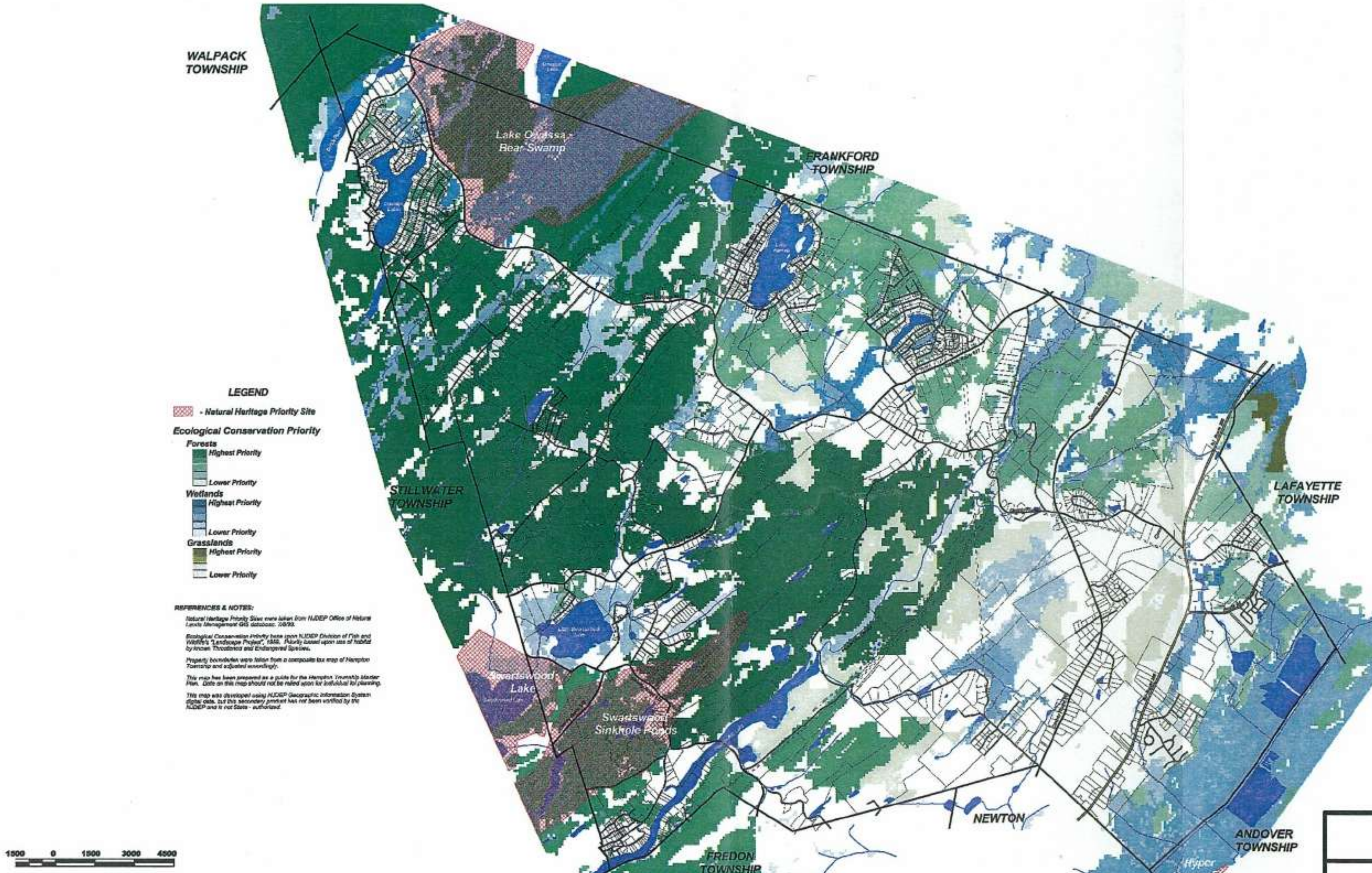
Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/08/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street
Newton, NJ 07860
(973) 300-5800
Fax (973) 300-1524

EXHIBIT 23

CRITICAL WILDLIFE HABITAT



WHITE
ENVIRONMENTAL SERVICES, INC.

NATURAL RESOURCE INVENTORIES
GIS MAPPING - NJDEP PERMITS
ENVIRONMENTAL IMPACT STUDIES
WETLANDS DELINEATIONS

986 Belvidere Road
Phillipsburg, NJ 08865
(908) 387-1801
Fax: (908) 454-2362
GAW@bellatlantic.net

EXHIBIT 23

CRITICAL WILDLIFE HABITAT

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000'
Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
166 Spring Street
Newton, NJ 07860
(973) 300-0800
Fax (973) 300-1524

Community Design Issues

The issue of development in the Township focuses in part on the creation of the Hampton Centers, North and South. However, it is understood that those centers are wholly dependent on the availability of central sewage and water services. In the absence of central water and sewer services the Township has much less to work with in its toolbox. Techniques that do remain available to the Township to better manage development, accept development with reduced environmental impact, preserve the character of the Township, are techniques such as cluster development, lot size averaging, affirmative requirements for retention of cultural elements of the Township (i.e. stone rows, tree rows, lime kilns, historic structures), as well as natural elements of the Township (springs, significant stands of vegetation, views, restoration of pedestrian options, reestablishment of a sense of community.

Local Controls

Specific policies relating to the following should be considered for inclusion in the Township Land Use Code:

1. Stream corridor setback: 50 feet form bank where slope $\leq 5\%$, 100 feet from bank where $> 5\%$
2. Cluster is preferred option.
3. Relocate stone and tree rows when cleared for sight distance.
4. Roads to follow topo, avoid straight streets >500 feet.
5. Avoid development of ridge lines.
6. Extensive berms and tree plantings for development in open fields.
7. Recreation for all new development.
8. Emphasize non structural drainage.
9. Detention facilities to be shallow, 4 feet maximum and landscaped.
10. Open space corridors and connections. Set provisions for (1) environmental sensitive lands, (2) conservation lands, and (3) recreational lands.

Center Design Guidelines

Standards should be developed to support the overlay center zones. These should include:

1. Town Center design
   - street furniture
   - lighting
   - sidewalks
   - traffic calming techniques

2. Center street width should provide for parallel parking both sides and one travel land in each direction.

3. Signage to include window signs.

4. Public and private parking to rear.

5. Central water and sewer extensions.

While mandatory cluster development is not a recommended option, financial incentives to encourage cluster development and lot size averaging are appropriate. Density bonuses, and specific authorization of density transfers can be integrated with open space retention policies, preservation of viewscapes, critical environmental corridors and the like.

Hampton Township need not and should not become just another suburb, with nothing to distinguish it beyond longer commutation distances. A refocusing on the issues which directly contribute to the quality of life for residents is of paramount concern. It is also important to recognize that the perceptions of those who move to Hampton Township are very different from those who have lived in Hampton Township for many years. The former look at the Township as being relatively undeveloped "country/rural". Those who have lived in this part of the State for decades see the rural and country elements of the Township fast disappearing, being replaced by the standard suburban large lot, sprawling residential and commercial development found in most of New Jersey.

The Township's active participation in open space and farmland acquisition and preservation, buffering new development from areas of relatively undisturbed land, and encouragement of local job growth will aid in developing, alternative means of transportation and general circulation, reversing commutation patterns and will contribute greatly to the retention of the character of Hampton Township.

LAND USE POLICIES OF SURROUNDING MUNICIPALITIES AND OTHER JURISDICTIONS

Land Use Controls - Surrounding Municipalities

Hampton Township is surrounding by eight municipalities, the Townships of Andover, Frankford, Fredon, Lafayette, Sandyston, Stillwater and Walpack and the Town of Newton. Exhibit 24, Zoning – Adjacent Municipalities, indicates the zoning schemes for these municipalities as they relate to the proposed land use plan of Hampton Township. The discussion of each of the zoning schemes as it relates to the Hampton Township land use plan, follows.

Andover Township

Zoning in Andover Township exists of an industrial zone for approximately 80% of the common municipal boundary, leaving 20% in the vicinity of the Lafayette, Andover, Hampton boundary point which is zoned residential-2 ½ acre. The entire length of the Andover Township boundary in Hampton Township is zoned residential-3 acre. There is, however, no particular conflict between these zoning schemes as the industrial zone in Andover Township deals essentially with the Hyper Humus peat mining operation which is more agricultural than industrial and is of relatively low intensity and, as such, there is no particular negative impact on the area. Additionally, the area is generally wetlands and as such is not susceptible to development.

Frankford Township

The common boundary is nearly entirely zoned agricultural/residential within Frankford Township. This zone permits single family homes in addition to lands used for horticultural, agricultural or dairying purposes being of typical farm livestock and including such shelter as may be required for seasonal farm labor. The Township removed the provision for hotels and motels from this zone.

Finally, the land can be used for camps and farm shows and horse shows. It should be pointed out, however, that the Farm and Horse Show property to which this latter designation refers is remote from the Hampton/Frankford Township boundary. As such it has no impact on the adjacent zoning.

Within Hampton Township zoning is low density residential-2 and 3 acre lots per unit required. A small section of the Kemah Lake and Clearview Lake developments lie adjacent to the common boundary; they are in the residential 1.5 acre zone which is also consistent with the agricultural/residential zoning in Frankford.

Fredon Township

The entire common boundary in Fredon Township is zoned AR-6. This is an agricultural/residential zone requiring a minimum lot area of 5 acres for agricultural

purposes and allowing one unit on a parcel of land otherwise devoted to agricultural purposes, however, requiring an additional acre, hence the 6 acre requirement overall.

Zoning in Hampton Township along the common boundary is R-3, R-2 and R-1.5. All zones which are compatible with the low density agricultural/residential zoning in Fredon Township.

Lafayette Township

Lafayette Township borders Hampton on its easternmost side. Within Lafayette Township there are four zones along the common boundary. These zones are EI-extractive industry, LI-light industry, HC-highway commercial and R-5.0-single family residential. The EI, extractive industrial, zone lies adjacent to the R-3 zone in Hampton. However, this R-3 zones as pointed out earlier is in actuality a zone covering the Hyper humus peat mining operation. Residential development is not anticipated in the Hampton Township R-3 zone accordingly there is no conflict between these two zoning schemes.

Farther along the common boundary, Lafayette Township is zoned light industry. The light industrial zone as well as the highway commercial zone are generally consistent with the highway commercial zoning within Hampton Township and do not abut any residential uses within the Township.

Beyond the highway commercial zone and running north to Route 206 Lafayette Township is zoned R-5.0. This is a single family residential zone requiring a minimum five acre lot. In Hampton Township this area is zoned variously R-3 along with a section proposed to be zoned highway commercial/residential. There is a limited potential conflict between these two zoning schemes, however, the site plan buffering requirements currently outlined in Hampton Township's code are considered more than adequate to address this issue.

Sandyston Township

Sandyston's boundary with Hampton is quite short, about 2 tenths of a mile. The land on both sides of the boundary is part of Stokes State Park. There is no likelihood of a conflict between the two municipalities.

Stillwater Township

The common boundary of Stillwater Township with Hampton is entirely residential. In Stillwater the common boundary is broken up into a number of areas, predominantly residential uses ranging fro the R-30 zone in the Paulinskill Lake Community through the R-5 and the R-7.5 zones for much of the remainder of the common boundary. Exceptions to this are a small area of CR commercial/recreation zoning along Swartswood Road. This relates to long standing uses at Swartswood Lake itself and some recreation/conservation zoning in the vicinity of Sprout Hill and Blueberry Hill Road and Mount Benevolence Road. Others zones, the RC, recreational/conservation district is the

largest non-residential zone. However, this district incorporates either publicly or semipublicly owned land which is used for recreational purposes including camps, parks and the like. No non-residential activities are permitted other than those which are accessory to camp or other recreational use and designed to serve the patrons of that facility rather than the general public.

The neighborhood commercial district permits relatively small scale retail and office uses. The CR, commercial/recreation district, permits commercially operated swimming pools, indoor and outdoor tennis courts and other similar court games, campgrounds, golf courses, and hotels and motels, and farms. The commercial element of Stillwater zoning located in the Swartswood community does not have a negative effect on the zoning in Hampton Township, and conversely, the residential zoning in Hampton is consistent in intensity and character with zoning in Stillwater for the entire length of the common boundary.

Walpack Township

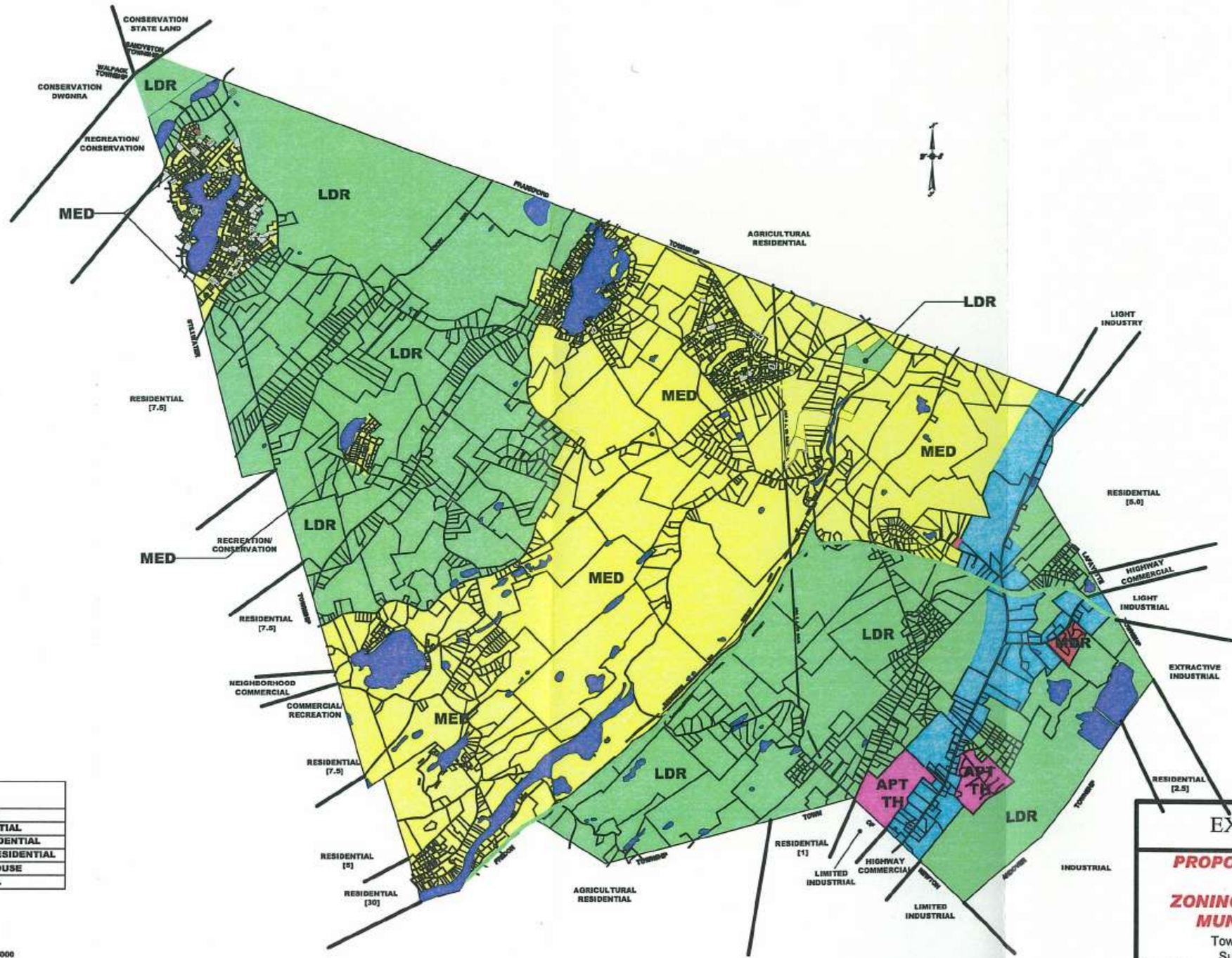
The entirety of Walpack is encompassed by the Delaware Water Gap National Recreation Area or by State owned park or forest lands. Just the tip of the Walpack border touches Hampton Township, at a location where the land in Hampton is part of Stokes State Park.

Town of Newton

The Town of Newton has designated three different zones along the common boundary with Hampton Township. These zones are R-1, C-3 and M-1. The R-1 zone is a single family detached residential district which is adjacent to the low density single family district in Hampton Township. Additionally, there is an M-1 district running roughly from County Route 519 down through the Hampton Plaza Shopping Center. The M-1 district is a limited industrial district permitting general business and professional offices, commercial printing plants and publishing houses, lumber and building material yards, green and feed stores, fuel storage and distribution yards, bottled gas distribution, cleaning establishments and laundries, public or private warehouses, light machine shops and light manufacturing. This area lies immediately adjacent to the apartment/townhouse zone and Hampton Center South. The potential exists for a significant conflict between these two zoning schemes. A C-3 zone, highway commercial zone follows moving east along the common boundary is generally consistent with the highway commercial zone and the existing shopping center development as well as the strip development east of Route 206 in Hampton. Finally, the M-1 zone reappears behind the highway commercial strip. This zone lies adjacent to the R-3 residential zone in Hampton Township. However, this is an area nearly entirely in wetlands. Development is not anticipated in this area. Accordingly, conflict is not expected, notwithstanding the differences in potential uses.

EXHIBIT 24

LAND USE IN ADJACENT MUNICIPALITIES



LEGEND

LAND USE	DESCRIPTION
LDR	LOW DENSITY RESIDENTIAL
MEDR	MEDIUM DENSITY RESIDENTIAL
MDR	MODERATE DENSITY RESIDENTIAL
APT TH	APARTMENT / TOWN HOUSE
HC	HIGHWAY COMMERCIAL

2000 0 2000 4000 6000

EXHIBIT 24

PROPOSED LAND USE WITH ZONING IN ADJACENT MUNICIPALITIES

Township of Hampton
Sussex County, NJ

Scale: 1" = 4000' Date: 05/28/02

ERIC K. SNYDER & ASSOCIATES, INC.
LAND DEVELOPMENT AND COMMUNITY PLANNING CONSULTANTS
185 Spring Street (973) 300-5600
Newton, NJ 07860 Fax (973) 300-1524

County of Sussex

The County of Sussex Master Plan adopted in 1977 contains the following recommendation, in reference to the "Future Land Use Plan – 1990" to the Land Use Plan in Hampton Township. Future residences should follow transportation and utility systems and replace undeveloped land near existing settlements before opening additional lands for residential use. Future residential development should take place in a concentrated fashion at an average density of two units per acre.

To meet the housing needs of different socio-economic groups among residents a variety of housing types such as apartments, townhouses, manufactured, attached and detached units at various costs, should be provided. Economic development - future industries should be developed within industrial parks and retail and service activities should be clustered in shopping centers. Open space and recreation – future land uses should be allocated by taking into consideration physical resource capabilities. Environmentally sensitive areas should be kept open through local enforcement and intergovernmental cooperation. Greater emphasis should be placed in the development of local recreation facilities such as community and neighborhood parks, would provide more immediate access to residences. Community services – promote regional development of public utilities including sewer and water systems. Explore the possibility of providing a two year community college desirably intertwined with a proposed civic center.

The underlying principals of the Hampton Township Master Plan, specifically concern for natural resource carrying capacity, encouraging compact forms of development as proposed in the Hampton Centers North and South, provision of a multitude of housing choices, encouraging regional wastewater and water supply systems, and concentrating commercial services are all consistent with the Goal and Objectives of the County Master Plan.

In anticipation of the results of the County's presently ongoing planning activities, the Sussex County Strategic Growth Management Plan, no conflict with the County plan is expected since both the County and Hampton Township are following the goals and objectives of the State Plan.

New Jersey State Development and Redevelopment Plan

The New Jersey State Development and Redevelopment Plan was most recently revised and readopted in 2001. One of its principal objectives is the encouragement of development in centers, avoiding sprawl, supporting the preservation of open space and agricultural as an industry. The State Plan sets out a statewide goals and strategies with which this plan is consistent.

1. *To revitalize the states, cities and towns.*
   Hampton Township has reached out to neighboring Newton Town acknowledging that the Hampton Center South is in essence an extension of the existing Newton Regional Center. It is currently in the process of

discussing matters of land use which effect each municipality. This plan acknowledges the fact that Hampton Township does not exist in a vacuum. It attempts to build on the strengths of the County College and nearby county seat and looks to interconnect the Hampton Center South with the County College and the Town of Newton.

2. *Conserve the state's natural resources and systems.*
In the event that Hampton Township is able to secure sewer service reducing its dependency on septic system, development in compact forms becomes possible. Focusing development in centers are allowing residual development in the environs, will reduce the impact on the state's natural system, allow greater pretreatment of wastewaters prior to being reintroduced into the natural system, thereby enhancing water quality. In the absence of central wastewater treatment facilities, Hampton Township's relatively low density residential zoning scheme minimizes impact on natural systems and is consistent with the NJDEP nitrate dilution model as promulgated in 2001.

3. *Promote beneficial economic growth, development and renewal for all residents in New Jersey.*
One of the most difficult issues facing Hampton Township and Sussex County in general is mobility. The fact that more than 60% of Sussex County's residents and a like percentage of Hampton Township residents commute outside the County to places of employment. Encouraging economic development within the Township permits members of the existing resident workforce to avoid countless wasted hours commuting, provide for a more balanced tax base, provide a greater range of goods and services to local residents. The commercial elements of Hampton Township's Master Plan are fully consistent with this goal.

4. *Protect the environment, prevent and cleanup pollution.*
As indicated in number 2 above, Hampton Township's plans, both with and without centralized utilities are consistent with this goal. The growth within the Township will be undertaken only in a manner consistent with statewide environmental controls an safeguards. As it is the Township's principal objective is to protect the health, safety and welfare of its residents and visitors.

5. *Provide adequate public facilities and services at a reasonable cost.*
While it is unfortunate that Hampton Township, as all municipalities in the State, is almost entirely dependent on the property tax to fund municipal services and in particular school facilities, it is a fact of life with which the Township deals effectively. The Township has been able to provide for services for senior citizens and, in conjunction with the Board of Education and the Regional High School, recreation sites and activities for children and adults. Additionally, the Township continues to evaluate the potential for open space acquisition and recreation facility development as indicated in the

Open Space and Recreation Plan Element of this document.

6. *Fair Housing.*
The Township in acting to meet its housing obligations under the Fair Housing Act, has sought and obtained funding for rehabilitation of substandard homes and accomplished a significant level of said rehabilitation. Additionally, through encouragement of alternative housing, the Township has met a significant portion of its perspective fair share of new construction. The Township is currently before New Jersey Council on Affordable Housing seeking substantive certification.

5. *Historic Preservation.*
The Township, aware of the historic links within Hampton Township and the County, is actively supportive of efforts to document and publicize the Township's history and its continuing efforts to identify and maintain historic sites and areas.

8. *Coordination of redevelopment plans.*
At this time there are no formal redevelopment plans or issues facing Hampton Township.

Hampton\Hampton Master Plan-New
4/17/02, 5/17/02, 5/25/02, 6/5/02, 6/11/02, 10/23/02

APPENDIX A

SOILS LIST

Albia Gravelly Loam (Al)- deep, gently sloping, somewhat poorly drained gravelly or extremely stony soils that have a firm, compact, brittle, fragipan[1]. This upland soil formed in glacial till has moderate permeability and if drained it is used for corn, alfalfa, other hay and pasture.

Atherton Series - this series consists of deep, nearly level, poorly drained and very poorly drained soils. These soils are typically are slight depressions and terraces along streams. They seldom flood. The soil was formed on glacial outwash terraces. When drained, these soils are suited to corn, hay and pasture. Undrained areas are typically woodland.

Bath Loam and Gravelly Loam (Ba, Bf) - deep, gently sloping to very steep, well-drained soils that have a fragipan in the lower part of the subsoil. The upland soil formed in glacial till has moderate permeability and in gentle sloping areas corn, alfalfa and fruit-growth are suitable but the more stony soils are suited to pastures and woodland.

Braceville Series – his series consists of deep, nearly level to gently sloping, moderately well drained soils that have a weakly formed to moderately formed fragipan in the lower part of the subsoil these soils formed on glacial outwash terraces in material derived predominantly from gray, sandstone and slate and smaller amount of siltstone and limestone. Permeability is moderately slow in the fragipan. Natural fertility is moderate. These soils are well suited to corn, small grain, hay and pasture.

Carlisle Muck (Ca)- deep, nearly level, very poorly drained organic soils. This lowland soil formed in depressions of lakes and ponds has moderately rapid to rapid permeability and is compared of decaying plant matter and mineral sediment. Water table mostly at surface in undrained areas.

Chenango Series - this series consist of deep, well drained, gently sloping to very steep, gravelly soils on glacial outwash terraces. These soils formed in material derived predominantly from gray sandstone, shale, siltstone and smaller amounts of limestone and igneous rock. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. Natural fertility is moderate. Less sloping Chenango soils generally well suited to corn, small grain, alfalfa, and other crops. High value crops generally need irrigation. The steeper soils are better suited to pasture and woodland than to most other uses.

Chippewa Silt Loam (Cn)- deep, nearly level to gently sloping, poorly drained soils that have a fragipan in the subsoil. This lowland soil formed in glacial till has moderately slow permeability and in drained area the soil is suitable for cultivation but stony soils are used mainly for pasture and woodland.

Fredon Loam (Fr)- deep, nearly level to gently sloping, poorly drained soils underlain by stratified sandy and gravelly water-deposited material. These soils formed in glacial outwash and are found on glacial stream terraces slightly above stream flood plains and in low depression. A high water table keeps the soil saturated for long periods in winter, in spring, and in early summer.

Halsey Loam (Ha)- nearly level, very poorly drained soils that are moderately deep over sand. These soils formed in glacial outwash and are found in shallow depressions, broad area near streams, and depressions in more sloping areas. The available water capacity and permeability is moderate and a high water table keep soil saturated most of the year. If drained, it is suitable for corn, vegetables and hay.

Hazen Gravelly Loam and Palmyra Gravelly Sandy Loams (Hf, Hg)- deep, nearly to very steep, well-drained soils that are underlain by stratified sand and gravel at a depth of 20 to 40 inches. These soils formed in glacial outwash and are found on terraces and mounds in central valleys through out Sussex County.

Hero Loam (Hk)- deep, nearly level to gently sloping, moderately well-drained soils underlain by stratified sand and gravel at a depth to 20 to 32 inches. A seasonal high water table is at a depth of 1.5 feet to 3 feet. Once drainage is possible, the water table drops in summer. Only specialty crops like hay, and water-tolerant grasses and legumes are suited to this soil.

Hoosic Series – the hoosic series consists of deep, gently sloping to steep, somewhat excessively drained soils underlain by stratified sand and gravel. These soils are on undulating glacial outwash plains and valley trains and steep side slopes of kames and eskers.

Livingston Series – consists of deep, nearly level, very poorly drained soils. These soils formed in clay deposits in low positions on the landscape. Some areas are subject to occasional overflow. A perched water table is near the surface for long periods during the year because these soils are fine textured and are in low positions. These soils are ponded lat in winter and early in spring. Permeability is slow. These soils are generally used for pasture if adequate drainage outlets are available.

Lyons Silt Loam and Very Stony Loam (Ly, Lz)- deep, very poorly drained, nearly level soils. This soil formed in calcareous2 glacial till and has a high water capacity and low permeability. Poor drainage and stones limit the use of these soils to pasture and woodland. Sinkholes are common underneath soil due to solution caverns in underlying limestone.

Middlebury Loam (Md)- deep, nearly level, moderately well drained to somewhat poorly drained soils on flood plains subject to occasional stream overflow. The available water capacity is high and permeability is moderate. Flooding may delay seed bed preparations.

Nassau Rocky Silt Loam and Nassau-Rock Outcrop Complex (Na, Nf & Ng)- excessively drained, gently sloping to very steep soil that are shallow over slate or shale bedrock. These soils are found in upland areas of extensive rock outcropping. Available water capacity is low and permeability is moderate. Very stony areas are better suited to woodland or unrenovated pasture.

Norwich Silt Loam (Nh)- deep, nearly level, very poorly drained soils that are shallow over a fragipan. These soils formed in glacial till have a moderate available water capacity and slow permeability. A seasonally high water table in winter and in early spring, a stony surface and poor drainage limit uses of these soils to woodland and pasture.

Oquaga Series – the Oquaga series consists of moderately deep, gently sloping to steep, well drained to excessively drained soils underlain by shattered sandstone and shale bedrock. These soils formed in glacial till derived primarily from acid, red sandstone, and shale. They are in the Kittatinny Mountain. Permeability is moderately rapid. Available water capacity is moderately low because soils are stony and are only moderately deep over bedrock. Most areas of these soils are forested or used for unimproved pasture. These soils are generally are extremely stony and poorly suited to cultivated crops.

Palmyra Gravelly Loamy Sand (Pa)- deep, well-drained, nearly level to steep soils underlain by stratified, calcareous sand and gravel deposit. These soils are found in high positions on glacial outwash plains, kames, and kame terraces. Available water capacity and permeability is moderate, with permeability being more rapid in the subsoil.

Pompton Series - the Pompton series consists of deep, nearly level, somewhat poorly drained soils that formed on glacial outwash plains. The soils are underlain by thick sand and gravel beds. Permeability is moderate or moderately rapid. Natural fertility is moderate. A seasonal high water table is at a depth of 1 to 2 feet in winter and spring. These soils are generally not subject to stream overflow but nearly levels or depressions are ponded for 12 to 24 hour periods following heavy rain especially during spring thaw. If drained, these soils are suited to corn, vegetables, hay, and pasture. Undrained areas are pastured or wooded.

Rock Outcrop – Nassau association - this association is 30 to 60 percent Rock outcrop, rubble, or soil material less than 10 inches thick and 30 to 60 percent Nassau soils. Slopes range from 25 to 45 percent. In some areas, the Rock outcrop is a 6 to 12 inch ledge at the top of steep Nassau soils. In 10 percent of the areas Rock outcrop forms almost vertical cliffs, many feet above the surface. The outcrops are separated only by very narrow areas. This association is used for pasture, woodland, and watershed protection.

Rock Outcrop – Oquaga association – this association is 40 to 60 percent bedrock outcrop, rock rubble, or soil material less than 10 inches thick and 20 to 35extermely stony Oquaga soils. Slopes range from 25 to 35 percent. Bedrock is generally aligned in a northeast to southwest direction. The bedrock faces have cracks and crevices that are filled or partly filled with soil material, in which trees and shrubs grow. The Oquaga soils are on the lower slopes. Included in mapping are small areas of extremely stony Lackawanna and Swartswood soils in narrow areas, like steps, between bedrock outcrop. Also included are small areas of very steep or moderately steep Rock outcrop or soils. Most of this association is in State forests, camps, recreation areas, and private woodland.

Sloan and Wayland Silt Loams (Sm)- deep, level and nearly level, very poorly drained soils. These soils formed in alluvium washed from nearby uplands. Available water capacity is high and permeability is moderate. Water table is at or near surface most of the year. Most of the acreage of this soil is used for summer pasture, woodland, and wetland wildlife.

Swamp (Sp)- low land where the water table is at the surface at least 10 months of the year. This area has many sluggish streams that drain poorly.

Swartswood Series – the Swartwsood series consists of deep, well drained, gently sloping to very steep soils that have a fragipan in the lower part of the subsoil. These soils formed in glacial till derived chiefly from gray and brown quartzite, conglomerate, and sandstone. Permeability is moderate above the fragipan and moderately slow in the pan. Runoff varies according to slope. Non-stony and less sloping areas of these soils are suited to farming. Included in this series are the Swartswood and Lackawanna very stony soils group. Most areas of this mapping unit are about 70 percent Swartswood soil and 30 percent Lackawanna soil, but some are dominantly Lackawanna soils. Stones are 5 to 30 feet apart and cover about 3 percent of the surface. Including with these soils and mapping are small areas of sandstone and quartzite ledge. The acreage is used for woodland, wildlife and pasture.

Valois Shaly Loam (Va)- deep, gently sloping to steep, well-drained soils on uplands. These soils formed in a mantle of glacial till and the available water capacity and permeability are moderate. Corn, small grain, vegetables, hay, and pasture are well suited to this soil.

Washington Loam and Very Stony Loam and Wassaic Complex (Wh, Wk, Wl)- deep, well drained, gently sloping to steep soils. These soils formed on uplands of glacial till and have a high available water capacity and moderate permeability. Gently sloping areas are suitable for a wide variety of crops and woodland.

Wassaic Silt Loam and Rock Outcrop Association (Wm, Wn)- moderately steep well drained, gently sloping to steep soils that are moderately deep over limestone bedrock. These soils formed in the swales and hillsides of prominent limestone ledges. Available water capacity and permeability are moderate and most of the soil is used for general crops.

Whitman Extremely Stony Sandy Loam (Wo)- deep, nearly level, very poorly drained soils underlain by fragipan. These soils are found mostly in low positions on glacial uplands where available water capacity is moderate, internal drainage is slow, and permeability above the fragipan is moderate. Since the soils are wet most of the year they are well suited to excavated ponds.

Wooster Series – the Wooster series consists of deep, well drained gently sloping to very steep soils that have a fragipan in the lower part of the subsoil. These soils formed on uplands and glacial till deposits of limestone, sandstone, and shale. Areas of Rock outcrop are common. Permeability is moderate above the fragipan and moderately slow in the pan. Most areas are woodland. Some have been cleared for farming, but most are ideal and reverting to woodlands.

Wurtsboro Series - the Wurtsboro series consists of deep, moderately well drained, gently sloping to moderately steep soils that have a fragipan in the subsoil. These soils are on uplands. They formed in moderately coarse texture glacial till derived predominantly from acid gray and brown quartzite, conglomerate, and sandstone. Permeability is moderate above the fragipan and moderately slow in the pan. A seasonal high water table is at a depth of 1 ½ to 2 ½ feet. Non-stony areas of these soils are used for general crops or pasture.

APPENDIX B

RARE SPECIES AND NATURAL COMMUNITIES

SUSSEX COUNTY

RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN

THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
*** Vertebrates						
ACCIPITER COOPERII	COOPER'S HAWK		T/T		G5	S3B,S4N
ACCIPITER GENTILIS	NORTHERN GOSHAWK		E/E		G5	S1B,S4N
ACRIS CREPITANS CREPITANS	NORTHERN CRICKET FROG		U		G5T5	S3
AMBYSTOMA JEFFERSONIANUM	JEFFERSON SALAMANDER		D		G4	S3
AMBYSTOMA LATERALE	BLUE-SPOTTED SALAMANDER		E		G5	S1
AMBYSTOMA MACULATUM	SPOTTED SALAMANDER		D		G5	S3
AMBYSTOMA OPACUM	MARBLED SALAMANDER		D		G5	S3
AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW		E		G4	S1B
AMMODRAMUS SAVANNARUM	GRASSHOPPER SPARROW		T/S		G5	S2B
ARDEA HERODIAS	GREAT BLUE HERON		S/S		G5	S2B,S4N
ASIO OTUS	LONG-EARED OWL		T/T		G5	S2B,S2N
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER		E		G5	S1B
BOTAURUS LENTIGINOSUS	AMERICAN BITTERN		E/S		G4	S2B
BUTEO LINEATUS	RED-SHOULDERED HAWK		E/T		G5	S1B,S2N
CIRCUS CYANEUS	NORTHERN HARRIER		E/U		G5	S1B,S3N
CISTOTHORUS PLATENSIS	SEDGE WREN		E		G5	S1B
CLEMMYS INSCULPTA	WOOD TURTLE		T		G4	S3
CLEMMYS MUHLENBERGII	BOG TURTLE	LT	E		G3	S2
CROTALUS HORRIDUS HORRIDUS	TIMBER RATTLESNAKE		E		G4T4	S2
DOLICHONYX ORYZIVORUS	BOBOLINK		T/T		G5	S2B
EMPIDONAX ALNORUM	ALDER FLYCATCHER		S/S		G5	S2B
EURYCEA LONGICAUDA LONGICAUDA	LONGTAIL SALAMANDER		T		G5T5	S2
FALCO SPARVERIUS	AMERICAN KESTREL		INC/S		G5	S3B,S7N
HEMIDACTYLIUM SCUTATUM	FOUR-TOED SALAMANDER		D		G5	S3
IXOBRYCHUS EXILIS	LEAST BITTERN		D/S		G5	S3B
LATERALLUS JAMAICENSIS	BLACK RAIL		T/T		G4	S2B
LYNX RUFUS	BOBCAT		E		G5	S3
MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		T/T		G5	S2B,S2N
MYOTIS LEIBII	EASTERN SMALL-FOOTED MYOTIS		U		G3	S1

SUSSEX COUNTY

RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
CHAMAEDAPHNE CALYCULATA-SPHAGNUM BOREAL DWARF-SHRUBLAND	LEATHERLEAF-SPHAGNUM BOREAL DWARF-SHRUBLAND				G4?	S1
CORNUS AMOMUM - SALIX CANDIDA / DASIPHORA FRUITICOSA SPP. FLORIBUNDA / CAREX STRICTA SHRUBLAND	CALCAREOUS FEN				G3?	S2S3
DRY-MESIC CALCAREOUS FOREST	DRY-MESIC CALCAREOUS FOREST				G3G4?	S2?
GLACIAL BOG	GLACIAL BOG				G4?	S1
HARDWOOD-CONIFER SWAMP	HARDWOOD-CONIFER SWAMP				G4?	S2S3
INLAND ACIDIC SEEP COMMUNITY	INLAND ACIDIC SEEP COMMUNITY				G3?	S1
INLAND ATLANTIC WHITE CEDAR SWAMP	INLAND ATLANTIC WHITE CEDAR SWAMP				G3?	S1
JUNIPERUS VIRGINIANA / DASIPHORA FRUITICOSA SPP. FLORIBUNDA / CAREX FLAVA - CAREX TETANICA SHRUB HERBACEOUS VEGETATION	TURFY JUNIPER FEN (PASTURE FEN)				G1G2	S1S2
LEERSIA ORYZOIDES - SPARGANIUM CHLOROCARPUM - POLYGONUM AMPHIBIUM HERBACEOUS VEGETATION	RICE CUT-GRASS - GREEN-FRUITED BUR-REED - WATER SMARTWEED SEASONALLY FLOODED HERBACEOUS VEGETATION				G4	S3
LIMESTONE GLADE	LIMESTONE GLADE				G2Q	S1
MORELLA PENSYLVANICA - DASIPHORA FRUITICOSA SPP. FLORIBUNDA SHRUB HERBACEOUS VEGETATION	MARL SEEP FEN				G2	S2

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NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
CARTEROCEPHALUS PALAEMON	ARCTIC SKIPPER				G5	S1
CHLOSYNE HARRISII	HARRIS' CHECKERSPOT				G4	S2S3
CHLOSYNE NYCTEIS	SILVERY CHECKERSPOT				G5	SH
CICINDELA MARGINIPENNIS	COBBLESTONE TIGER BEETLE				G2G3	S1
CORDULEGASTER ERRONEA	TIGER SPIKETAIL				G4	S2
CUCULLIA ALFARATA					G4	S2?
ENALLAGMA LATERALE	NEW ENGLAND BLUET				G3	S1S2
ENODIA ANTHEDON	NORTHERN PEARLY EYE				G5	S3S4
ERYNNIS LUCILIUS	COLUMBINE DUSKY WING				G4	SH
ERYNNIS MARTIALIS	MOTTLED DUSKY WING				G3G4	SH
EUPHYES BIMACULA	TWO-SPOTTED SKIPPER				G4	S3
GOMPHUS BOREALIS	BEAVERPOND CLUBTAIL				G4	S1
GOMPHUS DESCRIPTUS	HARPOON CLUBTAIL				G4	S1
GOMPHUS ROGERSI	SABLE CLUBTAIL				G4	S1S2
GOMPHUS SEPTIMA	CLUBTAIL DRAGONFLY				G2	S1
GOMPHUS VASTUS	COBRA CLUBTAIL				G5	S1S2
HEMILEUCA SP 2	SCHWEITZER'S BUCKMOTH				G1Q	S1
LAMPSILIS RADIATA	EASTERN LAMPMUSSEL		T		G5	S3
LANTHUS VERNALIS	SOUTHERN PYGMY CLUBTAIL				G4	S2S3
LEUCORRHINIA HUDSONICA	HUDSONIAN WHITEFACE				G5	S1
LIGUMIA NASUTA	EASTERN PONDMUSSEL		T		G4G5	S1
LYCAENA HYLLUS	BRONZE COPPER		E		G5	S2
MACROCHILO HYPOCRITALIS	A NOCTUID MOTH				G4	S3S4
NEONYMPHA MITCHELLII MITCHELLII	MITCHELL'S SATYR	LE	E		G1G2T1T2	SH
NICROPHORUS AMERICANUS	AMERICAN BURYING BEETLE	LE	E		G2G3	SH
OPHIOGOMPHUS ANOMALUS	EXTRA-STRIPED SNAKETAIL				G3	SH
OPHIOGOMPHUS ASPERSUS	BROOK SNAKETAIL				G3G4	S1S2
OPHIOGOMPHUS MAINENSIS	MAINE SNAKETAIL				G4	S2
PAPAIPEMA NECOPINA	SUNFLOWER BORER MOTH				G4?	SH

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NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
ALOPECURUS AEQUALIS VAR AEQUALIS	SHORT-AWN MEADOW-FOXTAIL				G5T?	S2
AMELANCHIER HUMILIS	LOW SERVICE-BERRY				G5	S1
AMELANCHIER SANGUINEA	ROUND-LEAF SERVICE-BERRY		E		G5T5	S1.1
ANDROMEDA GLAUCOPHYLLA	BOG ROSEMARY		E		G5T5	S1
ANEMONE CANADENSIS	CANADA ANEMONE				G5	SX
ANEMONE CYLINDRICA	LONG-HEAD ANEMONE		E		G5	S1
ANEMONE VIRGINIANA VAR ALBA	RIVERBANK ANEMONE				G5T4T5	S2
ANTENNARIA NEGLECTA VAR CANADENSIS	CANADA PUSSYTOES		E		G5T?	S1
APLECTRUM HYEMALE	PUTTYROOT		E		G5	S1
ARABIS HIRSUTA VAR PYCNOCARPA	WESTERN HAIRY ROCKCRESS				G5T5	S2
ARCEUTHOBIUM PUSILLUM	DWARF MISTLETOE		E		G5	S1
ARISTOLOCHIA SERPENTARIA	VIRGINIA SNAKEROOT				G4	S3
ARMORACIA LACUSTRIS	LAKE WATER-CRESS		E		G4?	SH
ASCLEPIAS VARIEGATA	WHITE MILKWEED				G5	S2
ASCLEPIAS VERTICILLATA	WHORLED MILKWEED				G5	S2
ASPLENIUM PINNATIFIDUM	LOBED SPLEENWORT		E		G4	S1
ASTER BOREALIS	RUSH ASTER		E		G5	S1
ASTER ERICOIDES VAR PROSTRATUS	PROSTRATE WHITE HEATH ASTER				G5T?	S3
ASTER FIRMUS	SHINING ASTER		E		G5T5	SH.1
ASTER PRENANTHOIDES	CROOKED-STEM ASTER				G4G5	S2
ASTER TRADESCANTII	TRADESCANT'S ASTER				G4Q	S2
ASTRAGALUS CANADENSIS VAR CANADENSIS	CANADIAN MILK-VETCH				G5T5	SX.1
ATHYRIUM PYCNOCARPON	GLADE FERN		E		G5	S1
BETULA PAPYRIFERA VAR PAPYRIFERA	PAPER BIRCH				G5T5	S2
BETULA PUMILA VAR PUMILA	SWAMP BIRCH				G5T?	S2

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NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
CAREX DIANDRA	LESSER PANICLED SEDGE				G5	S2
CAREX DISPERMA	SOFT-LEAF SEDGE				G5	S1
CAREX EBURNEA	EBONY SEDGE				G5	S2
CAREX FORMOSA	HANDSOME SEDGE		E		G4	S1.1
CAREX HAYDENII	CLOUD SEDGE		E		G5	S1
CAREX HITCHCOCKIANA	HITCHCOCK'S SEDGE				G5	S2
CAREX LEPTONERVIA	FINE-NERVE SEDGE		E		G4	S1
CAREX LIMOSA	MUD SEDGE		E		G5	S1
CAREX LUPULIFORMIS	HOP-LIKE SEDGE		E		G4	S1
CAREX OLIGOCARPA	FEW-FRUIT SEDGE		E		G4	S1
CAREX PALLESCENS	PALE SEDGE				G5	S2
CAREX PECKII	PECK'S WHITE-TINGED SEDGE		E		G4G5	SH
CAREX PRAIREA	PRAIRIE SEDGE				G5?	S2
CAREX PSEUDOCYPERUS	CYPERUS-LIKE SEDGE		E		G5	S1
CAREX RETRORSA	RETRORSE SEDGE				G5	S2
CAREX SICCATA	HILLSIDE SEDGE		E		G5	S1
CAREX STERILIS	DIOECIOUS SEDGE				G4	S2
CAREX UTRICULATA	BOTTLE-SHAPED SEDGE				G5	S2
CAREX VIRIDULA SSP VIRIDULA	GREEN SEDGE				G5T5	S2
CASTILLEJA COCCINEA	SCARLET INDIAN-PAINTBRUSH				G5	S2
CELTIS TENUIFOLIA	DWARF HACKBERRY				G5	S2
CHAMAELIRIUM LUTEUM	DEVIL'S-BIT				G5	S3
CHEILANTHES LANOSA	HAIRY LIPFERN				G5	S2
CINNA LATIFOLIA	SLENDER WOOD-REED		E		G5	S1
CLAYTONIA VIRGINICA VAR HAMMONDIAE	HAMMOND'S YELLOW SPRING BEAUTY		E		G5T1	S1.1
CLEMATIS OCCIDENTALIS VAR OCCIDENTALIS	PURPLE CLEMATIS				G5T5	S2
COELOGLOSSUM VIRIDE VAR VIRESCENS	LONG-BRACT GREEN ORCHID				G5T5	S2

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NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
ERIOPHORUM GRACILE	SLENDER COTTON-GRASS		E		G5T7	SH
ERIOPHORUM VAGINATUM VAR SPISSUM	SHEATHED COTTON-GRASS		E		G5T5	SH
ERIOPHORUM VIRIDICARINATUM	THIN-LEAF COTTON-GRASS				G5	S3
GALIUM LABRADORICUM	LABRADOR MARSH BEDSTRAW		E		G5	S1
GALIUM PALUSTRE	MARSH BEDSTRAW				G5	S3
GALIUM TRIFIDUM	SMALL BEDSTRAW		E		G5T5	S1
GAULTHERIA HISPIDULA	CREEPING-SNOWBERRY		E		G5	S1
GENTIANELLA QUINQUEFOLIA VAR QUINQUEFOLIA	STIFF GENTIAN				G5T4T5	S2
GEUM RIVALE	CHOCOLATE-ROOT				G5	S3
GEUM VERNUM	SPRING AVENS				G5	S2
GLYCERIA BOREALIS	SMALL FLOATING MANNA GRASS		E		G5	SH.1
GLYCERIA GRANDIS	AMERICAN MANNA GRASS		E		G5T5	S2
GNAPHALIUM MACOUNII	WINGED CUDWEED		E		G5	SH
GYMNOCARPIUM DRYOPTERIS	OAK FERN				G5	S2
HIERACIUN KALMII	CANADA HAWKWEED		E		G5T?	S1
HYBANTHUS CONCOLOR	GREEN VIOLET		E		G5	S1
HYPERICUM MAJUS	LARGER CANADIAN ST. JOHN'S WORT		E		G5	S1
HYPERICUM PROLIFICUM	SHRUBBY ST. JOHN'S-WORT		E		G5	S1
HYPERICUM PYRAMIDATUM	GREAT ST. JOHN'S-WORT				G4	S3
ILEX MONTANA	LARGE-LEAF HOLLY		E		G5	S1
ISOETES LACUSTRIS	LAKE QUILLWORT		E		G5	S1.1
ISOTRIA MEDEOLOIDES	SMALL WHORLED POGONIA	LT	E		G2	S1
JUNCUS BRACHYCEPHALUS	FEN RUSH				G5	S3
JUNCUS BREVICAUDATUS	NARROW-PANICLE RUSH				G5	S2
KALMIA POLIFOLIA	PALE-LAUREL		E		G5	S1
KUHNIA EUPATORIOIDES	FALSE BONESET		E		G5T5	S1
LATHYRUS OCHROLEUCUS	CREAM VETCHLING		E		G4G5	SH

SUSSEX COUNTY

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NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
NELUMBO LUTEA	AMERICAN LOTUS		E		G4	S1
NYMPHOIDES CORDATA	FLOATINGHEART			LP	G5	S3
ONOSMODIUM VIRGINIANUM	VIRGINIA FALSE-GROMWELL		E		G4	S1
OPHIOGLOSSUM PUSILLUM	NORTHERN ADDER'S-TONGUE				G5	S3
ORYZOPSIS ASPERIFOLIA	WHITE-GRAINED MOUNTAIN-RICE GRASS		E		G5	S1
ORYZOPSIS PUNGENS	SLENDER MOUNTAIN-RICE GRASS		E		G5	SH.1
PANAX QUINQUEFOLIUS	AMERICAN GINSENG				G3G4	S2
PANICUM BOREALE	NORTHERN PANIC GRASS		E		G5	S1
PANICUM FLEXILE	WIRY PANIC GRASS		E		G5	S1
PANICUM XANTHOPHYSUM	SLENDER PANIC GRASS		E		G5	SH.1
PARIETARIA PENSYLVANICA	PENNSYLVANIA PELLITORY				G5	S3S4
PEDICULARIS LANCEOLATA	SWAMP LOUSEWORT				G5	S3
PHASEOLUS POLYSTACHIOS VAR POLYSTACHIOS	WILD KIDNEY BEAN				G4T?	S2
PHEGOPTERIS CONNECTILIS	NORTHERN BEECH FERN				G5	S2
PICEA RUBENS	RED SPRUCE		E		G5	S1
PINUS RESINOSA	RED PINE		E		G5	S1.1
PLATANTHERA FLAVA VAR HERBIOLA	TUBERCLED REIN ORCHID				G4T4Q	S2
PLATANTHERA HOOKERI	HOOKER'S ORCHID		E		G5	S1
PLATANTHERA HYPERBOREA VAR HYPERBOREA	LEAFY NORTHERN GREEN ORCHID				G5T5	SX
PLATANTHERA ORBICULATA	ROUND-LEAF ORCHID		E		G5?	S1
PLATANTHERA PSYCODES	PURPLE FRINGED ORCHID				G5	S2
POA LANGUIDA	DROOPING SPEAR GRASS				G3G4Q	S2
POA SALTUENSIS	OLD-PASTURE SPEAR GRASS		E		G5	SH
POLEMONIUM REPTANS	GREEK-VALERIAN		E		G5	S1
POLYMNIA UVEDALIA	BEAR'S-FOOT		E		G4G5	S1
PORTERANTHUS TRIFOLIATUS	INDIAN PHYSIC				G4G5	S2

SUSSEX COUNTY

RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
SALIX LUCIDA SSP LUCIDA	SHINING WILLOW				G5T5	S1
SALIX PEDICELLARIS	BOG WILLOW		E		G5	S1
SALIX PETIOLARIS	MEADOW WILLOW				G5	S3S4
SALIX SERISSIMA	AUTUMN WILLOW		-		G4	S2
SANICULA TRIFOLIATA	LARGE-FRUIT BLACK-SNAKEROOT		E		G4	S1
SCHEUCHZERIA PALUSTRIS	ARROW-GRASS		E		G5T5	SH
SCHIZACHNE PURPURASCENS	PURPLE OAT		E		G5	S1
SCHOENOPLECTUS ACUTUS VAR ACUTUS	HARD-STEM BULRUSH				G5	S3
SCHOENOPLECTUS TORREYI	TORREY'S BULRUSH		E		G5?	S1
SCIRPUS ATROCINCTUS	BLACK-GIRDLE WOOLGRASS				G5	S1
SCIRPUS MICROCARPUS	BARBERPOLE BULRUSH		E		G5	S1
SCIRPUS PEDICELLATUS	STALKED WOOLGRASS		E		G4	SH
SCLERIA VERTICILLATA	WHORLED NUT-RUSH		E		G5	S1
SCUTELLARIA LEONARDII	SMALL SKULLCAP		E		G4T4	S1
SCUTELLARIA NERVOSA	VEINED SKULLCAP				G5	S2
SELAGINELLA RUPESTRIS	ROCK SPIKE-MOSS				G5	S2
SENECIO PAUPERCULUS	BALSAM RAGWORT				G5	S3
SILENE CAROLINIANA VAR PENSYLVANICA	WILD-PINK				G5T4	S3
SILENE NIVEA	SNOWY CATCHFLY		E		G4?	S1
SISYRINCHIUM MONTANUM	STRICT BLUE-EYED GRASS		E		G5T4	S2
SMILACINA TRIFOLIA	THREE-LEAF FALSE SOLOMON'S-SEAL		E		G5	S1
SOLIDAGO RIGIDA	PRAIRIE GOLDENROD		E		G5T5	S1
SPARGANIUM CHLOROCARPUM	GREEN-FRUITED BUR-REED				G5	S3
SPARGANIUM MINIMUM	SMALL BURR-REED		E		G5	S1
SPIRANTHES LUCIDA	SHINING LADIES'-TRESSES				G5	S2
SPIRANTHES OCHROLEUCA	YELLOWISH NODDING LADIES'-TRESSES				G4	S3

27 JUN 2002

SUSSEX COUNTY

RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN

THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
XYRIS MONTANA	NORTHERN YELLOW-EYED-GRASS		E		G4	S1.1

392 Records Processed

APPENDIX C

NITRATE DILUTION MODEL

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Albia
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.7**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.9	inches/year
Impervious percentage on building lots of this size	10.2%	
Recharge corrected for impervious cover	12.5	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Atherton
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Bath
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.7**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.8	inches/year
Impervious percentage on building lots of this size	10.2%	
Recharge corrected for impervious cover	12.4	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Carlisle
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Chenango
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.2**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	17.6	inches/year
Impervious percentage on building lots of this size	11.5%	
Recharge corrected for impervious cover	15.6	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Chippewa
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Fredon
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Halsey
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Hazen
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.3**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.1	inches/year
Impervious percentage on building lots of this size	11.0%	
Recharge corrected for impervious cover	14.3	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Hero
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.3**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.0	inches/year
Impervious percentage on building lots of this size	11.0%	
Recharge corrected for impervious cover	14.2	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Hoosic
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.2**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.8	inches/year
Impervious percentage on building lots of this size	11.3%	
Recharge corrected for impervious cover	14.9	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Livingston
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Lyons
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Middlebury
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.4**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.0	inches/year
Impervious percentage on building lots of this size	11.0%	
Recharge corrected for impervious cover	14.2	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Nassau
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.5**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	14.6	inches/year
Impervious percentage on building lots of this size	10.5%	
Recharge corrected for impervious cover	13.1	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Nassau-Rock Outcrop (Sus
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	2.7	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.9	inches/year
Impervious percentage on building lots of this size	10.2%	
Recharge corrected for impervious cover	12.4	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Norwich
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Oquaga
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.6**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	14.2	inches/year
Impervious percentage on building lots of this size	10.4%	
Recharge corrected for impervious cover	12.8	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Palmyra
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	2.3	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.1	inches/year
Impervious percentage on building lots of this size	11.0%	
Recharge corrected for impervious cover	14.4	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Pompton
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.3**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.3	inches/year
Impervious percentage on building lots of this size	11.1%	
Recharge corrected for impervious cover	14.5	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Rock Outcrop-Nassau
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.8**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.3	inches/year
Impervious percentage on building lots of this size	10.0%	
Recharge corrected for impervious cover	12.0	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Rock Outcrop-Oquaga (Sus
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**3.5**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	10.3	inches/year
Impervious percentage on building lots of this size	8.8%	
Recharge corrected for impervious cover	9.4	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Rock Outcrop-Wassaic
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.8**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.3	inches/year
Impervious percentage on building lots of this size	10.0%	
Recharge corrected for impervious cover	11.9	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Sloan
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Wayland
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Swamp
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Swartswood
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.6**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	14.2	inches/year
Impervious percentage on building lots of this size	10.4%	
Recharge corrected for impervious cover	12.7	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Swartswood-Rock Outcrop
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.9**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	12.6	inches/year
Impervious percentage on building lots of this size	9.8%	
Recharge corrected for impervious cover	11.4	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Valois
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.4**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	15.7	inches/year
Impervious percentage on building lots of this size	10.9%	
Recharge corrected for impervious cover	14.0	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Washington
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.3**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.4	inches/year
Impervious percentage on building lots of this size	11.1%	
Recharge corrected for impervious cover	14.5	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Wassaic
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.3**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	16.1	inches/year
Impervious percentage on building lots of this size	11.0%	
Recharge corrected for impervious cover	14.3	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	**3.5**	people/home
nitrate loading rage	**10**	pounds/person/year
NO_3 target:	**5.2**	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Wassaic-Rock Outcrop (Su:
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	**2.5**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	15.1	inches/year
Impervious percentage on building lots of this size	10.7%	
Recharge corrected for impervious cover	13.5	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Whitman
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Hydric soil, can't use this method.

Minimum recharge area needed to dilute nitrate	**N.A.**	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	N.A.	inches/year
Impervious percentage on building lots of this size	N.A.	
Recharge corrected for impervious cover	#VALUE!	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002

A Recharge-Based Nitrate-Dilution Model for New Jersey v4.0

Adjusted Trela-Douglas Model Input Parameters

population density:	3.5	people/home
nitrate loading rage	10	pounds/person/year
NO_3 target:	5.2	mg/l

Ground-Water Recharge Methodology Input Parameters

Soil	Wooster
Municipality	Hampton Twp. (Sussex Co.)
Basin Factor	1.0

Minimum recharge area needed to dilute nitrate	2.7	acres/system
On this soil type in this municipality average annual recharge to a totally pervious lot is approximately	13.5	inches/year
Impervious percentage on building lots of this size	10.1%	
Recharge corrected for impervious cover	12.2	inches/year

This method assumes the maximum recharge rate to the pervious portion of the lot.

June 13, 2002