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## *Borough of Raritan*

*Somerset County, New Jersey*

# *NATURAL RESOURCE INVENTORY*

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*Adopted* \_\_\_\_\_



Raritan Borough Planning Board

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Raritan Borough Environmental Commission

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*The original of this document was signed and sealed in  
accordance with N.J.S.A. 45:14A-12.*

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## Table of Contents

|  |    |
|--|----|
| Introduction .....                                 | 1  |
| I. Physical Features.....                          | 2  |
| A. Location  |    |
| B. Physiographic Provinces of New Jersey           |    |
| C. Topography                                      |    |
| D. Climate   |    |
| E. Geology   |    |
| F. Soils   |    |
| II. Cultural Resources .....                       | 9  |
| A. Historical Background                           |    |
| B. Historically Significant Sites                  |    |
| III. Biological Resources.....                     | 12 |
| A. General Vegetation                              |    |
| B. Forest Cover                                    |    |
| C. Landscape Project - Critical Habitat Protection |    |
| IV. Hydrologic Features.....                       | 15 |
| A. Aquifers  |    |
| B. Depth to Water Table                            |    |
| C. Groundwater Recharge Areas                      |    |
| D. Surface Water                                   |    |
| E. Watersheds and Sub-Watersheds                   |    |
| F. Wetlands  |    |
| G. Floodplains                                     |    |
| H. Vernal Pools                                    |    |
| V. Land Use.....                                   | 20 |
| A. Existing Land Use                               |    |
| B. Zoning  |    |
| C. Parks and Open Space                            |    |
| VI. Infrastructure.....                            | 23 |
| A. Transportation                                  |    |
| B. Water and Sewer Systems                         |    |

## Maps..... 24

- Map 1 ... Steep Slopes
- Map 2 ... Soils
- Map 3 ... Historic Sites
- Map 4 ... Forested Land
- Map 5 ... Landscape Project
- Map 6 ... Depth to Water Table
- Map 7 ... Groundwater Recharge Areas
- Map 8 ... Surface Water Bodies
- Map 9 ... Watersheds
- Map 10 ... Wetlands
- Map 11 ... Floodplains
- Map 12 ... Existing Land Use
- Map 13 ... Zoning
- Map 14 ... Parks and Open Space
- Map 15 ... Summary Map

## List of Figures

- Figure 1 ... Location
- Figure 2 ... Physiographic Provinces of New Jersey
- Figure 3 ... Sedimentary Geology
- Figure 4 ... Spotted Turtle
- Figure 5 ... Great Blue Heron
- Figure 6 ... Fowlers Toad
- Figure 7 ... Watershed Management Area 8
- Figure 8 ... Watershed Management Area 9
- Figure 9 ... Raritan Basin

## Introduction

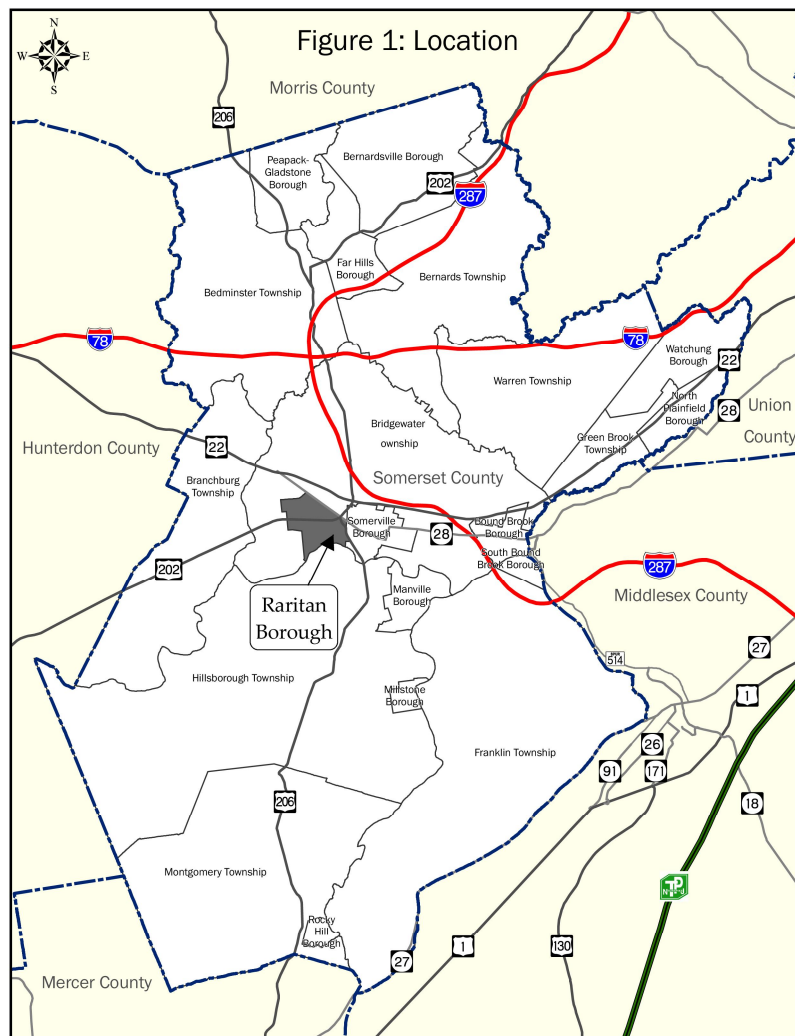
This Natural Resource Inventory (NRI), also referred to as an Environmental Resource Inventory or an Index of Natural Resources, describes the natural resource characteristics and environmental features of Raritan Borough using data provided by federal and state agencies, Somerset County and the Borough. This NRI identifies and describes the physical, cultural and biological features of the Borough including its topography, climate and soils, historically significant sites, types of vegetation, groundwater and surface water resources, wetlands, existing land use, and infrastructure.

In summary, Raritan Borough, in spite of its developed nature, still contains several environmentally sensitive resources within its borders. Map 15 at the end of this report identifies the lands that contain one or more of the resources identified in this inventory. This document should be used as a resource tool to develop strategies for preserving ecologically important areas, as well as recommend zoning and resource protection ordinances for the protection, preservation, and enhancement of environmentally and culturally important resources.

## I. Physical Features

### A. Location

The Borough of Raritan is centrally located in Somerset County and is one of twenty-one municipalities in the County. The Raritan River flows east to west at the southern border of the Borough. Bridgewater Township forms the north and west borders, with Hillsborough Township to the south and Somerville Borough to the east. Raritan is within the New York / Newark metropolitan area, and is a partner in the Bridgewater – Raritan – Somerville Regional Center.

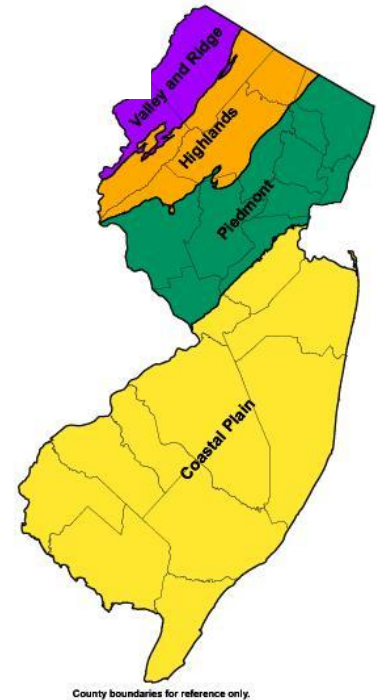


## B. Physiographic Provinces of New Jersey

New Jersey is divided into four distinct physiographic provinces based on its topography, landform and geology. Beginning in the northwest and continuing to the southeast, these provinces are known as the Valley and Ridge, Highlands, Piedmont and Coastal Plain Provinces.

Raritan is within the Piedmont province: an area of about 1,600 square miles or approximately one-fifth of the state. It occupies all of Essex, Hudson, and Union, Counties, and parts of Bergen, Hunterdon, Mercer, Middlesex, Morris, Passaic and Somerset. The geology is underlain by slightly folded and faulted sedimentary rocks of the Triassic and Jurassic age (240 to 140 million years old) and igneous rocks of Jurassic age. The Piedmont is chiefly a low rolling plain divided by a series of higher ridges. The major linear ridges are underlain by igneous rocks and have steep front faces with long back slopes. The province slopes from the foot of the Highlands toward its southeastern boundary with the Coastal Plain Province. (See *"Physiographic Provinces of New Jersey,"* prepared by Richard Dalton, 2003.)

**Figure 2. Physiographic Provinces of New Jersey**



County boundaries for reference only.

Source: NJDEP - New Jersey  
Geological Survey (NJGS)

## C. Topography

Topography refers to the physical characteristics (mountains, lakes, rivers) of a particular region and is usually expressed in terms of the orientation, slope, and elevation of specific terrain features. Raritan's physiographic province, the Piedmont, is characterized as having a generally flat topography, with a series of ridges. As illustrated on Map 1, the only slopes in Raritan that exceed twelve percent are located on the Borough's western border at Route 202. As evidenced by the Borough's nearly built-out and developed character, its relatively flat topography does not seem to be a significant environmental constraint and/or inhibit development. For more information visit the Natural Resources Conservation Service official website: <http://www.nrcs.usda.gov>.

## D. Climate

According to a Rutgers University Study of New Jersey climate, Raritan Borough is located in a zone consisting mainly of elevated highlands and valleys which are part of the Appalachian Uplands. Surrounded by land, this region can be characterized as having a continental type of climate with minimal influence from the Atlantic Ocean, except when the winds contain an easterly component. Prevailing winds are from the southwest in summer and from the northwest in winter.

Being in the northernmost portion of the state, Raritan exhibits a colder temperature regime than other climate regions of the State. This difference is most dramatic in winter when average temperatures in Raritan's climate zone can be more than ten degrees Fahrenheit cooler than in the Coastal Zone. As reported by the U.S. Government "Coastal" Official Weather Reporting Station for New Jersey, typically, January is the coldest month averaging 34.5°F and July is the warmest month, averaging 74.6°F. Annual snowfall averages 40 to 50 inches, as compared with an average of 10 to 15 inches in the extreme southern portion of the state.

A storm track extending from the heart of the Mississippi Valley, over the Great Lakes, and along the St. Lawrence Valley is a major source of precipitation for this region. Coastal storms, with precipitation shields that reach well enough inland add to the precipitation totals. The highlands and mountains in Raritan's climate zone play a role in making the climate different from the rest of the state. Clouds and precipitation are enhanced by orographic effects, when air is forced to rise over the mountains, producing clouds and precipitation, while the rest of the state observes clear skies. The latter is due in part to subsiding air flowing off the highlands.

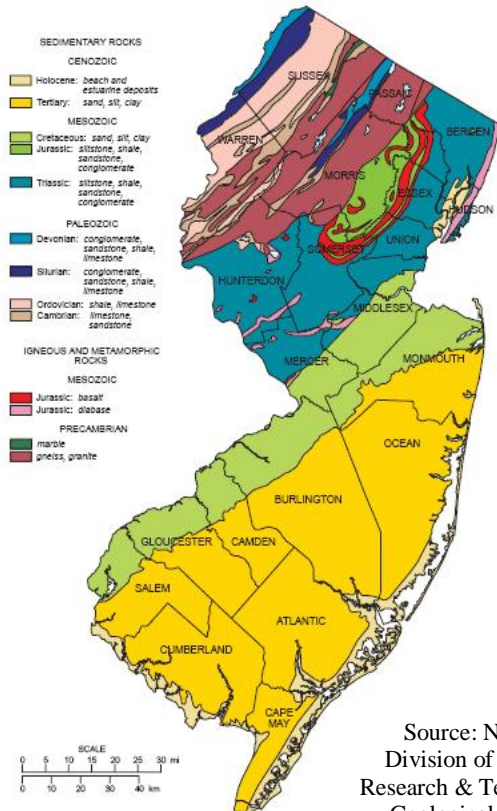
For more information on climate data in Raritan visit the National Oceanic and Atmospheric Administration website: <http://www.noaa.gov>.



## E. Geology

According to the 1999 Geological Survey, performed by the New Jersey Department of Environmental Protection's Division of Science, Research, and Technology, more than one half of the entire State's sedimentary formation consists of a combination of sand, silt, and clay. The remainder of the State consists of formations comprised of sandstone, shale, limestone, diabase, basalt, gneiss, granite, siltstone, and marble.

**Figure 3. Sedimentary Geology**



Source: NJDEP  
Division of Science,  
Research & Technology,  
Geological Survey  
(1999)

The sedimentary rocks in Raritan are of the Triassic Period, composed mainly of siltstone, shale, sandstone, and conglomerate. The Passaic Formation is the underlying bedrock of Raritan Borough. The Passaic Formation was formed during the middle of the Triassic period and consists of siltstone and shale.

The Passaic Formation is suitable for residential development, however environmental limitations may occur on a site-specific basis due to the depth of the seasonal high water table, proximity to wetlands, vegetation characteristics, and hydrology. Visit the NJ Department of Environmental Protection Geographic Information System Programs & Unit page at <http://www.state.nj.us/dep/gis> for more information.

## F. Soils

Soils form the base for development, and their identification is an essential part of land-use planning. For example, soils which are too wet and subject to flooding may not be suitable to build a foundation for roads and highways; clay or wet soils may not be suitable to support a septic tank absorption field.

Soil information for Raritan is based on the survey prepared by the National Cooperative Soil Survey Program (NCSS) – a partnership led by the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The survey contains a General Soils Map and the necessary information for understanding the soil resources of the area. The Soil Survey predicts soil suitability for specific types of land uses, highlights limitations and hazards of land uses based on the soil type, discusses how to overcome those limitations and hazards, and addresses the overall impact of certain land uses on the environment. For more information on soils in Raritan, see US Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, Data version 9 (8/18/08), Map version 2 (6/25/08).

As illustrated on Map 2 the following soil types are found in Raritan:

- Raritan silt loam (RarAr), located mainly in southern Raritan, the majority of Raritan's land surface is dominated by silty loam soils, specifically Raritan silt loam. This soil type is characterized as level, and rarely flooded with a drainage class of "moderately well drained" and a low water capacity. The setting of RarAr is stream terraces.
- Abbottstown silt loam (AbrB) is found on a small area of land on Route 28, near Diccico Drive. AbrB is "somewhat poorly drained," generally located on hillsides, and has no flooding frequency.
- Birdsboro silt loam 2-6% slopes (BhnB) appears in three areas within the borough: on a swath of land along the Raritan Power Canal from Old York Rd from Woodmere St. to Meehan Ave., at the Routes 206 and 202 intersection, and at the Routes 206 and 626 intersection. BhnB is a well drained soil, located on stream terraces with no flooding frequency.
- Birdsboro silt loam 6-12% slopes (BhnC) can be found in central Raritan, between the streets of Bound Brook Ave. and Prospect Place and is well drained, with a 6-12% slope. BhnC is situated on stream terraces, has no flooding frequency and a high water capacity.

- Bowmansville silt loam (BoyAt) is located along the Bridgewater border, mainly between the Raritan River and the NJ Transit railway. BoyAt is typically located on flood plains and is frequently flooded with a moderate water capacity.
- Bucks silt loam (BucB) is found on a small area of land just north of the NJ Transit railway on Raritan's western border. Bucks silt loam is a well-drained soil found on hills, with no flooding frequency and moderate water capacity.
- Croton silt loam (CoxB) is found in northern Raritan, west of Dipaolo Ct., typically in depressions. This formation is considered poorly drained, with no flooding frequency and low water capacity.
- Dunellen sandy loam 3-8% slopes (DunB), found in two areas of northern Raritan, is characterized as well drained, typically in an area of outwash plains. As noted in the soil survey, there is no flooding frequency.
- Klinesville channery loam (KkoD), present in an area adjacent to Route 202 in western Raritan. KkoD is found typically on hills, with very low water capacity and no noted flooding.
- Lamington silt loam (LbgA), typically found on formations known as "steptoes," found in an area near the Raritan River, along Old York Rd. from Meehan Ave. to Gaston Ave. LbgA has a low slope (0 to 2%) and is poorly drained with low water capacity and has no flooding frequency.
- Lansdowne silt loam (LbtB) is found in two areas of western Raritan, north of the NJ Transit railway. LbtB soil is found on flat areas of land and is poorly drained, but with high water capacity.
- Norton loam (NotB) is found in four areas north of the NJ Transit railway and is known for its presence on flat landforms, has a drainage class of "well drained," and a high water capacity.
- Penn silt loam 2-6% (PenB) is found on hilly landforms and is considered "well drained". PenB soils are found in an area of northern Raritan by the Routes 28 and 567 intersections.
- Penn silt loam 6-12% (PenC) found along Route 28 between Ashton Rd. and Route 202. PenC is typically well drained, with a 6-12% slope on hilly terrain.

- Penn channery silt loam 2-6% (PeoB) is soil that covers much of western Raritan's terrain, characterized as well drained with low water capacity, and present on hilly terrain.
- Penn channery silt loam 6-12% (PeoC) is typically well drained, with a 6-12% slope on hilly terrain. This soil type is present on 4 areas of Raritan north of the NJ Transit railway, and a fifth small area along the Borough's western border.
- Reaville silt loam (RehB), present in western Raritan, these soils cover large areas of land, on landforms known as "interfluves." RehB is somewhat poorly drained with low water capacity.
- Rowland silt loam (RorAt) is relatively level with only a 0-2% slope, and is typical in flood plains. According to the soil survey it is subject to frequent flooding. This soil is present along much of the Raritan River banks, especially in eastern Raritan.
- Urban Land (UR) is found in western Raritan, encircled by Dunellan sandy loam (DunB) soil, and in western Raritan along the Borough's border on Route 28, and by Busky Lane near the Raritan River. Soil that is classified as Urban land means more than 80 percent of the surface is covered by asphalt, concrete, buildings or other impervious surfaces. Examples are parking lots, shopping centers, and schools.

## II. Cultural Resources

### A. Historical Background

The first people to settle the Raritan Valley were the Naraticongs, a branch of the Lenape who were part of the Iroquois Nation. Numbering about 1200, the Naraticongs lived mostly along the north side of the river. The Dutch and English arrived in 1683. The Dutch shortened and altered the name of the Naraticongs and named the area Raritan, or “forked river.” Other versions of history state that Raritan translates to “where the stream overflows.”

The Dutch, English, and French Huguenots were drawn to the area for the same reasons the Lenape found appealing - the rich, fertile soil and navigable river. The Dutch also realized they could establish their own church, the Dutch Reformed Church. These opportunities played a major role in the establishment of the town of Raritan, which became a trading center for neighboring farmers.

George Middaugh, one of the first settlers of Raritan, began constructing a tavern in 1734. For many years, the Middaugh Tavern was the meeting place for early governments of Raritan and neighboring Bridgewater, and a stagecoach stop between New York and Philadelphia. The tavern remains one of the oldest buildings in town. During the American Revolution, while George Washington wintered at the Wallace House in nearby Somerville, the Marquis de Lafayette enjoyed the hospitality of Andreas Coejeman. Considered the most opulent home in Raritan, the Coejeman House had hearths of fine Egyptian marble and mantels of carved mahogany.



Source: "Somerset County NJ: A Postcard History" Siegel, Somerset County Historical Society

After the Revolutionary War, Alexander Hamilton visited Raritan with the idea of constructing a series of canals. The town fathers thought the idea was ludicrous, but the seed was planted, and waterpower canal was dug from Bradley Gardens east to Raritan in 1840. This canal proved to be a boon to the town, and industries sprang up along the waterway, where they could harness the waterpower and also be close to the railroad. The Raritan Woolen Mills, established in 1846, was the largest and most famous of Raritan's early industries.

By a special act of the New Jersey legislature, the village officially became the Town of Raritan in 1868. Joseph Frelinghuysen, a name long associated with Raritan, was elected president of the Board of Commissioners and set out to make Raritan attractive to new industry. After a slow start, Raritan saw much growth and development. With large numbers of immigrants coming to America and consequently to Raritan, the population increased. The town prospered and grew during the late 19th and early 20th centuries and on May 12, 1948 the Town of Raritan was incorporated as a Borough.

## B. Historically Significant Sites

### *Properties Listed on State and National Historic Registers*

The National Register of Historic Places is the official list of the nation's historic resources worthy of preservation, and the New Jersey Register is the official list of New Jersey's historic resources of local, state and national interest. The New Jersey Register is maintained by the State Historic Preservation Office (SHPO) within the New Jersey Department of Environmental Protection. Both Registers have nearly the same eligibility criteria, nomination forms, and review process.

The New Jersey and National Registers provide a degree of review and protection from public encroachment. Section 106 of the National Historic Preservation Act provides for review of any federally licensed, financed or assisted undertaking for properties listed in, or eligible for listing in, the National Register. New Jersey law requires review of any state, county or municipal undertaking involving properties listed in the New Jersey Register. These reviews are designed to prevent destruction or damage of historic resources by public agencies.

As indicated in Table I1-1 and illustrated on the Map 3, there are four sites in Raritan listed on the State and/or National Registers of Historic Places.

**Table II-1**  
**State and National Historic Sites**

| Site Name & Inventory Number           | Location                      | Designation                     |
|--|-------------------------------|---------------------------------|
| Gen. John Frelinghuysen House          | Somerset St. and Wyckoff Ave. | NR:3/4/1971<br>SR: 2/1/1971     |
| Raritan Bridge (Nevius St.)            | Nevius St. over Raritan River | NR: 11/12/1992<br>SR: 9/11/1992 |
| Raritan Railroad Station               | Anderson and Thompson Streets | NR: 6/22/1984<br>SR:3/17/1984   |
| Relief Hose Company No. 2 Engine House | 16 Anderson St.               | NR: 12/14/2000<br>SR:10/18/2000 |

*Source: New Jersey and National Registers of Historic Places*

*SHPO Opinions, DOE & COE*

Besides the properties listed on the State and National Register, there are five “opinioned” assets in the Borough (see Table II-2 and Map 3). A SHPO Opinion is an opinion of eligibility issued by the State Historic Preservation Officer (SHPO). The opinion is in response to a federally funded activity, such as a road project, that will have an effect on historic properties not listed on the National Register. One of the SHPO opinioned sites has also received a Determination of Eligibility or “DOE.” A Determination of Eligibility is issued by the Keeper of the National Register, National Park Service, and Department of Interior. It is a formal certification that a property is eligible for registration. There is also one “COE” asset in the Borough. A Certification of Eligibility is issued by the SHPO for properties not already listed on the New Jersey Register of Historic Places. A COE satisfies a prerequisite to apply for funds from the New Jersey Historic Trust, as well as several county preservation funding programs.

**Table II-2**  
**SHPO Opinions, DOE & COE**

| Site Name   | Location                                  | Designation                                |
|---|---|--|
| Central Railroad of NJ Main Line Corridor Historic District | Railroad ROW from Phillipsburg to Bayonne | SHPO Opinion: 7/19/1991<br>DOE: 11/30/1995 |
| D.R. Kinyon house   | 810 Old York Road                         | SHPO Opinion: 8/14/2000                    |
| J.S. Davenport House  | 804 Old York Road                         | SHPO Opinion: 8/14/2000                    |
| Lyman St. Prehistoric archaeological site                   | NA  | SHPO Opinion: 8/27/2001                    |
| Raritan Water Power Canal Historic District                 | --  | SHPO Opinion: 8/27/2001                    |
| Third Dutch Reformed Church                                 | 10 West Somerset Street                   | COE: 8/30/2007                             |

*Source: New Jersey and National Registers of Historic Places*

In addition to sites recognized by the SHPO, the Borough has recognized other historically significant sites including:

- The Basilone Monument, commemorating Sgt. John Basilone who received two Congressional Metals of Honor. One during his call of duty, and one after he was killed in Iwo Jima in 1945, after returning to rejoin his fellow marines.
- Veteran’s Memorial Plaque.
- Cornell Mansion-Middaugh Tavern on Glaser Avenue.
- The Shrine Chapel of the Blessed Sacrament, originally Saint Bernard's Church - the oldest Catholic church in Somerset County.

### III. Biological Resources

#### A. General Vegetation

Raritan Borough is located within the Piedmont section of New Jersey. In large part, this dictates the type of vegetation found within the Region and within Raritan. According to the Native Plant Society of New Jersey, the most common “growth habit” type of native plant in Somerset County is forb/herb, with 450 different native species. Forb/herb growth includes vascular plants without significant woody tissue above or at the ground. Forbs and herbs may be annual, biennial, or perennial but always lack significant thickening by secondary woody growth and have perennating buds borne at or below the ground surface. Table III-1 provides examples of native vegetation in Somerset County.

**Table III-1**  
**Native Vegetation - Somerset County**

| Scientific Name              | Common Name          | Category | Duration  | Growth Habit    |
|------------------------------|----------------------|----------|-----------|-----------------|
| Mikania scandens             | climbing hempvine    | Dicot    | Perennial | Vine, Forb/herb |
| Vitis labrusca               | fox grape            | Dicot    | Perennial | Vine            |
| Rhododendron maximum         | great laurel         | Dicot    | Perennial | Tree, Shrub     |
| Quercus alba                 | white oak            | Dicot    | Perennial | Tree            |
| Vaccinium pallidum           | Blue Ridge blueberry | Dicot    | Perennial | Subshrub, Shrub |
| Rosa carolina                | Carolina rose        | Dicot    | Perennial | Subshrub        |
| Rhododendron periclymenoides | pink azalea          | Dicot    | Perennial | Shrub           |
| Panicum capillare            | witchgrass           | Monocot  | Annual    | Graminoid       |
| Symphyotrichum praealtum     | willowleaf aster     | Dicot    | Perennial | Forb/herb       |
|                              |                      |          |           |                 |

#### B. Forest Cover

The Forested Land Map (Map 4) was produced using the New Jersey Department of Environmental Protection (NJDEP) 2002 Land Use/Land Cover dataset. There are 184 acres of forested land in Raritan (see Table III-2) including coniferous brush / shrubland, deciduous brush / shrubland, deciduous forest, mixed deciduous / coniferous-brush / shrubland, mixed forest, and old fields with less than 25 percent brush cover.



**Table III-2  
Forested Land - Raritan Borough**

| <b>Forest Type</b>                                       | <b>Acres</b> | <b>Percentage</b> |
|--|--------------|-------------------|
| Coniferous Brush/Shrubland                               | 11.4         | 6.2%              |
| Deciduous Brush/Shrubland                                | 11.5         | 6.3%              |
| Deciduous Forest (10-50% Crown Closure)                  | 48.5         | 26.3%             |
| Deciduous Forest (>50% Crown Closure)                    | 74.2         | 40.3%             |
| Mixed Deciduous/Coniferous Brush/Shrubland               | 2.0          | 1.1%              |
| Mixed Forest (>50% Coniferous With 10-50% Crown Closure) | 4.1          | 2.2%              |
| Mixed Forest (>50% Coniferous With >50% Crown Closure)   | 4.7          | 2.6%              |
| Mixed Forest (>50% Deciduous With 10-50% Crown Closure)  | 7.2          | 3.9%              |
| Mixed Forest (>50% Deciduous With >50% Crown Closure)    | 11.3         | 6.1%              |
| Old Field (< 25% Brush Covered)                          | 9.1          | 5.0%              |
| <b>Total</b>   | <b>184.1</b> | <b>100%</b>       |

The NJDEP mapping indicates that while the Borough lacks large areas of undeveloped land, the majority of forested land is found along the Raritan River and in the northern portion of the Borough, north of the Johnson & Johnson facility. Basilone Park and Duke Island are two recreation areas that have significant forest cover.

### C. Landscape Project - Critical Habitat Protection

In 1994, the New Jersey Division of Fish and Wildlife's Endangered and Non-game Species Program (ENSP) began the Landscape Project with a mission "to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy and functioning ecosystems."

The Landscape Project divided the State into large land areas labeled "landscape regions" based upon their ecological characteristics and similarities. The Project utilized a database that combined imperiled and priority species location information combined with the NJDEP 1995/97 land use cover dataset. Consequently, the ENSP identified and mapped areas of critical importance for endangered species within the "landscape regions." The Landscape Project Critical Habitat Map was developed especially for land-use decision makers, i.e. municipal and county planners and local planning boards, state agencies, natural resource and lands managers, etc. The Critical Habitat Map can provide a basis for zoning decisions and land acquisition projects.

As illustrated on the Landscape Project Map (Map 5), Raritan contains critical habitat for state endangered species (rank 4) and state threatened species (rank 3). Rank 4 is assigned to patches with one or more occurrences of at least one State endangered species. Rank 3 is assigned to patches containing one or more occurrences of at least one State threatened species. State endangered habitat exists in the form of, forested wetlands, forest, emergent

wetlands, and bald eagle foraging grounds. These habitats are concentrated along the Raritan River and in an area north of Route 202.

Examples of state-endangered species that inhabit rank 4 lands include the Spotted Turtle, Great Blue Heron, Bald Eagle, and Fowler's Toad.

***Figure 4. Spotted Turtle***



***Figure 5. Great Blue Heron***



***Figure 6. Fowler's Toad***



Photo Source: Wikipedia

For up-to-date information concerning critical habitat, visit the Division of Fish and Wildlife New Jersey Landscape Project website: <http://www.state.nj.us/dep/fgw/ensp/landscape>.

## IV. Hydrologic Features

### A. Aquifers

An aquifer is defined by the U.S. Geological Survey as a water bearing zone that will yield water in a usable quantity from a well or spring. Raritan is within the Newark Basin portion of the Piedmont, in a fractured-rock aquifer known as the Brunswick aquifer. In the Brunswick aquifer, which underlies the entire Borough, groundwater is stored and transmitted in fractures. Water is normally freshwater, slightly alkaline, non-corrosive and hard. Calcium bicarbonate type waters dominate in this aquifer. The Brunswick aquifer system is the source of water only for individual domestic wells and irrigation wells. New Jersey American Water provides the public water supply to all of Raritan Borough.

### B. Depth to Water Table

The depth-to-water table indicates the distance from the land surface to the water table in centimeters, and is shown on Map 6. The depth-to-water table is determined by land surface topography, recharge of aquifer from precipitation, and permeability of the aquifers. When the water table is high (close to the surface), the potential for hydric soils and wetlands exist.

### C. Groundwater Recharge Areas

Aquifer recharge is the process by which rainwater seeps down through the soil and deposits into an underlying aquifer. The Brunswick aquifer underlies the Borough. The New Jersey Geological Survey (NJGS) created a groundwater recharge area layer (2004) that identifies lands that contribute to underlying aquifers (Map 7). The data is displayed in several categories, based on inches of recharge per year. Groundwater recharge supports aquifer recharge, stream baseflow and wetlands.

The areas of highest recharge in the Borough are indicated in the darkest shades of blue on the map. These areas are primarily located in the northwest portion of the Borough.

There are no wellhead protection areas identified in Raritan.

### D. Surface Water

Map 8 illustrates major surface water bodies in Raritan. The dominant water feature is the Raritan River, which is fed by several tributaries in the Borough. There are no Category One (C-1) waters mapped in Raritan Borough or in any surrounding municipalities.

## E. Watersheds and Sub-Watersheds

A watershed or drainage basin is the land that drains to a water body such as a lake, river, stream or bay. Watersheds are typically separated by ridges, hills or slopes called divides. The divides are areas of high ground where each side drains to a different water body. When the water body is fed by several sources, a watershed can be divided in sub-watersheds.

Watershed Management Areas were created by NJDEP and NJGS in 2000 to manage the State's water resources, and address water pollution and supply issues efficiently. As shown on Map 9, Raritan is primarily located in the Lower Raritan, South River and Lawrence Watershed Management Area (WMA-9). The northwest corner of the Borough is located in the North and South Branch Raritan Watershed Management Area (WMA-8).

Figure 7: Watershed Management Area 8

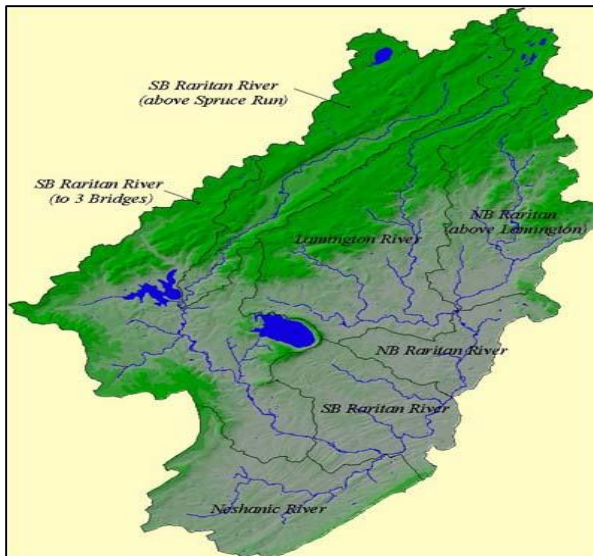
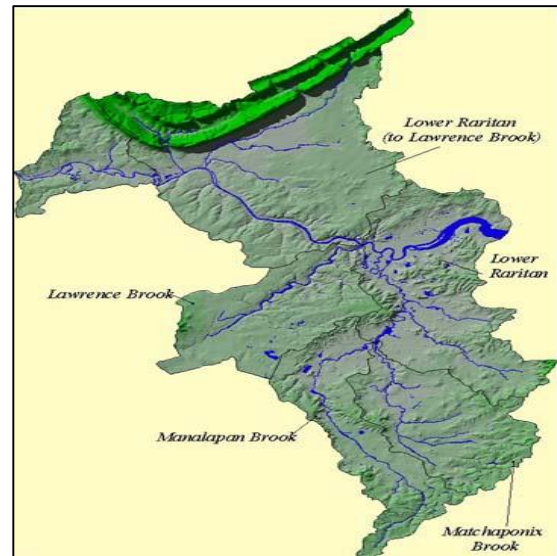


Figure 8: Watershed Management Area 9



The NJDEP describes WMA-9 as extending from the Lower Raritan south to Matchaponix Brook, and includes the mainstem of the Raritan River, the South River and Lawrence Brook. Middlesex, Somerset and Monmouth Counties comprise most of the area's political geography. The land use in this watershed is mainly urban/suburban, with industrial and commercial centers throughout.

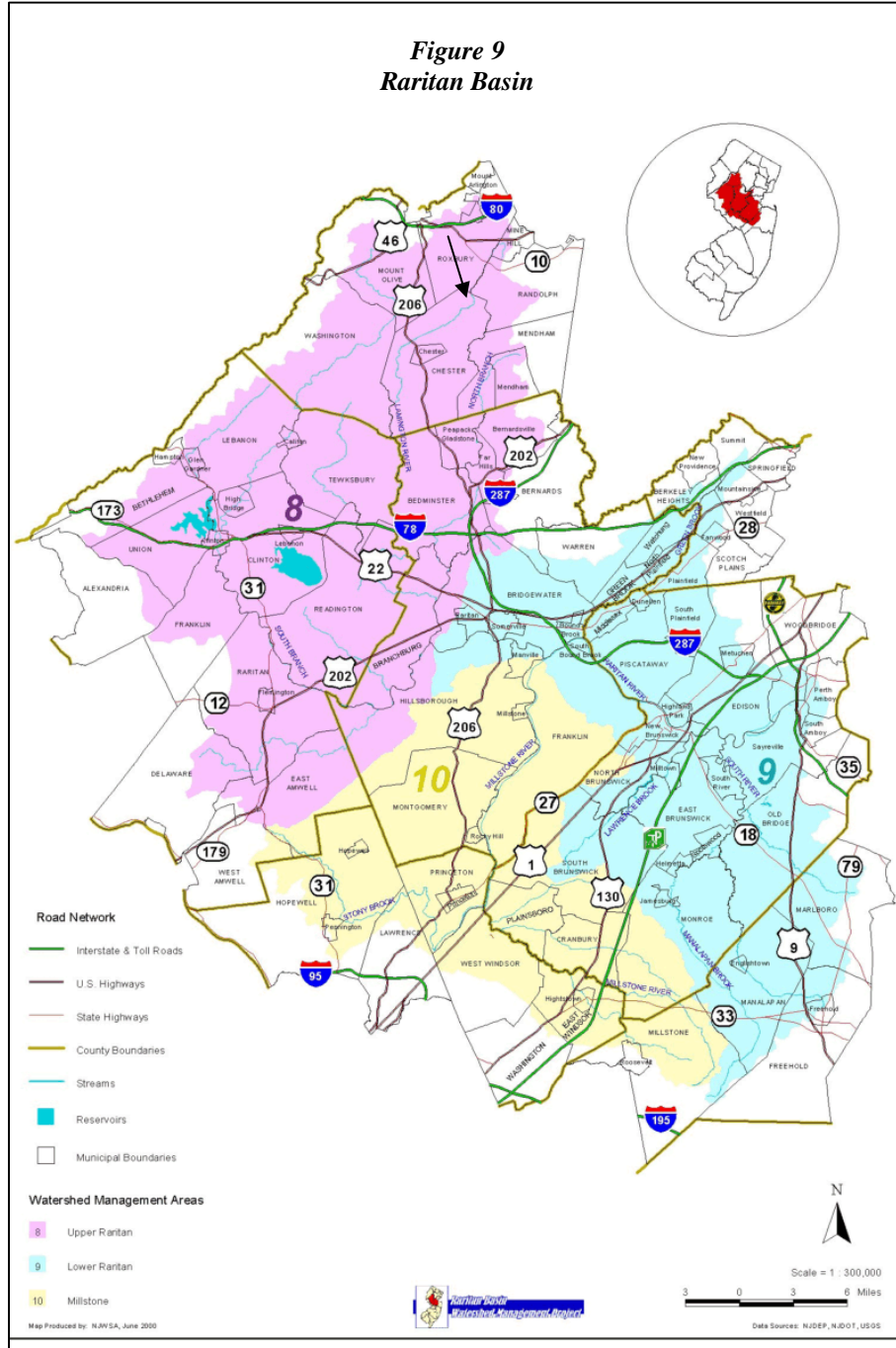
Raritan Borough is covered by three sub-watersheds - the Raritan River North Branch, Peter's Brook, and Raritan River & Lawrence (see Map 9).

Watershed Management Areas 8 and 9 are part of the larger Raritan Basin. The Raritan Basin is the largest river basin located entirely within the State of New Jersey encompassing 1,100 square miles of land that ultimately drain to the Raritan Bay through the Raritan River. The Raritan Basin is bounded by the Passaic River Basin to the north, by the Delaware River Basin to the west, by the Atlantic Coastal Basin to the South, and by the Hudson River Estuary to the northeast. The Basin is home to over 1 million residents and thousands of species of plants and animals. Critical wildlife habitats include grasslands, forests and wetlands. (See *Raritan Basin - Portrait of a Watershed*, NJ Water Supply Authority, August 2002.)

To better manage the resources of the basin, The Raritan Basin Watershed Management Plan was developed by The New Jersey Water Supply Authority under a Memorandum of Agreement with the New Jersey Department of Environmental Protection. The major changes contemplated in the Raritan River Basin include:

- Protection and preservation of lands that play a critical role in the protection of Raritan Basin water resources, including headwaters streams.
- Maintenance and restoration of ground water recharge to ensure sufficient supplies for dry weather stream flow and public use, and to minimize stormwater runoff.
- Improved control of stormwater through watershed-based management plans, improved site design techniques and attention to the impacts of stormwater on stream stability and flooding.
- Management of water supply resources on a sub watershed, watershed and regional basis so that sustainable levels of resources use are not exceeded, ensuring adequate water for both human and ecosystem uses.
- Restoration of streams and riparian areas that have been physically damaged by harmful land use and stormwater management practices, and protection of high-quality streams and riparian areas.
- Restoration and protection of ground and surface waters that are currently or prospectively impaired by excessive pollutant loads, through a combination of regulatory and non-regulatory programs affecting both point and nonpoint sources of pollutants.
- Understanding by residents, landowners, businesses and government decision-makers of the basic aspects of water resources and critical watershed management issues in the Raritan River Basin and tools to resolve them, so that they are moved to help solve these issues.

**Figure 9**  
**Raritan Basin**



### *F. Wetlands*

Wetlands are identified by three positive indicators: hydric soils, hydric vegetation and hydrology. Under the New Jersey Freshwater Wetlands Protection Act, activities in wetlands and in buffer or transition areas are regulated and administered by the New Jersey Department of Environmental Protection (NJDEP). As indicated on Map 10, wetlands in Raritan can be found primarily along the Raritan River and several creeks.

### *G. Floodplains*

Map 11 illustrates the extent of the 100 and 500 year floodplains in Raritan as delineated by the Federal Emergency Management Agency (FEMA) in 1996. The area most impacted by the 100 year floodplain is in the southeastern corner of the Borough on either side of Orlando Drive.

### *H. Vernal Pools*

Vernal pools are unique ecosystems that provide habitat for wildlife species. The NJDEP Division of Fish and Wildlife defines vernal pools as “confined wetland depressions, either natural or man-made, that hold water for at least two consecutive months out of the year and are devoid of breeding fish populations.” New Jersey adopted legislation in 2002 to protect vernal habitats.

According to the Center for Remote Sensing of Spatial Analysis (CRSSA) at Rutgers University, there is a potential vernal pool located within Raritan’s borders but it has not yet been certified or surveyed. This potential vernal pool is located in the southwest corner of the Borough between the Raritan River and the Raritan Power Canal, and has been given the ID of 1278ped. For more information on vernal pools and vernal pool protection, visit NJDEP Division of Fish and Wildlife New Jersey’s Vernal Pools webpage: <http://www.njfishandwildlife.com/ensp/vernalpool.htm>.

## V. Land Use

### A. Existing Land Use

Map 12 illustrates the generalized land use pattern in Raritan. As seen in Table V-1, residential is the largest single land use category at 39% of the parcel acreage. This is followed closely by the industrial category (32%) which accounts for the large corporate facilities straddling Route 202. Residential and industrial are followed by commercial (15%), public/charitable/exempt (10%,) and vacant (4%).

**Table V-1**  
**Generalized Land Use**

| Existing Land Use Category        | Parcel Acres    | Percentage |
|-----------------------------------|-----------------|------------|
| Residential                       | 440.60          | 40         |
| Commercial                        | 168.90          | 15         |
| Industrial & Railroad             | 335.90          | 31         |
| Public School                     | 22.10           | 2          |
| Public Property                   | 75.21           | 7          |
| Church, Charitable & Other Exempt | 10.50           | 1          |
| Private Vacant Land               | 42.65           | 4          |
| <b>Total</b>                      | <b>1,095.77</b> | <b>100</b> |

### B. Zoning

As indicated in the Table V-2 and illustrated on Map 13, there are 16 districts and 2 overlay districts in Raritan. The residential zoning district with the highest density, R-5, occurs on several lots in the northeast of the Borough. The R-4 district exists primarily between Route 202 and the Railroad, and also around the B-1 district on Somerset Street. The R-3 district, with slightly less density, is located in two areas: in the eastern portion of the Borough, near Route 206 and in the southern portion of the Borough near the Raritan Power Canal.



**Table V-2  
Raritan Zoning Districts**

| <b>Residential Zoning Districts &amp; Overlays</b> |  |
|--|--|
| R-1  | Low Density Residential District             |
| R-2  | Medium Low Density Residential District      |
| R-3  | Medium Density Residential District          |
| R-4  | Medium High Residential District             |
| R-5  | Townhouse/ Garden Apartment Density District |
| PDRD   | Planned Downtown Residential District        |
| PACD   | Planned Adult Community (overlay)            |
| IRD-1  | Inclusionary Residential District (overlay)  |
| IRD-2  | Inclusionary Residential District (overlay)  |
| IRD-4  | Pending COAH approval                        |
| <b>Non-Residential Zoning Districts</b>            |  |
| B-1  | Central Business District                    |
| B-2  | Shopping Center District                     |
| B-3  | Highway Business District                    |
| B-4  | Neighborhood Business District               |
| B-5  | Transit Center Business District             |
| OMR  | Office, Light Manufacturing, Recreation      |
| OM-2   | Industry Park District                       |
| OM-3   | Limited Industry District                    |
| P-1  | Office Building District                     |
| P-2  | Office Building District                     |
| G-1  | Governmental Uses District                   |
| RR   | Railroad                                     |
| <b>Open Space &amp; Recreation Districts</b>       |  |
| OS/P   | Open Space/ Park                             |
|  |  |

The Limited Industry District (OM-3, previously M-3) is the largest contiguous zoning district in Raritan, which houses the Johnson and Johnson complex and requires a minimum lot size of 20 acres. Business districts are strategically located around the intersections of the Borough's main corridors: Route 202, Route 206, Route 28 and Somerset Street.

The Governmental Uses district (G-1) and the OS/P district covers the Borough's, State and County open space and recreation parcels such as John F. Kennedy Primary School, Basilone Park, Raritan Valley Park, Frelinghuysen Park, the old Washington School, and the municipal complex.

### C. Parks and Open Space

There are approximately 75 acres of open space and recreational land in the Borough. They are illustrated on Map 14. As seen in Table V-3 the majority of acreage is municipally owned. There are no federal or state owned open space or recreation facilities in Raritan.

The three primary municipal recreation facilities are as follows:

1. *Basilone Park* is a heavily wooded area located between Centre Street and Old York Road and consists of 14.66 acres. Basilone provides seasonal recreation opportunities including a swimming pool located at Woodmere Street, and a children's arts and crafts program.
2. *Frelinghuysen Park*, located between Sherman Avenue and Railroad Avenue near Route 206. It is a 4.16 acre parcel containing three baseball/softball fields, two basketball courts, one tennis court, a swimming pool, playground and pavilion area.
3. *Raritan Valley Park*, located at the bank of the Raritan River, offers an important link to the greenway intended for this corridor. Amenities included on the 16.91 acres of land include a golf driving range, a natural buffer to the river, and a playground at Orlando Drive and Mill Street.

Somerset County owns approximately 21.76 acres of parks and open space including the Basilone Monument, the First Avenue Tennis Courts, and Duke Island. Somerset County's Raritan River greenway initiative will provide a major opportunity for creating a continuous recreational greenway along the riverbank.

**Table V-3  
Existing Parks and Recreation Summary  
Raritan Borough**

| <b>Jurisdiction</b> | <b>Approximate Acreage</b> | <b>% of Total</b> |
|---------------------|----------------------------|-------------------|
| Federal             | -0-                        | -0-               |
| State               | -0-                        | -0-               |
| Somerset County     | 22                         | 29%               |
| Municipal           | 41                         | 55%               |
| School Properties   | 12                         | 16%               |
| <b>Total</b>        | <b>75</b>                  | <b>100%</b>       |

*Source: NJDEP Green Acres Open Space Database modified by  
Borough of Raritan Tax Records*

## VI. Infrastructure

### A. Transportation

Raritan Borough is situated at or near the convergence of several highways including Interstate 287, US 22, 202 and 206 and NJ 28. Route 202 extends through the Borough in an east-west direction and provides access to I-287. Route 28 runs along the Borough's northeastern border with Bridgewater. The Raritan Station on NJ Transit's Raritan Valley Line is located on Thompson Street, which has been the focus of past studies considering the creation of a "transit village" around the railroad station. The Raritan Valley Line provides direct commuter access to Penn Station in New York. Buses carry passengers to several points within New Jersey and north to New York City. NJ Transit provides bus line 884, from Somerville to Clinton as part of their "Wheels: Suburban Transportation Service" and "Ridewise" of Raritan Valley Transportation Management Association.

There are two highway corridor initiatives that will impact on Raritan.

- The Route 22 Sustainable Corridor Improvements will include long-term improvements between Route 202/206 and Chimney Rock Road which will address high accident rates as well as eliminate congestion in this area. This project, sponsored by Somerset County, is expected to be complete in 2010, and is anticipated to cost \$8.75 million.
- The Route 202 Corridor Assessment and Multi-Modal Mobility Plan is intended to advance a series of improvements on Route 202 between the Flemington and Somerville traffic circles: a corridor that is one of the primary travel corridors linking Somerset and Hunterdon Counties. This project, sponsored by Somerset County and Hunterdon County through a bi-county steering committee, is expected to be completed in 2009.

### B. Water and Sewer Systems

The public water system in Raritan is owned and maintained by NJ American Water. The sanitary sewer conveyance system is owned and maintained by the Borough. Sewerage is processed at the Somerset Raritan Valley Sewerage Authority (SRVSA) wastewater treatment plant.

## Maps

- Map 1 ... Steep Slopes
- Map 2 ... Soils
- Map 3 ... Historic Sites
- Map 4 ... Forested Land
- Map 5 ... Landscape Project
- Map 6 ... Depth to Water Table
- Map 7 ... Groundwater Recharge Areas
- Map 8 ... Surface Water Bodies
- Map 9 ... Watersheds
- Map 10 ... Wetlands
- Map 11 ... Floodplains
- Map 12 ... Existing Land Use
- Map 13 ... Zoning
- Map 14 ... Parks and Open Space
- Map 15 ... Summary Map