

ASSOCIATION OF NEW JERSEY  
ENVIRONMENTAL COMMISSIONS

P.O. Box 157 • Mendham, NJ 07945 • Tel: 973-539-7547 • Fax: 973-539-7713 • Website: [www.anjec.org](http://www.anjec.org)

# The Environmental Resource Inventory: ERI

## The Environmental Resource Inventory: ERI

The Environmental Resource Inventory (ERI), also called a Natural Resource Inventory (NRI), or Index of Natural Resources, is a compilation of text and visual information about the natural resource characteristics and environmental features of an area.

An ERI is an unbiased report of integrated data. It provides baseline documentation for measuring and evaluating resource protection issues. The ERI is an objective index and description of features and their functions, rather than an interpretation or recommendation. Identifying significant environmental resources is the first step in their protection and preservation.

The ERI is an important tool for environmental commissions, open space committees, planning boards and zoning boards of adjustment. The planning board should adopt the ERI as part of the municipal master plan, either as an appendix or as part of a master plan conservation element. As part of the master plan, the ERI can provide the foundation and documentation for the development of resource protection ordinances and resource-based land use planning.

The ERI is a dynamic document, not cast in concrete. The commission should add to, revise and refine it as members gain knowledge and more data become available. The ERI is a notebook of the accumulated information about an area.

## Legal Authority for ERIs

Two New Jersey state laws give environmental commissions the authority and responsibility for conducting ERIs.

The Environmental Commission Enabling Legislation (*N.J.S.A. 40:56A*) states that “A...commission organized under this act shall have power to conduct research into the use and possible use of the open land areas of the municipality.... It shall keep an index of all open marshlands, swamps and other wetlands, in order to obtain information on the proper use of such areas, and may from time to time recommend to the planning board, or, if none, to the mayor and governing body of the municipality, plans and programs for inclusion in a municipal master plan and the development and use of such areas.”

The *Municipal Land Use Law (MLUL)* (*N.J.S.A. 40:55D-1 et seq.*) requires municipalities to have a land use plan element in their master plan, “including but not necessarily limited to, topography, soil conditions, water supply, drainage, flood plain areas, marshes, and woodlands....” (*N.J.S.A. 40:55D-28b(2)*).

The MLUL also states that, “Whenever the environmental commission has prepared and submitted to the planning board and to the board of adjustment an index of the natural resources of the municipality, the planning board or the board of adjustment shall make available to the environmental commission an informational copy of every application for development submitted to either board,” (*N.J.S.A. 40:55D-27b*). The MLUL, however, goes on

to say, "Failure of the planning board or board of adjustment to make such informational copy available to the environmental commission shall not invalidate any hearing or proceeding."

## What Does an ERI Include?

An ERI has text, maps, tables, figures and graphics that describe and compare information on the natural and environmental characteristics and features of an area. The basic ERI information covers climate, geology, geography/topography, soils, hydrology, vegetation, wildlife and habitat, critical areas and land use. It is important to include a characterization of local relationships to regional resources such as open space, watersheds, surface and groundwater, and wetlands. A more comprehensive ERI might also include information on historic and cultural factors, scenic areas, air quality, transportation, noise and contaminated sites. In addition to text and maps, the ERI should include a bibliography of source materials.

## Collecting Information for the ERI

Environmental commissions will find that various local, county, state or federal agencies, or private groups or individuals have already collected most of the basic information needed for an ERI. The challenge is to find out which information is where. Often, the information is available, but may need to be updated or translated into a usable format.

*Start your information search at town hall.* The municipal engineer, town clerk, planning board and town planner should be able to help you locate existing maps, documents and studies. The County Soil Conservation District is also a good source of local data and information, as is the county planning office. The NJDEP and USEPA have comprehensive websites that post some data and also list telephone numbers for departments you may wish to contact.

- NJDEP [website](http://www.state.nj.us/dep): [www.state.nj.us/dep](http://www.state.nj.us/dep)
- EPA [website](http://www.epa.gov): [www.epa.gov](http://www.epa.gov)

NJDEP maps are excellent sources of information, but the data on surface features such as wetlands and vernal ponds, streams and steep slopes should be field checked for accuracy.

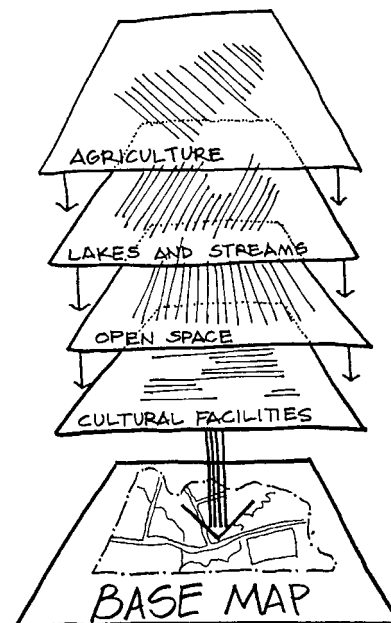
Don't overlook Environmental Impact Statements (EIS) as sources of information. Federal and state agencies usually prepare these studies for

major projects like roads, and municipalities often require an EIS from applicants for major subdivisions and site plans. An EIS includes inventory information and shows how a particular proposal will impact a parcel of land. Ask your planning board or municipal clerk for copies of these reports.

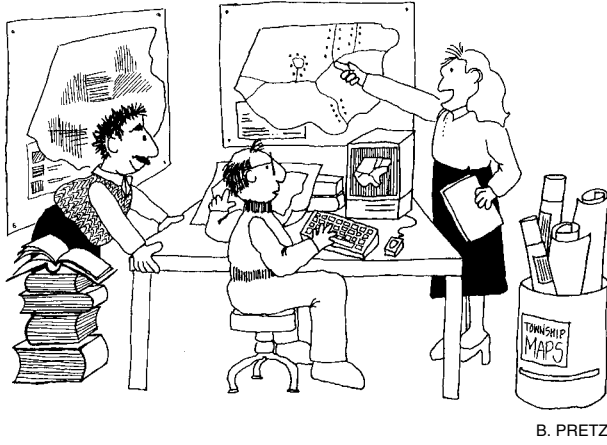
## Maps

An ERI should include a series of maps, ideally all at the same scale, showing relevant characteristics and features. Scale compatibility of maps is an important consideration, as it will allow accurate comparison from map to map, and use of acetate overlays, if desired. All maps contained in the ERI should display a title, bar scale, scale ratio and key.

ERI mapping usually starts with a base map such as a municipal tax map, also called a parcel map, which shows roads and individual properties. Many individual municipalities have digitized their parcel maps, either in CAD (Computer-Aided Design) or GIS (Geographic Information System) format. Another standard type of base map is the NJ Geological Survey (NJGS) *Photo Quarter Quad*. These maps, at a scale of 1:12,000 (one inch on the map equals 1000 feet on the ground), are aerial images with the geometric qualities of a map. They are available in paper form from the NJGS. Contact NJDEP's Maps and Publications Office at 609-777-1038, or go to the NJGS [website](http://www.state.nj.us/dep/njgs/) at [www.state.nj.us/dep/njgs/](http://www.state.nj.us/dep/njgs/) for ordering information. For digital photo quarter quad downloads (which require ArcView software) see "Aerials" on the NJDEP GIS [webpage](http://www.nj.gov/dep/gis) ([www.nj.gov/dep/gis](http://www.nj.gov/dep/gis)). For digital tax/parcel maps, check with the town clerk, engineer or planner.



B. PRETZ



B. PRETZ

In an ERI, resources may be mapped individually (i.e.; separate maps for wetlands, soils, historic properties, etc.); or grouped by related characteristics, such as “critical areas” (steep slopes, recharge areas, priority habitat areas, wetlands and flood plains) or “water resources” (surface waters, aquifers, wellhead protection areas and wells). A series of maps reproduced on mylar or transparency film can be used as overlays, to view multiple features in various combinations.

Now, municipalities and commissions are increasingly utilizing computer-based geographic and mapping information systems called Geographic Information Systems, or GIS, to create local databases and make ERI maps. GIS programs can display and print layers of information as separate maps, or combined on the same map.

The NJDEP has developed an extensive GIS database of basic geologic and environmental information for New Jersey. Using ArcView software, one can now access more than 50 “layers” of digital data (flood areas, contaminated sites, wetlands, etc.) from the NJDEP’s GIS [website](http://www.nj.gov/dep/gis): (www.nj.gov/dep/gis).

Municipalities can obtain ArcView software and the GIS data pertaining to their locality from the New Jersey Office of GIS. Environmental commissions can obtain the software from the State at no cost, for additional details consult [website](http://www.nj.gov/dep/gis) (https://njgin.state.nj.us), select *Resources*, then *NGOs*, or call 609-633-9103. However, GIS requires a significant investment of time to master. Commissions will need to work with a consultant, or someone else with GIS expertise, until they develop the skills to handle mapping projects “in house.” The county planning office, a local watershed association, ANJEC or a regional land preservation organization may be able to assist a commission with GIS, or produce maps for the ERI.

NJDEP or other GIS maps can be augmented or fine-tuned with additional data. For example, municipalities can use GPS (Global Positioning System) units to pinpoint the location of local land or infrastructure features such as sewer outfalls, enter the data into the GIS database and print it out on a map.

The NJDEP provides some of its mapped data in a user-friendly format called “i-MapNJ” on the DEP [website](http://www.nj.gov/dep/gis) (www.nj.gov/dep/gis) select “Interactive Mapping”. Although these maps are not reproducible in report quality, they provide easy viewing access to data on land use, open space, wellhead protection areas, contaminated sites and other features available from NJDEP. You can view aerial maps (both the 2002 *orthophoto* files and the 1995 USGS Quarter Quads) on the NJ Office of Information Technology [website](https://njgin.state.nj.us) at (https://njgin.state.nj.us).

The NJDEP has a list of “Environmentally Sensitive Natural Resources” and citations for the Administrative Code (“rules”) regulations that affect those resources at their [website](http://www.state.nj.us/dep/nrr/about/sensitive_nr.htm): www.state.nj.us/dep/nrr/about/sensitive\_nr.htm).

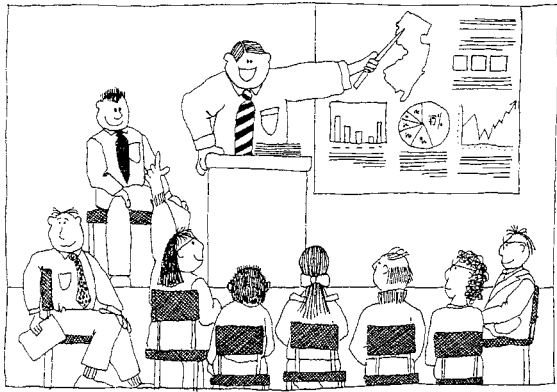
## The Report

The text of an ERI starts with a general description of the region and the municipality’s place in it. It then proceeds to describe the natural and environmental characteristics and features of the municipality (ideally also shown on maps) and how the features relate to each other and the local environment. The report should be factual and objective. Any recommendations arising from the ERI should be published in a separate report. The report can be adopted into the master plan as part of the conservation element.

An ERI should include a bibliography of the books, maps, reports, databases and other materials used as sources of information, and a description of the processes used to develop the maps or collect data.

## Open Space Index

An inventory of undeveloped public and private open space can be part of an ERI. Parks, natural areas, camps, farms, historic sites, undeveloped real estate, ski trails, school complexes, golf courses, easements and abandoned railroad rights-of-way are some areas that should be listed and mapped. Often, the information is available, but needs updating or conversion into a desired format. Although a paper or CAD open space map is



B. PRETZ

adequate, a town may prefer to convert open space information into GIS format, so that it can be combined and mapped with other municipal data.

## What Are the Uses of an ERI?

- As a tool to increase the understanding of natural systems, and their limitations and opportunities for use;
- as a basis for a land capacity analysis, for determining the intensity and location of development;
- as a factual basis for municipal land use planning, including preparation of the land use element of the municipal master plan;
- as a comprehensive guide in the site plan review process;
- as a reference for developing municipal ordinances and establishing management practices for public lands and infrastructure;
- to help identify priority areas for open space, historic and farmland preservation;
- as an educational tool for residents to learn more about their community and its environment;
- as a way to save dollars by avoiding future problems such as flooding and degradation of water quality, and the associated mitigation costs.

## Who Uses an ERI?

- environmental commissions
- planning boards
- zoning boards of adjustment
- developers
- planners
- engineers
- environmental consultants
- open space committees
- elected officials

Note: The *Environmental Commissioners' Handbook* (ANJEC, 1998), Chapter 3, discusses the significance of ERI data.

## How Do You Conduct an ERI?

Preparing an ERI involves planning, establishing goals, setting priorities, organizing people to do the work, getting assistance, developing a feasible workplan and following through.

### 1. Determine what is to be accomplished.

If you do not have an ERI, you probably will want to conduct a complete inventory. If you are updating an ERI, you may need to inventory only the resources that have changed, or that were not included or mapped in the original document. Depending on your objectives, you may want to emphasize certain characteristics. For example, if you are planning a local greenways project, you would emphasize features along the proposed greenway. Or if your concern is about water supply, you would emphasize the inventory of surface and groundwater.

### 2. Decide what is to be included.

Look at other ERIs for ideas. You may borrow samples from neighboring towns, the county planning board, or ANJEC. Some towns post their ERIs on the town website. Remember, ERIs are not static documents. You can assemble important baseline data, then add to the ERI over time. There are many ways to organize an ERI; see page 10 for sample tables of contents.

### 3. Locate and contact sources of information.

Before collecting new data, find out what already exists. Talk with the municipal engineer, planner and tax assessor, local conservation or land trust organizations, county planning board staff, and the County Soil Conservation District for information. At the state level, consult the NJDEP [website](#) for contact information and lists of GIS resources. See "Collecting Information for the ERI" on page 2.

### 4. Decide who will do what.

If the environmental commission is collecting the ERI data, assign a topic or topics to each member. Let the community know what you are doing. Request help from local volunteers who have special technical knowledge. It's a good idea to write an article for the local paper or town newsletter, explaining the purpose of the ERI project and asking for community input.

Ask your county college or a nearby university for a student intern to take this on as an independent study project, class project, or work-study program. Ask community groups for their help.

It is always good to have outside experts review the finished draft. Members of the academic community, government officials and environmental experts may serve in this capacity. Don't overlook the wealth of knowledge of long-time residents.

#### 5. Develop a work plan.

Develop a schedule for completing each element of the inventory. Do the most important things first, and don't try to tackle too much at once. Set up a work plan and schedule that don't overtax and discourage participants. Spread out the work among a reasonable number of volunteers and set target dates for completion.

#### 6. Plan for funding the project.

Even if volunteers do most of the work, some costs will arise for data gathering, supplies and printing. The Environmental Services Program (ESP) of the NJDEP has an environmental commission matching grant program for environmental resource protection projects. Many commissions use these grants to help cover the costs of compiling all or part of an ERI. The ESP staff can also help with questions about where to call within the DEP for specific types of information. Contact the Environmental Services Program at 609-984-0828, [website: www.state.nj.us/dep/esp](http://www.state.nj.us/dep/esp).

#### 7. Inform the public.

It is important to educate and inform the community about what you are trying to do and why. Local publicity such as a newspaper article or posting on the town website will educate residents about environmental issues, and also may turn up some local experts who can help you locate important data or help the commission with other activities. Increased knowledge and understanding of your community's natural resources should promote more responsible use of those resources, and build support for good land use planning by the municipality.

## Creating the ERI

Most ERIs cover, at minimum, these categories: GEOGRAPHY/ TOPOGRAPHY, GEOLOGY, HYDROLOGY, SOILS, WETLANDS and VEGETATION. Additional sections to include, as time and budget allow, are: WILDLIFE/HABITAT, LAND USE, CLIMATE, AIR, HISTORIC/CULTURAL, INFRASTRUCTURE, NOISE, and REGIONAL RELATIONSHIPS.

Because natural resources are interrelated, many categories overlap: vegetation depends on soil type, and soil type depends on geology. When you research the hydrology of the soils in your town, for example, you also will be finding out about wetlands and groundwater.

### A. GEOGRAPHY/TOPOGRAPHY

1. NJ physiographic region and subregions
2. Relief, elevation, steep slopes

#### *Data Sources:*

NJDEP digital data downloads (ArcView) for elevation contours. US Geological Survey (USGS) 7.5 minute quadrangle maps: NJDEP Maps and Publications Sales Office, 609-777-1038, or visit the [website](http://www.state.nj.us/dep/njgs/) at ([www.state.nj.us/dep/njgs/](http://www.state.nj.us/dep/njgs/)).

### B. GEOLOGY

1. Bedrock type and characteristics (structure, type, age)
2. Depth to bedrock
3. Unconsolidated materials (loose rocks, sands) and thickness
4. Mineral resources (sand, gravel, metals, etc.)
5. Geologic cross sections

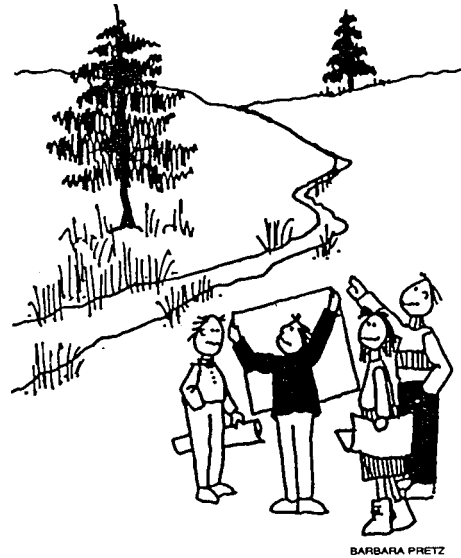
#### *Data Sources:*

See NJDEP digital data downloads in ArcView for geology. Contact the NJ Geological Survey (NJGS) at 609-292-1185 or visit the [website](http://www.state.nj.us/dep/njgs/) at ([www.state.nj.us/dep/njgs/](http://www.state.nj.us/dep/njgs/)). *The Geology and Geography of New Jersey* by Kemble Widmer (1964) should be available at county or college libraries.

### C. HYDROLOGY

1. Groundwater
  - a. aquifer outcrops; location, extent, thickness
  - b. direction and rate of groundwater movement
  - c. groundwater recharge and discharge areas (possibly outside municipality)
  - d. depth to groundwater
  - e. community well locations, depths, production, history
  - f. wellhead protection areas
  - g. private well areas - characterization and trends
  - h. quality of groundwater; pollutant sources, cleanups/remediations
  - i. areas served by septics - characterization and trends
2. Surface Water
  - a. types, location, names, direction of flow
  - b. watersheds and subwatersheds

- c. designation/classification of surface water bodies and tributaries (trout production, trout maintenance, etc.)
- d. stream buffers
- e. low flow of streams – mean 7 day/10 year recurrence interval
- f. floodplains, wetlands, marshes, bogs
- g. erosion, sedimentation
- h. water quality – dissolved oxygen, suspended solids, etc.
- i. monitoring and sampling programs
- j. liquid waste and disposal systems
- k. intakes, outfalls, dams
- l. municipal stormwater infrastructure and management



*Data Sources:*

See NJDEP digital data downloads in ArcView for streams, water bodies, monitoring sites, groundwater contamination areas, ground- and surface-water discharges, floodprone areas, surface water quality standards, wellhead protection areas, watersheds and watershed management areas.

For local surface and groundwater data, use USGS maps from NJGS (see Section A, “Topography”, for NJGS address and phone.) Other sources are the municipal engineer, county planning board and local watershed associations.

For information on flood-prone areas, contact the Federal Emergency Mgmt. Agency (FEMA), Map Service Ctr., P.O. Box 1038, Jessup, MD 20794-1038 (800-358-9616) or [website](http://www.fema.gov) (www.fema.gov) or NJDEP [website](http://www.nj.gov/dep/landuse) (www.nj.gov/dep/landuse) for flood hazard areas.

For facilities having a permit to discharge into local surface or ground water consult [website](http://www.state.nj.us/dep/dwq/database.htm) (www.state.nj.us/dep/dwq/database.htm) or call the DEP Bureau of Permit Management at 609-292-4543.

For the location of wells, see your local and county health departments.

For information on wellhead protection, contact the Passiac River Coalition at 908-766-7550.

For surface water classifications and surface water quality criteria, see *Surface Water Quality Standards, N.J.A.C. 7:9B*, available [online](http://www.state.nj.us/dep/wmm/sgwqt/swqsdocs.html) at (www.state.nj.us/dep/wmm/sgwqt/swqsdocs.html) or contact the NJ DEP Bureau of Freshwater and Biological Monitoring, 609-292-0427.

For aquifer recharge areas, call NJGS Bureau of Groundwater Resource Information, 609-984-6587. Water supply companies and municipal water departments are also sources of information.

## D. SOILS

1. Soil types, texture, stoniness, depth, hydrological types
2. Shrink-swell potential
3. Frost heave potential
4. Erodibility, potential soil loss in cubic feet per year
5. Percolation rates
6. Depth to groundwater
7. Surface runoff, permeability, perviousness
8. Fertility (vegetative capability)
9. pH
10. Nutrient absorption

*Data Sources:*

See NJDEP digital data downloads in ArcView for soils. County soil surveys and soil erosion and sedimentation control information are available from your County Soil Conservation District or county planning board.

## E. VEGETATION

1. Types of vegetation
2. Fire hazard, history of wildfire
3. Pollution-affected types
4. Historic, recreational, economic value
5. Known/possible habitats for endangered/threatened plant species
6. Forest cover
7. Agricultural areas
8. Characterization of street tree resource

*Data Sources:*

See NJDEP digital data downloads in ArcView for Landscape Project and Natural Heritage Priority Sites. For information on significant habitats, contact the NJDEP’s Natural Heritage Program at 609-984-1339, [website](http://www.state.nj.us/dep/parksandforests/natural/heritage/index.html) (www.state.nj.us/dep/parksandforests/natural/heritage/index.html).

For information on agricultural areas, contact your county Agricultural Development Board. See "WETLANDS" section, for information on wetlands vegetation.

## F. WILDLIFE

1. Species inventory
2. Rare, threatened and endangered species
3. Nuisance and invasive species
4. Economically valuable species
5. Abundance and distribution of significant species within habitat and season

### Data Sources:

For information on significant wildlife habitats, contact the DEP's Natural Heritage Program at 609-984-1339 or [website](http://www.state.nj.us/dep/parksandforests/natural/heritage/index.html) (www.state.nj.us/dep/parksandforests/natural/heritage/index.html)

For information on animal species and locations, contact the DEP's Endangered & Nongame Species Program 609-292-9400 or [website](http://www.njfishandwildlife.com/ensphome.htm): (www.njfishandwildlife.com/ensphome.htm)

For information on birds and bird habitat, contact the NJ Audubon Society, Cape May Bird Observatory at 609-861-0700 or look [online](http://www.njaudubon.org) at (www.njaudubon.org). Local Audubon chapters often will help survey birds and other wildlife. Visit the national Audubon Society [website](http://www.audubon.org) for a list of chapters in New Jersey (www.audubon.org/chapter/nj/). NJDEP's Landscape Project has mapped critical wildlife habitats. [Website](http://www.state.nj.us/dep/fgw/ensp/landscape/). (www.state.nj.us/dep/fgw/ensp/landscape/).

## G. WETLANDS

1. Identifying factors
  - a. Wetlands vegetation (hydrophytes)
  - b. Wetlands soils (hydric soils)
  - c. Hydrology (presence of water sufficient to support wetlands vegetation)
2. Types of wetlands
  - a. Salt water
  - b. Fresh water
  - c. Vernal habitats (Vernal Ponds)

- d. Restorations and engineered wetlands
3. Wetlands classifications and buffers
    - a. Exceptional Resource Value wetlands
    - b. Ordinary Resource Value wetlands
    - c. Intermediate Resource Value wetlands

### Data Sources:

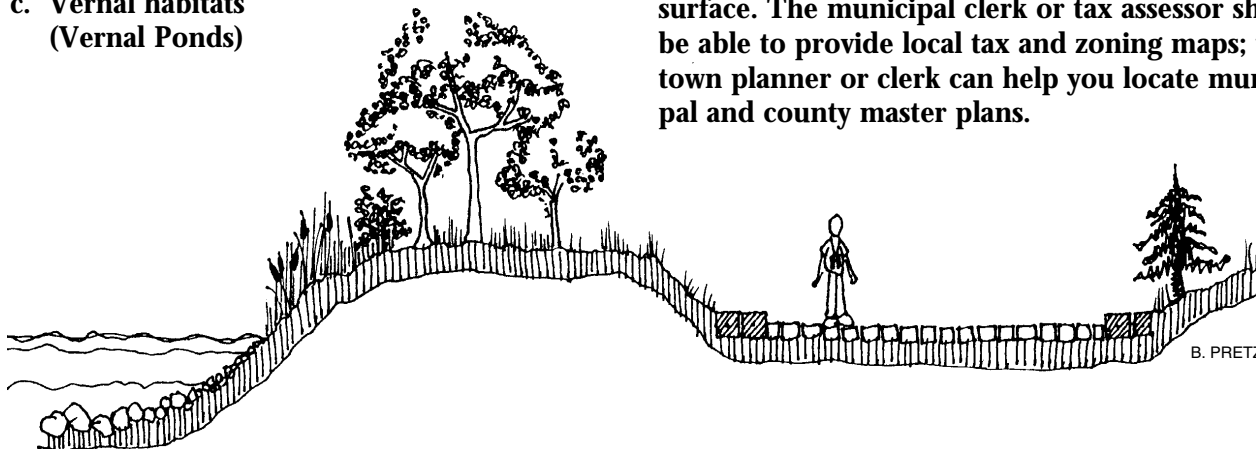
See NJDEP digital data downloads in ArcView for freshwater wetlands, South Jersey marshes, upper wetlands boundaries. For NJ Freshwater Wetlands Quarter Quadrangle maps, scale 1:12,000, contact NJDEP's Maps & Publications Ofc.: 609-777-1038. These maps are a good indicator of wetlands, but must be field-checked for exact boundaries. Also, remember to include verified wetlands data from development applications. Contact county planning boards and municipal clerks for wetland permit reports and watershed associations for wetland species information. Cross-check information from the HYDROLOGY and WILDLIFE sections, to link wetlands data to protection of surface waters and species habitat. NJDEP Wetlands rules and [website](http://www.nj.gov/dep/landuse) (http://www.nj.gov/dep/landuse).

## H. LAND USE

1. Existing
  - a. Open space, public and private (including easements)
  - b. Roads, railroads, pipelines, reservoirs
  - c. Recreation areas, public and private
  - d. Agricultural areas
  - e. Industrial areas
  - f. Waste treatment and disposal facilities (sewage and solid waste)
2. Proposed
  - a. Zoning
  - b. Master plan

### Data sources:

See NJDEP digital data downloads in ArcView for land use, aerial photos, known contaminated sites, state-owned open space, roads and impervious surface. The municipal clerk or tax assessor should be able to provide local tax and zoning maps; the town planner or clerk can help you locate municipal and county master plans.



## I. CLIMATE

1. Prevailing air currents
2. Maximum/minimum fluctuations in temperature
3. Seasonal precipitation and growing season
4. Frost line
5. Topographic protection (wind)
6. Fog-bound areas
7. Air quality: For areas where air pollution is not a big issue, information about stationary or vehicular sources of air pollution can be included in this section. For some areas, air quality issues will merit a separate section in the ERI (see section *J. AIR*, below).

### *Data Sources:*

For climatological data, contact your local or county library or airport weather services. The Office of the NJ State Climatologist is located at Cook College, Rutgers University at 732-445-4741 [website](http://climate.rutgers.edu/stateclim/) (<http://climate.rutgers.edu/stateclim/>). The NOAA National Climatic Data Center (NCDC) in Asheville, NC at 828-271-4800 has data that can be ordered directly through the NCDC [website](http://www.ncdc.noaa.gov) at: (<http://www.ncdc.noaa.gov>).

## J. AIR

1. Air quality: national “Clean Air” standards
2. Regional, local air monitoring sites and statistics
3. Stationary sources of air pollution and toxics
4. Major vehicular air pollution/ozone areas
5. Radon
6. Odors

### *Data Sources:*

See NJDEP digital data downloads in ArcView for air monitoring points. For air quality information and licensed air emission sources, check the following NJDEP websites: [Site](http://www.nj.gov/dep/airmon/) ([www.nj.gov/dep/airmon/](http://www.nj.gov/dep/airmon/)) or [Site](http://www.state.nj.us/dep/baqp/) ([www.state.nj.us/dep/baqp/](http://www.state.nj.us/dep/baqp/)), or call the NJDEP Bureau of Air Quality Monitoring, 609-633-7648. For information on radon and NJ Radon Tier Levels. [Website](http://www.nj.gov/dep/rpp/radon/radonin.htm). ([www.nj.gov/dep/rpp/radon/radonin.htm](http://www.nj.gov/dep/rpp/radon/radonin.htm)).

## K. HISTORIC AND CULTURAL FEATURES

1. Historic sites, districts, areas
2. Historic roads, bridges and trees
3. Existing or possible archaeological sites
4. Scenic qualities, viewsheds

### *Data sources:*

Local and county historic commissions and historical societies, municipal and county master

plans and the NJDEP’s Historic Preservation Office, 609-984-0176 or the website [online](http://www.state.nj.us/dep/hpo) at ([www.state.nj.us/dep/hpo](http://www.state.nj.us/dep/hpo)).

## L. EXISTING AND PLANNED INFRASTRUCTURE

1. Transportation
2. Drinking water
3. Stormwater
4. Sewage
5. Waste treatment, disposal, recycling facilities
6. Energy utilities
7. Communications towers
8. Educational facilities

### *Data sources:*

Municipal and county health and planning departments, municipal engineers, municipal and county master plans, the local board of education, utility companies and authorities, transit organizations.

## M. NOISE

1. Noise-sensitive areas in community
2. Significant sources of noise
3. Day/night permitted sound levels
4. Decibel equivalents of typical sounds

### *Data sources:*

Local board of health, county board of health.

## N. REGIONAL RELATIONSHIPS

1. State Development & Redevelopment Plan
2. County master plan and open space plan
3. Regional plans (e.g.; Hackensack Meadowlands, Pinelands, D&R Canal)
4. Problem areas (flooding, air pollution, etc.)
5. Watersheds/ Watershed Mgmt. Plans

### *Data sources:*

For information on the State Development & Redevelopment Plan, contact the NJ Office of Smart Growth at 609-292-7156, [website](http://www.nj.gov/dca/osg/) ([www.nj.gov/dca/osg/](http://www.nj.gov/dca/osg/)). For the county master plan, contact your county planning board.

For individual special protection areas: Pinelands Commission 609-894-7300, [website](http://www.state.nj.us/pinelands/) ([www.state.nj.us/pinelands/](http://www.state.nj.us/pinelands/)), Hackensack Meadowlands Development Commission 201-460-1700, [website](http://www.meadowlands.state.nj.us/). ([www.meadowlands.state.nj.us/](http://www.meadowlands.state.nj.us/)), Delaware & Raritan Canal Commission 609-397-2000 [website](http://www.dandrcanal.com/) ([www.dandrcanal.com/](http://www.dandrcanal.com/)).

For information on Watershed Mgmt. Plans, contact the NJDEP Division of Watershed Mgmt., 609-984-0058 [website](http://www.nj.gov/dep/watershedmgmt/) ([www.nj.gov/dep/watershedmgmt/](http://www.nj.gov/dep/watershedmgmt/)).

## O. CONTAMINATED SITES

1. Superfund or other contaminated sites
2. ISRA sites (Industrial Site Recovery Act)
3. Incinerators/ resource recovery facilities
4. Hazardous substance storage and use
5. Underground storage tanks (USTs)

### Data sources:

For known contaminated sites in your area, call NJDEP's Site Remediation Program, 800-253-5647, or 609-633-2325, [website](http://www.nj.gov/dep/srp) (www.nj.gov/dep/srp).

For ISRA sites, call NJDEP's Office of Industrial Site Evaluation, 609-984-1351, [website](http://www.state.nj.us/dep/srp/isra) (www.state.nj.us/dep/srp/isra).

For existing and proposed resource recovery facilities (incinerators), call NJDEP's Division of Solid & Hazardous Waste 609-984-6900.

For a listing of certain hazardous substances used or stored in your town, call the NJDEP's Office of Pollution Prevention and Permit Coordination (Right-to-Know) at 609-984-3219 or [online](http://www.state.nj.us/dep/oppcc) at (www.state.nj.us/dep/oppcc). Local Emergency Planning Committees in every county and municipality may also be helpful.

## P. CRITICAL ENVIRONMENTAL AREAS

A separate critical environmental areas map, showing environmental features that merit special consideration or protection, can be compiled to help with your town's resource planning. Features that can be displayed on the map include:

- Wetlands (see "G")
- Steep slopes (see "A")
- Floodplains, floodways (see "C")
- Aquifer recharge areas (see "C")
- Prime agricultural soil areas (see "D" and "E")
- Soil limitation areas (see "D" and "H")
- Endangered/threatened species habitat (see "E" and "F")
- Trout associated waters (see "C")
- Water supply – surface waters and groundwater (see "C")

### Sample ERIs

Copies of ERIs and publications on how to create an ERI are available in ANJEC's Resource Center in Mendham. The New Jersey Digital Library has copies of some Environmental or Natural Resource Inventories. Go to [website](http://njedl.rutgers.edu/njdlib) (http://njedl.rutgers.edu/njdlib) and use the search option. In addition many towns have put their ERIs on their websites. The ANJEC [website](http://www.anjec.org) (www.anjec.org) has links to these municipal sites.



## Helpful Publications from ANJEC

*Environmental Commissioners' Handbook.* ANJEC. Fourth Edition. 88 pages. \$10.00 plus postage & handling. Based on knowledge gained over 25 years, gives detailed discussion on Environmental Resource Inventories and environmental commission procedures and activities.

*The Environmental Manual for Municipal Officials.* ANJEC. 176 pages. \$12.00 plus shipping and handling. This handbook of environmental protection in New Jersey gives an overview of major environmental issues (clean air, clean water, waste management, land use, wildlife, etc.) and a description of the state laws, regulations and programs that deal with them. The *Manual* also describes local boards and commissions (planning and zoning boards, boards of health, etc.), the laws and policies that govern their operations, and the things they can do to protect the environment at the local level.

*Acting Locally - Municipal Tools for Environmental Protection.* ANJEC. 148 pages. \$10.00 plus shipping and handling. A comprehensive collection of rationales and methods for protecting ground water, lakes, steep slopes, trees, coastlines, streams and other natural resources through better local land use policy. Practical, specific tools including ordinances, development standards, data collection and public education techniques that are being used successfully in NJ communities.

*Getting It All Together.* ANJEC. Although out of print, this exhaustive volume on the application of environmental information to land use planning is available on loan from, or for use in, the ANJEC Resource Center in Mendham.

*Open Space Plan.* ANJEC. 12 pages \$1.00 plus shipping and handling, or [online](http://www.anjec.org). This Resource paper explains the benefits of an open space plan and how to create one for your municipality.

ANJEC members receive a 20% discount on all publications.



# TABLES of CONTENTS from SELECTED ERIs

The selections below will give you an idea of the variety of ways in which towns have organized their ERIs. Due to space limitations, we have not included all lists of tables, figures, plates, etc.



---

## BASS RIVER TOWNSHIP (Burlington County)

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>1 Location and Geographic Description</li><li>2 History of the Township</li><li>3 Climate, Geology and Soils</li><li>4 Rivers, Water Supplies and Aquifers</li><li>5 Vegetation and Wildlife<ul style="list-style-type: none"><li>Forest Fires &amp; Woodland Environs</li></ul></li><li>6 Present Land Use</li><li>7 Population Studies</li><li>8 Availability of Personal Services</li></ul> | <ul style="list-style-type: none"><li>9 Highways and Transportation<ul style="list-style-type: none"><li>Bass River Township and Route 9</li></ul></li><li>10 Limitations for Development<ul style="list-style-type: none"><li>State Regulations</li><li>Topography</li><li>Publicly Owned Lands</li><li>Environmental Requirements</li><li>and Impact of Present Industries</li><li>Local Attitudes toward Development</li></ul></li></ul> |
|--|---|



---

## MILLBURN TOWNSHIP (Essex County)

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>Introduction</li><li>Acknowledgements</li><li>Maps</li><li>I. Background<ul style="list-style-type: none"><li>A. Geography and Demography</li><li>B. Land Use</li><li>C. History</li><li>D. Physiography<ul style="list-style-type: none"><li>(Each district of the Township is described separately.)</li></ul></li></ul></li><li>II. Natural Resources<ul style="list-style-type: none"><li>A. Climate</li><li>B. Air Quality</li><li>C. Geology</li><li>D. Aquifers</li><li>E. Soils<ul style="list-style-type: none"><li>1. Slope</li><li>2. Soil Erosion Potential</li><li>3. Seasonal High Water Table</li><li>4. Water Runoff Potential</li><li>5. Depth to Bedrock</li></ul></li><li>F. Hydrology</li><li>G. Water Quality<ul style="list-style-type: none"><li>1. Upper Passaic River</li><li>2. Rahway River</li></ul></li><li>H. Vegetation</li><li>I. Wetlands<ul style="list-style-type: none"><li>1. Wetland Values</li><li>2. Federal Authority</li><li>3. State Authority</li></ul></li></ul></li></ul> | <ul style="list-style-type: none"><li>J. Wildlife</li><li>III. Regional Factors<ul style="list-style-type: none"><li>A. Water Supply</li><li>B. Watersheds</li><li>C. Population Density and Open Space</li><li>D. Sewerage</li><li>E. Transportation<ul style="list-style-type: none"><li>1. Automobile</li><li>2. Bus</li><li>3. Rail</li></ul></li></ul></li><li>IV. Findings and Recommendations</li><li>V. Bibliography</li><li>VI. Appendices<ul style="list-style-type: none"><li>A. Seven "Critical Area" Maps</li><li>B. Open Space in Millburn Township<ul style="list-style-type: none"><li>1. Tabular Listing</li><li>2. Fox Hill Reserve</li></ul></li><li>C. Bicentennial Trees</li><li>D. Historic Districts and Sites</li><li>E. Chart of Soils</li><li>F. List of Birds at Hartshorn Arboretum</li><li>G. Population and Housing Information</li><li>H. Examples of Wetland Types</li><li>I. Definitions of Wetlands</li><li>J. Criteria for Wetlands</li><li>K. Water Supply Facts</li></ul></li></ul> |
|---|--|



## RED BANK (Monmouth County)

Preface, Introduction, Setting

### GEOLOGY

Physiography, Geologic Column,  
Surface Formations of the Coastal Plain,  
Impact on Development

### SOILS

Freehold Series, Tinton Series, Holmdel Series,  
Humaquepts Series, Sulfaquents Series, Urban Land  
Series, Slope, Elevation, Building Site Development  
Limitations

### HYDROLOGY

Groundwater, Surface Water, Hydrologic Group,  
Impacts of Development

### METEOROLOGY

Climate, Air Quality

### VEGETATION

Threatened/Endangered Plant Species  
Potential Vegetation & Wildlife Habitat

### WILDLIFE

Fish, Invertebrates, Reptiles and Amphibians,  
Birds, Mammals, Threatened or Endangered Species

### DEVELOPMENT IMPACTS

### LAND USE

Existing Land Use, Proposed Land Use,  
Professional Office, Neighborhood Mixed-Use,  
Highway Business, Industrial and  
Light Industrial, Major Employers

### COMMUNITY RESOURCES

### HISTORIC SITES AND DISTRICTS

(Section broken down by architectural styles.)

### AREAS OF SCENIC

AND RECREATIONAL IMPORTANCE

### TRANSPORTATION

Jurisdiction of Roadways, Principal Arterial Streets,  
Minor Streets, Collector Streets, Local Streets,  
Public Transportation, Train, Bus, Air Travel,  
Other, Traffic Patterns, Traffic Management  
Proposals, Overnight Parking, Pedestrian Right-of-  
Way Enforcement...

### INFRASTRUCTURE

Electric, Gas, Municipal Fuel for Borough Vehicles,  
Drinking Water, Sewerage, Stormwater

### EDUCATIONAL FACILITIES

### RECYCLING

### NOISE FACTORS

Definition, Noise-Sensitive Areas,  
Fire Horns & Sirens

### DEMOGRAPHICS

### REGIONAL RELATIONSHIPS

Monmouth Co. Growth Management Guide  
State Development & Redevelopment Plan  
Coastal Area Facility Review Act (CAFRA)

### CONCLUSION



## TOWNSHIP OF CLINTON (Hunterdon County)

### Introduction

The Ecological Reasons for Identifying and Protecting  
Natural Resources

### Climate

### Air Quality

### Physiography & Geology

Topography & Slope  
Physiographic Provinces  
Geologic Formations

Surficial Geology  
and Locally Significant Geologic Features

### Soil Resources

Soil Formation  
Soil Limitations  
Soil and Septic Suitability  
Agriculture and Agricultural Soils  
Limitations/Uncertainties of Soil Survey Data

### Significant Flora, Fauna and Habitat

The Importance of Habitat Protection  
Landscape Level / Critical Area Mapping Information  
Critical Forest Habitat  
Critical Grassland Habitat  
Critical Wetland Habitat

Threatened, Endangered / Rare Wildlife & Plant Species  
Natural Heritage Index Maps  
Habitat Requirements of T&E Species  
Other Wildlife Present in Clinton Twp.

### Historical & Cultural Features

Early Inhabitants  
Early Explorers & Colonists  
The American Revolution and More Recent History  
Existing Historic Features

### Surface Water Resources

Watershed Resources  
Stream Classification  
Surface Water Flow  
Surface Water Quality

### Floodplain & Riparian Corridors

Floodplains  
Riparian Corridors  
Wetlands

### Groundwater Resources, Quantity and Quality

Groundwater Quantity  
Sole Source Aquifers  
Groundwater Quality



## FAR HILLS (Somerset County)

*Resource Inventory of the Natural and Man-Made Environment*

### Description of the Existing Natural Environment

Geology  
 Groundwater Resources  
 Surface Water  
 Soils  
 Slopes  
 Ecology

### Description of the Man-Made Environment

Demographics  
 Employment  
 Local/Regional Development Pressures  
 Results of Business Survey

Housing  
 Sewers  
 Water  
 Solid Waste  
 Schools  
 Open Space & Recreation Areas  
 Fire  
 Police  
 Transportation  
 Existing Land Use  
 References

The ANJEC RESOURCE CENTER offers the following services free to all members:

- unique reference collection of more than 7,000 books, pamphlets, documents and government publications ranging from academic texts to environmental resource inventories;
- more than 1,200 individual current material files covering topics from acid rain to zoning;
- extensive material and files on state and federal laws including current legislation and regulations;
- extensive file of municipal ordinances covering topics such as light and noise pollution, critical areas protection and stormwater management;
- extensive file of newsletters from national, federal, state and county groups and organizations;
- response and referral center for questions and requests for information and materials relating to local, state and national environmental issues, problems and projects.

This publication was made possible by a grant from  
 The Fund for New Jersey and The William Penn Foundation.

ANJEC is a statewide non-profit organization that informs and assists environmental commissioners and interested citizens in preserving and protecting New Jersey's environment.

For further information, contact ANJEC at

P.O. Box 157, Mendham, NJ 07945 • Tel 973-539-7547 • Fax 973-539-7713

- or -

204 W. State Street, Trenton, NJ 08608 • Tel 609-278-5088 • Fax 609-278-5089

Email: [info@anjec.org](mailto:info@anjec.org) • Website: [www.anjec.org](http://www.anjec.org)

2M32004

### MIMI UPMEYER RESOURCE PAPER COLLECTION



ANJEC dedicates its collection of Resource Papers to Mimi Upmeyer, who worked for ANJEC for 10 years and later served as a board trustee. As our State Plan project director, she worked with environmental commissioners and local officials in towns across New Jersey and provided them with information and contacts to help implement good land use planning and zoning. To help local officials deal with these issues, she conceived the idea for ANJEC's Resource Papers – and wrote the first three. Packed with concise, practical information on specific topics for local environmental protection, ANJEC's ever-expanding stock of Resource Papers has become a standard element of our educational program. For a list of all our Resource Papers, contact ANJEC at 973-539-7547 or visit the Publications page on the [website](http://www.anjec.org) [www.anjec.org](http://www.anjec.org).