

Environmental Resource Inventory

References

General

The Association of New Jersey Environmental Commissions (ANJEC) offers technical, financial, and resource support to municipal environmental commissions and other local officials that seek to develop an NRI. ANJEC also has digital copies of many sample NRIs available on CDs. See <http://www.anjec.org/ERIs.htm> for links to NRIs from a sampling of New Jersey municipalities.

Delaware Valley Regional Planning Commission: <http://www.dvrpc.org/Products/>
See Open Space & Natural Resources under Publications Directory for pdf files of NRIs

Highlands Council:
http://www.highlands.state.nj.us/njhighlands/actmaps/maps/gis_data.html

Garden State Greenways:
<http://www.gardenstategreenways.org>

NJ Department of Environmental Protection (DEP) Office of Planning and Sustainable Communities: <http://nj.gov/dep/opsc>

Pinelands Commission: <http://www.nj.gov/pinelands/landuse/gis/data/index.html>

Information Resources:

NJDEP has developed an extensive GIS database of basic geographic information for New Jersey. Municipalities can obtain GIS data pertaining to their locality. Additional assistance or information may be obtained from various offices within the NJDEP depending on the topic, <http://www.state.nj.us/dep/gis/>.

The following is an updated list of contacts for topics that are generally included in a Natural Resource Inventory. Additional sources and/or topics can be included in the NRI, but this list serves as a starting point from which a municipality can begin to gather the information needed to conduct an NRI or to update an existing NRI.

A. 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 and gravel)
5. Geologic cross sections

Data Sources:

<http://www.state.nj.us/dep/njgs/>

For information on the status of geological mapping in a specific area, call the NJ Geological Survey (NJGS) at (609-292-1185) and ask to speak to a staff geologist. *The Geology and Geography of New Jersey* by Kemble Widmer (1964) should be available at county or college libraries.

B. Geography/Topography

1. Slope, relief, elevation
2. NJ physiographic region and subregions

Data Sources:

<http://www.state.nj.us/dep/njgs/pricelst/pubsinfo.htm>

For U.S. Geological Survey (USGS) 7.5 minute quadrangle maps, contact NJ Geological Survey, Maps and Publications Sales Office, Box 417, Trenton, NJ 08625 (609-777-1038). Call to find out which maps will be needed need for the individual municipality.

C. Climate

1. Prevailing air currents
2. Maximum/minimum fluctuations in temperature
3. Seasonal precipitation
4. Topographic protection (wind)
5. Fog-bound areas
6. Air quality: For rural 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 urban areas, air quality issues may require a separate section in the Natural Resource Inventory. (see section *D. Air*, below).

Data Sources:

For climatological data, contact a local or county library or airport weather services. The NOAA National Climatic Data Center (NCDC) in Ashville, NC (828-271-4800) has data that can be ordered directly through the NCDC website at: www.ncdc.noaa.gov. The Office of the NJ State Climatologist is located at Rutgers University, School of Environmental and Biological Sciences, **<http://climate.rutgers.edu/stateclim/>**.

D. Air

1. Air quality: national "Clean Air" standards
2. State, county, local air monitoring sites and statistics
3. Static sources of air pollution

4. Major vehicular air pollution areas

Data Sources:

For air quality information and major licensed air emission sources, contact NJDEP's Bureau of Air Quality Planning (<http://www.state.nj.us/dep/baqp/index.html>) or 609-292-6722, or Bureau of Air Monitoring (<http://www.njaqinow.net/Default.aspx>) by sending an e-mail to **bamweb@dep.state.nj.us** or call at 609-292-0138.

E. Hydrology

1. Groundwater

- a. aquifer outcrop; location, extent, thickness
- b. direction and rate of groundwater movement
- c. groundwater recharge and discharge areas (possibly outside municipality)
- d. depth to groundwater
- e. well locations and gallons per minute
- f. quality of groundwater, pollutant sources

2. Surface Water

- a. types, location, names, direction of flow
- b. watershed and subwatersheds
- c. designation/classification of surface water bodies and tributaries (trout production trout maintenance, etc.)
- d. low flow of streams — mean 7 day/10 year recurrence interval
- e. floodplains, wetlands, marshes, bogs
- f. quality, limnology, dissolved and suspended solids
- g. liquid waste and disposal systems
- h. intakes, outfalls, dams

Data Sources:

1. For local surface and groundwater data, use USGS maps from NJGS (see Section B, *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 Management Agency (FEMA), <http://www.fema.gov/business/nfip/mscjumppage.shtm> or by calling (800-358-9616).
2. For information on facilities having a permit to discharge into local surface or ground water, contact the NJDEP's Bureau of Permit Management (<http://www.state.nj.us/dep/dwq/bpm.htm>) at 609-984-4428.
3. For information on the location of wells, see local and county health departments.
4. For information on wellhead protection, contact NJDEP's Division of Watershed Management (<http://www.nj.gov/dep/watershedmgt/>) at 609-984-0058. To determine if aquifer recharge areas have been mapped, call NJGS

Bureau of Water Resources

(<http://www.state.nj.us/dep/njgs/enviroed/aqfrchrg.htm>) at 609-984-6587.

5. Water supply companies and municipal water departments are also sources of information.

6. For surface water classifications, see *Surface Water Quality Standards, N.J.A.C. 7:9-4.1* (http://www.nj.gov/dep/rules/nj_env_law.html) with additional information available from the DEP's Division of Watershed Management

(<http://www.nj.gov/dep/watershedmgt/>) or by phone at (609) 984-0058.

F. 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:

County soil surveys and soil erosion and sedimentation control information are available from the county Soil Conservation District or county planning board.

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. Marine (open ocean and associated coastline)
 - b. Estuarine (salt and brackish marshes, coastal rivers and bays)
 - c. Riverine (freshwater rivers and streams)
 - d. Palustrine (freshwater marshes, bogs or swamps)
 - e. Lacustrine (freshwater lakes, reservoirs or large ponds)
3. Wetlands classifications
 - a. Exceptional resource value wetlands (discharge into trout production waters or their tributaries, or provide habitat for threatened or endangered species)

b. Ordinary resource value wetlands (isolated wetlands or those more than 50% surrounded by development, less than 5,000 sq. ft., or drainage ditches, swales and detention facilities)

c. Intermediate resource value wetlands (neither exceptional nor ordinary)

Data Sources:

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, above, to link wetlands data to the protection of surface waters and species habitat.

H. Vegetation

1. Types of vegetation
2. Fire hazard, history of wildfire
3. Pollution affected types
4. Historic, recreational value
5. Economic value
6. Known/possible habitat for endangered/ threatened plant species
7. Forest cover
8. Agricultural area

Data Sources:

The New Jersey Natural Heritage Program

(<http://www.nj.gov/dep/parksandforests/natural/heritage/index.html>) identifies New Jersey's most significant natural areas through a comprehensive inventory of rare plant and animal species and representative ecological communities. From the inventory, the Natural Heritage Database compiles information on the distribution, biology, status, and preservation needs of these species and communities. Established in 1984 through a cooperative agreement between The Nature Conservancy, a private conservation organization, and the NJ Department of Environmental Protection, full administration of the program was assumed by the NJDEP in 1986.

The New Jersey Natural Heritage Program is part of an international network including State Natural Heritage Programs and Conservation Data Centers, all building on the same data collection methodology. The Database is updated continuously and is used to set state, national, and global priorities for the preservation of natural diversity. For additional information, fill out a data request form available online or call (609) 984-1339.

For information on agricultural areas, contact the county Agricultural Development Board. See "Wetlands" section, above, for information on wetlands vegetation.

I. Wildlife

1. Beneficial species habitats

2. Rare, threatened and endangered species habitats
3. Nuisance and hazardous species habitats
4. Abundance and distribution within habitat and season
5. Economically valuable species

Data Sources:

For information on significant wildlife habitats, contact the NJDEP's Natural Heritage Program, see "Vegetation" section, data sources. For additional information on animal species and locations, contact the NJDEP's Endangered & Nongame Species Program (<http://www.state.nj.us/dep/fgw/ensp/home.htm>) at 609-292-9400. New Jersey's Landscape Project (revised and updated May, 2008, <http://www.state.nj.us/dep/fgw/ensp/landscape/index.htm>) is a pro-active, ecosystem-level approach for the long-term protection of imperiled species and their important habitats in New Jersey. The NJ Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) began the project in 1994. Its goal: to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems.

For information on birds and bird habitat, contact the NJ Audubon Society (<http://www.njaudubon.org/>) at (908) 204-8998.

J. Land Use

1. Existing

- a. Open space, public and private (including easements). This section should also include an inventory of *permanently preserved* farmland and open space lands. Permanently preserved lands include those lands acquired with state Garden State Preservation Trust funding, municipal & county dedicated land preservation trusts, or any funding source with the requirement that the land remain in perpetuity).
- 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)

2. Proposed

- a. Zoning
- b. Master plan

Data sources:

Local tax and zoning maps are available from municipal clerk, and from municipal and county master plans, municipal engineers and planners.

K. Historic And Cultural Factors

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 can provide this data.

(<http://www.state.nj.us/dep/hpo/>) or (609) 984-0176.

L. Existing And Planned Infrastructure

1. Transportation
2. Water
3. Sewage
4. Waste treatment, disposal, recycling facilities
5. Energy utilities
6. 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 Factors

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 and Redevelopment Plan
2. County master plan
3. Regional plans (e.g. Pinelands, Hackensack Meadowlands, D&R Canal)
4. Problem areas (e.g. flooding, air pollution)
5. Watersheds (see E. *Hydrology* above)

Data sources:

For information on the State Development & Redevelopment Plan, contact the NJ Office of Planning Advocacy (<http://www.nj.gov/state/planning/>) at (609) 292-7156. For the county master plan, contact the county planning board. For individual special protection areas: Pinelands Commission (<http://www.nj.gov/pinelands/>) or (609) 894-7300, New Jersey Meadowlands Commission (<http://www.njmeadowlands.gov/>) or (201) 460-1700, Delaware & Raritan Canal

Commission (<http://www.dandrcanal.com/>) or (609) 924-5705. For information on Watershed Management Plans, contact the NJDEP's Division of Watershed Management (<http://www.nj.gov/dep/watershedmgt/>) or by phone at (609) 984-0058.

O. Contaminated Sites

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

Data sources:

For known contaminated sites in a municipality, call NJDEP's Site Remediation Program (<http://www.nj.gov/dep/srp/kcsnj/>) at (609) 292-1250). For ISRA sites, visit the NJDEP's website for more information, <http://www.nj.gov/dep/srp/isra/>. For existing and proposed resource recovery facilities (incinerators), call NJDEP's Division of Solid & Hazardous Waste (<http://www.nj.gov/dep/dshw/>) at (609) 633-1418. For a listing of certain hazardous substances used or stored in a town, call the NJDEP's Office of Pollution Prevention and Right to Know (<http://www.nj.gov/dep/opppc/>) (609) 777-0518. 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:

1. Wetlands (See G.)
2. Steep slopes (See B.)
3. Floodplains, floodways (See E.)
4. Aquifer recharge areas (See E.)
5. Prime agricultural soil areas (See F and H)
6. Soil limitation areas (See F and J.)
7. Endangered/threatened species habitat (See H. and I.)
8. Trout associated waters (See E.)
9. Water supply (See C.)

NRI updates

Townships with NRIs older than a few years should consider an update for several reasons besides gathering points toward Sustainable Jersey certification. In recent years, NJDEP has created or updated about 50 GIS data layers, although not all are applicable to every municipality (see <http://www.state.nj.us/dep/gis/>). Some examples include:

- Surface Water Quality Standards,

- surface and ground water discharges,
- the Landscape Project,
- Natural Heritage Priority Sites,
- groundwater contaminated areas,
- Water Quality Management Planning Areas (WQMPA),
- Sewer Service Areas and
- Historic districts, properties, and archeological grids.

Open space

High resolution aerial photography taken in 2007-2008 became available in 2009. And State-owned open space GIS data were updated in December 2008. However, this layer does not include county, municipal or privately preserved lands. Some of that information can be obtained through GIS maps from New Jersey Conservation Foundation's Garden State Greenways, the Highlands Council and the State's Green Acres program, but municipalities should also maintain a simple spreadsheet or database containing block and lot, ownership, etc. about preserved properties. This information can then be "joined" to the GIS parcels data for mapping.

Soils

Soils data maintained by the National Resources Conservation Service is updated with some frequency due to changes in terminology, nomenclature and interpretations rather than changes in the soils themselves (Updates vary by county; see <http://soildatamart.nrcs.usda.gov/>).