



# **24th Annual NJDEP GIS Mapping Contest**

**April 21, 2011**

**Contest Theme: Economic Analysis/Green Energy**

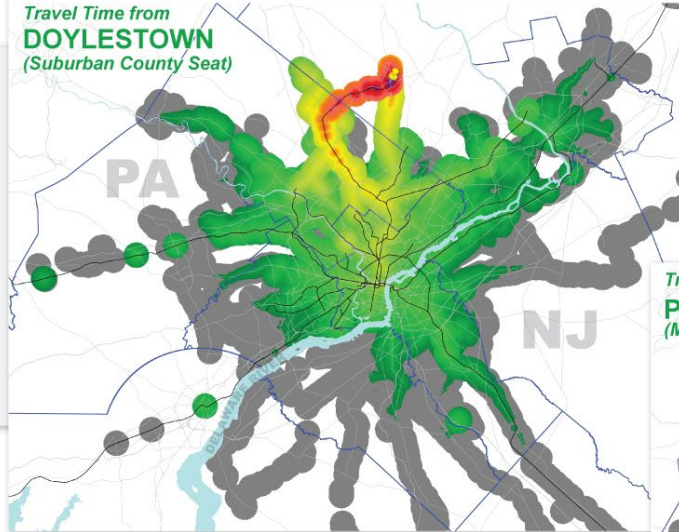
# **Analytical Presentation**

# ACCESSIBILITY FOR ALTERNATIVE LOCATIONS DERIVED FROM GOOGLE TRANSIT FEEDS

© in part by OpenStreetMap and CC-BY-SA, and by SEPTA, NJ Transit, DVRPC

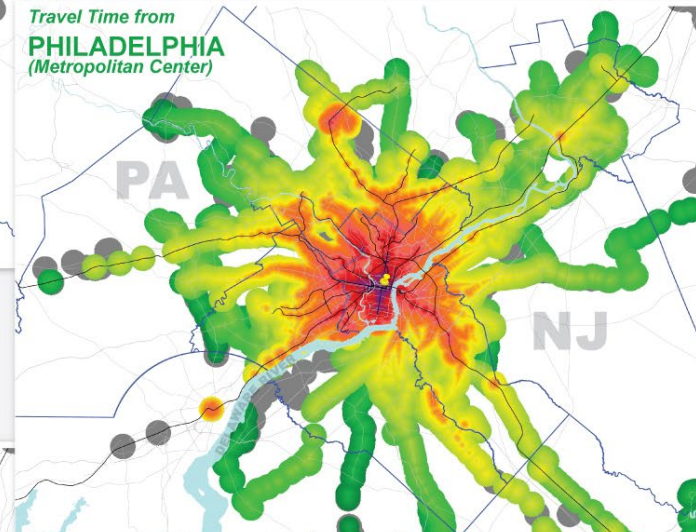
These four maps show transit accessibility by location. Central locations like Center City Philadelphia provide the best accessibility. Subcenters such as Trenton are also well connected, while the state border affects connectivity across the Delaware river. Transit accessibility from suburban towns is typically best along corridors oriented to the center.

Travel Time from  
**DOYLESTOWN**  
(Suburban County Seat)



The isochrones in these maps are travel time contours. They have been computed by VISUM using all transit services that depart between 9:00 and 9:30 AM from the start location (push pin), following the shortest path through the entire network. From every stop, egress walk is computed assuming a speed of 3.0 MPH.

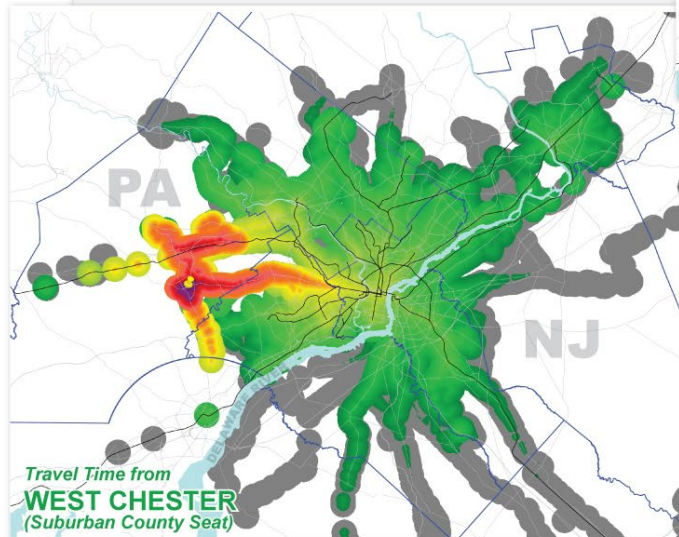
Travel Time from  
**PHILADELPHIA**  
(Metropolitan Center)



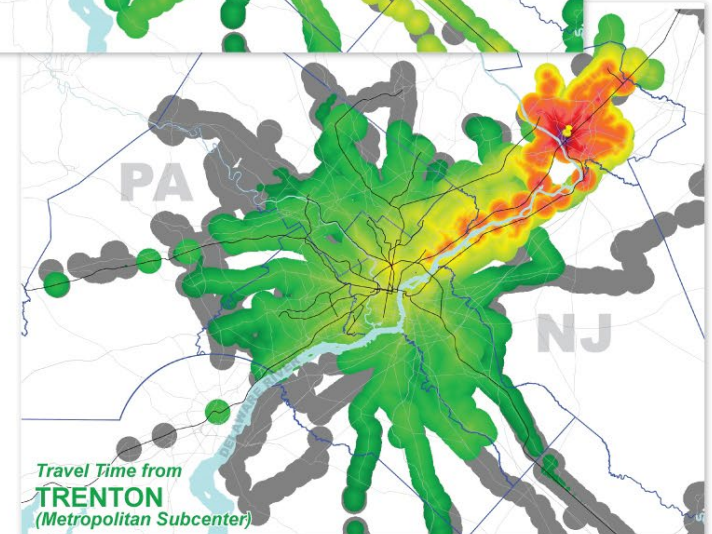
Google transit feeds in GTFS format are provided by SEPTA, NJ Transit, PATCO, Amtrak. DVRPC combines the GTFS schedule data with street networks from the member counties and from the OpenStreetMap in a regional travel model, which uses the VISUM software.

COUNTY BOUNDARY  
 RAIL NETWORK  
 MAJOR HIGHWAY  
 STARTING LOCATION OF TRAVEL

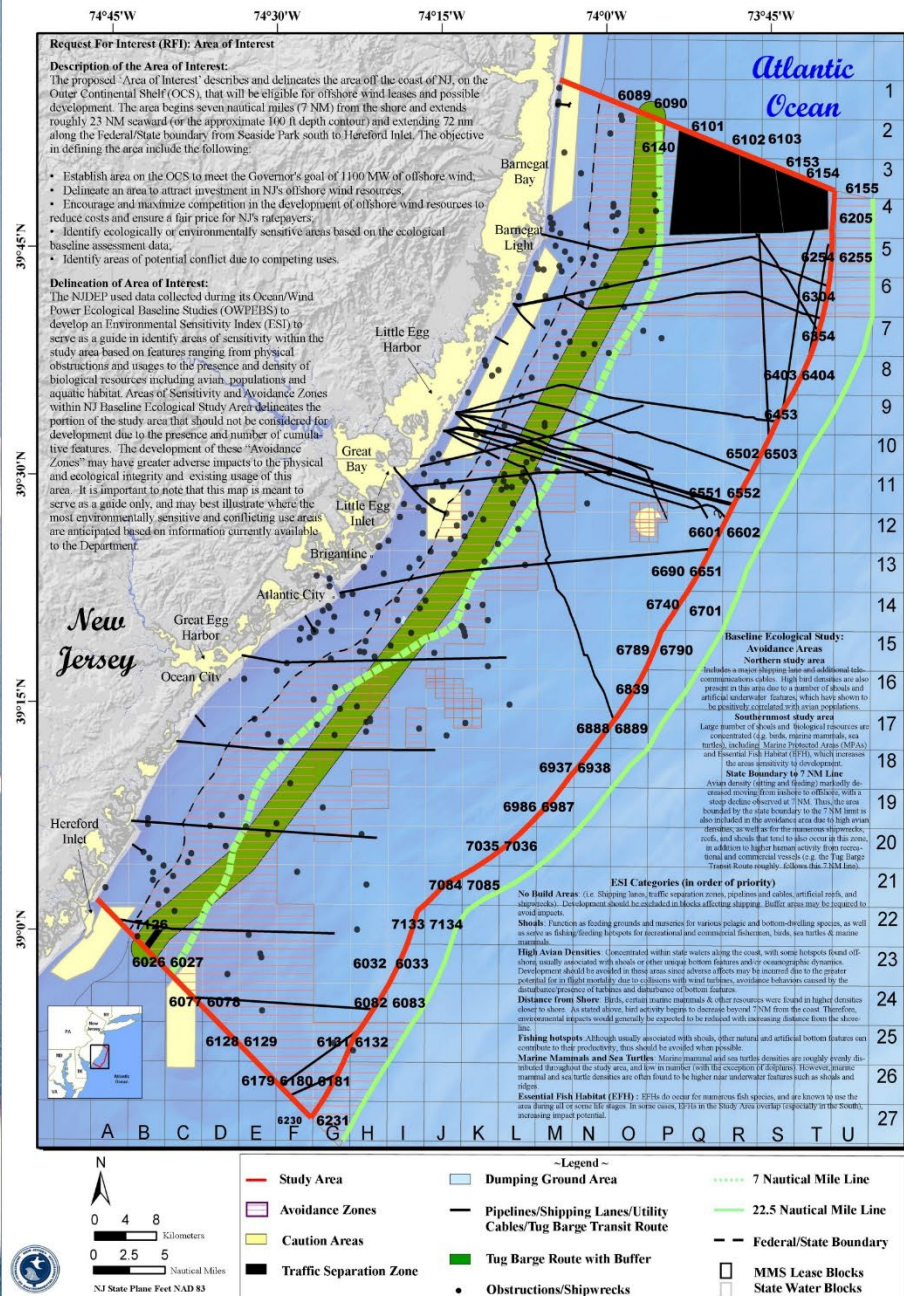
≤ 10 MINUTES  
 ≤ 20 MINUTES  
 ≤ 30 MINUTES  
 ≤ 45 MINUTES  
 ≤ 1 HOUR  
 ≤ 1 HOUR 30 MINUTES  
 ≤ 2 HOURS  
 ≤ 3 HOURS  
 > 3 HOURS  
 NOT REACHED



Travel Time from  
**WEST CHESTER**  
(Suburban County Seat)



Travel Time from  
**TRENTON**  
(Metropolitan Subcenter)



## Scope of Analysis

### Background

- New Jersey's Energy Master Plan, October 2008 - NJ is to meet 30% of its electricity needs with renewables by 2020!
  - Minimum of 200MW from onshore wind facilities
- DEP Adopts Amendments to the Coastal Permit Program rules, Coastal Zone Management rules and Flood Hazard Area Control Act rules, September 2010, that regulate construction of wind turbines on land?
  - Facilitates the construction of wind turbines in the coastal zone in appropriate locations, identifies particular areas where construction of large scale wind turbines would not be appropriate, and sets forth monitoring, habitat evaluation and impact assessment requirements for birds and bats

### Purpose

- Encourage Proper Siting of Turbines
- Proactively Limit Impacts to Wildlife
- Transparently Guide Developers
- Economic Efficiency
  - Savings in application permit fees



### Geographic Extent

- Only Onshore
- Only within "Coastal Zone"
  - Coastal Area Facility Review Act (CAFRA)
  - The Waterfront Development Law
    - Zone extends at least 100 feet but no more than 500 feet inland from a tidal water body
- Only Terrestrial - all water excluded



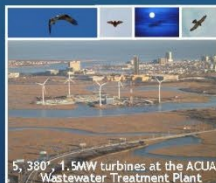
### Size of Wind Turbines

- Regulated Based on Size - Tiered Approach
  - Smaller turbines having lower potential impacts can qualify for authorization under a permit-by-rule
  - Larger turbines subject to higher level of DEP review as potential adverse impacts increase
  - The Large Scale Wind Turbine Siting Map applies to turbines 200 ft. or taller or having a cumulative rotor swept area greater than 4,000 sq. ft.

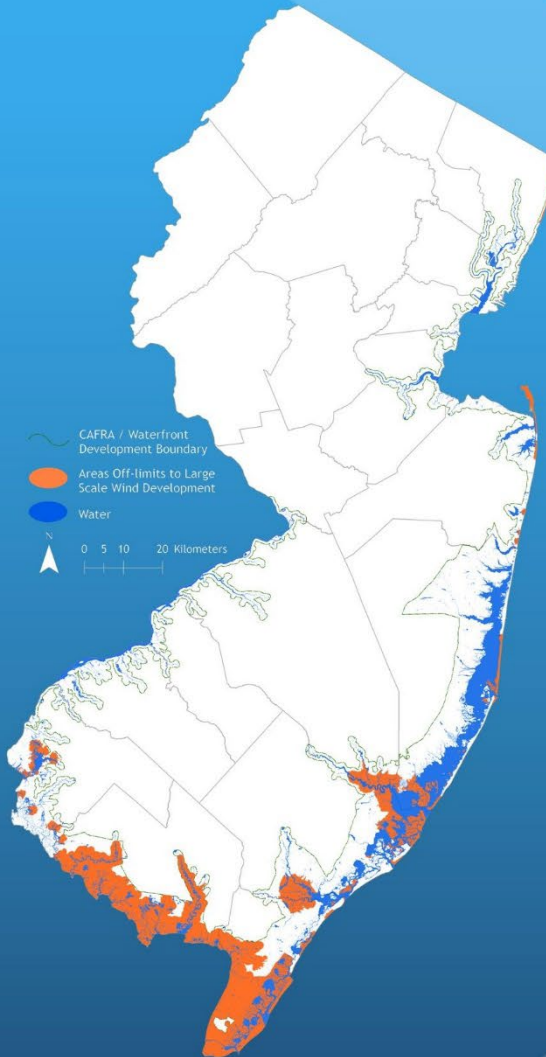


### Operational Impacts to Wildlife

- Risk of Collision - All bird and bat species documented to be at risk of collision and/or those that exhibit flight patterns or behaviors that put them in collision risk.



# New Jersey's Large Scale Wind Turbine Siting Map



## Analysis Method

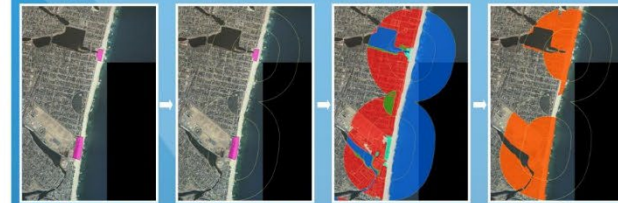
### Overview

- Occurrence-based (resident nesting and concentration, migratory concentration and stopover)
  - Endangered and Threatened species occurrences were exported from the Biotics Database and a species specific buffer was applied

Common Name	Feature Label	Buffer
Bald Eagle	Nest	1000 meter radius
Black Skimmer	Nesting Colony	400 meter radius
Black-crowned Night Heron	Nesting Colony	300 meter radius
Least Tern	Nesting Colony	400 meter radius
Migratory Scissor-tailed Kite	Nest	500 meter radius
Piping Plover	Nest	400 meter radius
Red Knot	Nesting Colony	500 meter radius
White-crowned Night Heron	Nesting Colony	300 meter radius

- Buffers were used to clip NJDEP 2002 Land-use/Land-cover (LU/LC)
- Habitat: most likely used species was selected
- All selected LU/LC polygons were dissolved with other species and regional data to form contiguous areas off limits to large scale wind turbine development
- Region-based
  - Documented areas where birds are known to concentrate or where rare species nest

### Species Occurrence Approach (Least Tern)



- Least tern colony source features derived from Biotics and "Significant" colony parameters applied based on:
  - Date since last occupancy (post 1995)
  - Number of years active (>3years)
  - Number of individuals in colony (>10)
- 400 meter buffer applied
- Second 400 meter buffer ring
- LU/LC clipped, evaluated and selected to represent actual habitat used (primarily TYPE 02 Wetlands and Barren Land)
- Other LU/LC types in buffer ring selected to capture observed flight lines between nesting and foraging areas

### Regional Approach (Hereford Inlet - Stone Harbor)



- Osprey nest source features derived from Biotics Database
- Minimum convex polygon built using Hawth's Tools
- Intersecting LU/LC evaluated and selected to represent suitable habitat for Osprey
- LU/LC polygons dissolved to create region



# **Data Integration**

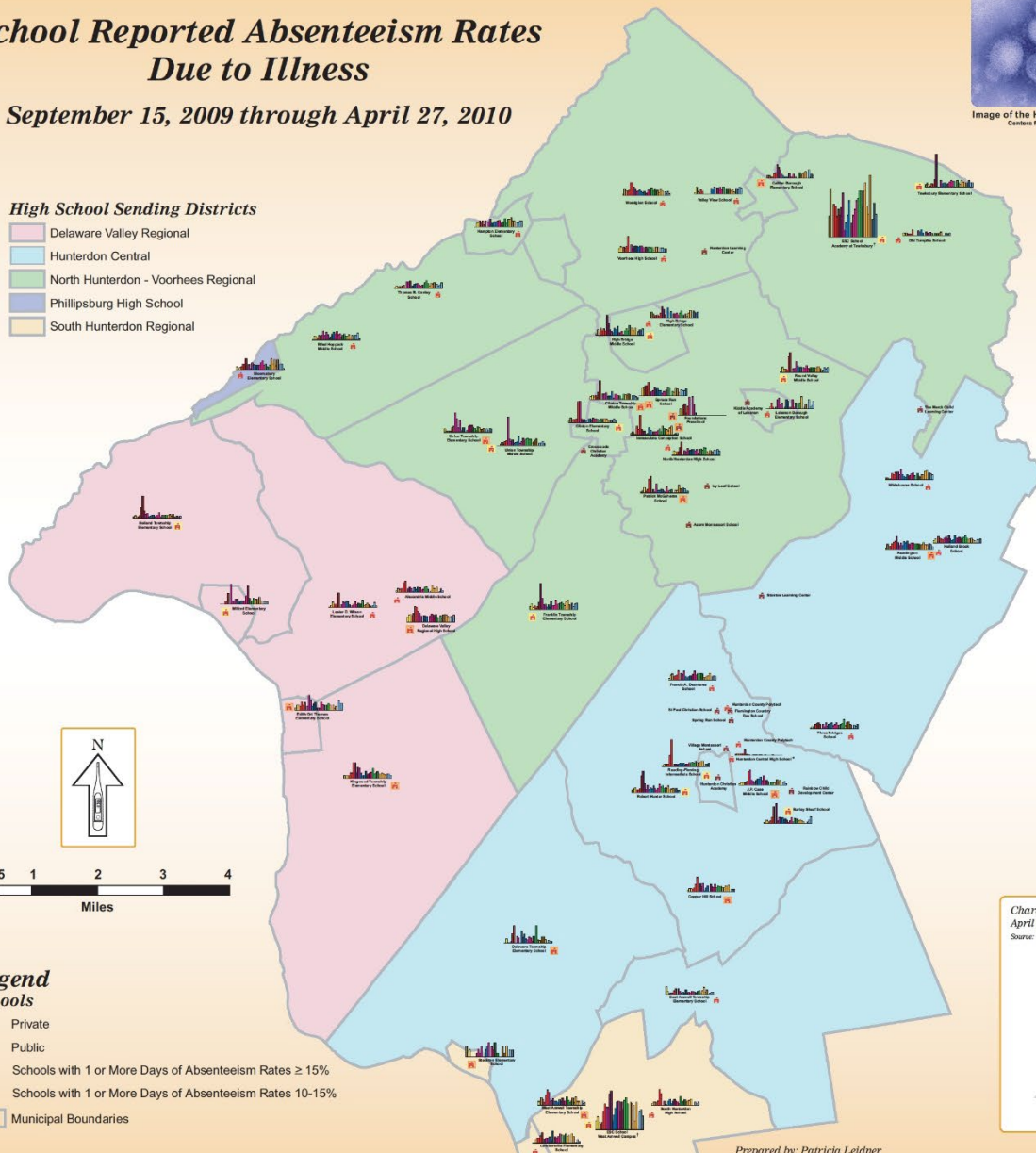
# H1N1 in Hunterdon County Schools

## School Reported Absenteeism Rates Due to Illness

September 15, 2009 through April 27, 2010

### High School Sending Districts

- Delaware Valley Regional
- Hunterdon Central
- North Hunterdon - Voorhees Regional
- Phillipsburg High School
- South Hunterdon Regional



### Legend Schools

- Private
- Public
- Schools with 1 or More Days of Absenteeism Rates  $\geq 15\%$
- Schools with 1 or More Days of Absenteeism Rates 10-15%
- Municipal Boundaries

### Key to Reporting Dates For Individual School Absenteeism Graphs

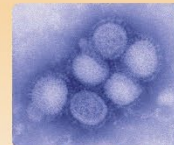
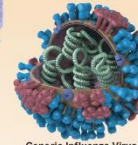
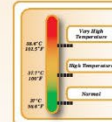
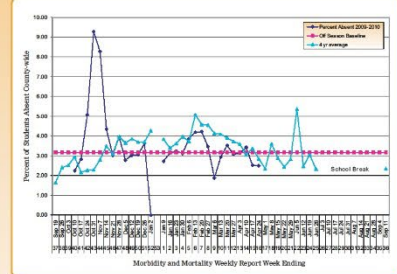


Image of the H1N1 Influenza Virus  
Centers for Disease Control



Generic Influenza Virus  
Centers for Disease Control



### FLU TO-DO'S

- ✓ Cover your coughs and sneezes
- ✓ Wash your hands with soap and water
- ✓ Stay home if you are sick or have flu-like symptoms or are on flu medication

## STAY HOME IF YOU ARE SICK!

**REDUCE SPREAD OF FLU**

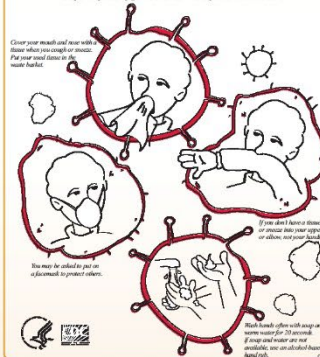
STAY HOME AT LEAST 24 HOURS AFTER FREE OF FEVER.

[WWW.CO.HUNTERDON.NJ.US/HEALTH.HTM](http://WWW.CO.HUNTERDON.NJ.US/HEALTH.HTM)

**Hunterdon County Department of Health**

## Cover your Cough

Stop the spread of germs that can make you and others sick!



### Do I Have a Cold or the Flu?

It's important to know - Because if you have a fever, you are contagious.

If you have these symptoms: **Chances are you have:**

FEVER	FLU
HEADACHE	FLU
SERIOUS ACHES & PAINS	FLU
RUNNY NOSE	COLD
STUFFY NOSE	COLD
SNEEZING	COLD
COUGH	FLU or COLD

Other things to know:

Complications of FLU can cause

Can be life threatening PNEUMONIA or BACTERIAL INFECTIONS - sending you to hospital.

For FLU See doctor for antiviral meds and flu test in early days of illness.

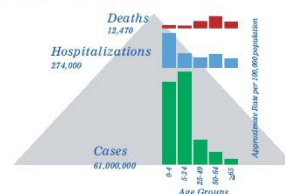
COLDS can cause SINUS CONGESTION, MID-EAR INFECTION, ASTHMA.

For COLDs Over-the-counter meds might help: antihistamines, decongestants, non-steroidal anti-inflammatory products.

Get annual flu shots to lower the risk of FLU. Stay home if you are Sick

### Characteristics of 2009 H1N1 Influenza April 15, 2009 to April 10, 2010

Source: CDC 2009 H1N1: Overview of a Pandemic



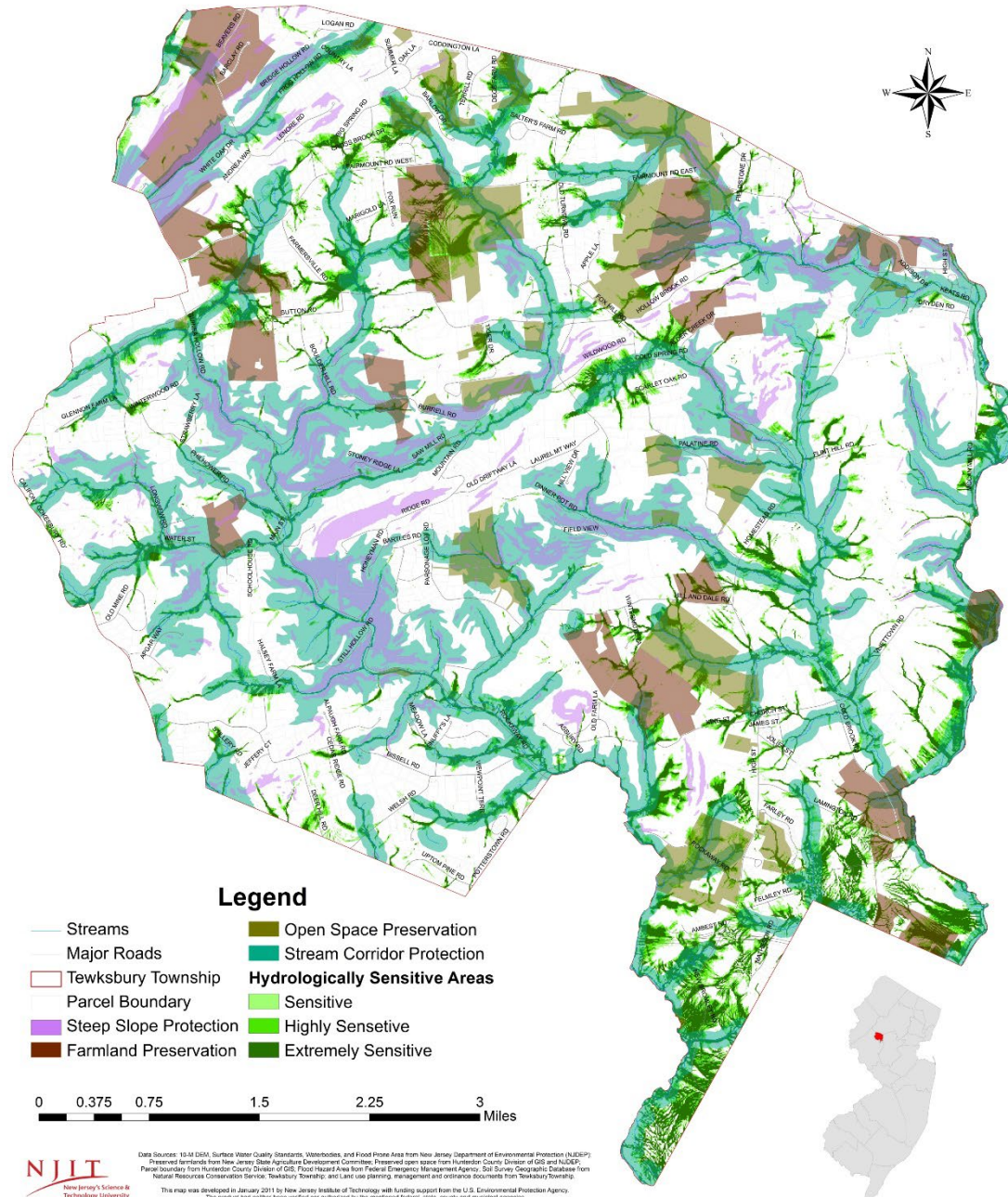
Prepared by: Patricia Leidner  
Hunterdon County Division of Geographic Information Systems  
September, 2010

Data Provided by: Hunterdon County Health Department  
Hunterdon County Division of Geographic Information Systems  
New Jersey Office of Geographic Information Systems

Have Flu Questions? 908-788-1351 [www.co.hunterdon.nj.us/health.htm](http://www.co.hunterdon.nj.us/health.htm)



# Protection of Hydrologically Sensitive Areas by Land Use Regulations in Tewksbury Township, New Jersey

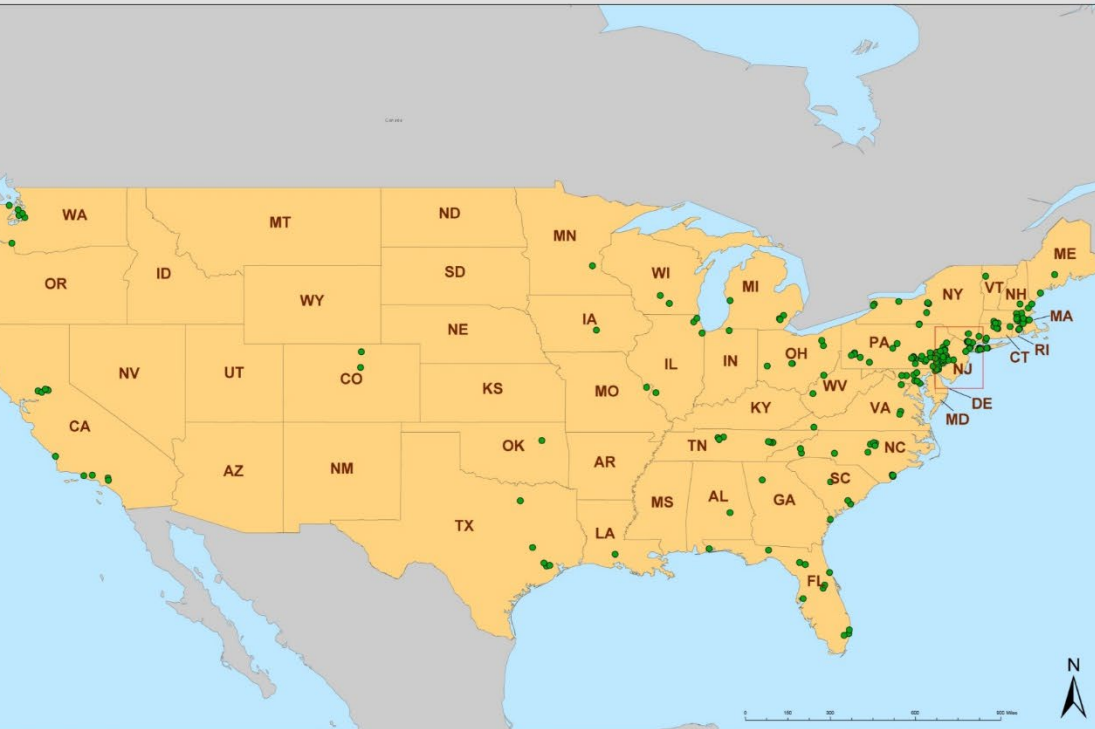


# National and International Environmental Laboratories

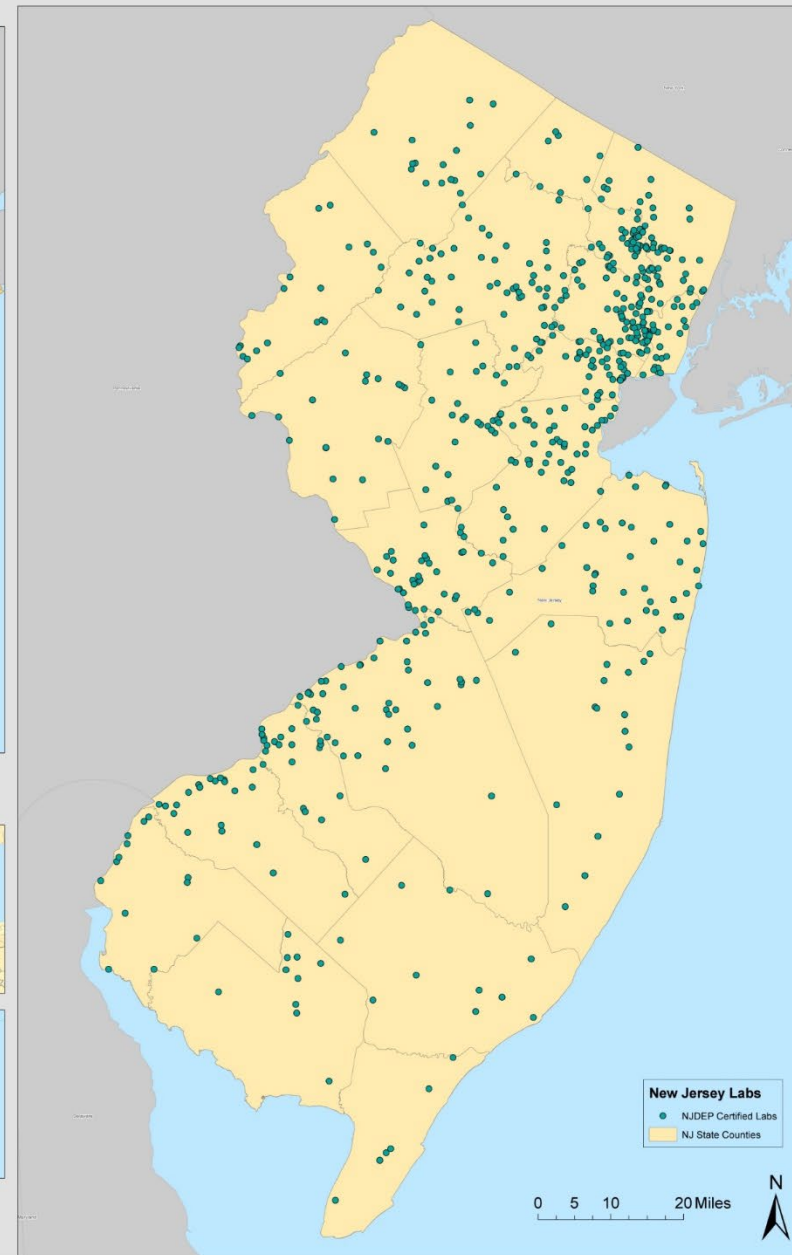
## NJDEP's Office of Quality Assurance (OQA)

### Lab Certification Program

**National Laboratories**



**New Jersey Labs**



**International Labs**





# PREHISTORIC LIFE IN NEW JERSEY



An interesting array of prehistoric life inhabited New Jersey during the Precambrian, Paleozoic, Mesozoic and Cenozoic time periods. These major eras of geologic time can be characterized by the predominance of certain types of fossils and trace fossils such as dinosaur trackways. Fossils are classified according to their physical characteristics and are evidence of life prior to recorded history. For many fossils, living relatives do exist. In New Jersey, fossils are most abundant in the northwestern part of the state and in southern New Jersey. The map contains images of prehistoric life superimposed on a geologic map. The images are positioned on the map approximately where fossils of the species have been discovered. Many fossils were unearthed during quarrying and construction of roads and buildings. Though most fossil sites are on private property, there are two fossil collecting sites open to the public in New Jersey. Both are located in Monmouth County and include Porcy Park and a site on Big Brook.

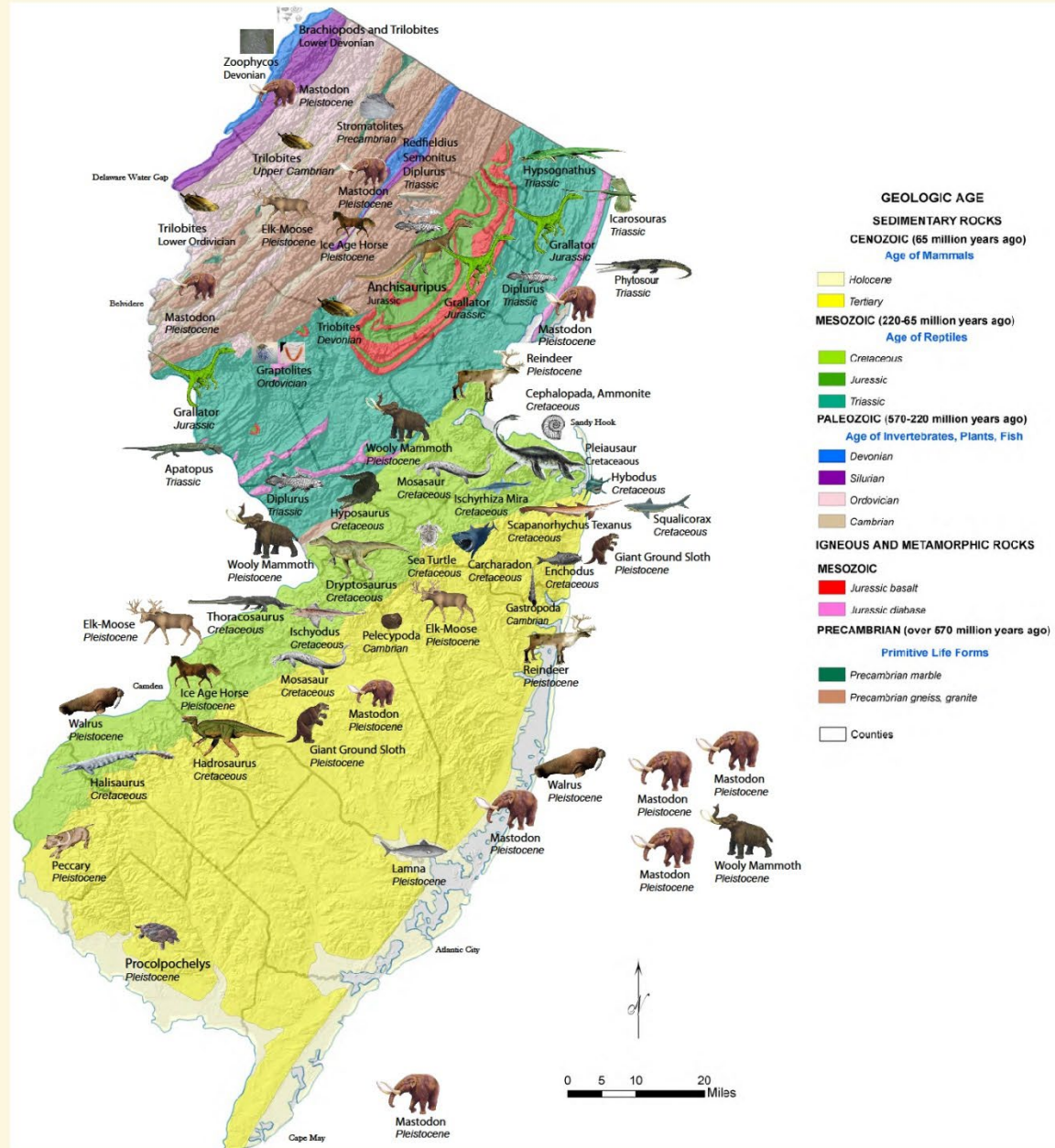
**Precambrian:** Most of the Precambrian rocks in New Jersey are igneous or metamorphic rocks and do not contain any fossils. However, stromatolites have been found in a 1.2 billion-year-old marble, indicating that marine conditions existed locally in the state at that time.

**Paleozoic:** Cambrian-age trilobites and stromatolites record the presence of a warm, shallow sea, while deeper water conditions prevailed during the Ordovician. Warm, shallow seas returned to northwestern New Jersey from the Late Silurian into the Devonian. Trilobites, brachiopods, bryozoans, corals, and crinoids are among the common fossils found in this time period.

**Mesozoic:** Fossils of early reptiles and fish are found in the Triassic sedimentary rocks. Footprints preserved in the sedimentary rocks indicate that bipedal dinosaurs roamed New Jersey during this time. Most of northern New Jersey was above sea level during the Cretaceous, while in southern New Jersey, seas moved in and out over the coastal plain providing a variety of habitats from estuary to marine. Insect and leaf fossils indicate that low-lying swamps were covered by vegetation, while tracks and bones show dinosaurs inhabited the landscape. Mosasaurs, plesiosaurs, sharks, and squid-like animals (ammonites) swam the seas, while clams and oysters thrived on the sea floor below.

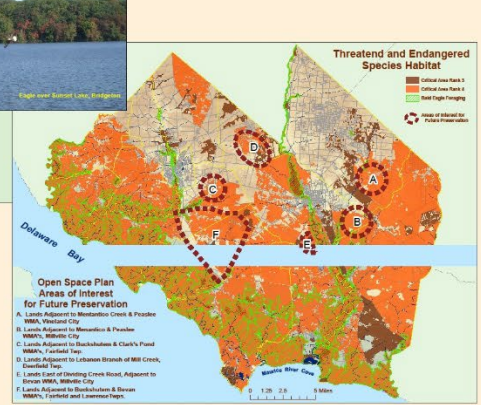
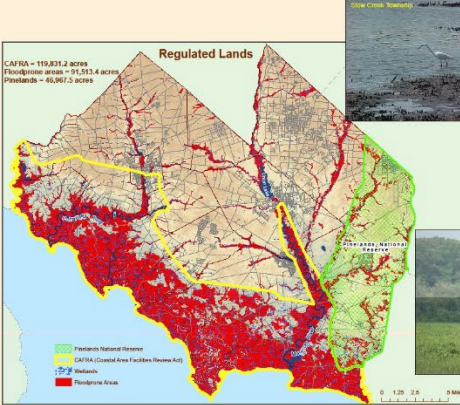
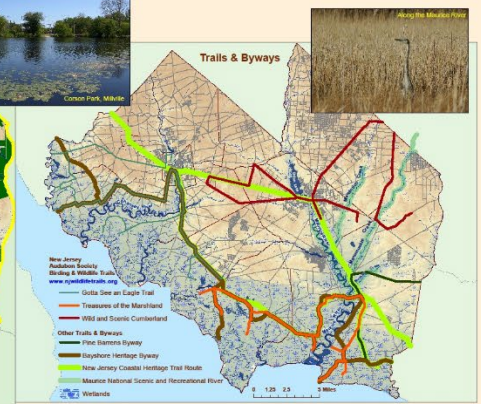
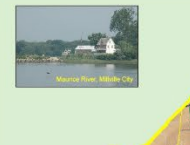
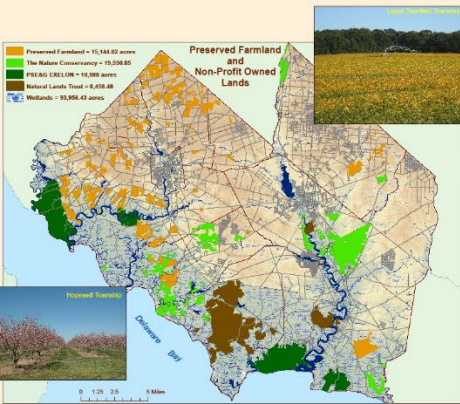
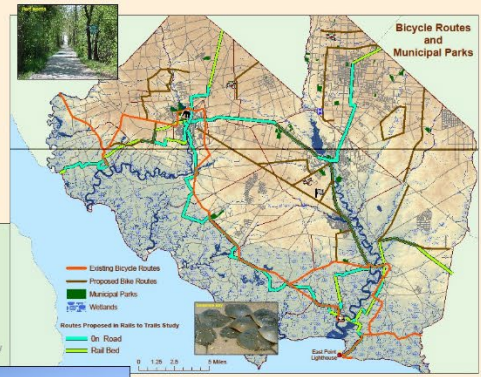
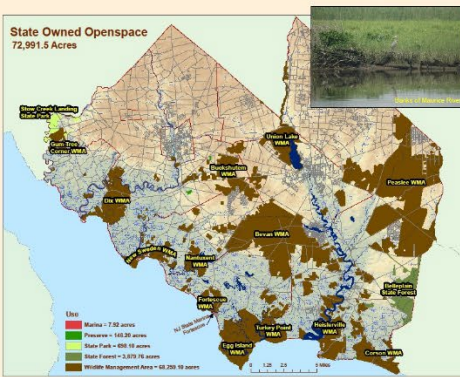
**Cenozoic:** Marine life continued to flourish in the Tertiary seas of southern New Jersey and fossils of brachiopods, shark teeth, corals, echinoderms, and microscopic organisms indicate that the waters were warmer than those off the coast today. Ice sheets advanced and retreated over northern New Jersey during the Quaternary and sea level fluctuated as glaciers alternately grew and melted. Though not shown on this geologic map, the Pleistocene, or Ice Age, ranged from about 1.8 million to approximately 11,700 years ago and was characterized by the formation of widespread glaciers. Mammals included both small forms, such as horses and giant ones such as mammoths and mastodons. They were found in many parts of New Jersey. The mammoths, mastodons and other mammals roamed the land in front of the ice sheets. During this time the coastline of New Jersey extended many miles farther into the Atlantic Ocean than it does today. Some mastodon, mammoth and giant ground sloth remains have been found by commercial fishermen offshore. Almost all of the giant mammals disappeared at the end of the Pleistocene and the start of the Holocene which began 11,700 years ago and continues to the present.

Ted Pallis and Richard Dalton  
New Jersey Department of Environmental Protection  
Water Resource Management  
New Jersey Geological Survey



# Cumberland County

## Open Space Plan



### Open Space & Recreation Plan

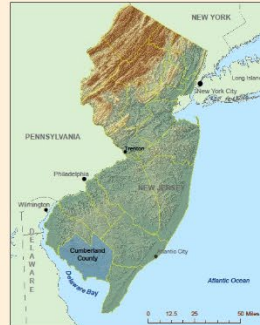
**Open Space**  
Including parks, wildlife management areas, preserved farmland, and other preserved lands.  
Total open space = 128,486.092 acres or 40% of total area of Cumberland County

Begin in June 2010, Cumberland County's open space and recreation planning process provides a forward-looking perspective for future County open space and recreation decisions and initiatives. This plan is an Open Space and Recreation Element of the Cumberland County Master Plan. In the course of planning, the following are a few of the components examined:

- The current quantity and quality of parks, open spaces and natural areas of Cumberland County
- Determined the attitude and opinions of County residents about parks and recreational services and facilities.
- Conducted public meetings during the planning process to involve interested citizens in the master plan.
- Benchmarked open space programs in other counties to examine their organizational and operational structures.
- Examined the opportunities and constraints of establishing a County parks initiative and investigated various methods to do so.
- Explored alternative management structures for a County parks, open space and natural areas system.
- Scrutinized the County's Farmland Preservation, Open Space, Parks and Recreation Fund legislation and recommended revisions to that law.

The study team was led by the consulting firm of Simone Collins - Landscape Architecture, and included several public meetings, walking tours, and public outreach meetings in order to collect and understand the interests of the public and stakeholder constituents and to build consensus around the recommendations for implementation.

The Draft Plan, along with all the maps and appendices, can be found at [www.co.cumberland.nj.us](http://www.co.cumberland.nj.us) or by contacting the Cumberland County Office of Planning & Development  
790 East Commerce Street  
Bridgeton, NJ 08302  
856-453-2175



### Open Space Plan Areas of Interest for Future Preservation

- A. Lands Adjacent to Brandywine Creek & Proctor WMA, Vestal City
- B. Lands Adjacent to Brandywine & Proctor WMA, Vestal City
- C. Lands Adjacent to Brandywine & Proctor WMA, Vestal City
- D. Lands Adjacent to Brandywine & Proctor WMA, Vestal City
- E. Lands East of Brandywine Creek Road, Adjacent to Brandywine WMA, Vestal City
- F. Lands Adjacent to Brandywine & Proctor WMA, Vestal City

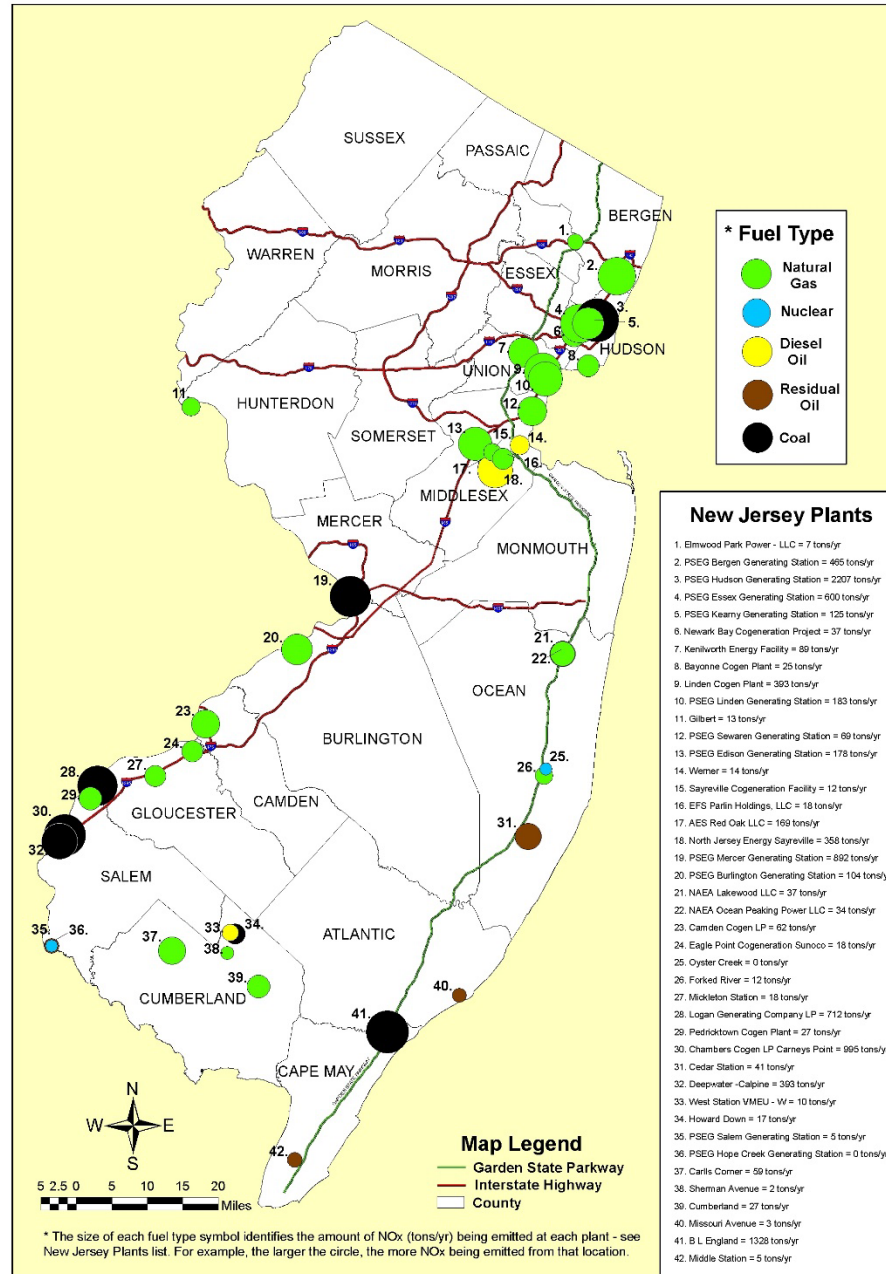
Cumberland County Open Space	
State Owned	72,991.50 acres
Preserved Farmland	15,144.82 acres
Natural Lands Trust	6,458.48 acres
The Nature Conservancy	15,580.85 acres
PSE&G	10,585.80 acres
Parks	1,755.44 acres
<b>Total</b>	<b>128,486.09 acres</b>
	<b>or 40 %</b>

Cumberland County  
Department of Planning & Development  
790 East Commerce Street  
Bridgeton, NJ 08302  
856-453-2175  
[www.co.cumberland.nj.us](http://www.co.cumberland.nj.us)  
Sharon Molloy, GISP  
Senior Planner  
April 2011  
[sharonmolloy@cumberland.nj.us](mailto:sharonmolloy@cumberland.nj.us)

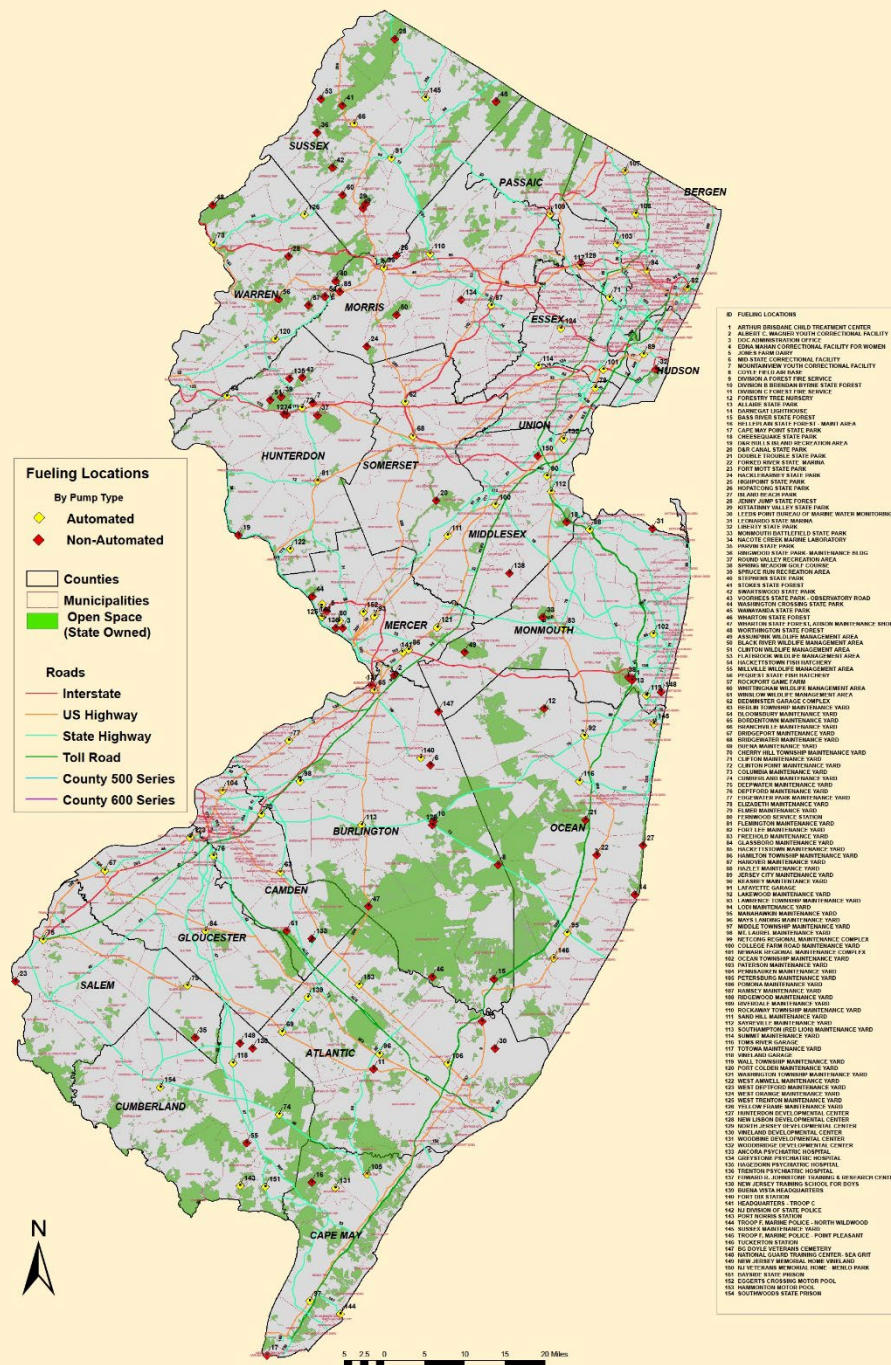
Source: Cumberland County Department of Planning & Development, NJ DEP, US Census Bureau, USGS, NOAA, and other sources.

# 2010 New Jersey's Power Plants

## Annual Emissions - NOx (tons/yr)



# State Operated Vehicle Fueling Locations





Graphic of a tree with roots and branches, symbolizing growth and connection.

[illegible]

Bob Martin, Governor	Rep. Griffin, Los Angeles	Rep. Barron, Anaheim

General Access, Minimum

*To achieve, in partnership with others, a system of international open spaces, the protection of which will preserve and enhance New Jersey's natural environment and its historic, scenic, and recreational resources for public use and enjoyment.*

*The Green Acres Program created in 1961 to meet Florida's growing recreation and conservation needs. Together with public and private partners, Green from the Ground down has donated almost 600,000 acres of open space and provided hundreds of miles of recreational facilities in communities around the state.*

This map was compiled by the State Agency Department of Transportation using various data sources including information by the U.S. Postal and Public Department of Transportation, NAD83 county government boundaries and geographic and personnel records for planning and reference purposes only. The State is not responsible for any errors. Users are encouraged to use primary data sources.

This map was compiled by the State Agency Department of Transportation using various data sources including information by the U.S. Postal and Public Department of Transportation, NAD83 county government boundaries and geographic and personnel records for planning and reference purposes only. The State is not responsible for any errors. Users are encouraged to use primary data sources.



NEW YORK

NEW YORK

Raritan Bay



Atlantic Ocean

[illegible]

# **Instructional Presentation**



# Is it a "Hot Spot" or Not?

## Using Kernel Density Analysis to Identify Local Areas of Well Contamination

Tom Atherholt, Office of Science, NJDEP

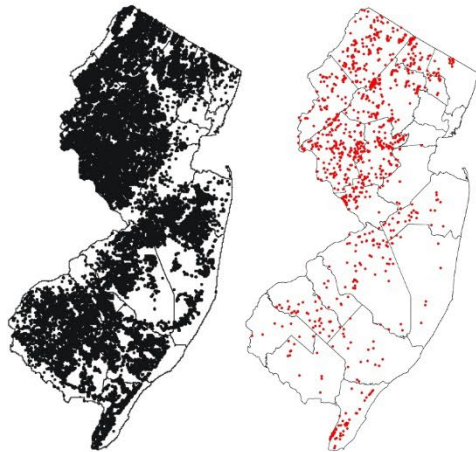


Fig 1. Private wells tested under the NJ Private Well Testing Act between 9/16/02 (start of reg.) and 4/5/07.

(a) Tested wells = black dots (50,801)  
(b) "Contaminated" Wells (Fecal coliform or E. coli bacteria-positive) = red dots (1136)

Percentage of contaminated wells = no. contaminated wells / no. tested wells x 100.  
NJ = 2.2% (North = 3.5%; South = 1.0%).

How can local areas of contamination be identified?

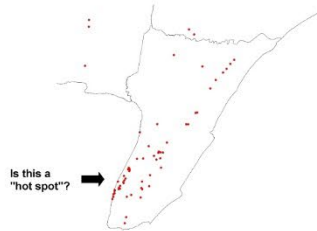


Fig. 2 An Apparent Cluster in Cape May County. Is the rate of well contamination in this area higher than in the entire aquifer or geological formation?

### Use Kernel Density Analysis to Get the Answer

The kernel density tool (Spatial Analyst Tools/Density/Kernel Density) uses a kernel density function to calculate a magnitude per unit area from (in this case) point features to fit a smoothly tapered surface to each point.

In simple density analysis, the computer draws a circle around each well. The greater the number of other wells that are located within that circle, the higher the value assigned to the grid (pixel) that includes that well.

The radius of each circle (in this case 2,000 ft) and the size of each pixel (in this case 200 x 200 ft) were determined iteratively by inputting different values and examining the appearance of the raster, compared to the original point coverage.

### Example #1: Cape May County

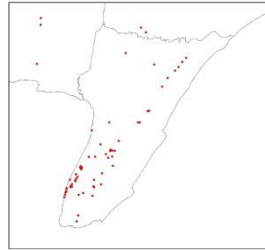


Fig 3 (a) Contaminated wells in Cape May County

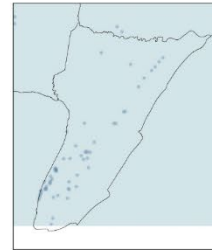


Fig 3 (b) Convert to a Kernel Density raster as described. The darker the color, the higher the grid values.

Convert the raster grid values to whole integers (Tools/Index/Int (sa)). Then convert the raster to a polygon shapefile (Tools/Favorites/Conversion Tools/From Raster/Raster to Polygon). High-density areas (local areas with high numbers of wells) were identified by highlighting the polygons with the highest density values (iteratively: top 0.2%, then 0.4%, then 0.6%, etc., of all polygons, stopping before the number of highlighted areas begins to contain less than 3 wells).

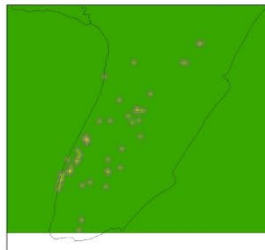


Fig. 3 (c) Raster converted to a polygon shapefile.

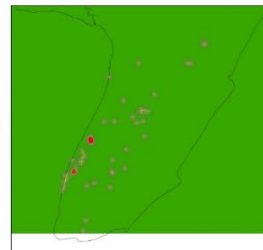


Fig. 3 (d) Two high-density clusters observed in West Cape May Co when the top 2% of all density values in southern NJ are highlighted.



Fig. 3 (e) Although this is a high-density contaminated well area (red), it is also a high-density tested well area (blue; top 1% of all polygon values).

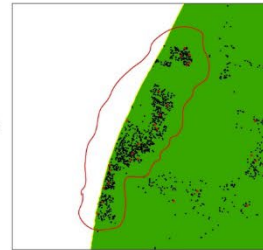


Fig. 3 (f) This area is NOT a "hot spot." The percentage of contaminated wells in the two clusters in the red-circled area (1.9% and 3.1%) is not significantly different than the percentage of contaminated wells in the entire aquifer system (yellow area in Fig. 3(e): 2.3%).

### Example #2: Gloucester County

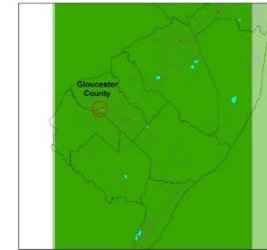


Fig. 6 (a) Tested well clusters (blue) and contaminated well clusters (red) in southern NJ.

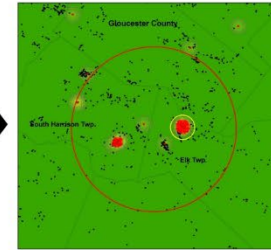


Fig. 6 (b) Two clusters of contaminated wells in So. Harrison Township and Elk Township. These areas are NOT high-density tested well areas. So, they appear to be "hot-spots."



Fig. 6 (c) Yellow circle in Figure 6(b) expanded and the 2007 aerial photography layer added.



Fig 6 (d) Purple circle in Figure 6 (c). Tested = yellow. Contaminated = red.

Aerial photography reveals a new housing development. Either:  
(a) the ground water is contaminated in this area,  
(b) some wells have construction defects, or (most likely)  
(c) the wells were not disinfected and flushed following installation.

Kernel Density analysis revealed 4 high-density areas in the Coastal Plain (Southern NJ) and 8 areas in the Bedrock Provinces (Northern NJ).

The percentage of contaminated wells in the 4 areas in southern NJ was 18 to 37 times greater than that of all wells in the respective aquifer systems.

The percentage in the 8 northern NJ areas was 2 to 7 times greater than that of all wells in the respective aquifer systems.

To promote public health protection, the local health departments were notified of the location of these areas to encourage them to suggest that the neighbors also have their wells tested for coliform bacteria contamination.

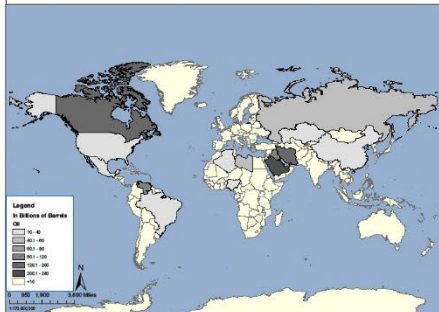
# World Oil Consumption Vs. Production

Among the trillions of stars in the universe there we are, the tiny blue planet spinning furiously in our own neatly arranged position within the cosmos. It is where life breeds rapidly, where organisms split and duplicate each other, where birds migrate according to weather patterns, where the phenomenon that is humanity thrives. However, it seems that what is beneath all of this is responsible for quietly propelling what we know now as 'existence'.

Oil; It has allowed us to travel across the world and beyond it, it is used to achieve some of the most ambitious medical breakthroughs in history, it has killed men and started wars between nations, it is the very substance that allows me to write what you are reading now. However, this product that has achieved so much is running out, and people will soon panic. Scientists have been feverishly lashing out ideas for the new black gold and the new way for human existence.

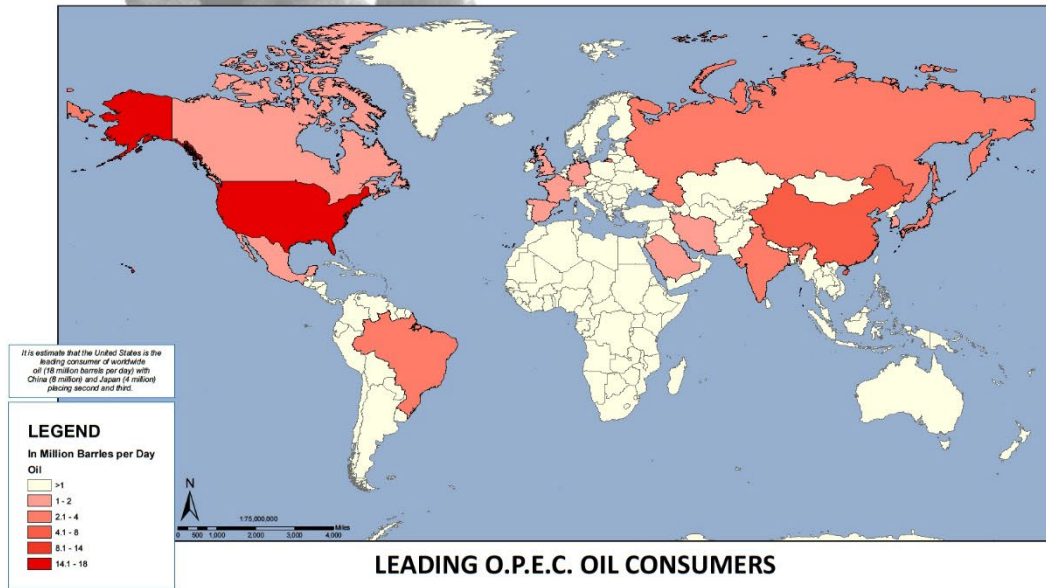
The next 50 years are going to be radically different in terms of society. It is inevitable; it must change in order for any sort of humanity to exist. The ever flourishing and construction of suburbia is one of the leading causes of whatever crisis we are headed for. Petroleum is used to build houses and industries, to furnish these houses and industries, and most important, it is used to get people to and from these houses and industries. The instillation of suburban living has spread us thin through the once open land, forcing us to travel forty, fifty, or even up to ninety miles to work and back each day.

Society as we know it is going through a unique and significant change. These disputes on foreign oil vs. domestic alternative fuel sources will be nothing more than the end to anything relating to productivity as we know it, provided we don't change our ways. The fact of the matter is that the world is going to run out of oil soon enough, and if we don't do anything to accommodate for what's in store for our future, then we are, for lack of better words, totally screwed.

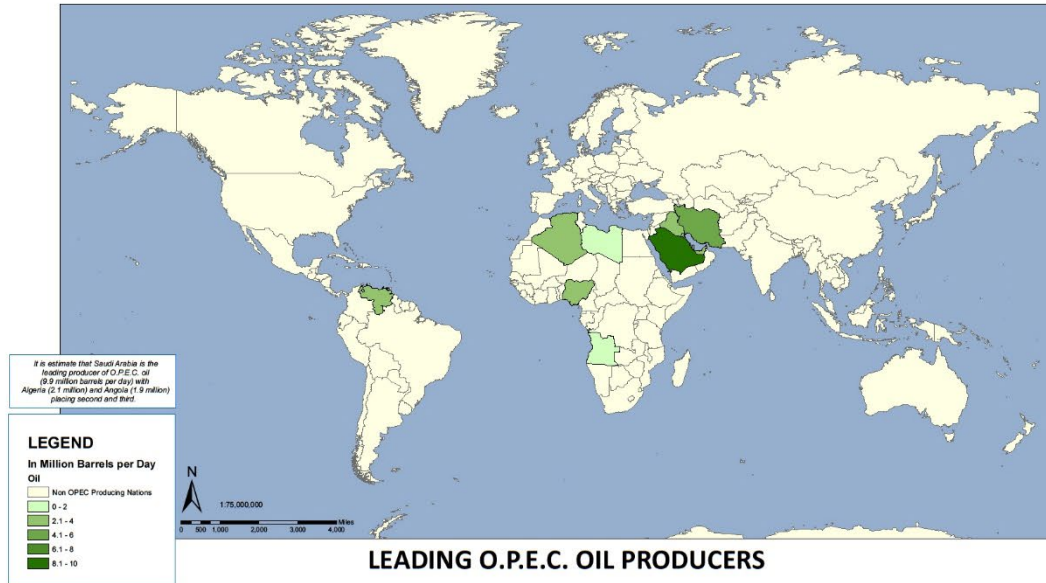


ESTIMATED WORLD OIL RESERVES

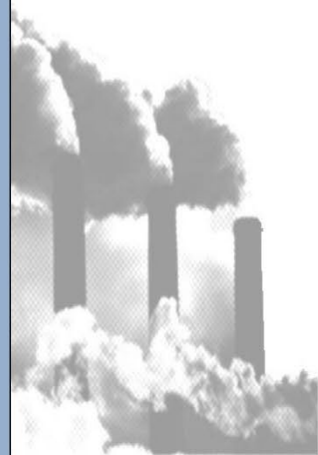
Sources:  
Photos: Ker Than - National Geographic News  
Data: U.S. Energy Information Administration [www.eia.doe.gov](http://www.eia.doe.gov)  
Mapped by: Andrew J. Truman



LEADING O.P.E.C. OIL CONSUMERS



LEADING O.P.E.C. OIL PRODUCERS



# Communicating Risk to Private Well Owners using Maps

Judy Louis, OS, and John Shevlin, BSDW



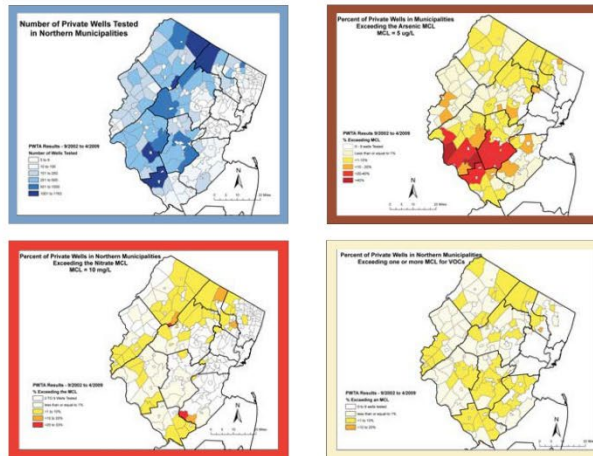
## The New Jersey Private Well Testing Act

Currently Private Wells are not regulated by the federal or state Safe Drinking Water Acts. Approximately 400,000 residents of New Jersey (13 %) use private wells as a source of their drinking water.

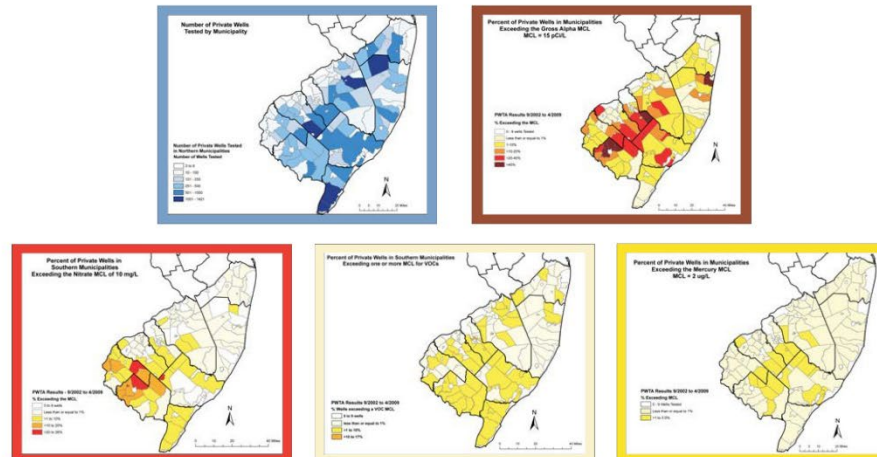
In March 2001, the New Jersey Private Well Testing Act (PWTA) was signed into law, and its regulations became effective in September 2002. The PWTA is a consumer information law that requires sellers (or buyers) of property with potable wells in NJ to test the untreated ground water for a variety of water quality parameters, including up to 32 of human health concern, and to review the test results prior to closing of title. Landlords are also required to test their well water once every five years and to provide each tenant with a copy of the test results. The test data is submitted electronically by the test laboratories to the NJ Department of Environmental Protection for retention, notifying health department of water quality issues, and statewide analysis of ground water quality.

Approximately 25% of the wells in the State have been tested under this program. The Department would like to encourage all homeowners to test their wells for the important parameters in their local. Several maps were created from the data, and are intended to provide information to homeowners about potential risks in their municipalities.

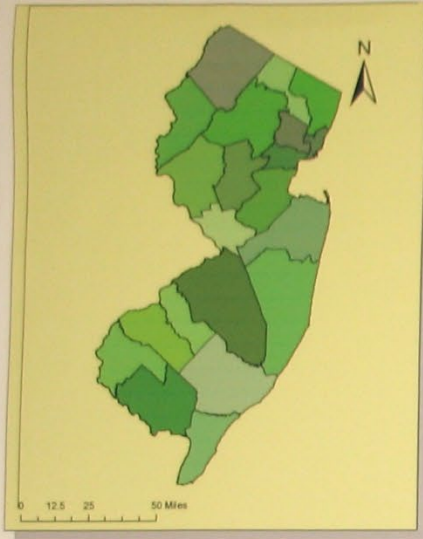
## Northern NJ



## Southern NJ



**Most Unique**

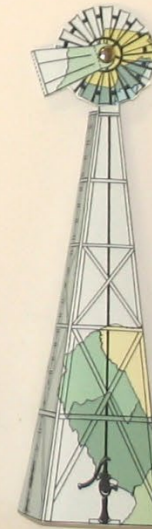
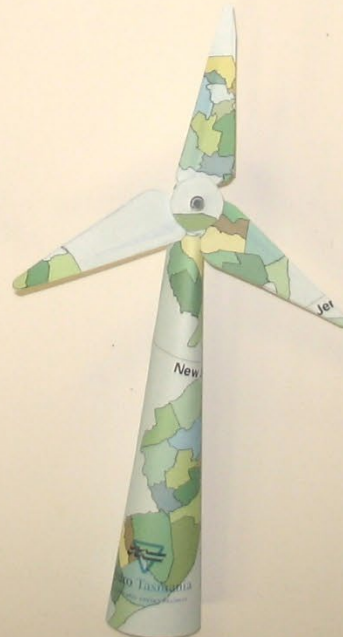
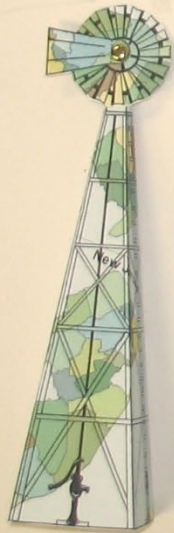


# Jersey Tur-mills

"Sow once, reap forever!"

Clean Energy for New Jersey

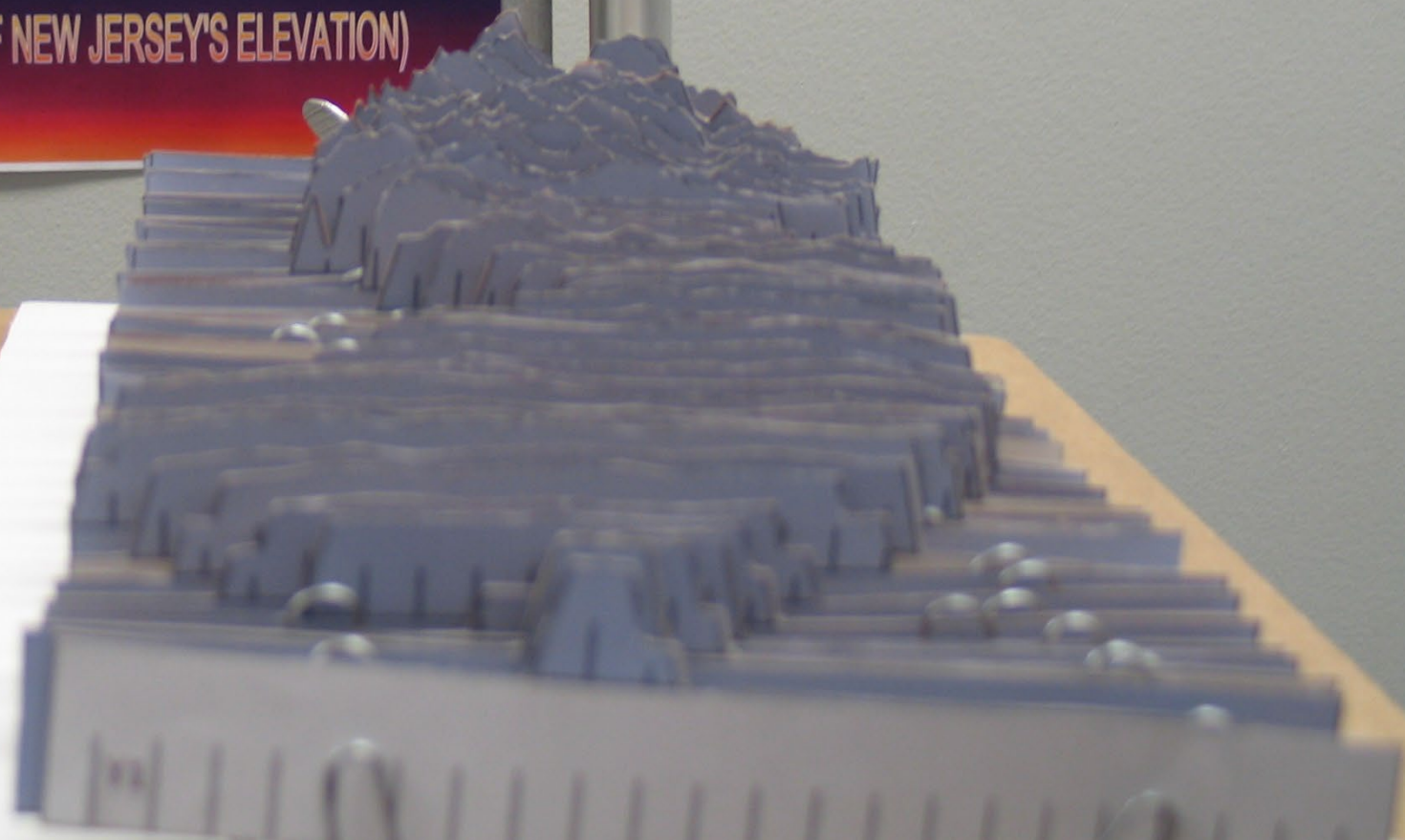
Created by Seema Gopinathan, Bureau of GIS, NJDEP, April 21<sup>st</sup> 2011  
Sources: ehow.com How to Make a Wind Turbine for Children  
WindTurbine.pdf from Hydro Tasmania



ANY WAY YOU SLICE IT...  
I'M EXAGGERATING!

(A SLICEFORM OF NEW JERSEY'S ELEVATION)

MU

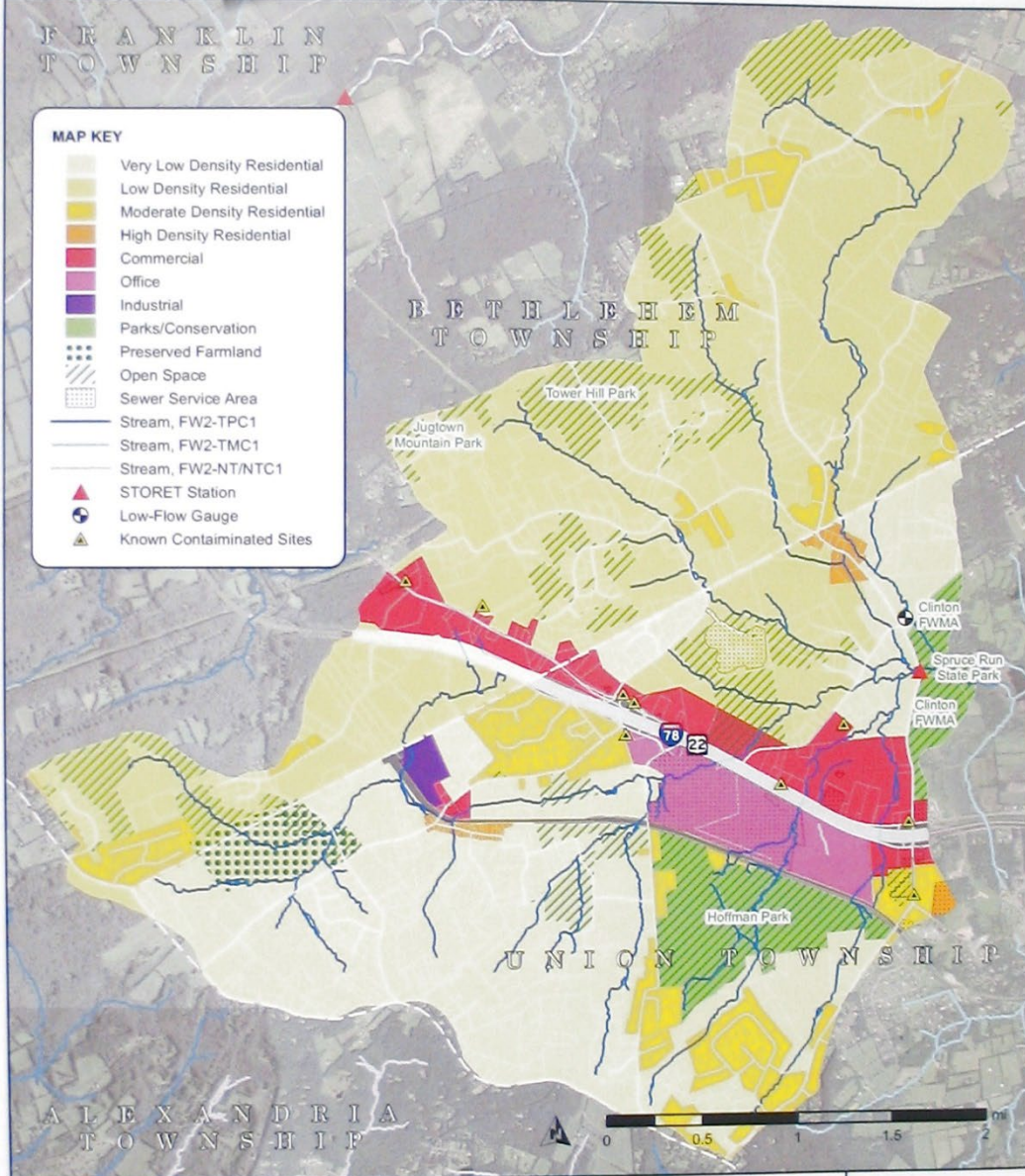


# **Small Format**

# FRANKLIN TOWNSHIP

## MAP KEY

- Very Low Density Residential
- Low Density Residential
- Moderate Density Residential
- High Density Residential
- Commercial
- Office
- Industrial
- Parks/Conservation
- Preserved Farmland
- Open Space
- Sewer Service Area
- Stream, FW2-TPC1
- Stream, FW2-TMC1
- Stream, FW2-NT/NTC1
- STORET Station
- Low-Flow Gauge
- Known Contaminated Sites



## GENERALIZED ZONING, OPEN SPACE, SEWER SERVICE AREAS & KNOWN CONTAMINATED SITES

Mulhockaway Creek Basin  
Raritan - South Branch Watershed

### Data Sources

Hunterdon County Division of GIS: Parcels, zoning, open space, farmland  
NJDEP: HUC14 boundary (2009), Surface Water Quality Standards (Dec. 2010), Known Contaminated Sites (Fall 2009), water quality sampling and gaging stations, sewer service areas  
NJDOT: Public highways (May 2005)

Compiled by Joseph Tricarico, Watershed Management (372-444), 3 April 2011  
New Jersey State Plane Projection (US Feet)

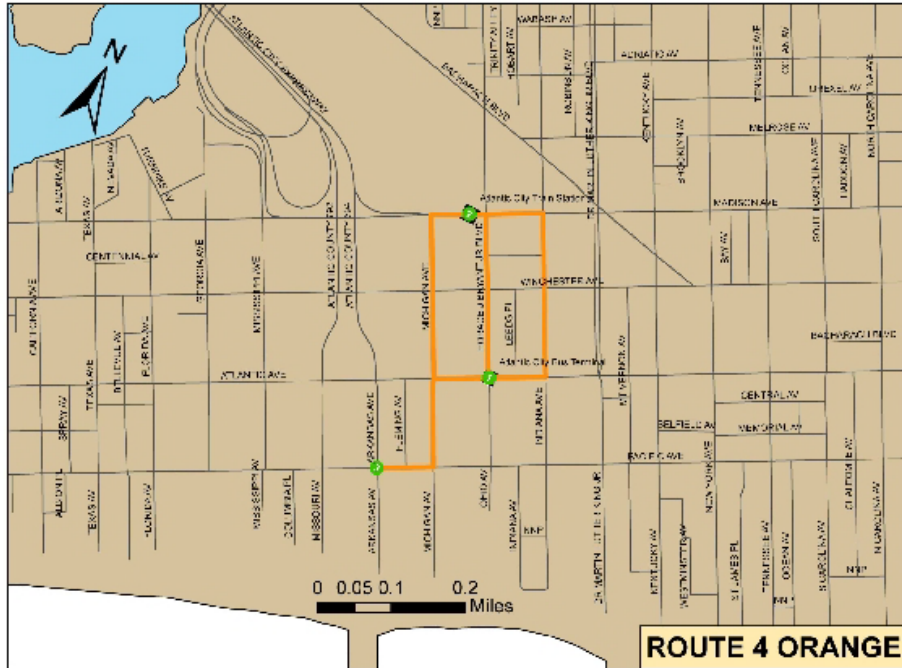
### AREA OF INTEREST



# LEIGH'S SUPER SPECIAL SPINNING GALLERY OF MAPS

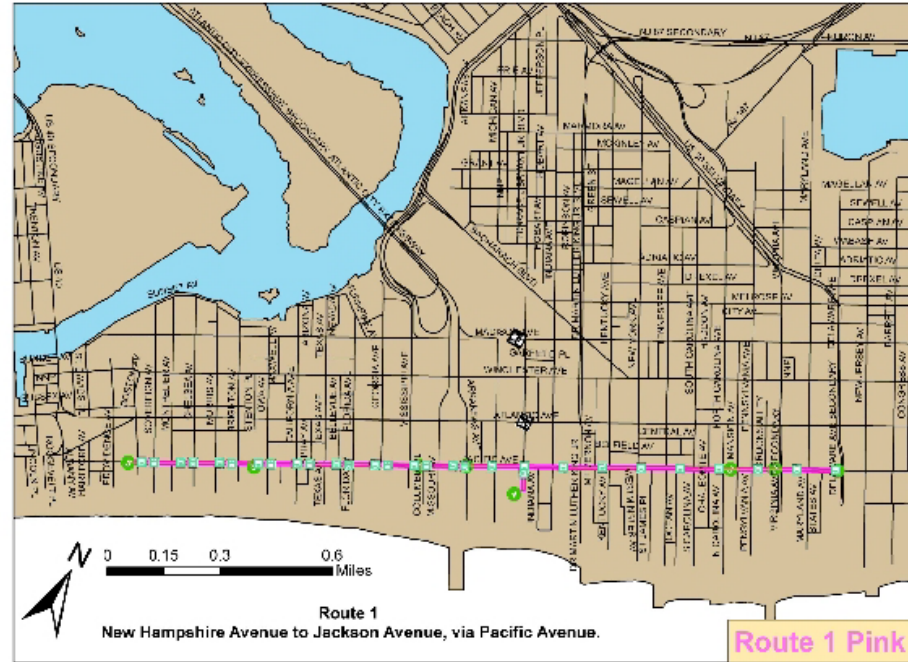
(The Pinwheel of GIS)





Route 4: Jackson Avenue to Indiana Avenue, Atlantic Avenue to Michigan via Convention Center & Train Station.

## Atlantic City Jitney — Stops and Routes



Contact Information

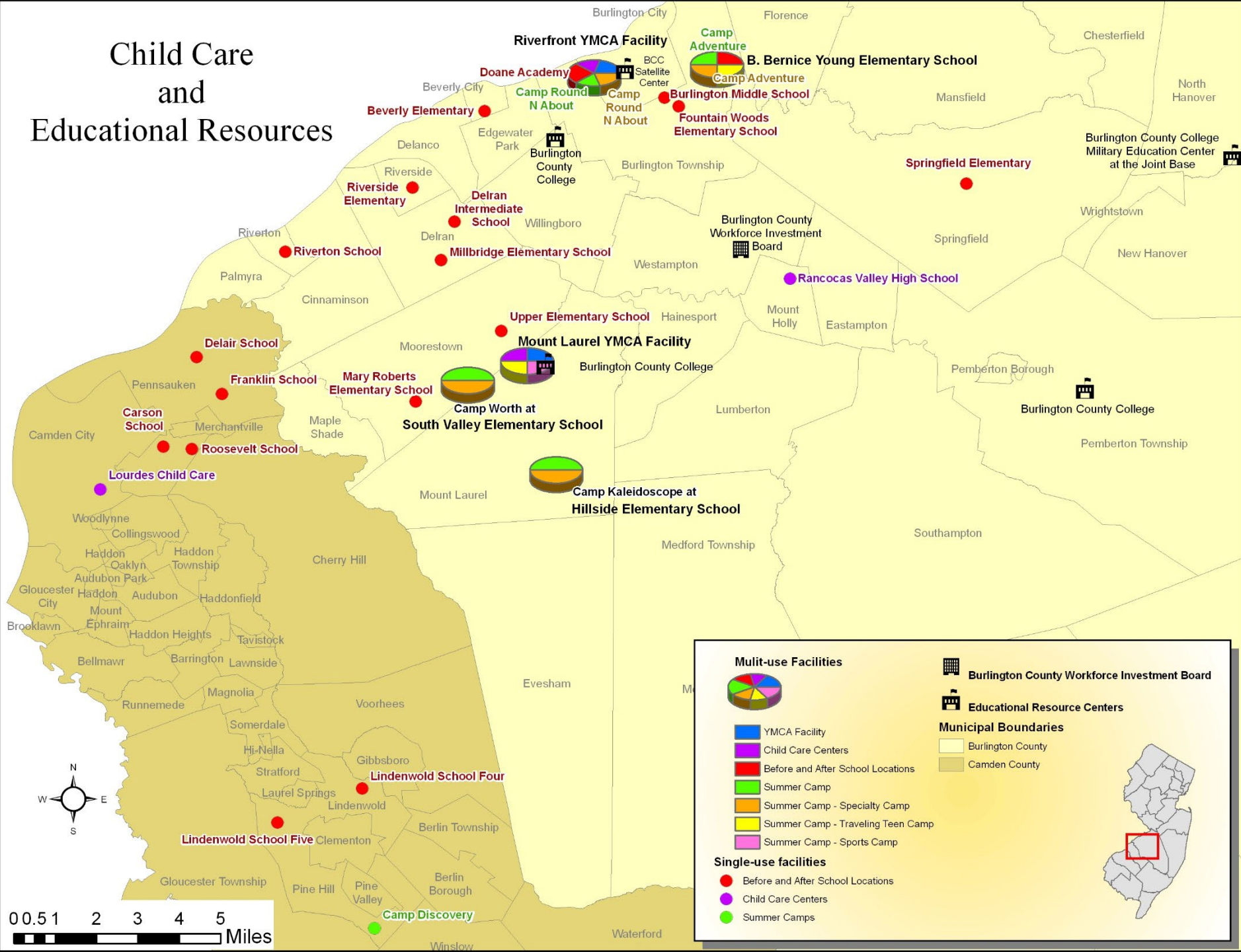


201 Pacific Ave. Atlantic City

Scan codes for information.



# Child Care and Educational Resources



# **Software Integration**

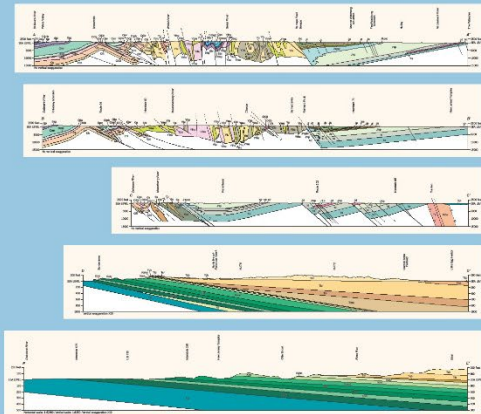
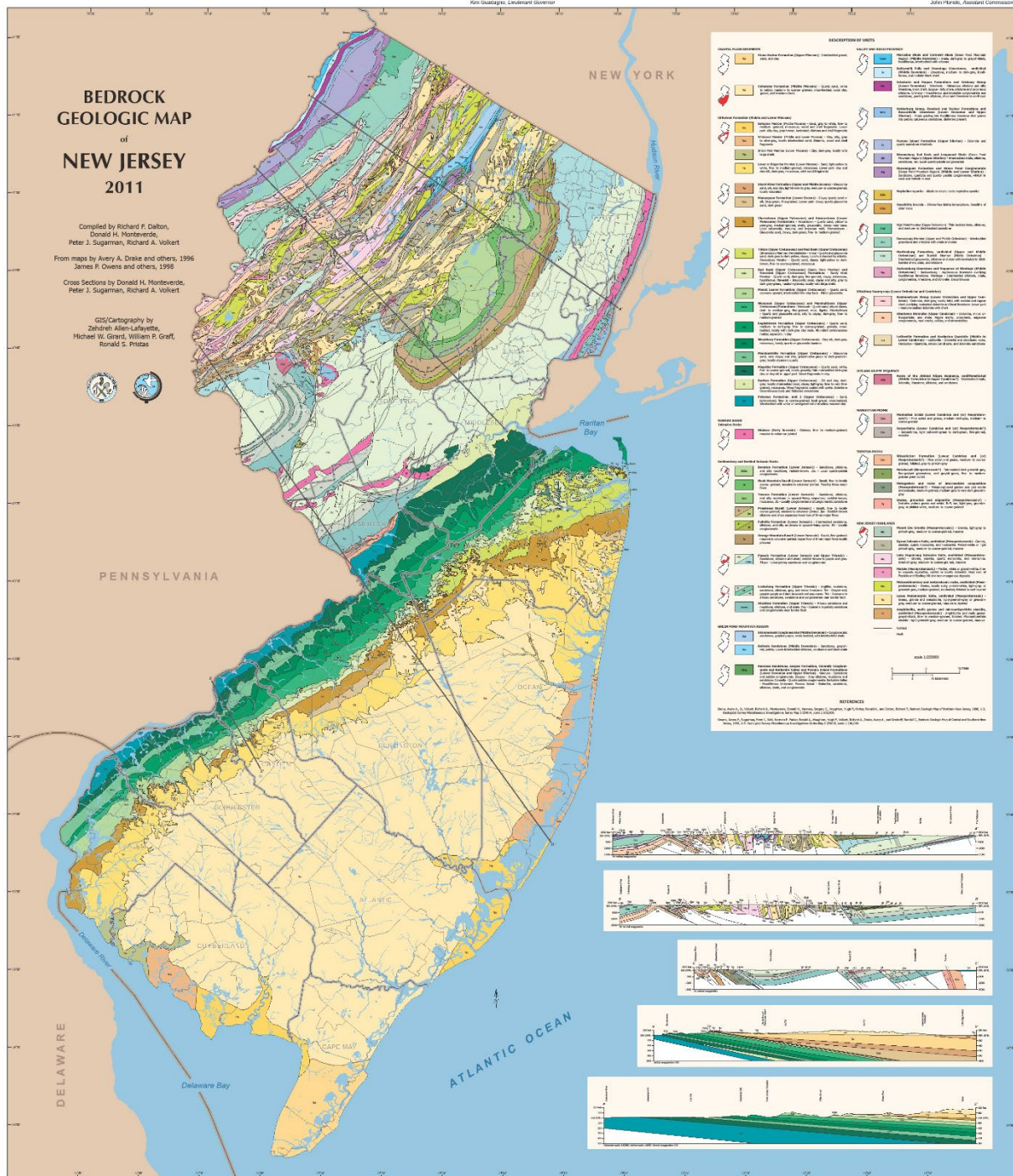
**BEDROCK  
GEOLOGIC MAP  
of  
NEW JERSEY  
2011**

Compiled by Richard F. Dalton,  
Donald H. Monteverde,  
Peter J. Sugarman, Richard A. Volkert

From maps by Avery A. Drake and others, 1996  
James P. Owens and others, 1998

Cross Sections by Donald H. Monteverde,  
Peter J. Sugarman, Richard A. Volkert

GIS/Cartography by  
Zehdreh Allen-Lafayette,  
Michael W. Girard, William P. Graff,  
Ronald S. Pristas



In 2007, Burlington County purchased Pictometry which included EFS (Electronic Field Study) software. This desktop software worked for users connected to the County network, but was cumbersome to deploy outside of the County.

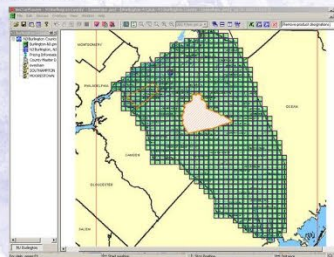
In 2007, Burlington County purchased Pictometry which included EFS (Electronic Field Study) software. This desktop software worked for users connected to the County network, but was cumbersome to deploy outside of the County.

The screenshot shows a GIS application window with a map of a city. A pink polygon is drawn on the map, highlighting a specific area. The interface includes a legend on the left, a toolbar at the top, and a list of layers on the right. The map shows various buildings and streets, with the highlighted area being a large, irregular shape.

- Due to security concerns, GIS data were imported to shapefiles from SDE
- This made it more difficult to update on a regular basis
- EF's software was deployed to County users through Microsoft SKYS
- In most cases, a County GIS specialist had to install the software for municipal agencies
- The full County image library took up 1.2 TB of storage

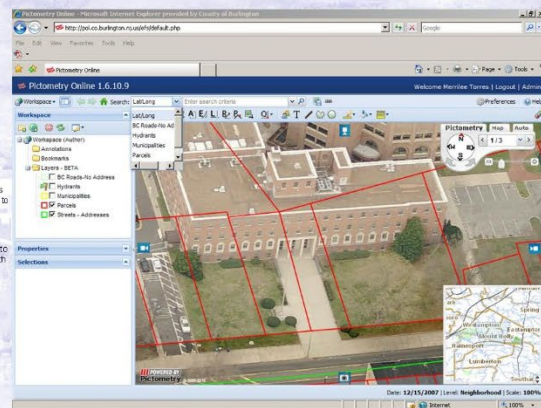
- There was little control over the basemap resolution
- This made it cumbersome to view at many scales

- Local storage of 12 TB of data was not feasible for many external agencies
- Pictometry's Sector Planner software was used to carve out data for individual municipalities
- This was time consuming and still resulted in large datasets which had to be transferred to the external agency using an external hard drive
- GIS data also had to be transferred to the external agency could quickly become out of date
- Providing just the data within the municipality's geographic area is needed from departments from users of Pictometry for responding to calls in neighbouring towns



In 2008 Pictometry introduced a new web-based solution called Self-hosted Pictometry Online.

- By hosting the data and software itself, Burlington County was able to avoid recurring fees based on the number of users.
- With potential users such as police, fire, EMS, OEM, assessors and zoning officials in 40 municipalities, paying by user was not a viable option.
- POL is a web-based solution which only requires that the user to have a computer with an Internet connection, Internet browser and log-in credentials.
- The application is not publicly accessible; Burlington County administers the log-in credentials and security.



- The Pictometry Images are stored locally by Burlington County.

- Since the application is web-based, municipal agencies will be able to access imagery and data for not only their own township but for the entire County as well without installing software or storing data.

- The Map or basemap can be toggled with the Pictometry imagery so it can also be displayed in the large window
- The basemap was developed as an ArcMap MXD using grouped layers with scale dependency so that symbology and labeling changes as the map is zoomed in and out

- A WMS was generated from the JMX for 1 and a cache was generated at 9 different scales

- In anticipation of using the web service for a basemap for other web map applications, the

- The Plctometry images are stored locally by Burlington County
- Since the application is web-based, municipal agencies will be able to access imagery and GIS data for not only their own township but for the entire County as well without installing software or storing data
- In order to make the data for the WFS & WMS available externally as required by the POL software, the County had to set up a Reverse Proxy on the POL server
- The reverse proxy acts as a broker for web service requests, receiving requests, routing it through the proxy to the ArcGIS Server application server

Creating the basemap made extensive use of grouped layers and scale dependency in ArcMap. This allows the map to show increasing levels of detail in both the data displayed and labeling as the user zooms in.

Creating the basemap made extensive use of grouped layers and scale dependency in ArcMap. This allows the map to show increasing levels of detail in both the data displayed and labeling as the user zooms in.



Full County – 1,614,400

1:153,600 –  
addition of parks, water bodies & major roads



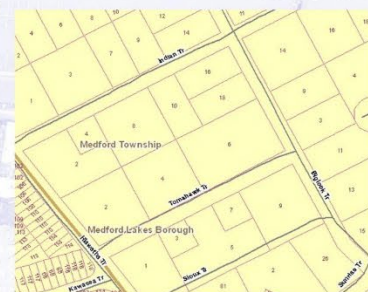
1.76,800 –  
Addition of local roads, water body names  
& park names

1:38.400 =



1:19,800 – more detail &amp; road names

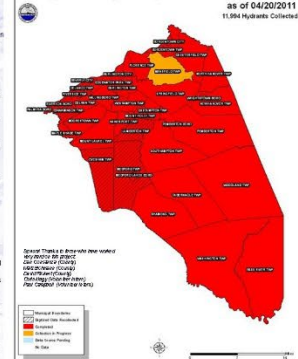
1:9 600



1:2,400 - parcels drawn and house number labels are added.  
Currently the house numbers are stored as feature-linked annotations

**Burlington County Fire Hydrant Collection Status:**

**Burlington County Fire Hydrant Collection Status:**



*Note: If the same person is performing A, B & C, it would be most efficient to do them simultaneously*

- [illegible]

Student Class	Color	Place
Class A	Light Blue	1st place
Class A	Green	2nd place
Class B	Orange	3rd place
Class C	Red	4th place

- [illegible]

The purpose of mapping the hydrants is to assist in fire response, however, previously most fire departments only had the capability to use hard copy maps. Putting the hydrants in POL solves that. Once a hydrant has been mapped, its location and attribute data can be accessed through the POL interface. This will give fire fighters an opportunity to access a situation before arriving at the scene which can be especially helpful when responding to calls outside their normal jurisdiction. To access POL they only need a computer with a web browser, Internet connection and a POL account.

