

1  
2                   **SECTION IX - CONSERVATION PLAN ELEMENT**  
3

4     *This Section taken together with Section VIII –Recreation & Parks Plan Element, Section XI –*  
5     *Historic Preservation Plan Element, and the separately published Recreation and Open Space*  
6     *Inventory (ROSI) may be cited as the “Open Space and Recreation Plan (OSRP) for the*  
7     *Township of Livingston, County of Essex”.*  
8

9  
10    **INTRODUCTION**  
11

12    The Township of Livingston is a suburban residential community in western Essex County and is  
13    in Metropolitan Planning Area (PA1) under the New Jersey State Development and  
14    Redevelopment Plan (State Plan). It is almost fully developed. Specific portions of the  
15    Township are water supply areas, each designated an Environmentally Sensitive Planning Area  
16    (PA5) under the State Plan.  
17

18    With tree-lined streets, a vibrant downtown district, and limited non-residential development, it  
19    is home to three Essex County parks and a system of municipal parks and recreation facilities.  
20    The Lenape Trail traverses the Township, connecting the Essex County trail system to the Morris  
21    County Patriots’ Path. The Lenape Trail is a segment of the Liberty-Water Gap Trail that will  
22    run from Liberty State Park in Jersey City to the Delaware Water Gap when completed. The  
23    Passaic River forms the western boundary of the Township, separating Essex and Morris  
24    Counties.  
25

26    There are 428 acres of municipal parkland and 414 acres of county parkland in the Township.  
27    Nearly one-tenth of the Township’s 8,960 acres is permanently protected parkland. An  
28    additional 1,450 acres, or 16% of the total Township area, is occupied by the East Orange Water  
29    Reserve and is zoned as a Water Resource Conservation District. This Master Plan proposes that  
30    another 367 acres, owned by the New Jersey-American Water Company, also be zoned into the  
31    Water Resource Conservation District.  
32

33    In November of 2002, Township voters overwhelmingly approved establishing an Open Space  
34    Trust Fund to be supported by a Township Open Space Tax. In December of 2002, the  
35    Livingston Environmental Commission completed a Township Open Space Inventory,  
36    identifying publicly and privately held parcels in the Township. In January of 2003, the  
37    Township established an Open Space Tax and Open Space Trust Fund in compliance with P.L.  
38    1997, Chapter 24, and appointed an Open Space Trust Committee. In February of 2003 the  
39    Livingston Environmental Commission, with the assistance of the Morris Land Conservancy,  
40    prepared an “Open Space and Recreation Plan for the Township of Livingston”. The Township  
41    Master Plan was amended in May of 2003 to adopt that plan as an interim element of the Master  
42    Plan.  
43

44    This Section IX – Conservation Plan Element reviews the present and anticipated natural  
45    resource conservation needs of the community and the resources currently in place, and makes  
46    recommendations for maintenance, improvement and expansion.  
47

1  
2 **Goals and Policies**  
3

4 This Conservation Plan Element is designed to meet Objectives presented in Section I of this  
5 Master Plan which Objectives are expressed as goals of this Section and *numbered as they*  
6 *appear in Section II:*  
7

- 8           2.       To encourage municipal actions that will achieve the long-range use, development  
9                   and preservation of lands and properties within the Township in a manner  
10                  promoting the public health, safety, morals, and general welfare of present and  
11                  future residents.  
12  
13           3        To secure safety from .....flood...  
14  
15           4.       To provide adequate areas of natural light, air and open space.  
16  
17           5.       To promote the establishment of appropriate land use standards that  
18                   contribute to the well-being of persons and neighborhoods, preservation and  
19                   improvement of the environment, the quality of life, and a sense of community.  
20  
21           6.       To encourage the appropriate and efficient use of public funds in coordinating  
22                   public and private development, improvement, or preservation, within a  
23                   framework of sound land use and development principles and policies.  
24  
25           11.      To promote a welcoming and aesthetically pleasing visual environment  
26                   through constraints with respect to preservation or enhancement of  
27                   environmental assets.  
28  
29           12.      To promote the conservation of open space through the protection of forests,  
30                   woodlands, wetlands, flood plains, marsh and aquifer recharge areas, stream  
31                   corridors, steep slopes and valuable natural resources; to prevent degradation of  
32                   the environment through improper use of land; and, to prevent negative  
33                   environmental impact upon property adjacent to property being developed.  
34  
35           13.      To acquire, develop, expand, improve, and maintain passive and active parks and  
36                   recreation facilities, at appropriate locations within the Township, to meet  
37                   reasonable and affordable needs and expectations of present and future residents.  
38  
39           17.      To encourage the efficient management of stormwater through the development  
40                   of appropriate guidelines that will prevent future drainage problems, protect  
41                   Township fresh water resources, and provide environmentally sound land use  
42                   planning.  
43  
44           18.      To address concerns relative to flooding through regulatory changes or capital  
45                   improvement efforts to minimize future flooding problems.  
46  
47           24.      To examine public easements and existing utility easements and rights-of-way as  
48                   open space connectors to create a network of greenways, bicycle paths, trails, and

1 significant open space parcels.

2 The following Policies of this Master Plan, *numbered as in Section II*, apply:

- 3
- 4 2. The Township will consider and evaluate innovative development proposals that  
5 would enhance and protect quality of life and environmental features, minimize  
6 energy usage, and encourage development densities consistent with patterns of  
7 development envisioned by this Master Plan.  
8
- 9 4. Land development will be designed and regulated to protect and enhance the  
10 environmental quality of the Township and its natural resources and to preserve or  
11 enhance the visual aesthetics of existing public facilities and green acres.  
12

13 Specific Goals of this Conservation Plan Element are:

- 14
- 15 1. Protect and enhance the quality of life for Township residents through preservation of  
16 “green corridors” and conservation of land and water.  
17
- 18 2. Protect the beauty and physical appearance of the community, continuing the  
19 effort to create a “green landscape” of tree-lined streets and the creation of walking paths.  
20
- 21 3. Restore appropriate developed lands and return them to their natural state.  
22
- 23 4. Create a system of multi-use trails connecting residential neighborhoods with parklands  
24 and recreational areas or linking parklands and recreational areas.  
25
- 26 5. Permanently protect the E. Orange Water Reserve and the New Jersey-American  
27 Reservoir properties.  
28
- 29 6. Protect mature forests and woodlands in the Township.  
30
- 31 7. Protect the aquifer recharge lands in the Township and conserve brooks, streams, and  
32 wildlife habitat for indigenous species, migratory birds, and threatened and endangered  
33 species.  
34
- 35 8. Create scenic greenways and linked corridors of protected lands in the community.  
36
- 37 9. Prepare and maintain both an Environmental Resources Inventory of the Township’s  
38 natural features and environmentally sensitive areas and an Open Space Inventory.  
39
- 40 10. Obtain a complete soils inventory for the Township.  
41
- 42 11. Identify and map wetlands in the Township.  
43
- 44 12. Prepare a map illustrating areas of slopes less than 10%; land sloping between 10%  
45 and 15% and lands sloping greater than 15%.  
46
- 47 13. Identify and map threatened and endangered species habitats.  
48

1 14. Identify and map mature forest cover and open spaces.

2 **What is “Open Space”?**

3  
4 “Open space” can most simply be defined as undeveloped land upon which no structures have  
5 been built other than those that support recreational, environmental, cultural or agricultural  
6 activities and related education. However, it also can be defined to include lands used for parks,  
7 natural areas, forests, fishing areas, winter sports, and similar uses for outdoor recreation. Open  
8 Space also includes lands used for reservoirs, water reserves, wildlife preserves, or conservation  
9 of natural resources. Livingston has tended to use the broadest definitions. In this Master Plan  
10 distinctions are drawn among various types of open space.

11  
12 Open space contributes to the ecological health of the community, to its aesthetics, and to the  
13 physical well-being of its residents.

14  
15 Woodlands, wetlands, flood plains and steep slopes protect local animal and bird life, allow for  
16 recharge of underground aquifers, and reduce damage by stormwater run-off, while presenting a  
17 pleasing natural setting.

18  
19 Livingston contains areas that meet the definitions of woodlands, wetlands, floodplains and steep  
20 slopes. In addition, there are green front yards, pocket parks and street trees; all of which soften  
21 the field of view and allow for circulation of air and natural light.

22  
23 **Open Space Trust Fund**

24  
25 As already noted, on November 5, 2002, residents of the Township demonstrated their strong  
26 commitment to conservation and preservation of the environment by approving a referendum to  
27 establish a municipal Open Space, Recreation, and Farmland and Historic Preservation Trust  
28 Fund. 76%, of those voting, answered "yes" to the question posed as to whether the Township  
29 should enact a tax to establish such a dedicated Trust Fund.

30  
31 As a result, in January of 2003, the Township established its Open Space and Recreation Trust  
32 Fund (“Trust”) to be funded by a dedicated annual local property tax not to exceed three cents  
33 (\$0.03) per one hundred dollars (\$100.00) of assessed valuation. It is anticipated that the Trust  
34 will generate \$272,000 per year. Pursuant to ordinance, an Open Space Trust Committee is  
35 responsible for recommending actions to be financed by Trust funds. The Trust will assist in  
36 maintenance and expansion of the Township’s already extensive parks and recreation facilities;  
37 as well as open space, conservation activities and historic preservation. Matching federal, state  
38 and county funds may be applied for when available.

39  
40 **Recreation and Open Space Inventory**

41  
42 The Recreation and Open Space Inventory (ROSI) is a listing of properties that are “of interest”  
43 to the Township for open space acquisition or preservation. The parcels represent present or  
44 potential value for conservation, passive or active recreation, greenways or parkland. They are  
45 publicly or privately owned, undeveloped or partially developed. There are three subjective  
46 categories in the inventory:

47  
48 Undeveloped – no structure, pavement, playing field or playground on the site.

1  
2 Underdeveloped – a parcel of more than one acre that has a structure, pavement  
3 or active recreational field or facility, but still has a large  
4 percentage of the site undeveloped.

5  
6 Developed - a parcel with a majority of its land area containing a structure,  
7 pavement, playing field or other active recreational facility.  
8  
9

10 **Environmental Features:**

11  
12 **Township Topography**

13  
14 Topography of the Township, as shown on the Topographic Map (Map G) is a natural condition  
15 that has not been significantly altered by development. The general character of the topography  
16 is gently rolling land, with some flat areas, some hilly sectors and some steep slopes that exceed  
17 20 percent. The highest point is 560 feet above sea level and is located near the easterly  
18 boundary with the Township of West Orange and just north of State Highway 10. By contrast,  
19 the lowest area is to the west, along the Passaic River, at an elevation of 160 feet. A second area  
20 of “heights” with a north-south axis and elevations ranging to 440 feet above sea level is located  
21 along Hillside Avenue while a lower valley-like north-south area, at elevations ranging from 300  
22 to 320 feet, is to both sides of Livingston Avenue.  
23

24 Slopes of fifteen percent (15%) or more are found on the easterly high side of the Township from  
25 Interstate 280 south to the Millburn Township border and in the northwestern area bounded by  
26 Hillside Avenue, Beaufort Avenue, W. Northfield Rd. and the border with the Borough of  
27 Roseland.  
28

29 **Soils.**

30  
31 Soils are mixtures of minerals, air, organic matter and water in varying proportions and with  
32 varying consistencies. The primary component will be broken and weathered minerals. The  
33 Township lies within the Triassic Lowlands portion of what is known as the New Jersey  
34 Piedmont Province. An interim “General Soil Map – Essex and Hudson Counties, New Jersey”  
35 was published in 1993. On December 30, 2004, the U.S. Natural Resources Conservation  
36 Service published a comprehensive soil survey of the Essex County area. Soils are identified  
37 by prominent characteristics that are common at particular locales in the State. The primary soil  
38 groups found in the Township are: “Urban Land-Parsippany-Haledon Soils”, “Urban Land-  
39 Dunellen-Riverhead Soils”, “Boonton-Urban Land Wethersfield Soils”, and “Urban Land-  
40 Boonton-Wethersfield Soils” as shown on the Soils Map (Map H).  
41

42 ***Urban Land-Parsippany-Haledon Soils.***

43  
44 These soils are nearly level to steeply sloping, poorly drained and contain very deep silt  
45 loams. Parsippany soils are formed in stratified, silty, old lake sediments in depressions  
46 and on low level areas. Haledon soils are formed in sandstone, shale and basalt glacial  
47 till over shale and basalt bedrock along drainage ways on broad glacial till plains and on  
48 ridges. Parsippany soils are hydric and Haledon soils are non-hydric.

1  
2 ***Urban Land-Dunellen-Riverhead Soils.***  
3

4 This soil group consists of sandy loams, nearly level to strongly sloping, which are deep  
5 to very deep and of a well-drained gravelly nature. It is formed from sandy, stratified  
6 glacial outwash on outwash plains and terraces and on river and stream terraces. This  
7 soil is non-hydric.  
8

9 ***Boonton-Urban Land Wethersfield Soils.***  
10

11 This soil group is gently sloping to moderately steep, well drained to moderately well  
12 drained, deep gravelly loams formed in acid, reddish sandstone, shale, basalt and  
13 conglomerate glacial till over shale and basalt bedrock. It is found in the central portion  
14 of the Township, between the higher elevations. These soils are non-hydric.  
15

16 ***Urban Land- Boonton-Wethersfield Soils.***  
17

18 These soils are gently sloping to moderately steep, well drained to moderately well  
19 drained, deep gravelly loams formed in acid, reddish sandstone, shale, basalt and  
20 conglomerate glacial till over shale and basalt bedrock. They occur on upland glacial till  
21 plains and ridges. These soils are non-hydric.  
22

23 Notes: (1) Hydric soil is a soil that formed under conditions of  
24 saturation, flooding, or ponding long enough during the  
25 growing season to develop anaerobic conditions in the  
26 upper part of the soil bed. Hydric soils along with  
27 hydrophytic vegetation and wetland hydrology are used to  
28 define wetlands.  
29

30 (2) Glacial till is the accumulation of unsorted, unstratified  
31 mixtures of materials such as clay, silt, sand, gravel and  
32 boulders deposited by a glacier.  
33

34 (3) Outwash is glacial till carried away from the glacier site by  
35 meltwater.  
36

37 **Woodlands.**  
38

39 Woodlands may be defined as forested areas containing deciduous, evergreen or mixed species  
40 of trees or shrubs. Trees reduce air and water pollution, act as sound absorbers, prevent soil  
41 erosion, provide natural habitat for wildlife and birds, provide aesthetic and scenic beauty, and  
42 protect and enhance community image and property values. Due to development, limited  
43 woodlands survive in the Township. In 2004, the Township enacted a Trees Ordinance designed  
44 to preserve and protect as many trees as may be practical during development and to require the  
45 multiple replacement of trees that are destroyed.  
46

47 **Recommendation:** The Land Use Ordinance should be amended to require  
48 that when undeveloped or underdeveloped properties in

1 excess of two (2) acres are developed a specified  
2 percentage of the property must be preserved in its natural  
3 state.  
4

5 **Recommendation:** Identify woodlands appropriate for preservation in their  
6 entirety, and achieve such preservation by donation, or  
7 purchase, of title or of perpetual easements.  
8

9 **Wetlands.**

10  
11 Wetlands are of particular importance for flood control and as natural means of filtering  
12 stormwater run-off and returning rainwater to the ground to recharge the aquifers from which  
13 drinking water comes. Wetlands also provide critical habitat for birds and wildlife. To the  
14 layman’s eye, stands of cattails and skunk cabbage and other plants, and periods of standing  
15 water, suggest the presence of wetlands. However, they may not always prove the presence of  
16 wetlands. Although those types of vegetation are typically present in wetlands, the nature of the  
17 soils, hydrographic factors and other technical factors govern the legal determination of the  
18 presence of wetlands. Wetlands may be, or include, woodlands.  
19

20 Wetlands within the Township are “Freshwater Wetlands” and their protection is controlled by  
21 Federal and State laws and regulations. The New Jersey Department of Environmental  
22 Protection (NJDEP) regulations contain the following definition:  
23

24 “ ‘Freshwater wetland’ or ‘wetland’ means an area that is inundated or saturated  
25 by surface water or groundwater at a frequency and duration sufficient to support,  
26 and that under normal circumstances does support, a prevalence of vegetation  
27 typically adapted for life in saturated soil conditions, commonly known as  
28 hydrophytic vegetation; provided, however, that the Department, in designating a  
29 wetland, shall use the three-parameter approach (that is, hydrology, soils and  
30 vegetation) enumerated in the 1989 Federal Manual....”  
31

32 Wetland areas within the Township have been identified by NJDEP and are shown on the  
33 Wetlands Map (Map D). The largest wetlands area is the East Orange Water Reserve in the  
34 southeastern portion of Livingston. Those wetlands extend into the adjacent communities of  
35 Millburn and Florham Park.  
36

37 There are three (3) distinct types of wetlands in the Township:  
38

- 39 PFO1 - A wetland in the Palustrine System (P), forested (FO), with broad-leaved  
40 deciduous vegetation.  
41  
42 PEM - A wetland in the Palustrine System (P), with emergent wetland (EM).  
43  
44 PSS1 - A wetland in the Palustrine System (P), with scrub-shrub wetland (SS)  
45 with broad-leaved deciduous vegetation.  
46

47 The Palustrine System encompasses the vegetated wetlands commonly known as marsh, swamp,  
48 bog, or fen and includes small, shallow, permanent or intermittent water bodies commonly

1 known as ponds.

2 PFO1 wetlands are the predominate type in the Township, and are found in the East Orange  
3 Water Reserve portion of the WRC Water Resource Conservation District, along the borders  
4 with Florham Park and East Hanover, and in the center of the Township west of St. Philomena's  
5 Catholic Church, Livingston High School and Memorial Park.

6  
7 PEM wetlands are located along Eisenhower Parkway north of State Highway 10, along the  
8 border with East Hanover, and in the southwestern corner of the Township

9  
10 PSS1 wetlands are present along the Passaic River.

11  
12 There are scattered small PSO1 and PSS1 wetlands throughout the Township.

13  
14 NJDEP has the exclusive right to grant permits for the development or filling in of freshwater  
15 wetlands. For that purpose, wetlands are categorized into three (3) groups or resource values:  
16 exceptional value, intermediate value, and ordinary value. The values are set by NJDEP after  
17 site inspection. Protective transition areas or buffers ranging from 50 to 150 feet, according to  
18 the resource value of the wetlands, are required.

19  
20 Preservation of wetlands is essential for the protection of wildlife, reduction of the adverse  
21 effects of seasonal flooding, and assisting in the recharge of the aquifers.

22  
23 **Recommendation:** Incentives for preservation of wetland segments of  
24 developable properties should be provided in the Land Use  
25 Ordinance.

26  
27 **Recommendation:** Acquire title to, or preservation easements on, wetlands  
28 by donation or purchase.

29  
30  
31  
32 **Floodplains.**

33  
34 Floodplains are areas, adjacent to a stream, river or watercourse, that are subject to flooding  
35 during high water stages. Such flooding presents risks of loss or damage to structures, other  
36 property, and people. The Federal Emergency Management Agency (FEMA) defines flood plain  
37 areas subject to the risk of a 100-year flood and sets out their parameters on Flood Insurance  
38 Rate Maps. The Passaic River, Canoe Brook and Slough Brook, and their tributaries, and Bear  
39 Brook and Cub Brook all give rise to floodplains of varying dimensions

40  
41  
42 **Steep Slopes.**

43  
44 Slopes greater than 10% present drainage problems in terms of natural run-off and in terms of  
45 potential negative effects of disturbance of such slopes by development. Disturbance of trees,  
46 shrubs or groundcover, or changes in the slope itself, can increase stormwater run-off, erosion  
47 and resulting silting or sedimentation of down-slope terrain and watercourses.



1                   **Recommendation:** Enact a steep slopes ordinance that would limit and  
2 control development of steep slopes in such a way as to  
3 eliminate or significantly reduce adverse environmental  
4 impacts.

5  
6                   **Recommendation:** Acquire title to, or preservation easements on, steep  
7 slopes by donation or purchase.  
8  
9

10 Wetlands, floodplains and steep slopes in the Township are shown on the Critical Areas Map  
11 (Map I).  
12  
13

14 **Aquifers.**

15  
16 Aquifers are geological formations that contain significant quantities of saturated permeable  
17 materials and yield water to springs and wells. Aquifer recharge areas are porous soils or rock  
18 formations through which water can work downward from the surface to the aquifer.  
19

20                   **Recommendation:** Permanently protect the East Orange Water Reserve  
21 and the New Jersey-American reservoir properties as  
22 proposed in the Land Use Plan.  
23

24 More specific recommendations for protection of aquifers are in Section XIII – Stormwater  
25 Management Plan Element.  
26

27 **Stream Protection.**

28  
29 Spills or discharge of hazardous substances or hazardous wastes contaminate or pollute surface  
30 waters.  
31

32                   **Recommendation:** Purchase properties along stream corridors, or obtain  
33 conservation easements on such properties, in order to  
34 reduce risks.  
35

36 More regarding this subject will be found in Section XIII – Stormwater Management Plan  
37 Element.  
38

39 **Rare and Endangered Species.**

40  
41 The New Jersey Natural Heritage Program of the Division of Parks and Forestry has identified  
42 rare and endangered species and their habitats. Such habitats have been identified as ranging  
43 across the southern portion of the Township from the Florham Park boundary to the West  
44 Orange boundary. Such habitats have also been identified in the northwestern portion of the  
45 Township. The rare and endangered species found in such habitats are listed in Table IX-1.  
46  
47  
48

1  
2  
3

Table IX-1

Species	Common Name	State Status
<i>Ambystoma Laterale</i>	Blue-Spotted Salamander	Endangered
<i>Osio Otus</i>	Long-Eared Owl	Threatened/Threatened *
<i>Buteo Lineatus</i>	Red-Shouldered Hawk	Endangered/Threatened *
<i>Clemmys Insculpta</i>	Wood Turtle	Threatened
<i>Melanerpes Erythrocephalus</i>	Red-Headed Woodpecker	Threatened/Threatened *
<i>Strix Varia</i>	Barred Owl	Threatened/Threatened *
* First status refers to the State breeding population. Second status refers to the migratory or winter population.		
Source: New Jersey Natural Heritage Data Base, September 2000		

4  
5  
6  
7  
8

**Recommendation:** Where habitats are privately-owned properties the Township should seek title or easements to preserve such habitats.

**Potable Water Resources Protection.**

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10  
11  
12  
13  
14  
15  
16

Public wells tapping the Passaic Valley buried valley aquifer are the primary source of potable water for the Township. The supply is supplemented by Township bulk purchases from New Jersey-American Water Company, which draws its supplies from surface watersheds and Brunswick Shale, Buried Valley and Gneiss Rock Formation aquifers. The supplies are regularly monitored for contaminants.

17  
18  
19  
20

Aquifer protection is of critical importance to ensure that wells providing Township water supplies remain uncontaminated. Maintenance of open space contributes to aquifer protection; as does the control of stormwater runoff. Spills or discharge of hazardous substances or hazardous wastes can contaminate or pollute the aquifer.

21  
22  
23  
24  
25  
26  
27

**Recommendation:** As a preventative measure, the proximity of discharges of toxic and hazardous materials to sources of water supplies, should be restricted so that there will be sufficient time to find and clean up such spills or discharges before water supplies become contaminated

28  
29  
30

**Recommendation:** An ordinance protecting well-head areas should be enacted.

31  
32

More regarding these subjects will be found in Section XIII – Stormwater Management Plan Element.

33  
34  
35

**Environmentally Sensitive Areas Protected By State Law.**

36

The State Plan seeks to protect Environmentally Sensitive Planning Areas. Those areas are

1 defined as large contiguous land with valuable ecosystems, geological features and wildlife  
2 habitats. This includes watersheds of existing or planned potable water supply sources.

3  
4 The western and southern portions of the Township contain sections designated  
5 “Environmentally Sensitive Planning Area”. Along the Passaic River, the Essex County Park  
6 Commission owns and manages undeveloped passive recreation land that is part of West Essex  
7 Park. East of the county parkland is the Cedar Hill Golf and Country Club. Also to the east of  
8 West Essex Park is the reservoir owned by the New Jersey-American Water Company. The  
9 remaining environmentally sensitive land in the southern portion of the Township is owned by  
10 the City of East Orange Water Commission as a watershed for that city’s drinking water supply.

11  
12 West Essex Park is an undeveloped 1360-acre park that remains largely a wetlands preserve. It  
13 lies within the flood basin of approximately six miles of the Passaic River; from Bloomfield  
14 Avenue in Fairfield, through Roseland and West Caldwell, and terminates at South Orange  
15 Avenue in Livingston. There are fishing areas, interpretive trails that have not been maintained  
16 in years, and boat and canoe landings at various points along the river.

17  
18 The State Plan provides for the protection of critical natural resources and for the maintenance of  
19 the balance between ecological systems and beneficial growth. Thus, the State Plan suggests that  
20 new development be guided into Centers to preserve the open space and not be targeted for  
21 Environmentally Sensitive Planning Areas. That concept is adaptable to local community  
22 planning.

23  
24 **Recommendation:** Encourage Essex County to continue and expand its  
25 programs for improving West Essex Park, including  
26 reclaiming the interpretive trails.

## 27 28 **Wildlife**

### 29 30 **Deer Management.**

31 Residents identify deer as a safety, health, economic and quality of life problem. They urge that  
32 “something be done about them.” Others assert that deer were here before the Township was  
33 developed, that residents are the intruders and that nature should be allowed to take its course.  
34 That deer were not common in the area before 20<sup>th</sup> Century development is indicated by a 1963  
35 story about Samuel Burnet, a 5th generation resident who was then 82 years old and who was  
36 reputed to have been the first person known to have killed a deer in Essex County. By 1900  
37 there were almost no deer in New Jersey.

38  
39 Referring to various wildlife, including deer, Larry S. Katz, the chairman of the Animal Science  
40 Department of Rutgers University, was quoted in the New York Times of May 6, 2007: “You’ll  
41 hear people say we’ve moved into these animals’ neighborhoods and therefore we should leave  
42 them alone or respect them. It isn’t that we’ve moved into their neighborhood, it’s that we’ve  
43 created more neighborhoods for them. We’ve increased the habitat for certain species with our  
44 suburban development.”

45  
46 The number of residents complaining of deer eating their shrubs and flowers increases each year.  
47 Much of what is planted in gardens is gourmet food for deer. Very little that can be grown in this  
48 area is “deer-proof”. The result is that deer thrive in suburbia and may be found in even greater

1 numbers than in undeveloped countryside.

2 The Insurance Institute for Highway Safety reported, in December of 2004, that most animal-  
3 vehicle crashes involve deer, that nation-wide over 200 people were killed in such crashes in  
4 2003, and that there was more than \$1 billion in estimated property damage in such crashes.

5  
6 61 deer were involved in documented collisions with motor vehicles within the Township in  
7 2005. However, the number of deer carcasses found along Township roadways in the same  
8 period was 172. There were no reported human injuries or fatalities from accidents involving  
9 deer.

10  
11 In 2006, there was an increase to 63 deer involved in documented collisions. The number of deer  
12 carcasses found on Township roadways dropped to 142. Fortunately, there were no human  
13 fatalities. However, two people were injured in deer-related accidents in 2006.

14  
15 Deer ticks are carriers of Lyme Disease. The numbers of Township residents reported by  
16 physicians as having been seen for possible Lyme Disease were 87 in 2002, 92 in 2003 and 53 in  
17 2004. (The number of confirmed diagnoses is not available, but is likely to be only a fraction of  
18 the patients seen.)

19  
20 According to a report in the December 1, 2004 Wall Street Journal, “ground-level vegetation of  
21 the forest has been severely degraded by over-browsing in many regions, eradicating critical  
22 habitat for many plants and birds.” The article states that the whitetail deer population of the  
23 United States was estimated to have been no more than 500,000 in 1898; that the estimated 2004  
24 population was 1.6 million in Pennsylvania alone, and 20-33 million throughout the nation.  
25 Natural predators such as cougars, wolves, coyotes and wild dogs are not present in the  
26 Township and would not be welcome. On at least two occasions in 2006, transient bear passages  
27 through the Township were experienced, but there are no resident bear preying on deer.

28  
29 Our residents urge, and this Master Plan strongly recommends, the preservation of open space in  
30 the Township. Livingston has recently adopted a tree preservation ordinance. Excessive deer  
31 populations are a threat to the health of woodlands. NJDEP’s Division of Fish and Wildlife  
32 considers that deer population in excess of 20 per square mile will result in great damage to tree  
33 and plant life.

34  
35 Trees must reproduce themselves in order replenish woodlands. No new trees reaching maturity  
36 means no forest of the future. An example given in the Wall Street Journal article is that deer  
37 love acorns. Acorns that survive the deer sprout oak seedlings. However, deer also love  
38 seedlings. Tree seedlings that survive browsing deer become saplings. The deer then eat their  
39 leaves and bark, and the saplings die. If none survive these attacks, there is no regeneration of  
40 trees.

41  
42 The Wall Street Journal report says that tree regeneration may be possible if deer populations are  
43 not in excess of 18 to 20 per square mile. However, regeneration may take decades.

44  
45 The New Jersey Wildlife Action Plan states that “white-tailed deer pose a significant threat to  
46 forest health and forest regeneration....directly damage wildlife habitat and can eliminate rare  
47 plant communities”. They do this by browsing on native species, thus allowing alien plants to  
48 become established and thrive. This deprives ground and shrub nesting birds of the dense foliage

1 that concealed their nests, thus exposing them to destruction by predators such as raccoons and  
2 wandering cats. The State Plan identifies reduction of the white-tail deer population through  
3 hunting as the best means of protect the environment. In developed areas where sport hunting is  
4 not practical or permitted NJDEP will authorize alternative lethal deer culling procedures.  
5

6 When neighboring Millburn Township conducted deer reduction efforts there were indications  
7 that deer were roaming from South Mountain Reservation and the East Orange Water reserve  
8 and were greatly in excess of 20 per square mile. In December of 2000, Millburn Township  
9 conducted a controlled professional hunt that eliminated 113 deer. In the January to April 2000  
10 period (before the hunt) there were eight deer-related car accidents in Millburn. During the same  
11 period in 2001 there were only four such accidents. There was also a hunt in 2003 (60 were  
12 eliminated) and one in 2006, when 44 were eliminated.  
13

14 **Recommendation:** The Township should embark upon a public education  
15 program, in cooperation with the N.J. Division of Fish and  
16 Wildlife, NJ Audubon Society, and the NJ Conservation  
17 Foundation, as to the health and environmental dangers  
18 presented by excessive deer populations.  
19

20 **Recommendation:** At the same time, the Township should conduct a scientific  
21 study to produce an accurate count of the deer population in  
22 the Township. Since deer cross municipal boundaries, the  
23 study should be conducted with cooperation of neighboring  
24 municipalities and both Essex and Morris counties.  
25

26 **Recommendation:** If the study demonstrates that there is an over-population  
27 of deer with resultant vehicle safety hazards, damage to or  
28 loss of greenery, and health and environmental dangers,  
29 then programs to reduce and control, including controlled  
30 professional culling, the deer population should be  
31 initiated. This should be done by establishment of Special  
32 Deer Management Areas under a Community-Based Deer  
33 Management Plan approved by the Division of Fish and  
34 Wildlife of NJDEP.  
35

### 36 **Bear Management.**

37  
38 In recent years, increasing numbers of bear sightings in suburban, and even urban, areas of the  
39 State have been reported. This has resulted in adoption of a “zero tolerance” State policy for  
40 bears in the most-populated areas of the state. In the first half of 2006, there were two incidents  
41 of young bears transiting the Township near schools, playgrounds and residences. Both  
42 incidents passed with no harm to residents or their pets, and with minimal property damage.  
43 However, the hazards were real.  
44

45 **Recommendation:** The Township should establish, and continue, a broad  
46 program of public education as to self-protection steps by  
47 adults or children when bears are present, and the actions  
48 to be taken to remove conditions that attract bears.

1  
2 **Canada Geese Management**

3 Large numbers of Canada Geese no longer participate in annual migration of their species.  
4 Instead, they have chosen to remain in New Jersey and are now called “Resident Canada Geese”  
5 by biologists. They are found on and around ponds, ball fields, golf courses, playgrounds and  
6 large lawns. Geese have digestive systems that produce greater volumes of fecal matter than do  
7 other birds of similar size. Fecal production of an adult Canada Goose is estimated at ½ pound  
8 per day. Because the geese tend to congregate in areas used for human recreation, they produce  
9 significant uncleanliness and potential health hazards for young and adult Township residents.  
10 Although migrating Canada Geese are protected by law, federal and state authorities have  
11 recognized the hazards presented by Resident Canada Geese and have authorized measures to  
12 reduce the population of those geese.

13  
14 **Recommendation:** The Township should closely monitor the presence and  
15 impact of Resident Canada Geese and employ lawful  
16 population reduction measures when the geese have an  
17 adverse impact on public use of Township parks and  
18 facilities.  
19

20 **Wild Turkeys.**

21 There are growing numbers of wild turkeys within the Township. Their presence remains  
22 something of a novelty, and they are not yet causing significant damage or disruption. These  
23 birds are showing a lessening fear of humans, and some other communities report that Tom  
24 Turkeys have attacked humans who approached too closely.  
25

26 **Recommendation:** The Township should monitor the presence of wild  
27 turkeys and their impact upon residents, and should  
28 identify what lawful measures may be taken if they  
29 become a problem.  
30

31  
32 **Other Wildlife.**

33 There are infrequent reports of coyote sightings in nearby counties (but no confirmed sightings in  
34 the Township), and there are increasing reports of feral cats in Livingston. The presence of feral  
35 cats may present a danger to low-nesting birds and their young. That is particularly the case  
36 where forest understory has been ravaged by deer. Coyotes prey on feral cats and deer, but  
37 would present a danger to small dogs.  
38

39 **Recommendation:** The Township should monitor the presence of coyotes and  
40 feral cats, and should take the precaution of identifying  
41 what appropriate lawful measures may be taken should  
42 they become a problem.  
43  
44

45 **ACQUIRING RIGHTS TO LAND FOR PURPOSES OF CONSERVATION.**

46  
47 Numerous tools and funding sources are available to acquire title or to otherwise achieve  
48 conservation and preservation. The following descriptions are not exhaustive of the possibilities.

1  
2 **Acquisition of Title**  
3

4 Purchase is the most direct and simple, but most expensive way of acquiring title. But, sufficient  
5 funds to make the purchase may not be available to the Township at the time. However, the cost  
6 may be eased by grants when available, or by entering into partnerships with conservation  
7 organizations. A number of alternative direct acquisition methods should be considered:  
8

9       Terms may be negotiated with the landowner for the purchase to be paid for over time or  
10 portions of a property acquired in discrete steps, Sale of property to the Township might  
11 be coupled with the seller retaining a tenancy in the property for a fixed term or for life,  
12 with rent to be paid to the Township.  
13

14       A property owner may be induced to sell property to the Township at below the market  
15 value so as to realize a charitable gift tax deduction for the price reduction.  
16

17       Opportunities to induce outright gifts of land to the Township should be explored. Such  
18 gifts provide a charitable gift income tax deduction for the donor and also result in  
19 saving, to the donor, of real estate taxes after title to the land is transferred.  
20

21       In instances of foreclosure upon property for failure to pay Township real estate taxes,  
22 the Township could elect to keep title and add the property to its parks or open space, or  
23 to trade the parcel for another with better environmental or recreational qualities. Periodic  
24 review of existing tax liens of all types on properties within the Township could identify  
25 opportunities for purchase of a lien and acquisition of the property for environmental or  
26 recreational use.  
27

28       The Township could exercise of the right of eminent domain to acquire ownership of land  
29 with a high environmental or recreational potential from an owner unwilling to sell or to  
30 grant an easement or other right of use.  
31

32 **Easements.**  
33

34 Easements provide an opportunity to obtain use of land for specified purposes without the costs  
35 of acquiring ownership while keeping the land on the real estate tax rolls (although the value of  
36 the land for tax assessment may be reduced by the easement). Easement rights are written into  
37 the deed on the property and pass on with changes in ownership. Easements may be purchased  
38 or received as a gift.  
39

40 Examples of types of easements are:  
41

42       A right to establish and maintain a trail or path through the owner's property.  
43

44       Owner's agreement that a natural setting, such as woodlands, will be preserved.  
45

46       A right of public access to a site for passive recreation.  
47

48       Preservation of the use of a property, such as farming or raising of livestock.

1  
2 **Zoning.**  
3

4 The Township may use its Land Use Ordinance to establish conditions, such as cluster zoning or  
5 other approaches consistent with the NJ Municipal Land Use Law, which increase the amount of  
6 open space or environmentally sensitive areas (such as wetlands, steep slopes, and stream  
7 corridors) preserved in site development.  
8

9 **Funding Sources.**  
10

11 Potential sources of funds for acquisition of property ownership or easements, and the amounts  
12 available, vary. Each may have specific and limiting objectives or types of uses.  
13

14 Township's Open Space Trust Fund.

15 This fund, generated by a special real property tax, is available for the acquisition of title or  
16 easements for conservation, recreation and preservation purposes. It can be most effectively  
17 used to qualify for matching grants or to cover Township down-payments or local contributions  
18 required by potential funding partners.  
19

20 Potential Funding Partners.  
21

22 **New Jersey Environmental Infrastructure Trust (EIT)** is a partnership of NJDEP Green  
23 Acres and the Environmental Infrastructure Financing Program. The EIT provides very low  
24 interest loans for acquisition of open space that will preserve and protect surface and ground  
25 water resources and ensure the safety of drinking water supplies. The loan can be used as the  
26 Township's match of the Green Acres grant for the project.  
27

28 **New Jersey Green Acres Program** will provide funds to cover up to 50% of the cost of  
29 acquisition of municipal parks and recreation lands under the municipality's open space and  
30 recreation plan.

31 **Essex County Open Space Trust** provides funding for projects consistent with the County  
32 open space and recreation plan.  
33

34 **Federal Land & Water Conservation Fund (LWCF)** is funded by annual Congressional  
35 appropriations. It includes a State Grant Program under which the National Park Services  
36 provides funds to individual states to cover up to 50% of the costs of acquiring land, building or  
37 repairing recreation or park facilities, providing hiking and riding trails, enhancing recreation  
38 access and providing wildlife and hunting areas. Within New Jersey, municipalities generally  
39 receive funding through the Green Acres program.  
40

41 **Transportation Enhancement Act (TEA-21)** The U.S. Department of Transportation has  
42 established that funding for trail development and enhancement is an eligible expenditure from  
43 the Federal Transportation Trust. The amount of funding for these purposes is substantial, and  
44 funds for land acquisition are available. A special category of funding is dedicated to  
45 enhancement of National Recreation Trails. An eligible project must show that the trail is part  
46 of the community's overall transportation system. Funds can be used for facilities such as  
47 signage, bike racks, surfacing as well as acquisition of land through easement or fee simple.  
48 TEA-21 funding can jumpstart a community's bikeway and walking trail system.



1  
2 **Nonprofit Land Conservation Organizations** are eligible for Green Acres grants of up to  
3 \$500,000 and can partner with the Township on a dollar for dollar match. To do so, the  
4 organization “signs on” to a community’s Open Space and Recreation Plan. Morris Land  
5 Conservancy is a conservation organization that has partnered with the Township in open space  
6 and recreation planning. The Passaic River Coalition is a non-profit Land Conservation  
7 Organization that has established a Land Trust to acquire and preserve open space. The Passaic  
8 River Coalition Land Trust provides land and water resource management by permanently  
9 protecting and preserving land. The Passaic River Coalition Land Trust works with citizens,  
10 governments, and businesses to develop solutions to protect the environment within the  
11 watershed through land preservation. The Land Trust not only preserves land, it also provides  
12 guidance to local government in the efforts to identify and plan for protection of vital natural  
13 resource and develop a methodology to acquire and manage open space.

14  
15 **Brownfields redevelopment funding.** The New Jersey legislature has implemented several  
16 financial and liability incentives to encourage municipal involvement in brownfields  
17 redevelopment. Grants of up to \$2 million per municipality per year are available through New  
18 Jersey’s Hazardous Discharge Site Remediation Fund (HDSRF). Certain restrictions limit  
19 accessing this funding. First, the municipality must have some control over the property.  
20 Second, the town must have a redevelopment plan for the property. This funding is available on  
21 a rolling basis, and is applied for at a site-specific level.

22  
23 Federal monies are also available for local government brownfields remediation. Assessment  
24 Grants and Cleanup Grants are available from the United States Environmental Protection  
25 Agency.

26  
27 By utilizing existing infrastructure, brownfields redevelopment can be a financially attractive  
28 way to revitalize urban areas, restore local tax bases, lower overall development costs and  
29 preserve open spaces.

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**MAP G:  
 TOPOGRAPHY**

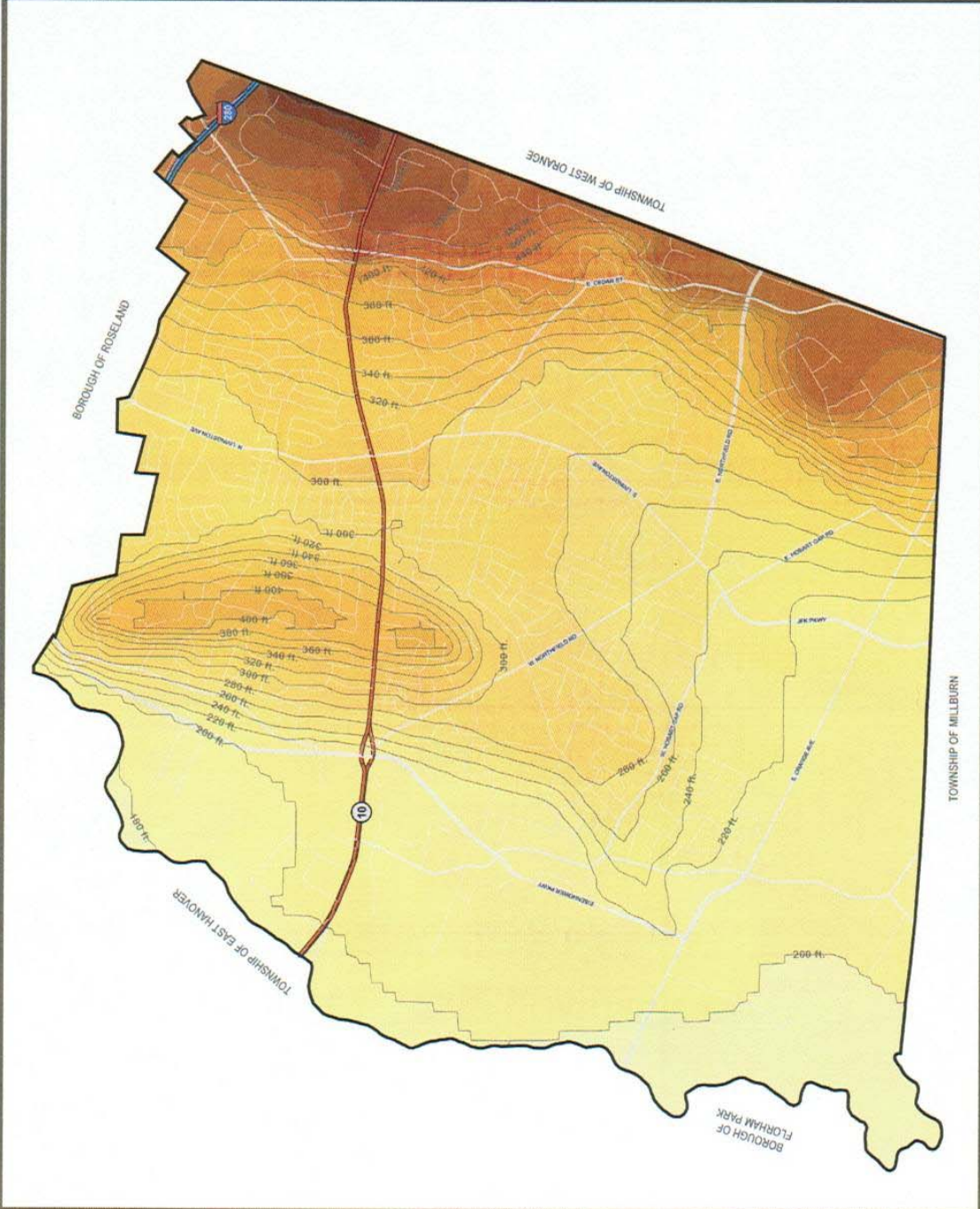
NOVEMBER 19, 2007



**CONTOUR ELEVATION**



SOURCE: NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 THIS MAP WAS DEVELOPED USING THE DIGITAL ELEVATION GRID (DEG) FROM THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) ENVIRONMENTAL PROTECTION INVENTORY, BUT THIS SECONDARY PRODUCT HAS NOT BEEN VERIFIED BY NJDEP AND IS NOT STATE AUTHORIZED.



**MAP H: SOILS**

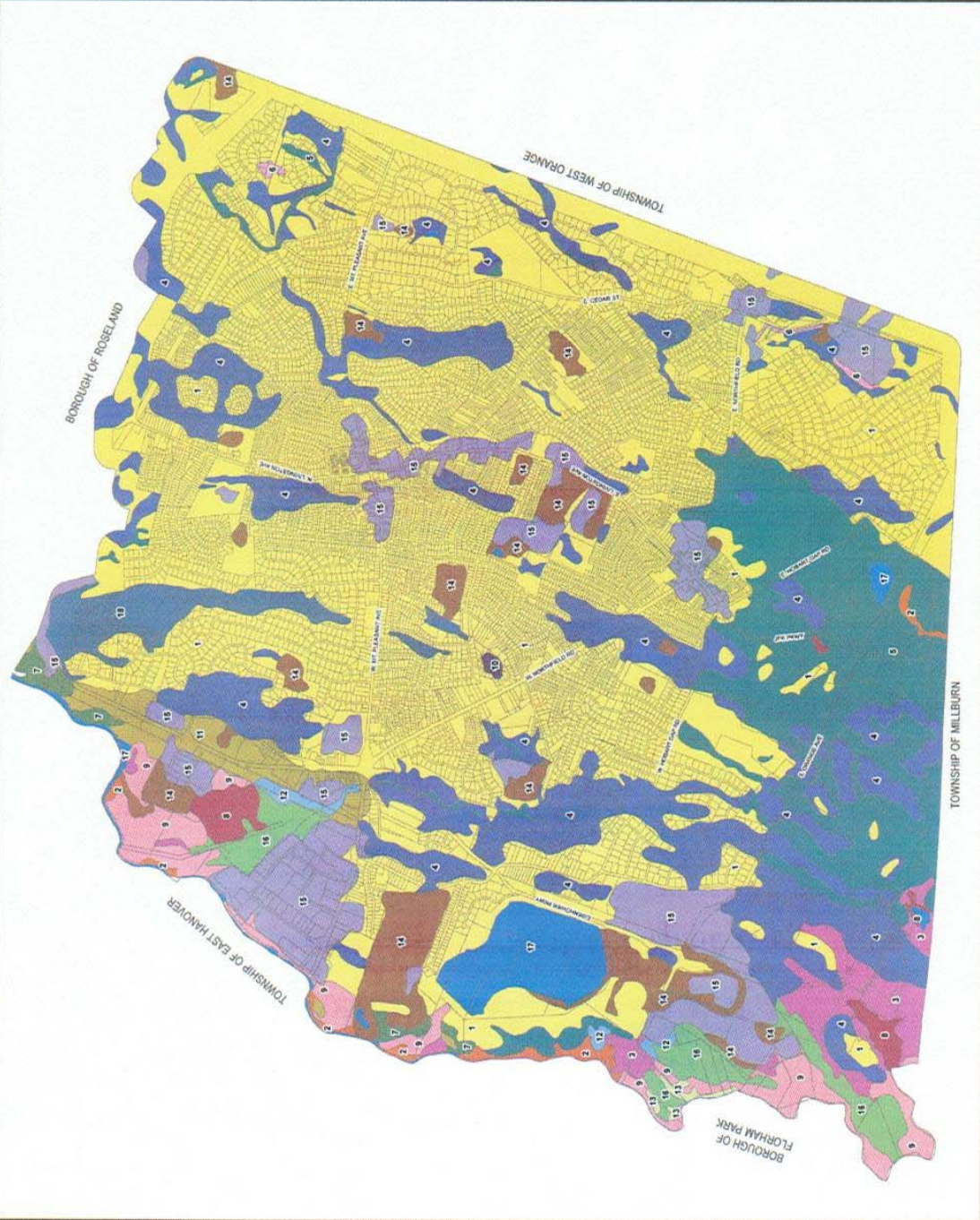
NOVEMBER 19, 2007



**SOIL SERIES**

- 1 BOONTON
- 2 FLUVAQUENTS
- 3 GREAT PIECE
- 4 HALEDON
- 5 HASBROUCK
- 6 HOLYOKE
- 7 HORSENECK
- 8 NATCHAUG
- 9 PARSIPPANY
- 10 PITTS. QUARRY
- 11 POMPTON
- 12 PREAKNESS
- 13 UDIFLUENTS
- 14 UDORTHERNTS
- 15 URBAN LAND
- 16 WALLKILL
- 17 WATER
- 18 YALESVILLE

SOURCE:  
 BASE MAP PREPARED BY ALPHEE ASSOCIATES IN 2002 AND MODIFIED BY H2M ASSOCIATES, INC.  
 SOIL DATA PREPARED BY UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, NATIONAL SOIL SURVEY GEODATACENTER, GEODATACENTER, 2005 DATA AND PROVIDED THROUGH THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION.  
 THIS MAP WAS DEVELOPED USING THE SOIL SURVEY GEOGRAPHIC DATABASE AND THE DATA WERE VERIFIED BY NJDEP AND IS NOT STATE AUTHORIZED.



**TOWNSHIP OF LIVINGSTON**  
 ESSEX COUNTY, NEW JERSEY

**MAP I: CRITICAL AREAS**  
 NOVEMBER 19, 2007

0 1/4 1/2 1 MILES

**CRITICAL AREAS**

- FRESHWATER WETLANDS
- FLOOD-PRONE AREAS
- STEEP SLOPES
  - 10% - 15%
  - > 15%

**DETAILS - CRITICAL AREAS**

A 'FRESHWATER WETLAND' IS A LAND AREA THAT IS INUNDATED OR SATURATED BY SURFACE WATER OR GROUND WATER AT A FREQUENCY AND DURATION SUFFICIENT TO SUPPORT - AND THAT UNDER NORMAL CIRCUMSTANCES DOES SUPPORT - A PREVALENCE OF VEGETATION ADAPTED FOR LIFE IN SATURATED SOIL CONDITIONS.

FLOOD-PRONE IS A LAND AREA ADJOINING A RIVER, STREAM, WATERCOURSE, OR LAKE FOR WHICH A FLOODWAY AND FLOODPLAIN HAVE NOT BEEN DETERMINED WITH RESPECT TO ANY SPECIFIC FLOOD FREQUENCY, BUT FOR WHICH THE POTENTIAL FOR FLOODING CAN BE IDENTIFIED BY SOILS, GEOLOGICAL EVIDENCE, OR OTHER DATA.

SOURCE:  
 BASE MAP PREPARED BY KLUPPER ASSOCIATES IN 2002 AND MODIFIED BY H2M ASSOCIATES, INC.  
 FRESHWATER WETLANDS DATA FROM NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)  
 FLOOD-PRONE DATA FROM FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)  
 STEEP SLOPES DATA FROM KLUPPER ASSOCIATES.

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