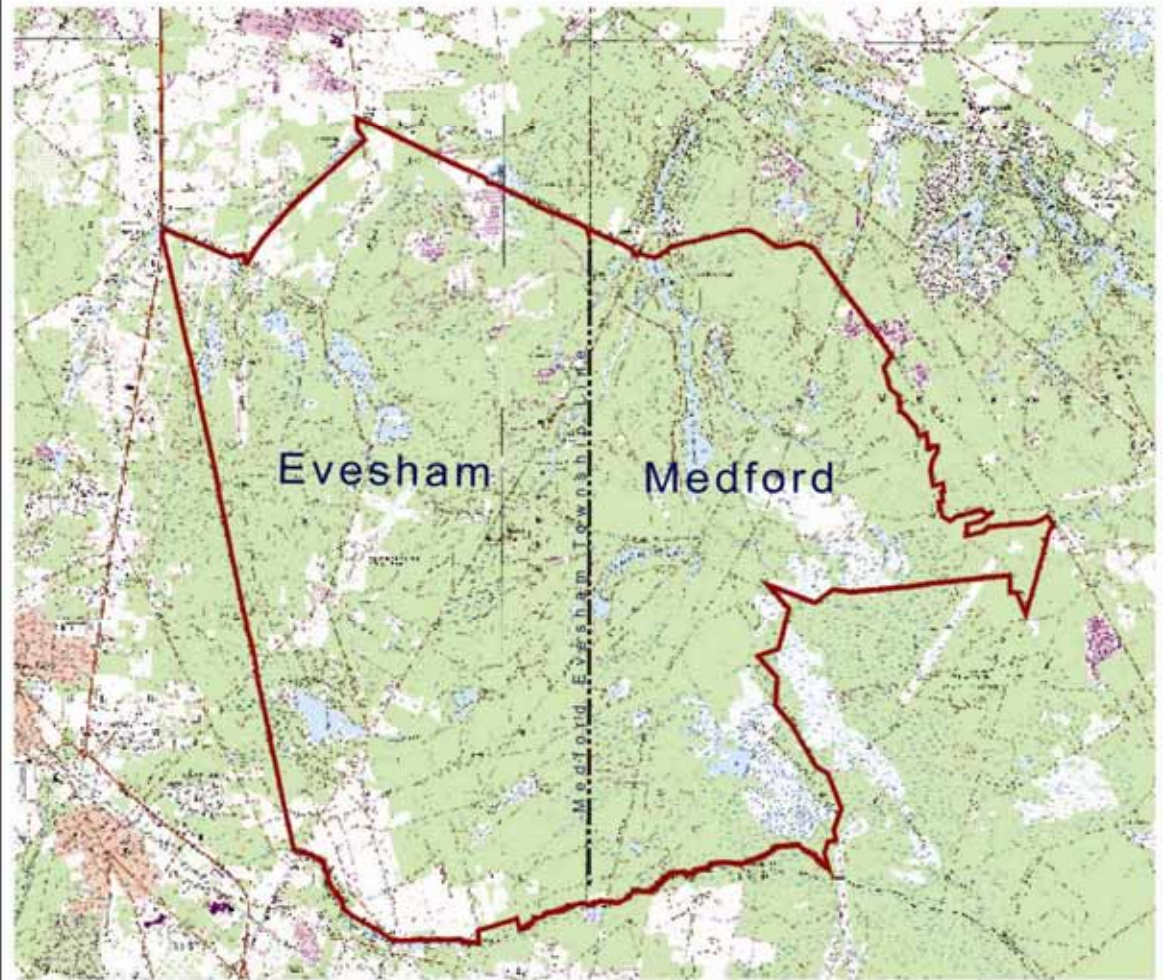




A Sub-Regional Resource Protection Plan



for
Southern Medford/Evesham Townships

A SUB-REGIONAL NATURAL RESOURCE PROTECTION PLAN for Southern Medford/Evesham Townships

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	1
INTRODUCTION	3
1. PROJECT AREA	5
1.1 Data Collection.....	5
1.2 Project Study Area.....	5
1.3 Major Landowners	5
1.4 Census Information	5
2. LAND USE AND ZONING	6
2.1 Land Use/Land Cover	6
2.2 Zoning	6
2.3 Open Space.....	7
2.4 Development Applications	7
2.5 Infrastructure	8
Water Service.....	8
Sewer Service	8
Transportation.....	9
3. NATURAL RESOURCES	10
3.1 Water Resources.....	10
Surface Water Quality	10
3.2 Threatened and Endangered Species	11
3.3 The Landscape Project	13
4. EVALUATION OF NATURAL RESOURCES.....	14
4.1 Landscape Integrity	14
4.2 Wetland Integrity.....	14
4.3 Watershed Integrity	15
4.4 Rare Plant and Animal Sighting Data.....	16
4.5 Conclusion.....	16
5. FINDINGS.....	18
6. PROTECTION STRATEGIES	19
6.1 Regulatory Strategies	19
Expand Forest Areas straddling Medford and Evesham.....	20
Re-designate Compass Point from the Forest Area to the Rural Development	21
Re-designate Kings Grant Area from Rural Development to Regional Growth Area	21
Create Forest Area Sending and Receiving Zones in Southern Evesham.....	22
OPTION: Forest Area Sending Zone Incentives.....	23
OPTION: Utility Costs Incentive.....	24
Rural Development Receiving.....	24
Rural Development Sending	25
Rural Development Cluster	27
OPTION: Density Transfer in the Rural Development Cluster (RD-C) Area.....	27

Rural Development Receiving (*scattered parcels*).....28

Expected Results – Management Area and Zoning Changes30

6.2 Other Regulatory Tools32

 Modified Threatened and Endangered Species Survey Requirements32

 Official Map32

 Mandatory 300' Wetlands Buffer.....33

 On-Site Clustering33

6.3 Non-Regulatory Strategies34

 Land Acquisition34

 Inventory Needs.....36

 Stewardship37

 Other Considerations38

7. IMPLEMENTATION PROGRAM.....39

 7.1 Questions Relating to Implementation39

 Density Transfer Program administrative process39

 Infrastructure – Traffic Impacts40

 Tax incentives to off-set zoning changes40

 Clear cutting and pesticide application restrictions40

 Public Outreach40

 7.2 Implementation Tasks41

LIST OF EXHIBITS

Project Area Map4

Current Zoning.....6

Open Space.....7

Development Status8

Major Roadways.....9

Water Resources10

Table 1 - Water-Quality Test Results11

Landscape Integrity.....14

Wetlands Integrity.....15

Watershed Integrity16

Landscape Integrity (*Including Rare Plant and Animal Sightings Data*)17

Regulatory Strategies19

Expand Forest Area.....20

Re-designate Compass Point.....21

Re-designate Kings Grant.....22

Forest Area Sending/Receiving23

Rural Development Receiving24

Black Run North Sending25

Connector Parcels.....26

Black Run South Cluster27

Expand Rural Receiving28

Rural Development Receiving (*scattered sites*)29

Table 2 - Comparison of Existing and Proposed Zoning30

Current Zoning/Proposed Zoning Maps	31
Area of Applicability for Modified Threatened and Endangered Species Surveys	32
Acquisition Strategies.....	36

LIST OF APPENDIX

APPENDIX 1 – Forest Area Zone Density Calculations
APPENDIX 2 – Rural Development Sending/Receiving Area Density Transfer Methodology
APPENDIX 3 – Watershed Integrity Sub Basin Disturbance Methodology
APPENDIX 4 – Landscape and Wetlands Integrity Spatial Analysis Methodology
APPENDIX 5 – Basin Analysis Methodology
APPENDIX 6 – Residential Cover Types Analysis Methodology
APPENDIX 7 – Zone Capacity Methodology
APPENDIX 8 – Resources (<i>Federal, State, County, Private-sector Land Preservation Assistance Programs</i>)
APPENDIX 9 – Model Conservation Easement
APPENDIX 10 – Information Sources
APPENDIX 11 – Explanations of Codes Used In Natural Heritage Report
APPENDIX 12 – Evaluation of Traffic Impacts
APPENDIX 13 – Public Involvement Strategy
APPENDIX 14 – Executive Summary

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Project Steering Committee is the chief decision making body for this project. This four-person Committee is comprised of representatives from the primary governmental bodies participating in the development of the resource protection plan – the Township of Medford, the Township of Evesham, the New Jersey Department of Environmental Protection and the Pinelands Commission

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Technical Support Group is comprised of natural resource experts and planning and design professionals. This group, drawn from the organizations represented on the Steering Committee and the Project Advisory Committee, is primarily responsible to provide the Steering Committee with technical guidance on land use and environmental data and issues.

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INTRODUCTION

The Pinelands Comprehensive Management Plan establishes a region-wide framework for the protection of important natural and cultural resources through the establishment of land use policies and regulatory standards that govern the future use and development of land within the Pinelands. These regional policies are then refined and tailored by municipalities through the adoption of master plans and zoning ordinances that apply within their political boundaries. As the Pinelands Commission's natural-resource database grows, however, more focused, sub-regional conservation planning offers an opportunity to take a much closer look at particularly challenging geographic regions where potential conflicts between natural resources and development objectives may arise.

Evesham and Medford Townships are suburbanizing municipalities within Burlington County. Portions of both municipalities are located within the Pinelands. The southern parts of the Townships, encompassing over 14,500 acres (22.7 square miles), are rural in character and proximate to Wharton State Forest and other permanently protected open space. The Pinelands-approved master plans and zoning ordinances for these areas, formulated in the 1980's, were based upon the best available information at that time. While they are conservation based, they do allow for moderate- to low-density residential development and recreational development, including golf courses, in areas that may have rare natural resources.

Through ongoing natural resource work by the Pinelands Commission and the New Jersey Department of Environmental Protection (NJDEP), much more of the ecological resources within the southern portions of these two municipalities have been identified than was the case when their zoning plans were initially adopted and implemented. The Pinelands Commission's federally-funded environmental-monitoring program has collected extensive water-quality and aquatic and wetland, plant and animal data within the Mullica River and Rancocas Creek basins, the two watersheds in which this project area is located. These data indicate that some of the sub-basins within this area display characteristic Pinelands water quality and plant and animal assemblages. The NJDEP and the Commission have also collected information regarding the presence of threatened and endangered plants and animals in the area. Eight State threatened and three endangered animal species and two endangered and twenty-one rare native plant species have been documented in this area.

The NJDEP and the Pinelands Commission, using this threatened and endangered plant and animal data with land-use information, have identified areas that are more and less noteworthy for their natural resource values. The Commission and the NJDEP are also active in

watershed management efforts throughout the Pinelands and have a formal agreement to pursue specific water-quality initiatives within the Mullica River basin.

These ongoing natural-resource inventory and watershed management efforts show that a re-evaluation of the zoning and development policies for this sub-region in Evesham and Medford Townships is needed to better protect natural resources and avoid development conflicts. Furthermore, the discovery of threatened and endangered species late in the process of reviewing specific proposals for development serves to illustrate the natural resource and development conflicts that can occur even when relatively protective zoning standards are in place.

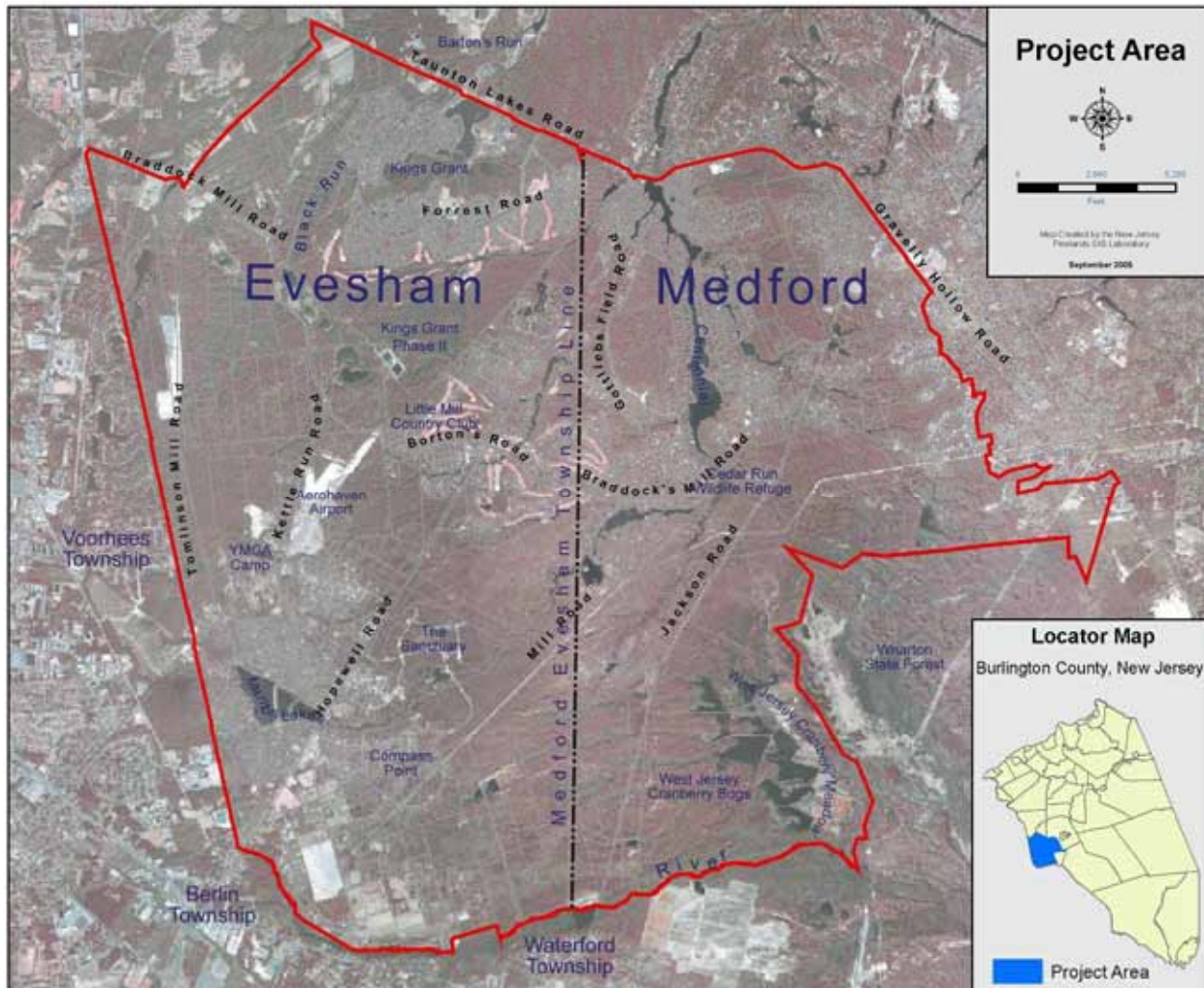
In June, 2004, the Pinelands Commission received a grant from the William Penn Foundation to engage a variety of representatives from organizations and government agencies that have an interest in this area to discuss and recommend actions through a regional resource-protection effort. Shortly after grant award, the Chairman of the Pinelands Commission appointed members of the Steering Committee (comprised of the Managers from Medford and Evesham, and a representative from NJDEP, and the Commission) that would serve as the chief decision making body for the project. The Steering Committee appointed an 18-person Project Advisory Committee and a 17-person Technical Support Group that would help guide the decisions of the Steering Committee (*please see acknowledgements section for the list of the members of these committees*).

The Steering Committee contracted a project facilitator, who, working together with the Pinelands Commission staff, has helped to guide and facilitate the project planning process. Since the Steering Committee's project kick-off meeting in August, 2004, the three project committees have been meeting regularly.

The Plan's recommended regulatory and non-regulatory preservation strategies (*described in Section 6*) are the culmination of an extensive planning process that has, at its core, the following objectives:

1. Protect important natural resource values, including water quality, within the project area;
2. Accommodate future development within appropriate areas;
3. Promote less land-consumptive land use patterns as a means to reduce the fragmentation of important landscapes and to lessen municipal service costs;
4. Reduce the extent of non-conformity between existing developed areas and municipal zoning policies;

5. Encourage land stewardship practices that further conservation objectives;
6. Use a variety of regulatory and non-regulatory techniques to achieve conservation and development objectives;
7. Establish greater predictability in the development permitting process to avoid site-specific development and natural resource conflicts.



1. PROJECT AREA

1.1 Data Collection

Before an evaluation of the project area was undertaken, an extensive amount of data was assembled. Reports, maps and statistical data assembled for this purpose included but were not limited to: zoning and land use; ownership patterns (including private and public open space); deed restrictions; existing and proposed development application status; surface and ground water quality data; NJDEP Landscape maps; historic and cultural resources; NJDEP and Delaware Valley Regional Planning Commission (DVRPC) land use/land cover maps; municipal capital improvement programs; traffic circulation plans; infrastructure plans; listings and maps of the locations of threatened and endangered plants and animals; well-monitoring data; water supply data; soils characteristics; DVRPC's Greenway Plan; Burlington County's Rancocas Creek Management Plan and the County Open Space Plan; information on known contaminated sites; and census data (*see Appendix 10, Information Sources*).

1.2 Project Study Area

The Medford/Evesham project area is located in the northwesterly quadrant of the Pinelands National Reserve at the westerly border between Burlington and Camden Counties. In general, the project area is bounded by the Mullica River to the south, the Evesham Township line to the west, Braddock Mill/Tomlinson Mill/Taunton Lake/Fairview Roads to the north, and the westerly border of the Wharton State Forest to the east (*see the "Project Area" Map on the preceding page*).

The 14,521-acre (22.7 square miles) project area straddles the southern portion of Medford and Evesham Townships. Approximately 60% of the project area, or 8,543 acres, is in Evesham and the remaining 40% of the project area, or 5,978 acres, is in Medford.

1.3 Major Landowners

Over 20% of the land within the project area is owned by just four parties. A 920-acre portion on the southeast side of the project area is part of the Wharton State Forest and is owned by the New Jersey Department of Environmental Protection. The Evesham Township Municipal Utilities Authority (MUA) owns a 742-acre assembly of parcels known as Kings Grant, Phase II, in the north-western quadrant of the study area, and Evesham Township owns the 192-acre Aerohaven property immediately south of the Kings Grant Phase II parcels.

The other major landowner in the project area - Brick Enterprises, of Medford - owns approximately 1,114 acres, only a portion of which (45 acres) is currently actively used for blueberry and cranberry production. This parcel, known as the "West Jersey Bogs",

encompasses the entire Special Agricultural Production Area (*see pg 6, Land Use/land Cover*) in the project area.

1.4 Census Information

According to Census 2000 information, Evesham Township is ranked number 1, out of 40 Burlington County municipalities, in terms of population size. Medford Township had the 5th largest population in the County. An examination of growth trends reveals that between 1980 and 2000, both municipalities experienced growth. Evesham Township's population grew significantly from 21,508 to 42,275, a 96.6% increase. During the same period of time, Medford Township's population, increasing at a far more gradual pace, grew from 17,622 to 22,526, or a 26.3% increase.

The DVRPC² and the Center for Urban Policy Research (CUPR) at Rutgers University have developed population forecasts for both municipalities. CUPR figures reflect two different forecast assumptions; "Plan", which assumes population growth will be managed according to the strategies of the New Jersey State Plan, and "Trend", which assumes population changes will follow historical patterns.

The DVRPC forecasts that by 2020, the combined population of Medford and Evesham will increase by 26%, to 81,000. By comparison, CUPR predicts that the population will grow by 29%, to 83,446, under the Trend forecast, and by 14% (74,772) under the Plan forecast. Although these forecasts do suggest that the growth rate experienced by both municipalities over the past two decades is expected to slow, all three data sources (2000 Census, DVRPC and CURP) predict that the pace will continue to be considerable.

An examination of data at the sub-census tract level reveals that the population of the 7 block groups within the boundaries of the study area is approximately 15,334³, according to Census 2000 data⁴, or 24% of the combined population of Medford and Evesham. If the change in population within the project area is consistent with the DVRPC and CURP forecasts, the study-area population can be expected to increase by between 14% and 29% by 2020, absent preservation strategies that might otherwise limit development intensity.

² DVRPC, a regional planning agency for Bucks, Chester, Delaware, Montgomery and Philadelphia counties in Pennsylvania and Burlington, Camden, Gloucester and Mercer counties in New Jersey, publishes demographic forecasts and land use information

³ Block group boundaries do not align with the project boundaries, therefore, the population of block groups with boundaries that overlapped the project area boundaries was estimated

⁴ Source: Topologically Integrated Geographic Encoding and Referencing (TIGER) system files, US Census Bureau

2. LAND USE AND ZONING

2.1 Land Use/Land Cover

According to DVRPC’s Year 2000 land use/land cover data, approximately 74% of the project area is vacant, wooded or covered by water bodies. Approximately 19% of the project area is occupied by residential development. The remaining 7% of the land area is occupied by commercial, agricultural, recreation-related uses and parking.

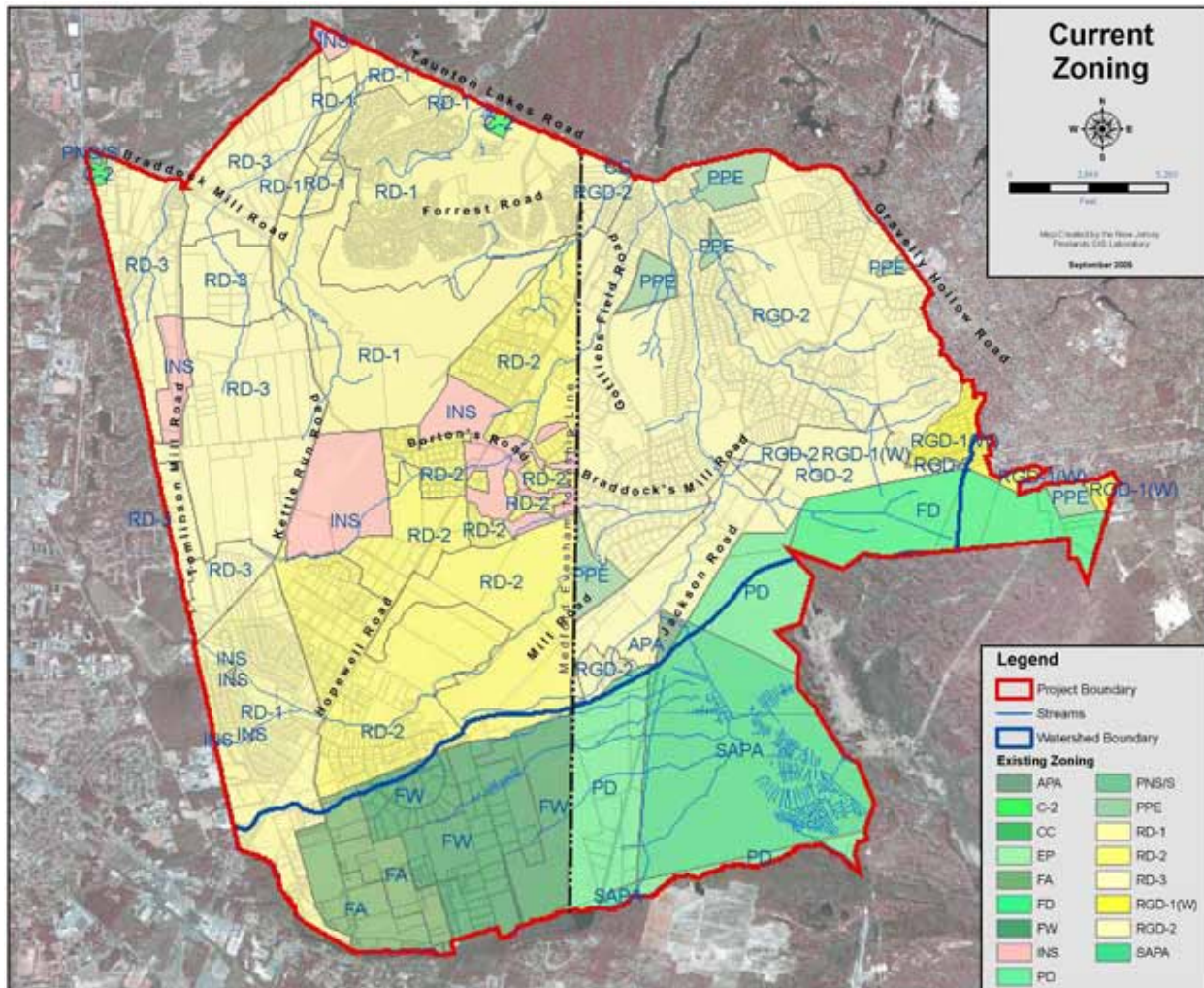
The Pinelands Comprehensive Management Plan (CMP) designates approximately 17% of the project area as either Preservation Area District (PAD) or Forest Area (FA), the two most ecologically sensitive Pinelands Management Areas. Approximately 7% of the project area is within the Special Agricultural Production Area (SAPA), primarily used for berry agriculture or horticulture of native Pinelands plants. Approximately 75% of the project area is within the Rural Development Area (RDA). The RDA serves as a transition zone between Forest Areas and existing growth areas. The remainder of the project area is within the Regional Growth Area (RGA), and Agricultural Production Area (APA).

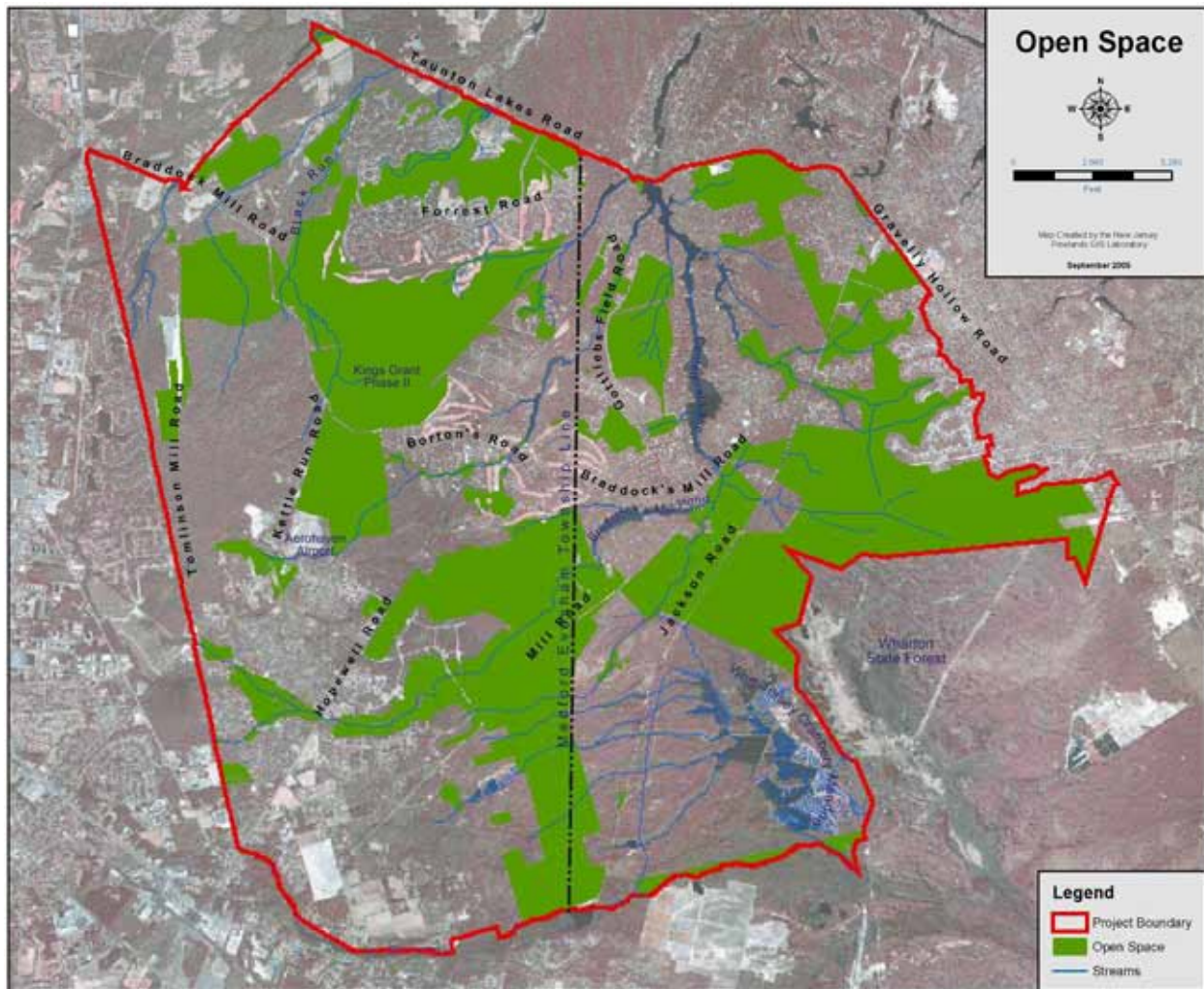
Comparing the Land Use/Land Cover data to the Management Area designations reveals that almost three quarters of the project area is vacant, however, over 75% of the project area is designated for lower-density development.

2.2 Zoning

Evesham has established eleven zoning districts in that portion of the project area located within its jurisdiction, 8,543 acres. Over 95% this area (8,149 acres), encompassing six districts (EP, FA, FW, RD1, RD2, RD3), is designated for lower-density residential uses. Residential densities range from 1 unit for every 3.2 acres to 1 unit per 20 acres. Zoning districts within the remainder of project area in Evesham permit uses primarily relating to berry agriculture, forestry, fish and wildlife management, commercial agriculture and commercial activities.

Medford has designated eight zoning classifications in that 5,978-acre portion of the project area within the Township. Over 65% of this area (3,932 acres), encompassing 3 districts (FD, RGD-1, RGD-2) is zoned for lower-density residential uses. Residential densities range from 1 unit for every 1.67 acres, or .6 units/acre,





to one unit per 39 acres. The remainder of the project area within Medford, 2,046 acres, is zoned to permit berry agriculture, forestry, fish and wildlife management, low-intensity recreation, campgrounds, agriculture, commercial agriculture and commercial activities.

2.3 Open Space

According to land-use data provided by Medford and Evesham Townships, almost 35% of the project area (5,060 acres) has already been purchased for open space. In the Evesham portion of the project area 2,806 acres, or 32%, is open space. More than half of Evesham’s open space, 1,398 acres, is in private ownership (common-open areas of residential developments owned and maintained by homeowner associations). Almost 38% of the Medford portion of the project area, 2,253 acres, is designated as open space. Evesham Township purchased the 192-acre Aerohaven property in 1998 and intends to use the property for passive recreation purposes (nature/walking trails, etc.). The Township also recently completed arrangements with the Evesham Township Municipal Utilities Authority (MUA) to enable the MUA to

convey ownership of the 742-acre assembly of parcels known as Kings Grant, Phase II, immediately south of the Kings Grant development, to the Township. In exchange, the Township will permit the MUA to construct three waste-water recharge basins on a 35-acre portion of the Aerohaven site and the remainder will be preserved as open-space.

Both communities have plans for significant open space acquisition. Evesham has identified several parcels it hopes to acquire, comprising 2,922 acres, which would more than double the Township’s existing open space inventory. Medford has designated 1,147 acres for farmland preservation or open space acquisition, which would increase the Township’s current holdings by approximately 50%.

2.4 Development Applications

An examination of the Pinelands Commission permit data for the past 5 years⁵ revealed that 72 active applications have been filed, primarily associated with

⁵ It was assumed that development applications that are 5 years old or less have a reasonable probability of resulting in actual construction

residential development within the project area. These applications propose the construction of over 400 new residential dwellings, on over 1,100 acres, or almost 8% of the entire project area. The **Development Status** map, below, identifies those parcels of land within the study area that are presently developed (which includes upland agriculture) or are under active consideration for development. The map reveals that, accounting for lands already set aside for open space and those portions of the project area that are already developed, virtually all remaining large, vacant parcels of land are under active consideration for development. In the absence of effective conservation measures, pressure to develop within the project area will continue to increase, particularly as vacant, developable land becomes increasingly scarce in the northern portions of both municipalities.

2.5 Infrastructure

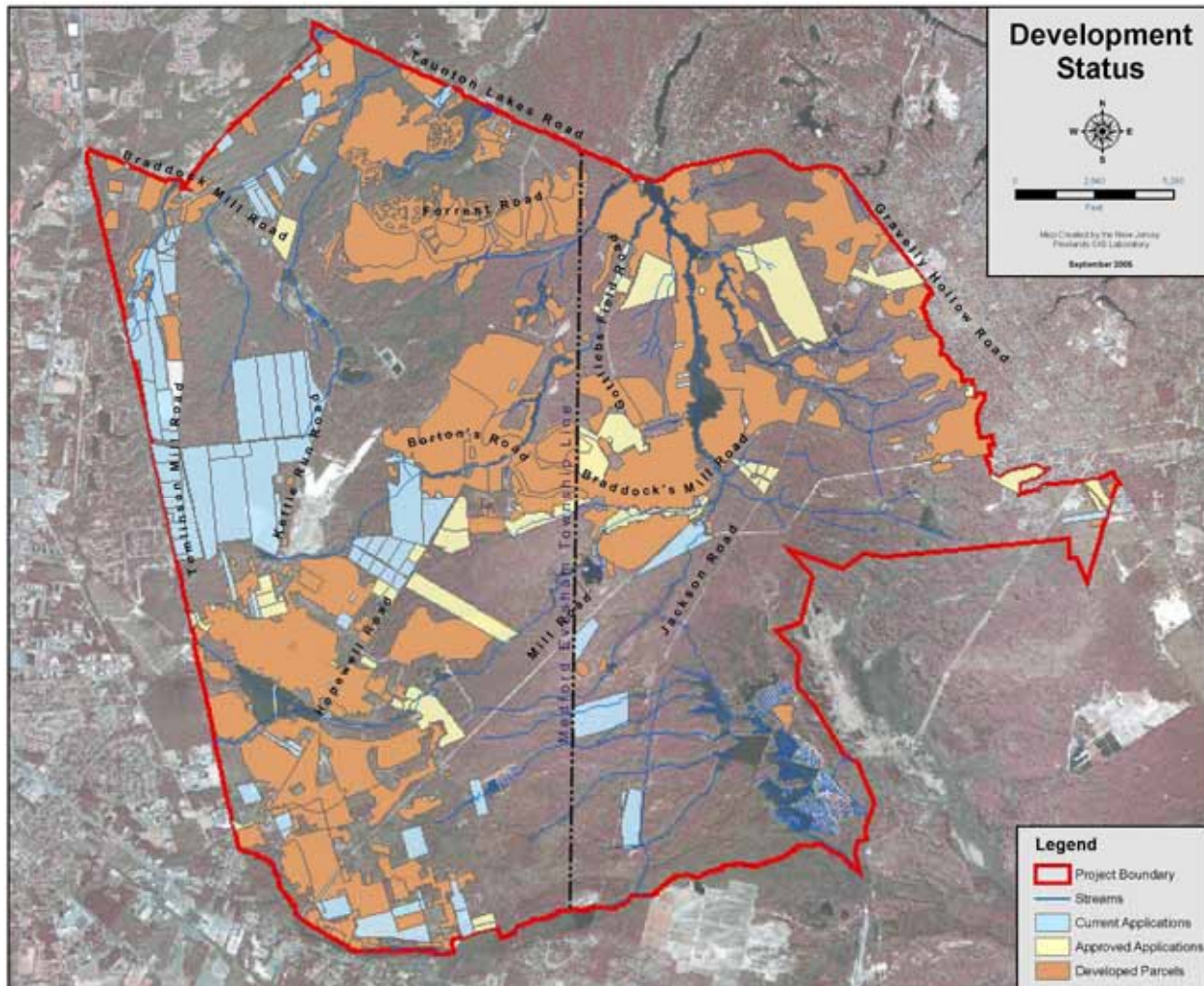
Water Service

The most recent water distribution plans provided by the municipalities reveal that the northerly portion of the study area is largely served by municipal water supply. However, the preservation area in the southern portion

of Medford, which includes the West Jersey Cranberry Bogs, is not served by water. In Evesham, water lines extend along Hopewell and Kettle Run Roads but developments to the west of these roadways are not included in the system. In addition, lands south of Compass Point are largely un-served by municipal water. The Municipal Utilities Authority is considering “looping” the water line that runs down Kettle Run Road to connect to the lines that serve the Sanctuary development (see **Project Area Map** on page 4 for location) and then connect to the existing line that runs along Hopewell Road. This system expansion is necessary to serve the remaining undeveloped parcels within the Sanctuary (project phases VI, VII and VIII). This looped system would have reserve capacity to serve other portions of the study area, most particularly the existing development within Marlton Lakes, which may be warranted to alleviate recently discovered well-water-quality issues that potentially present a public health issue.

Sewer Service

In Medford, municipal sewer service is only available to the relatively small commercial area off Taunton Lakes Road. All other portions of the project area in Medford

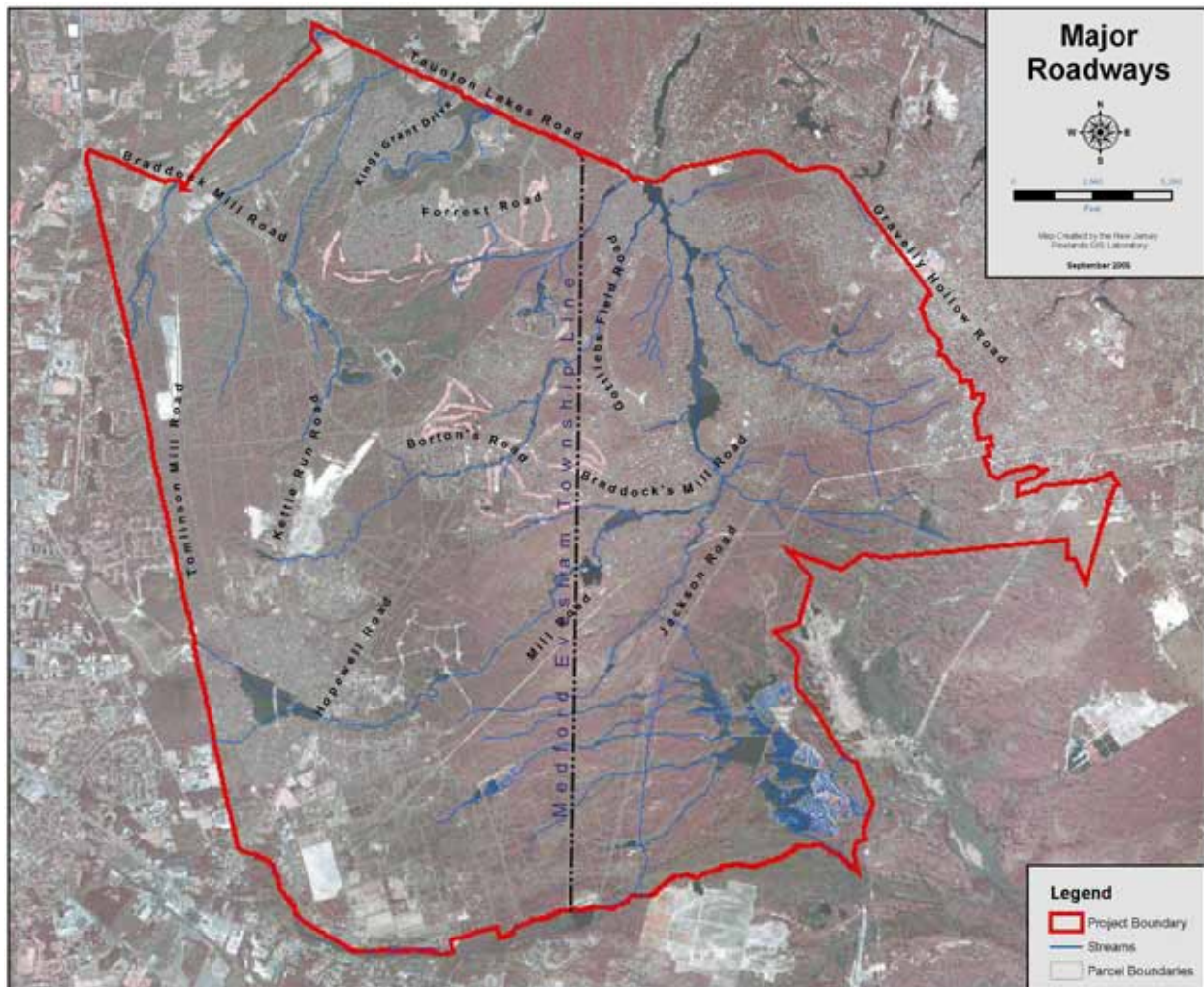


are served by on-site septic systems. According to Medford’s sewer service plan, the southern half of the project area is designated as “Environmentally Sensitive”, which is generally not considered to be suitable for septic systems. In Evesham, only the Kings Grant development is served by municipal sewer service. Marlton Lakes is shown as a possible sewer service area. Service would only be extended to this area to address documented public health problems. Development within the remainder of the Evesham portion of the project area is either served by on-site septic systems or is within areas generally not considered to be suitable for septic systems.

Medford Township Planner, no new roadways or roadway extensions are contemplated within the study area by either municipality.

Transportation

Medford’s major collector roads within the study area are Jackson, Braddock’s Mill, Gottlieb’s Field, and Hopewell Roads. In Evesham, the major collector roads are Hopewell and Taunton Lakes Roads and Kings Grant Drive. The minor collectors within the study area include Borton’s, Braddock’s Mill and Kettle Run Roads. Existing subdivisions are served by residential street networks. Many of the large, undeveloped portions of the study area do not have roadway access. According to the Evesham Township Engineer and the



3. NATURAL RESOURCES

3.1 Water Resources

Water quality is a critical consideration of any land-use planning study. Preserving the high quality of the water of the region’s aquifers as well as its stream systems is essential in meeting not only the domestic needs of the human population that inhabits the area but the unique plant and animal communities that characterize the Pinelands. Several studies undertaken by the Commission have clearly demonstrated the direct link between water quality and development and upland agriculture. The desire to protect water quality in the project area is one of the principal objectives of the Medford/Evesham Resource Protection planning effort. Recent discoveries of well-water contamination in the Marlton Lakes development within the Evesham portion of the study area underscore the importance of aggressive water-quality protection strategies.

The *Water Resources map* below reveals that the northerly portion of the project area (77% of the project area, or 11,232 acres) lies within the Rancocas Creek watershed. The southern portion of the study area, (23%

of the project area, or 3,289 acres) is in the Mullica River watershed. The most recent surface water quality data available for those segments of the Rancocas Creek and the Mullica River that run through the project area were collected by the Pinelands Commission Science Office staff in 1999 and 2001 (*water-quality test sites are illustrated on the Water Resources map*). According to the monitoring data, shown in *Table 1-Water Quality Test Results* on the following page, the Black Run, which is located in the northwesterly portion of the project area, exhibits minimally-disturbed Pinelands water quality. The data also reveals that portions of many of the other streams to the Rancocas and the Mullica are exhibiting signs of water degradation.

Surface Water Quality

Several tributaries to the Rancocas traverse the northerly portion of the project area, most notably the Haynes Creek, Barton Run, and Black Run. Tributaries to the Mullica basin include the Alquatka Branch. In the Pinelands, unique acid-water plant and animal communities are vulnerable to changes associated with water-quality degradation from developed and

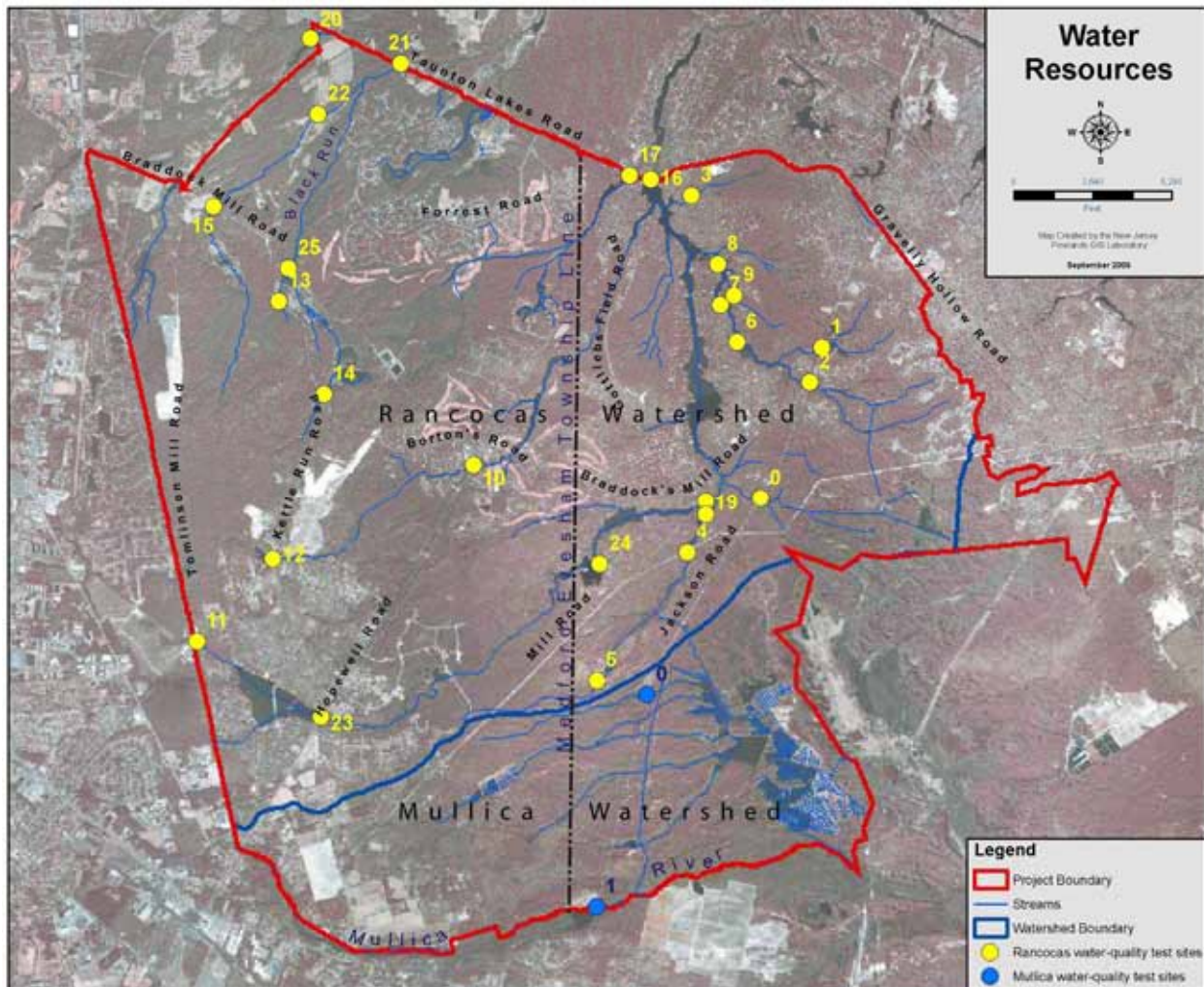


Table 1
Water Quality Test Results

Site	Site Description	pH	Specific Conductance
Rancocas Watershed Basins			
0	Haynes Creek tributary at Jackson-Medford Road	5.4	103.0
1	Haynes Creek tributary at Jackson-Medford Road (northern Mimosa Lakes inlet)	6.8	85.6
2	Haynes Creek tributary at Jackson-Medford Road (southern Mimosa Lakes inlet)	5.8	43.5
3	Haynes Creek tributary at Hinchman Drive	4.6	81.2
4	Cedar Run at powerline road in Woodford Cedar Run Refuge	5.9	74.9
5	Cedar Run at Oak Ridge Drive	4.6	40.1
6	Haynes Creek tributary at Scout Drive	6.5	48.9
7	Haynes Creek tributary at Shanty Dam Road	6.4	53.6
8	Haynes Creek tributary at Pontiac Drive	6.2	54.7
9	Haynes Creek tributary at Shanty Dam Road and Cedar Falls Drive	6.0	57.2
10	Haynes Creek tributary at Hopewell Road (below Harmony Lake)	5.8	75.5
11	Kettle Run at Sycamore Avenue	5.6	43.7
12	Haynes Creek tributary at Kettle Run Road	5.7	31.9
13	Black Run tributary at Kettle Run Road	3.6	256.0
14	Black Run at Kettle Run Road	4.8	39.2
15	Black Run tributary at Braddocks Mill Road	4.0	84.9
16	Haynes Creek at Breakneck Avenue (below Taunton Lake)	6.3	67.8
17	Haynes Creek tributary at Hopewell Road (below Blue Lake)	6.5	129.1
18	Kettle Run at Sawmill Road (below Braddocks Millpond)	6.1	66.9
19	Cedar Run below Cedar Run Lake (at Woodford Cedar Run Refuge)	5.8	43.4
20	Barton Run below Jennings Lake	7.2	151.4
21	Black Run at Route 544	4.1	59.8
22	Black Run tributary at Kettle Run Road	4.3	64.3
23	Kettle Run at Hopewell Road (below Marlton Lakes)	6.6	106.3
24	Kettle Run at Camp Kettle Run	6.2	66.1
25	Black Run below abandoned bogs	4.4	82.7
Mullica Watershed Basins			
0	Northern Alquatka Branch tributary impoundment above Jackson-Medford Road	3.9	85.7
1	Mullica River below Jackson-Medford Road	6.7	114.7

agricultural landscapes. Pinelands streams draining forested watersheds are typically acidic and nutrient-poor, whereas streams draining developed lands and upland agriculture display elevated pH and dissolved-solid concentrations⁶. Previous Commission studies have shown that specific conductance, pH, stream vegetation, and fish and anuran assemblages are each good indicators of land-use related watershed disturbance in Pinelands streams⁷. Biological communities from sites in forested, acid-water stream basins are characterized by native species, whereas nonnative plants and animals are found at more degraded sites with elevated pH and specific conductance values

3.2 Threatened and Endangered Species

As development pressure within the Pinelands continues to intensify, and as vacant developable land becomes increasingly scarce, remaining open areas that previously had marginal growth potential but high

⁶ (Morgan and Good 1988, Watt and Johnson 1992, Zampella 1994, Johnson and Watt 1996)

⁷ (Dow and Zampella 2000, Zampella and Laidig 1997, Zampella and Bunnell 1998, Zampella and Bunnell 2000, Zampella et al. 2001, 2003)

natural resource value are being considered for development. The outcome of this trend is that conflicts between development and natural areas become virtually inevitable. The desire to minimize or avoid these conflicts is one of the chief objectives of the Medford/Evesham planning process. An evaluation of the presence of rare plant and animal populations in the study area suggests that striking a balance between development and preservation objectives is increasingly important.

State inventories and results of site surveys clearly reveal that Threatened and Endangered plant and animal species are found throughout the Medford/Evesham project area (*general sighting locations are shown on the Landscape Integrity map on page 14*). The following animal species have been sighted in the project area⁸:

Animal species listed as “threatened”:

- Barred owl (*Strix varia*)
- Eastern Mud Salamander (*Pseudotriton montanus*)
- Northern pine snake (*Pituophis melanoleucus*)
- Pine Barrens tree frog (*Hyla andersonii*)

⁸ Source: New Jersey Pinelands Commission and New Jersey Department of Environmental Protection’s Biotics Database

- Red-headed woodpecker (*Melanerpes erythrocephalus*)
- Cooper’s hawk (*Accipiter cooperii*) - threatened, breeding only
- Bobolink (*Dolichonyx oryzivorus*) - threatened, breeding only
- Triangle floater (*Alasmidonta undulata*)

Animal species listed as “endangered”:

- Timber rattlesnake (*Crotalus horridus*)
- Red-shouldered hawk (*Buteo lineatus*), endangered for breeding/threatened for non-breeding
- Bog turtle (*Glyptemys mühlenbergi*)

Because of recent development proposals, two particular sites within the project area, in Evesham Township - Aerohaven Airport and the Sanctuary (a residential subdivision) - have been extensively surveyed. The results of these surveys underscore the importance of the habitat within the project area and the need for preservation efforts.

A rattlesnake study recently undertaken at the Sanctuary site revealed that rattlesnakes use extensive areas (approximately 3,700 acres) of forested uplands and wetlands in and around this development. The study suggested that impacts to the snake population are expected to intensify as additional development occurs.⁹ It is reasonable to conclude that regional planning and management techniques that are based on the snake’s wide-ranging habitat requirements would result in greater, long-term protection than site-by-site approaches.¹⁰

The Natural Heritage Program within the NJDEP’s Office of Natural Lands Management, Division of Parks and Forestry, maintains the DEP’s manual and computerized file of information on occurrences of rare plant species and ecological communities Statewide (Natural Heritage Database), and is the Department’s clearinghouse of information on all components of the State’s biodiversity. The Program tracks 339 species officially listed on the State’s Endangered Plant Species List and approximately 500 additional taxa considered plant species of concern¹¹. A search of the Natural Heritage Database in August 2004 revealed occurrences of the following plant species on or in the immediate vicinity of the Medford/Evesham project area that are on the State Endangered Plant Species List or are listed by the Pinelands Commission. An explanation of codes for all plant species listed below is provided in Appendix 11:

⁹ Laidig and Golden, 2004

¹⁰ Zampella, 1986

¹¹ There is no category of threatened native plant species in NJ. In accordance with N.J.A.C. 7:5C-3.1, plant species of concern include those species not officially listed as endangered but whose populations are monitored by the Natural Heritage Database.

Plants on the State Endangered Plant Species List:

Common Name	Name	Grank	Srank	Fed. Status	State Status	Reg. Status
Swamp-pink	Helonias bullata	G3	S3	LT	E	LP, HL

Plant species listed by Pinelands Commission

Common Name	Name	Grank	Srank	Fed. Status	State Status	Reg. Status
Barratt’s Sedge	Carex barrattii	G4	S4			LP

In addition, the following rare, native plant species have been documented in or near the project area based on recent field surveys or additional information sources:

Common Name	Name	Grank	Srank	Fed. Status	State Status	Reg. Status
Fly Poison	Amianthium muscitoxicum	G4G5	S2			HL
Eastern Silvery Aster	Aster concolor	G4?	S2			LP, HL
Pine Barren Reedgrass	Calamovilfa brevipilis	G4	S4			LP
Narrow-leaf Fireweed	Epilobium angustifolium	G5T5	S1			HL
Pine Barren Boneset	Eupatorium resinosum	G3	S2		E	LP, HL
Southern Twayblade	Listera australis	G4	S2			LP, HL
Sundial Lupine	Lupinus perennis var. perennis	G5TN R	S3			HL
Northern Bog Club-moss	Lycopodiella inundata	G5	S2			HL
Climbing Fern	Lygodium palmatum	G4	S2			LP, HL
Pine Barren Smoke Grass	Muhlenbergia torreyana	G3	S3			LP, HL
American Mistletoe	Phoradendron leucarpum	G5	S2			LP, HL
Maryland Milkwort	Polygala mariana	G5	S2			LP, HL
Racemed Milkwort	Polygala polygama	G5	S2			HL
Algae-like Pondweed	Potamogeton confervoides	G4	S3			HL
Slender Horned-rush	Rhynchospora inundata	G3G4	S2			LP, HL
Pale Beaked-rush	Rhynchospora pallida	G3	S3			HL
Southern Arrowhead	Sagittaria australis	G5	S1		E	LP, HL
Long’s Woolgrass	Scirpus longii	G2	S2		E	LP, HL
Slender Nut-rush	Scleria minor	G4	S4			LP
Two-flower Bladderwort	Utricularia biflora	G5	S1		E	LP, HL
Purple Bladderwort	Utricularia purpurea	G5	S3			LP, HL

3.3 *The Landscape Project*

The Landscape Project, created by the NJDEP, Division of Fish and Wildlife's Endangered and Non-game Species Program (ENSP), is a response to the statewide rapid loss of habitat to development (8,000 hectares/year between 1972 and 1995).¹² The Landscape Project has mapped "Landscape Regions" that are reportedly ecologically similar with regard to their plant and animal communities. These landscape maps were created to serve as the basis for habitat protection within each landscape.

According to the Landscape Project, a total of 74%, or 10,758 acres, of the Medford/Evesham project area is classified as critical area¹³. As is evident from Paragraph 2.1 above, this would indicate that all land in the project area that is not presently developed would be considered as valuable habitat according to the Landscape Project. Consequently, the Landscape Project's broad definitions of habitat suitability suggest the need for a more detailed analysis to focus preservation strategies within the project area.

¹² Niles et al. 2004

¹³ The Landscape Project ranks habitat areas according to the status of the species present. Any area ranked 1 through 5 is considered "critical area". **Rank 5** is assigned to patches containing one or more occurrences of at least one wildlife species listed as endangered or threatened on the Federal list of endangered and threatened species. **Rank 4** is assigned to patches with one or more occurrences of at least one State endangered species. **Rank 3** is assigned to patches containing one or more occurrences of at least one State threatened species. **Rank 2** is assigned to patches containing one or more occurrences of at least one non-listed State priority species. **Rank 1** is assigned to patches that meet habitat-specific suitability requirements such as minimum size criteria for endangered, threatened or priority wildlife species, but that do not intersect with any confirmed occurrences of such species. According to NJDEP, areas in Ranks 3, 4 and 5 are considered critical habitat areas. A total of 99.7% of the Forest Area within the Medford/Evesham project area is classified as Rank 4

4. EVALUATION OF NATURAL RESOURCES

Once the natural-resource data for the project area was collected and reviewed, a series of assessments were undertaken to evaluate resource integrity, which served as the primary basis to identify those strategies deemed most appropriate to preserve the area's resources. The elements considered in the course of this evaluation are described below:

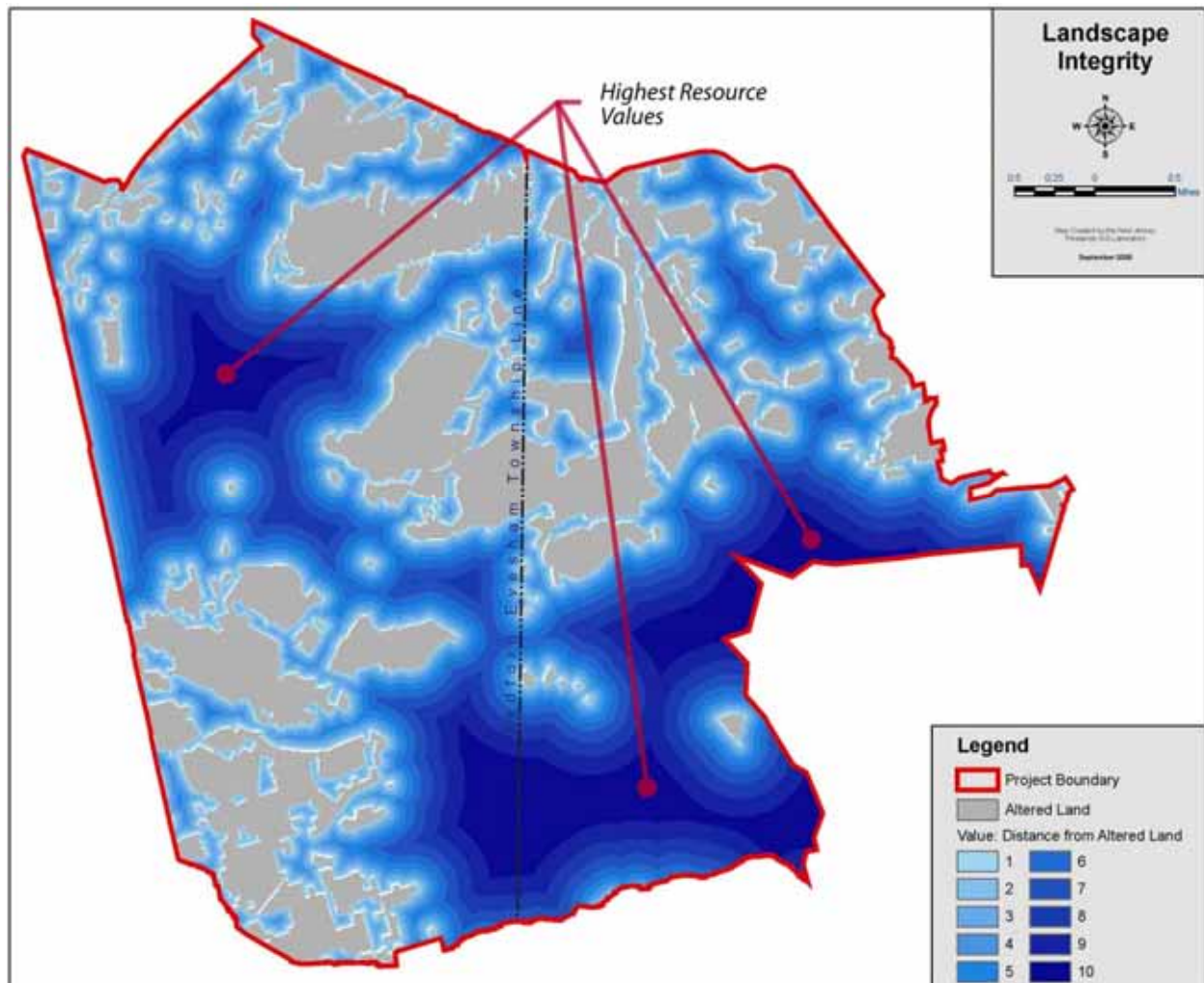
4.1 Landscape Integrity

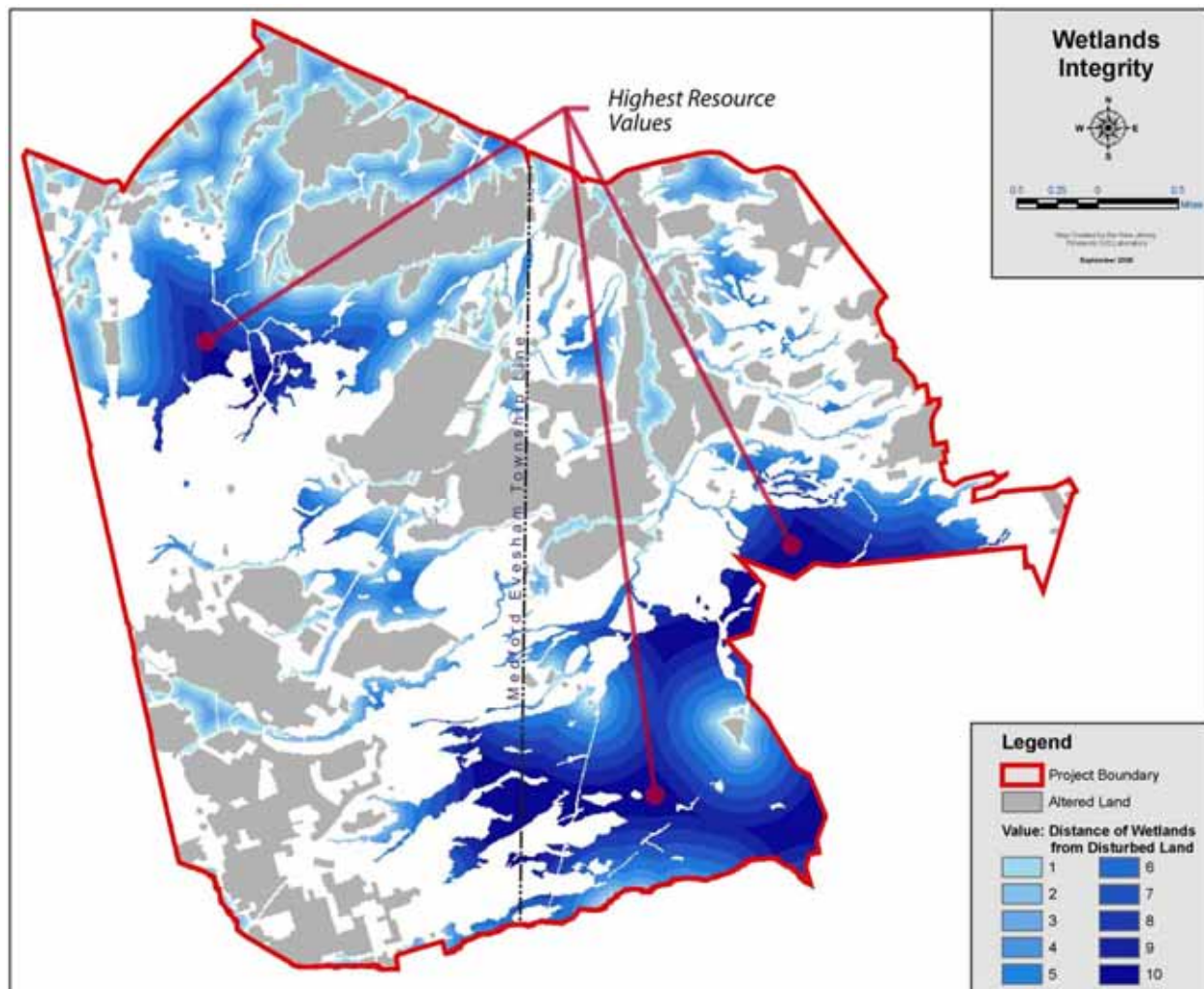
An initial analysis evaluated landscape integrity in relation to proximity to altered land (developed and upland agriculture land). The portion of project area that was not classified as developed or upland agricultural land was subdivided into grid cells (5 feet on a side). The distance to altered land was determined for each cell. The entire set of cells was then subdivided into ten equal groups according to their distance values. The top 10 percent of the cell values, the cells with the greatest distance from altered land, were deemed to have the greatest landscape integrity. Through this analysis, three large portions of the project area were identified as having the highest landscape integrity: the eastern most

quadrant of the study area, surrounding the Wharton State Forest; the south-central portion of the study area, which is largely undeveloped; and the north-westerly quadrant of the study area which encompasses the Black Run drainage basin.

4.2 Wetland Integrity

According to the NJDEP data (1995/1997 Land Use/Land Cover Update 2001) approximately 31% of the project area, or 4,557 acres, is covered by wetlands. Since many Pinelands plant and animal species are wetland-dependent, an analysis based on proximity of altered land to wetlands was also performed. As with the landscape-integrity analysis, the wetlands in the project area were subdivided into grid cells (5 feet on a side) and the distance to altered land was determined for each cell. The cells were then divided into ten equal groups according to their distance values. Wetlands that were farthest from such altered areas were deemed to have the highest wetlands-integrity values.





This analysis, once again, revealed that three large segments of the project area had the highest ecological value: the eastern most quadrant of the study area; the south-central portion of the study area; and the north-westerly area encompassing the Black Run drainage basin.

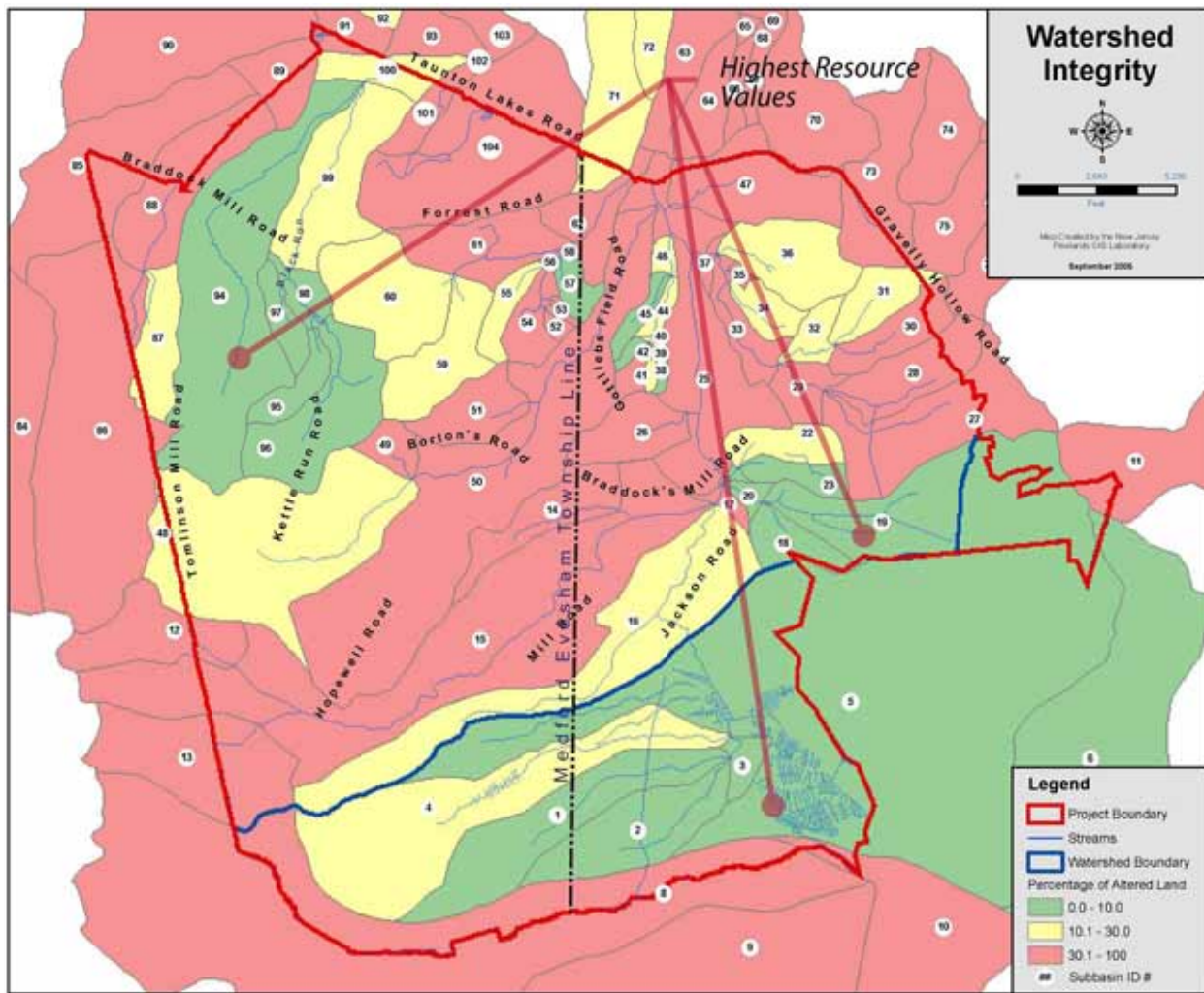
4.3 Watershed Integrity

As mentioned previously, results of studies in the Mullica River and Rancocas Creek basins¹⁴ demonstrated that changes in stream vegetation, fish assemblages and anuran (frog and toad) communities paralleled increasing land-use intensity and water-quality degradation. In general, surface waters characterized by elevated pH and dissolved solids and biological communities that included nonnative plant and animal species were associated with stream basins with a high percentage of altered land (developed land and upland agriculture). Conversely, acid waters and typical Pinelands aquatic and wetland communities characterized sites in forest-dominated stream basins.

In general, characteristic Pinelands water-quality conditions are found in stream basins where altered land represents less than 10% of the basin area. Characteristic Pinelands water-quality may begin to change when altered land in a watershed exceeds 10%. When the amount of altered land in a basin exceeds 30%, streams typically no longer exhibit characteristic Pinelands water-quality.

To evaluate watershed integrity, the entire project area was subdivided into 104 sub-basins (*see Watershed Integrity map on the following page*). The percentage of altered land was determined for each subbasin by summing the area of developed and upland agricultural land for the entire upstream drainage area. The basins were then reclassified into 3 categories (less than 10% disturbed; 10% to 30% disturbed; over 30% disturbed) based on the relative extent of disturbed land and their contribution to the water quality of the next basin downstream.

¹⁴ Zampella et al. 2001, 2003



The map above reveals that portions the project area with the highest watershed integrity are found in the eastern-most quadrant of the study area, the south-central portion of the study area, and the north-westerly area encompassing the Black Run drainage basin.

4.4 Rare Plant and Animal Sighting Data

In a final step, Rare Plant and Animal sightings data was combined with the Landscape, Wetlands and Watershed Integrity maps created in the evaluations described above. The sources for this information were NJDEP point-data supplemented with sightings data assembled by the Pinelands Commission from site survey work, and studies conducted by the Pinelands Commission's Science Department. In general, a high number of sightings occurred in areas shown to have high habitat suitability¹⁵.

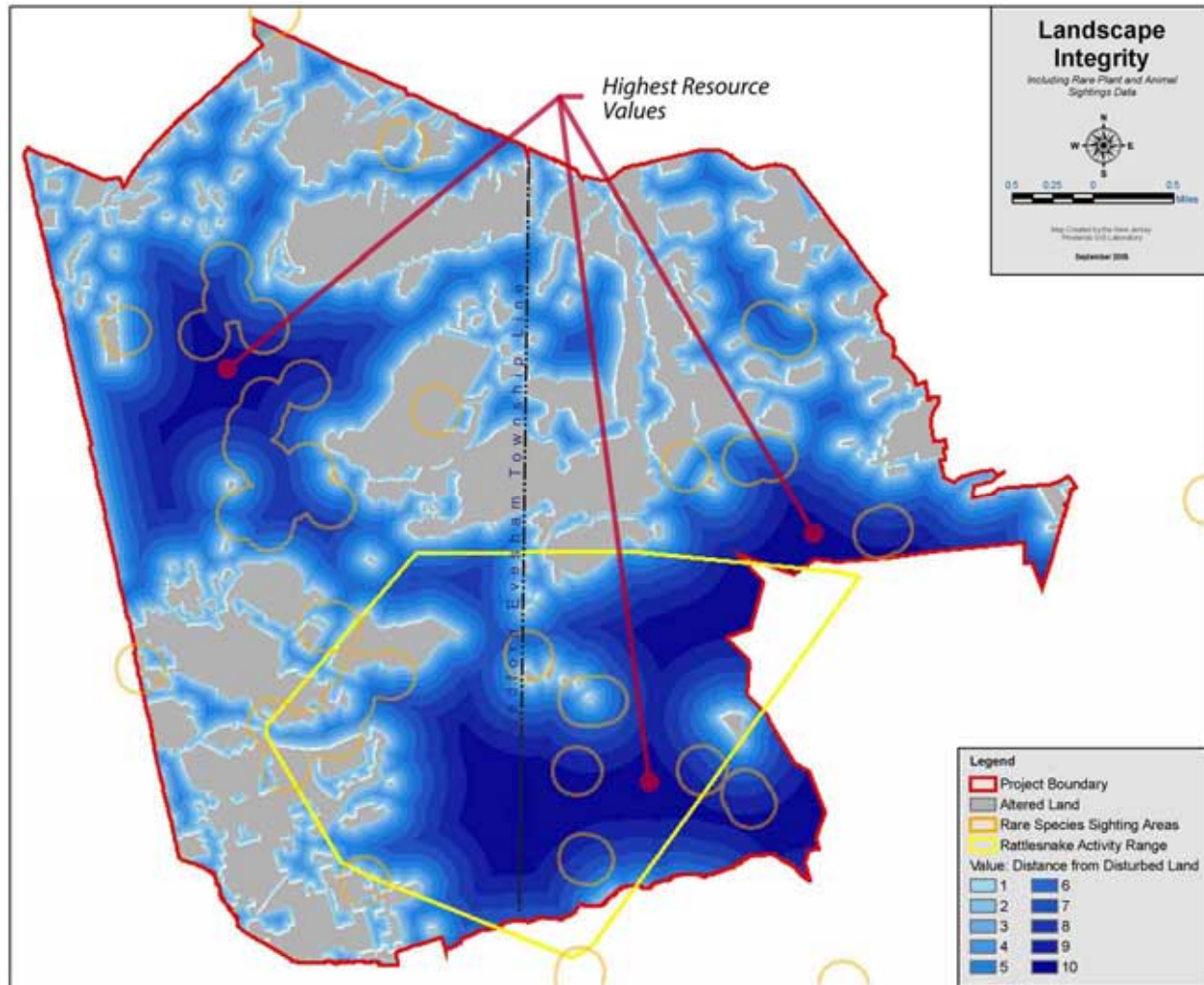
¹⁵ It is important to note that only relatively limited portions of the project area have been surveyed therefore it is not presently possible to comprehensively assess the relationship between landscape/watershed integrity and the presence of rare plants and animals for the study area

As is evident from the Landscape Integrity map (including Rare Plant and Animal Sightings Data) on the following page, the results from this step, once again, reinforced the determination that the portions of the project area with the highest natural habitat value were located in the eastern-most quadrant of the study area, the south-central portion of the study area and the north-westerly area encompassing the Black Run drainage basin.

4.5 Conclusion

In each of the analyses described above, the same three segments of the project area were identified as having particularly high resource value: the eastern most quadrant of the study area; the south-central portion of the study area; and the north-westerly area encompassing the Black Run drainage basin. The clear interest in developing within the project area and the fact that these portions of the study area with high resource value are largely undeveloped underscores the need to take measures that will protect them. The results of the mapping and analysis exercises described above served as the principal foundation for preservation and land use policy recommendations for the project area

(see Appendix 4, Spatial Analysis Methodology and Appendix 5, Basin Analysis Methodology for a description of the mapping assessment). These recommendations are outlined in the subsequent section.



5. FINDINGS

The following conclusions can be drawn from the data and analysis outlined in the foregoing sections:

1. Infrastructure (municipal waste water, domestic water supply and transportation) systems currently serve only limited portions of the project area and no significant investments (other than the Evesham water loop) are planned to expand the existing systems. Therefore, current and planned capital investments are not conducive to extensive future development.
2. Existing zoning would permit a relatively modest level of future growth. However, that development is likely to be scattered throughout the region and consequently will fragment relatively undisturbed forest communities and increase disturbance levels within characteristic Pinelands watersheds. Zoning policies should, therefore, be modified to significantly reduce these types of impacts
3. Both municipalities have purchased extensive portions of the project area for open space. Approximately 25% of the project area has been designated as public open space. An additional 10% of the project area, within Evesham, is designated as private open space (i.e. common open areas associated with residential subdivisions). However, remaining vacant parcels throughout the project area are under active consideration for development, and therefore are at immediate risk.
4. Several drainage areas within the project area, most notably the Black Run, exhibit characteristic Pinelands water-quality. Based upon research work done elsewhere within the Pinelands, it is not surprising that less than 10% of the land within these drainage units is disturbed. Water quality and levels of disturbance in several other drainage units suggest that natural watershed characteristics are only slightly altered.
5. The area has not been widely surveyed for rare plants and animals. However, surveys that have been undertaken reveal that the majority of locations that are considered to have higher ecological integrity are in wetlands or undeveloped portions of the project area. These surveys also suggest that many more rare plants may be found within the project area than were previously thought to exist.
6. Maintenance of uninterrupted, undisturbed forests is necessary to support many rare plant and animal populations, particularly snakes. Connection of these forests also helps to maintain regional biodiversity.
7. There was considerable agreement between the results of the landscape, wetland and watershed-integrity analysis relating to those portions of the

study area that were considered important for resource protection. Conservation efforts need to be targeted to these areas.

The objectives of this Plan, outlined in the introduction (*see page 3*) coupled with the findings developed through the analysis of the natural resource and land use data, outlined in the foregoing sections, provide direct support for the recommended preservation strategies and implementation programs described in detail in the following **Sections 6 and 7**.

6. PROTECTION STRATEGIES

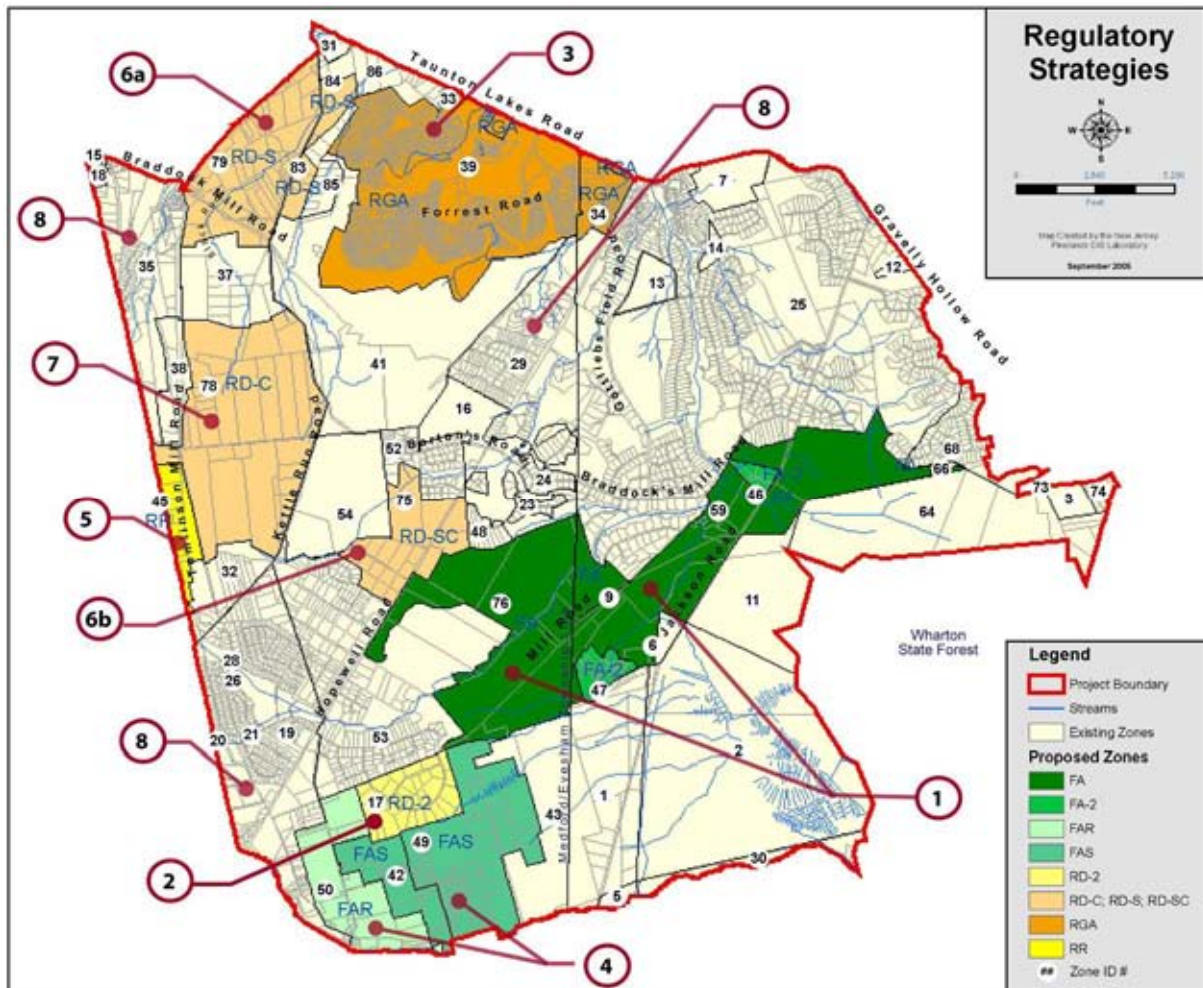
Working groups of the Project Advisory Committee and the Technical Support Group were formed to identify specific protection strategies that would respond to the conclusions developed in conjunction with the evaluation methodology outlined in Section 4, above. Two working groups were formed, one to evaluate regulatory strategies (land use and zoning) and the other to evaluate non-regulatory strategies (acquisition, land stewardship, property owner incentives, etc.). These two groups developed a preliminary listing of 21 regulatory and non-regulatory protection initiatives and identified 9 acquisition priority areas.

Following the development of the initial list of strategies, the members of the Steering Committee undertook a detailed analysis to delineate land use recommendations and establish related development densities that would be consistent with and integrally related to the preservation objectives for these areas.

The Steering Committee also worked to refine the details of the non-regulatory strategies. The protection strategies developed as a result of these efforts are outlined below:

6.1 Regulatory Strategies

The Regulatory strategies are designed to accomplish a variety of objectives that include: reducing development disturbance to protect areas with high resource values; protecting and expanding uninterrupted forest areas; adjusting zoning designations to appropriately reflect existing development patterns; shifting development from areas with high resource value to areas more suited to growth; and clustering development in a compact form to limit the effects of sprawl and increase open space opportunities. Eight specific strategies have been developed (*see Regulatory Strategies map below*) and are described on the following pages¹⁶. These zoning changes will not require an amendment of the Pinelands Comprehensive Management Plan.



¹⁶ **Note:** The maps included throughout Section 6.1 include Zone ID numbers. Please refer to **Table 2 Comparison of Existing and Proposed Zones** (pg 30), and **Appendix 7, Zone Capacity Methodology**, for Zone ID# details.

Expand Forest Areas straddling Medford and Evesham

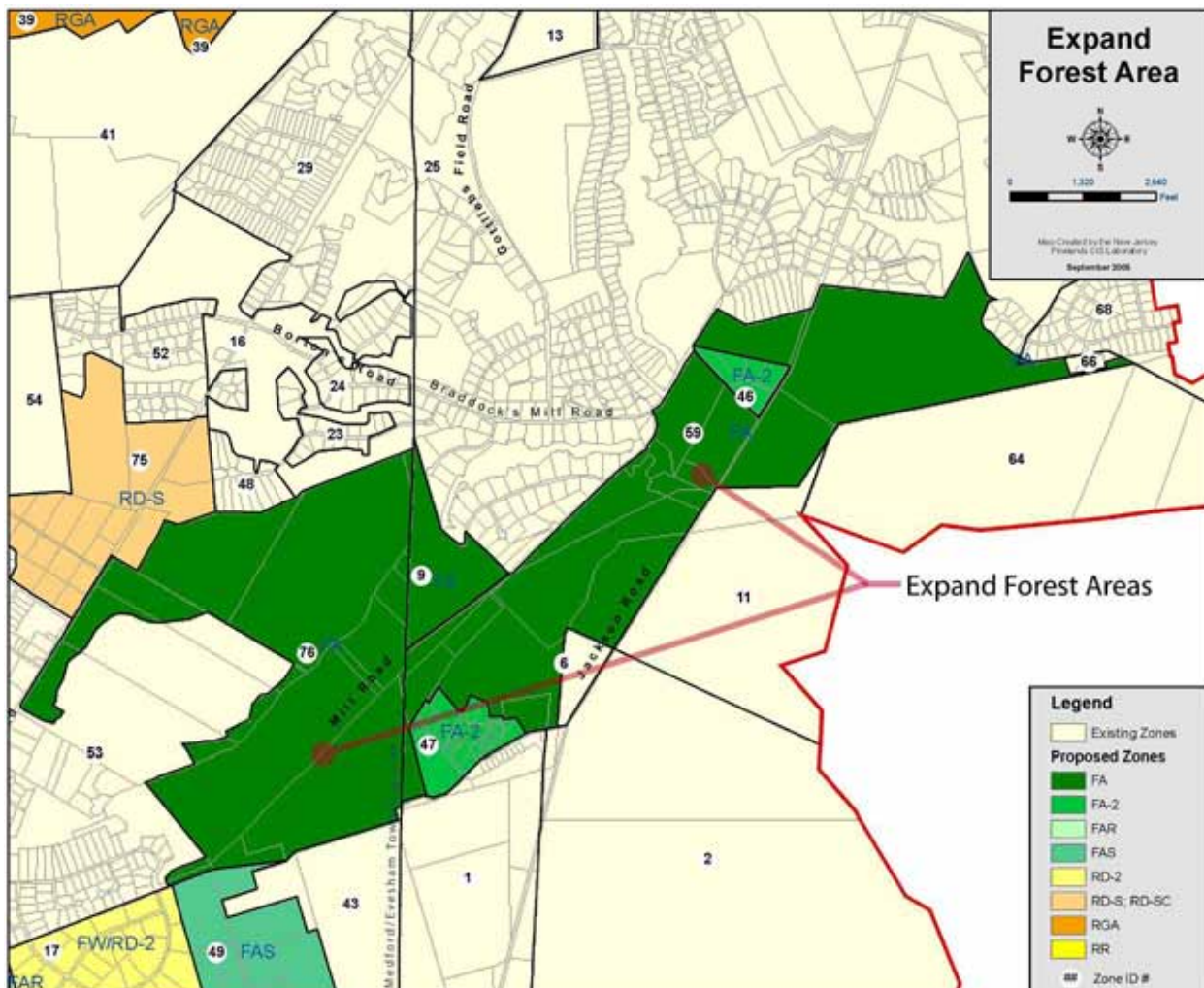
Large expanses of upland and wetland forests extend throughout the Medford/Evesham project area. Survey data confirms that these areas provide habitat for many threatened and endangered plant and animal species. Large portions of these areas are also immediately adjacent to the Preservation Area. Medford, Evesham and the NJDEP have already purchased large portions of these forested areas for preservation purposes.

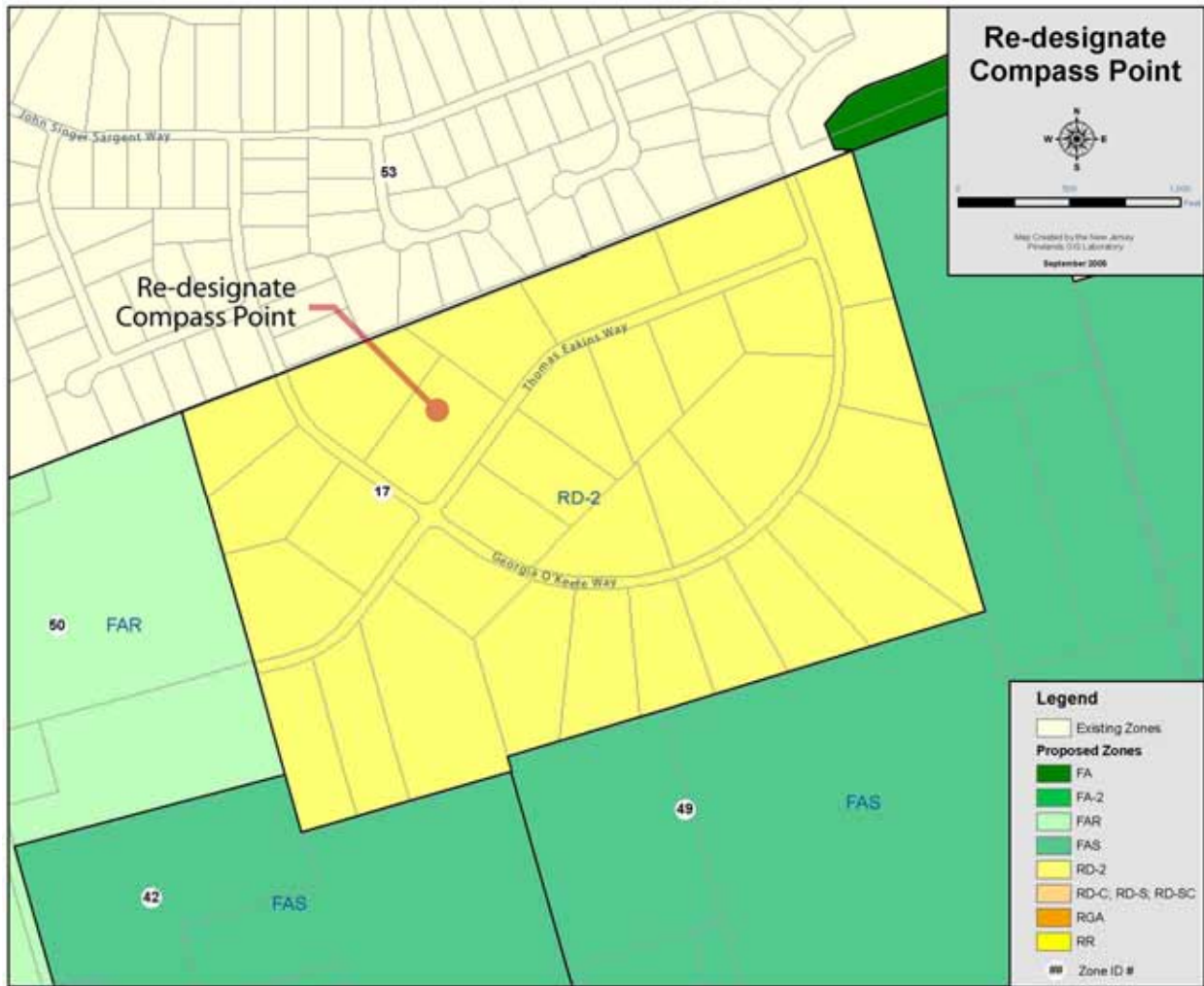
Expanding the Forest Area will increase the level of protection of natural resources within areas currently zoned for 1 unit/3.2 acre and 1 unit/4 acres. The expansion of the Forest Area will create an open space corridor that will extend from the Wharton State Forest tract, located to the east of the project area immediately outside its borders, through both municipalities.

The expanded Forest Area encompasses a 1,371-acre area in Medford and Evesham, 1,127 acres, or over 82% of which is already preserved as open space.

In Medford, the expanded Forest Area is 760 acres. A 65-acre area of the Medford portion is currently zoned “PPE” (Park/Public/Education) and 695 acres are currently zoned “RGD-2” (Reserve Growth District 2). A total of 541 acres in the Medford portion are already set aside as open space. Residential development has already occurred within two small segments in the expanded Medford Forest Area. These segments encompassing, a total of 73 acres, should be designated “FA-2” and assigned a density of 3.2 acres/unit, consistent with their current development pattern. The density in the remainder of the area should be 23 acres/dwelling unit.

The Evesham portion of the expanded Forest Area is 611 acres. The existing zoning in this area is “RD-1” and “RD-2” (Rural Development), which allows for residential development at densities ranging from 1 dwelling/4 acres to 1 dwelling/6 acres. Almost 96% of this area, or 585 acres, is already preserved as open space. The density under the Forest Area designation would be 20 acres/dwelling unit. (*See Appendix 1, Forest Area Density Methodology.*)





Re-designate Compass Point from the Forest Area to the Rural Development

Compass Point is a residential subdivision that has been developed in the southern portion of Evesham, east of Hopewell Road, off Georgia O’Keefe Way. This subdivision is presently located within the boundaries of Evesham Township’s “FW” (*Forest Woodland*) zone. However, the pattern of this 153-acre development is not consistent with its present zoning designation. Changing the zoning for this subdivision to “RD-2” (Rural Development, 4 acres/unit) will reflect, and be consistent with, its existing development pattern. Density limits under this new zoning designation will reflect the existing development pattern. This re-designation will result in no change in development potential within the study area.

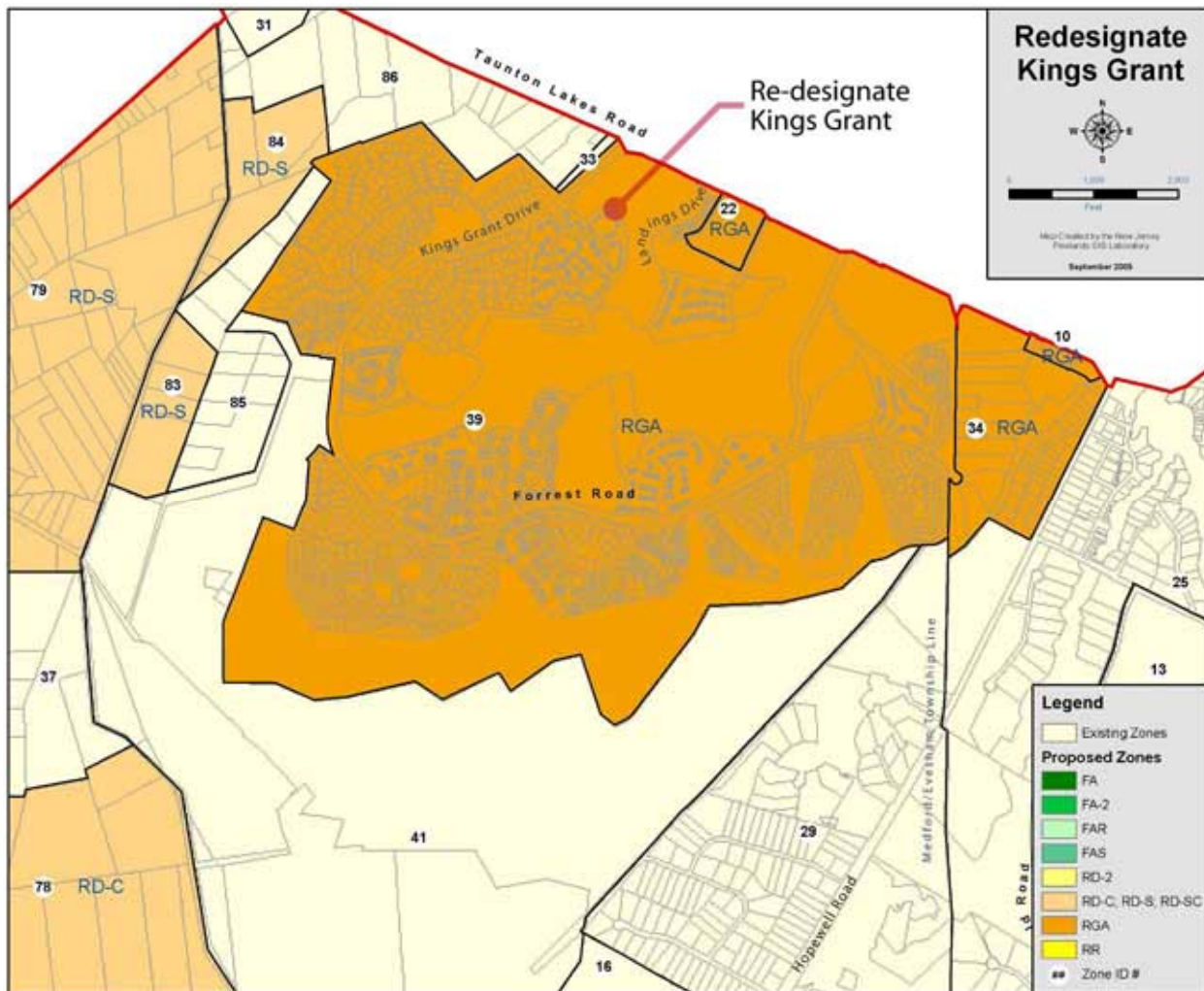
Re-designate Kings Grant Area from Rural Development to Regional Growth Area

Kings Grant is the largest, mixed-use residential development within the study area¹⁷. This 3,384-dwelling planned-unit development, located off Taunton

Lakes Road, in the north-westerly portion of the study area in Evesham, was constructed in accordance with a waiver of strict compliance granted by the Pinelands Commission in 1981¹⁸ and subject to municipal zoning regulations adopted after the project was built. The development is non-conforming with respect to its present zoning designation (a 982.4-acre area is currently zoned “RD-1” (*Rural Development*) and a 10.8-acre area is currently zoned “C-2” (*Office Commerce*). As a consequence, otherwise minor expansions or modifications (i.e., construction of an outdoor deck) to existing residential structures may only be permitted through an application for a variance, a time consuming and often-costly administrative process for the homeowner, Evesham Township and the Pinelands Commission. Therefore, the Management Area encompassing Kings Grant should be changed from Rural Development to “RGA” (Regional Growth Area, 3.2 acres/unit). Zoning regulations should reflect the existing development, which will result in no change in development potential within the study area.

¹⁷ The original plans for this project, which were submitted prior to 1979, proposed 9,000 residential units

¹⁸ The Commission’s waiver authorized the construction of up to 4,500 units



It is also recommended that the management area encompassing an 81-acre area adjacent to and immediately east of Kings Grant, in Medford Township, be re-designated as “RGA”. This change will create a direct connection to the Regional Growth Area immediately adjacent to and north of the project study area. This area is currently zoned “RGD-2” Reserve Growth District and “CC” Community Commercial. The Medford parcels have no additional development capacity. Zoning regulations should be developed to reflect existing land uses.

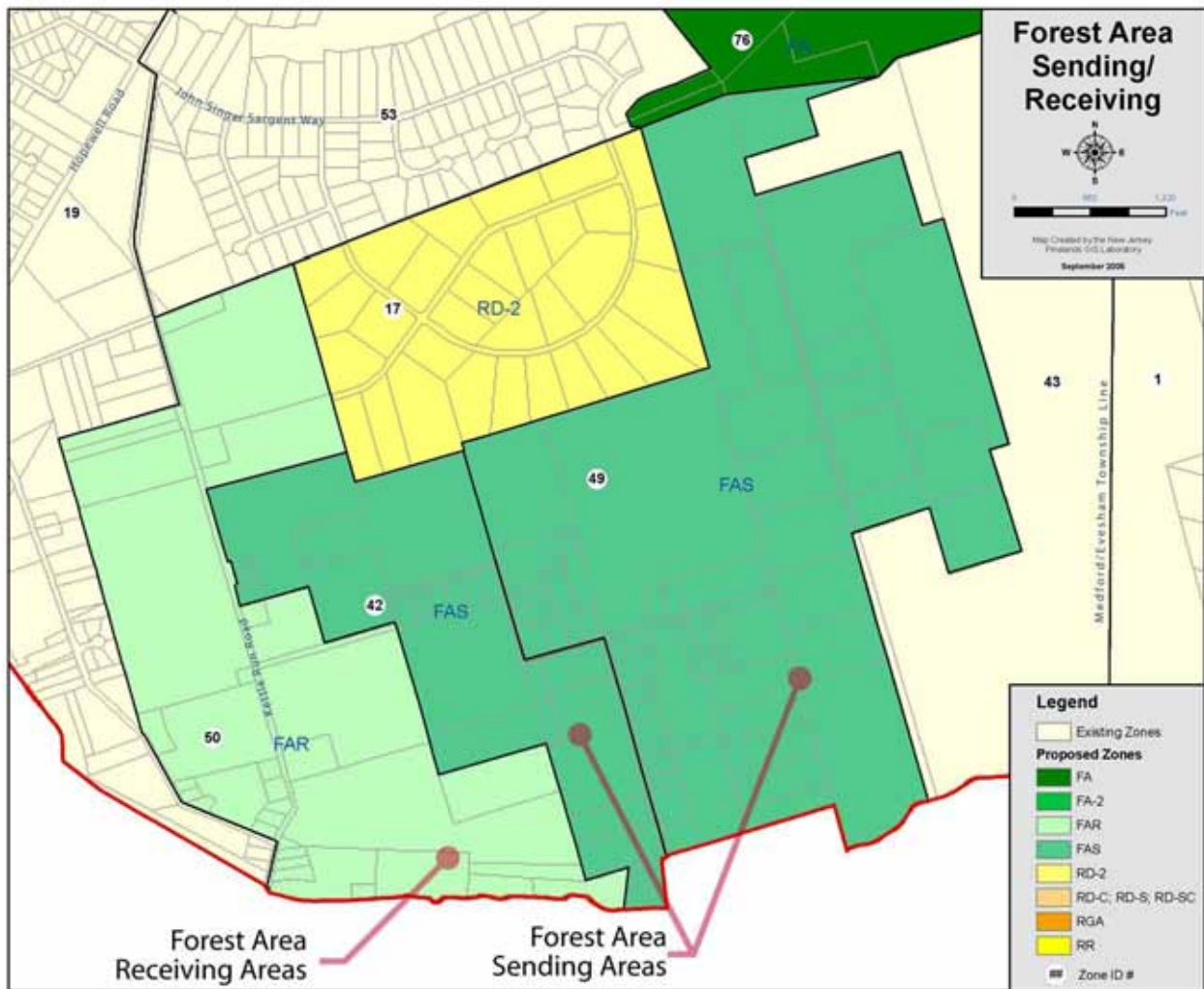
Create Forest Area Sending and Receiving Zones in Southern Evesham

A cluster of parcels in the southern portion of Evesham Township, comprising almost 800 acres, is presently zoned “FW” (*Forest Woodland*) and “FA” (*Forest Agriculture*). Permitted residential densities in these zones are 1-unit/12 acres and 1-unit/20 acres respectively. The easterly portion of this area contains several large parcels, presently forested or in agricultural production. The presence of several rare plant and animal species in this area has been documented through application-related surveys and

Pinelands Commission studies. Immediately to the east of this area is a 249-acre parcel that was purchased by the NJDEP Green Acres program in 2001 for open space preservation. A portion of this area also borders the proposed expanded Evesham Forest Area described above.

The objective of this zoning change is to create a 546-acre Forest Area “Sending” zone (“FAS”) in the easterly portion of this forest area. In conjunction with the Sending zone, a 250-acre Forest Area “Receiving” zone (“FAR”), currently zoned “FW”, will be established. This receiving zone will be created to the west of the Sending zone, adjacent to relatively higher-density development along the Evesham/ Waterford border. Clustering of all units that would otherwise be permitted in the Sending Area would be mandatory. The intended effect of the creation of these Sending/Receiving zones is to shift development to areas that would be more suited to growth while expanding open space areas contiguous to lands already preserved through state acquisition.

Evesham’s zoning ordinance (see §160.38) currently permits density transfer to enable the development of



single-family units, on existing 1-acre lots when sufficient, non-contiguous lands are purchased and protected. In contrast, the density transfer concepts recommended in conjunction with the proposed Forest Area sending and receiving zones in this Plan envision shifting multi-unit development potential from the sending areas, allowing those units to be developed as residential subdivisions within the receiving area. Evesham’s zoning provisions will need to be modified to accommodate this expanded density-transfer concept.

The effective zone density throughout Evesham’s Forest Area will be 20 acres/unit (see *Appendix 1 Forest Area Zone Density Calculations*).

OPTION: Forest Area Sending Zone Incentives

Although they are not typically incorporated into Forest Area density transfer provisions, Evesham may wish to consider an incentive to encourage density transfer to achieve greater open space protection. The following factors would warrant an incentive in the Forest Area:

- Density transfer could enhance protection of known rare plant and animal habitat;

- Shifting development out of this area would increase protection of the state open space lands that are adjacent to and immediately east of the Forest Area Sending Zone (a recent DEP purchase);
- Density transfer could afford greater protection of the Mullica headwaters located in this area;
- The southern Medford/Evesham area has been recognized and assigned high priority by the Pinelands Commission as an ecologically sensitive area and one of the 20 target areas throughout the Pinelands where enhanced protection of open space and forest area is deemed to be important.

The proposed zone density of 20 acres/unit was derived in accordance with the Comprehensive Management Plan (CMP) standards for setting residential development density in forest areas. Using this density, the Forest Area zone capacity is 35 units [11 units in the Forest Area Receiving Zone and 24 units in the Forest Area Sending Zone] (see *Appendix 7, Zone Capacity Analysis*). To create an incentive, the base density could be set to 25 acres/unit and the transfer density to 15 acres/unit. The net affect of this change would be to

reduce the potential “base” yield to 28 units but increase the potential sending opportunities to 40.

Two points should be considered in weighing the feasibility of this density transfer option for the Forest Area:

1. The Pinelands Commission’s experience with the density transfer program indicates that the technique is rarely, if ever, used by 100% of the property owners who have sending opportunities. It is more likely that, over time, between 50% and 75% property owners will exercise their sending options.
2. All incentives that increase the number of units transferred will quite clearly increase the potential development yield, thereby limiting the overall development reduction that can otherwise be achieved through the Plan’s proposed zoning strategies.

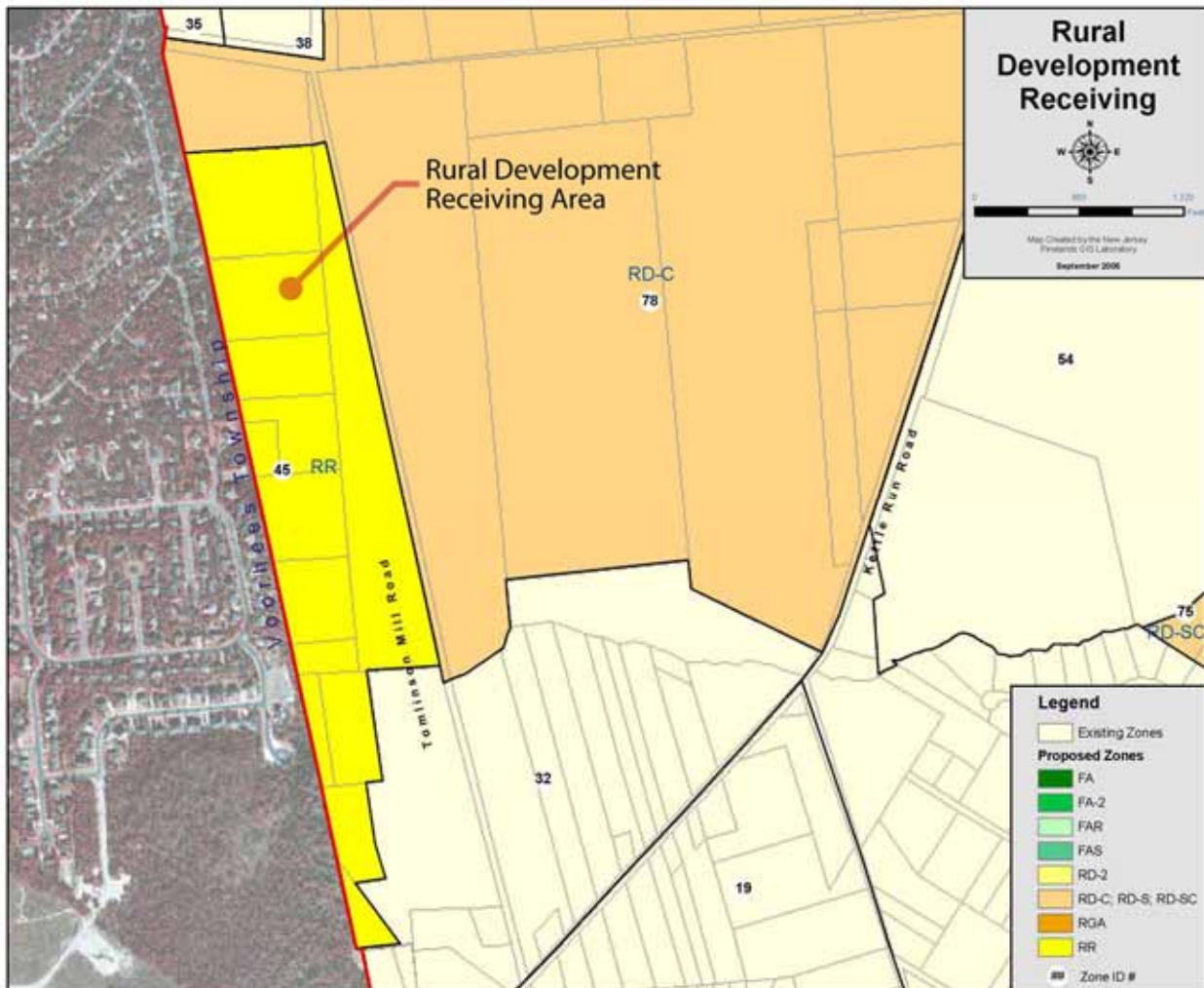
OPTION: Utility Costs Incentive

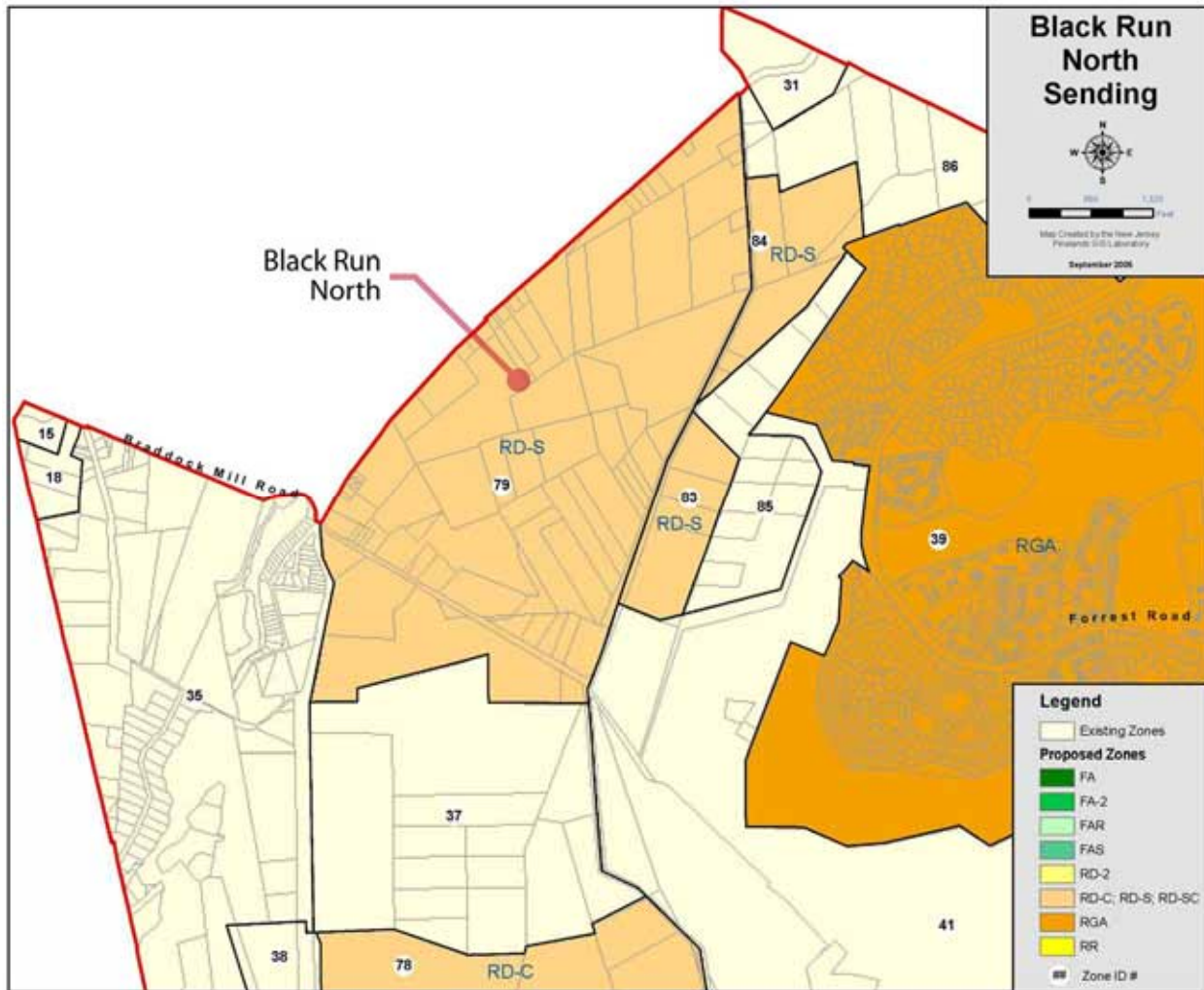
An additional measure that would not affect zone capacity but that could be viewed as a considerable

transfer incentive would be for the Pinelands Commission and Evesham Township to work with the New Jersey Board of Public Utilities (BPU) to designate the Forest Area Receiving zone as a “smart growth” area in accordance with BPU smart growth regulations. These regulations require developers to pay the cost of extending utility infrastructure in areas *not* designated for growth in the State Plan. In growth areas, utility companies assume the costs to run utility lines and property owners are merely responsible for relatively minor “hook-up” costs. Since forest areas are clearly outside the boundaries of such growth areas, these costs can be substantial.

Rural Development Receiving

There is a concentrated cluster of 13 parcels located immediately adjacent to the Evesham/Voorhees border, straddling Tomlinson Mill Road. The area immediately west of these parcels and just outside the study area, in Voorhees, is characterized by relatively high-density residential development. This area is currently zoned “RD-3” (Rural Development) and is entirely comprised of upland soils and, therefore, has a relatively greater suitability for development.





The objective of this strategy is to designate this 81-acre area as a Rural Development “Receiving” area (“RR”). Base density within this area will be 1-unit/10 acres. However, the minimum lot size in this area for those parcels receiving development rights transferred from the Rural Development Sending areas will be 1 acre.

To promote the preservation objectives of this Plan, sending opportunities can be transferred to the Rural Development Receiving area only from the Black Run-north and Connector Areas, described below. Development applications in this area will be subject to streamlined threatened and endangered species survey and permitting requirements that were first proposed in the Resource Protection Plan for the Toms River Corridor¹⁹ and outlined in *Section 6.2*, below. This Receiving area has the capacity to accommodate approximately 50 one-acre lots (see *Appendix 2, Rural Development Sending/Receiving Area Density Transfer Methodology*).

¹⁹ “A Regional Natural Resource Protection Plan for the Toms River Corridor, Jackson and Manchester Townships, Ocean County, New Jersey”, Toms River Corridor Task Force, February 2004

Rural Development Sending

As noted previously, the Black Run is a characteristic Pinelands stream running through that portion of the project area within the Rancocas watershed. Less than 10% of the area of the sub-basins draining into the Black Run has been altered by development and upland agriculture. A cluster of 13 parcels, encompassing 190 acres within the mid-section of the Black Run, was purchased by Evesham Township in 2004 through its aggressive open-space acquisition program. The acquisition of these parcels demonstrates the Township’s interest in protecting the watershed. To further the conservation of this important watershed, two rezoning strategies are recommended:

- Set development densities at levels that do not exceed the point at which the Black Run water quality may begin to change, i.e. the 10% disturbance threshold (see pg 15, *Watershed Integrity*); and
- Rezone the area that encompasses the Black Run as a *Sending Area* in order to shift development that might otherwise occur in this area to locations that are more suited to and compatible with additional development.

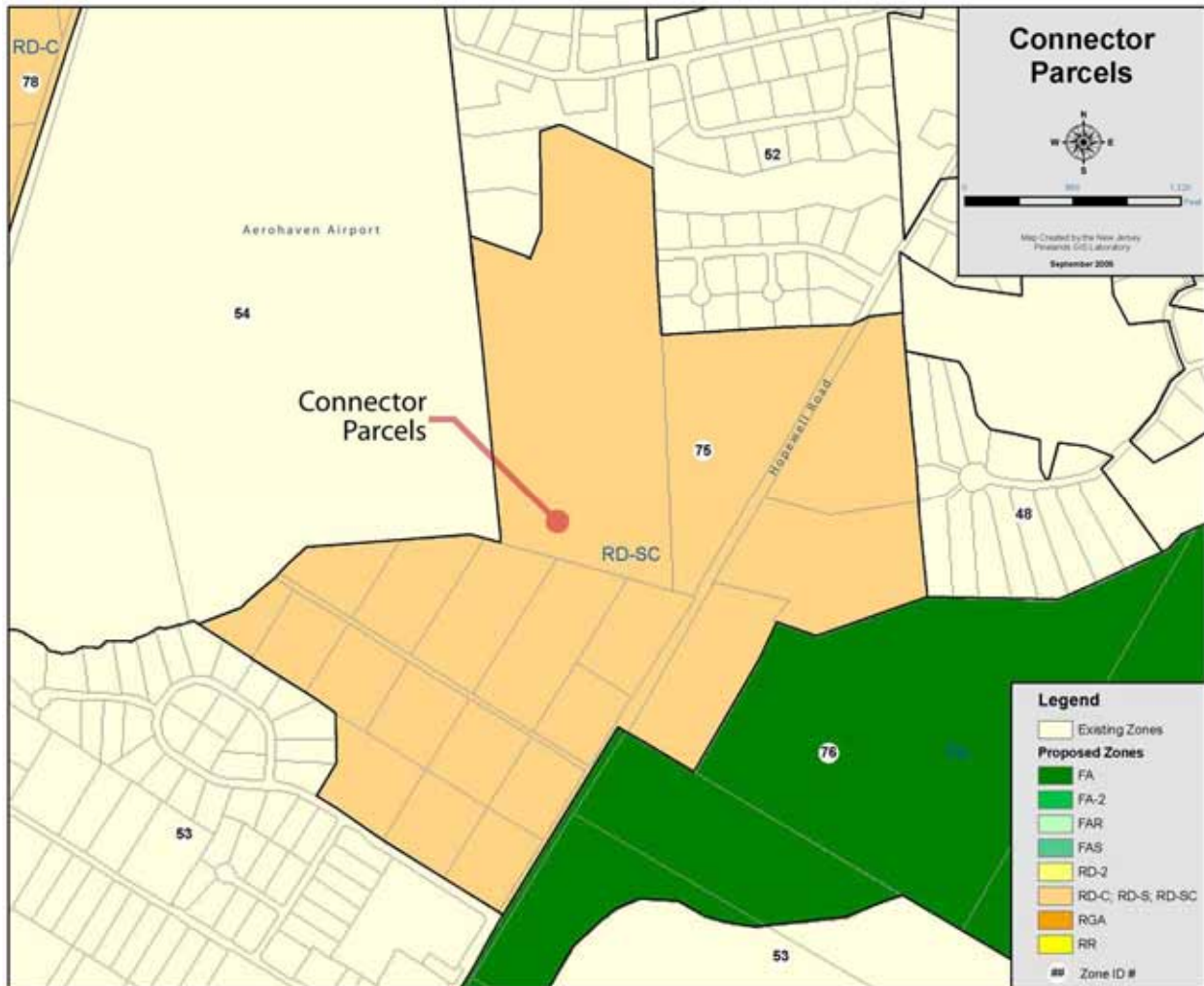
The strategy to achieve this objective is comprised of the following two elements:

1. The Black Run watershed basins are encompassed within two zones. The parcels that encompass the northerly portion of the Black Run watershed basin, a 436-acre area, should be rezoned from Rural Development (“RD-1” and “RD-3”) to Rural Development Sending (“RD-S”). The permitted density within this northerly area would be 1 unit/10 acres and the minimum lot size would be 10 acres. On-site clustering would not be permitted in this area. Instead, property owners in this area would be given the opportunity to transfer the density associated with their parcels to the Rural Development Receiving area to be established at the Evesham/Voorhees border (*described above*), or the scattered-site Rural Development Receiving areas (*described below*). For such transfers, an increased density of 1 unit per 6 acres would apply (a property owner seeking to develop a one acre lot in a receiving area would need to purchase and protect 5 acres of land in the RD-S Zone). The Black Run-north Area has the potential for 50 sending opportunities (see *Appendix 2, Rural Development*

Sending/Receiving Area Density Transfer Methodology

2. The second element of this strategy involves the “Connector” area, a cluster of 20 parcels, presently zoned “RD-2”, lying between the Aerohaven site and the proposed Evesham Forest Area. Although this 221-acre area, which straddles Hopewell Road, is *not* within the Black Run sub-basins, it will create a link in a forest corridor that will extend through the entire project area from the Wharton State Forest tract at the easterly border of Medford through the Aerohaven and the Kings Grant II parcels in Evesham (both of which will be preserved for open space – see Section 2.3 on page 7) extending to the Black Run sub-basin. This uninterrupted forest helps to protect the area’s water-quality and maintain its bio-diversity.

This area should be rezoned to Rural Development Sending/Cluster (“RD-SC”). Base density within this “Connector” area will be 1-unit/10 acres. Mandatory clustering, on 1-acre lots, will be applicable to all development proposed within this area to preserve as much forested land as possible. Alternatively, property owners can opt to use the Density Transfer



Program, as described in 1. above, to shift development to either of the two Rural Development Receiving areas within the project area. This Connector area, with 171 vacant acres, has a potential 34 sending opportunities, based on 1 opportunity for every 5 acres of vacant land.

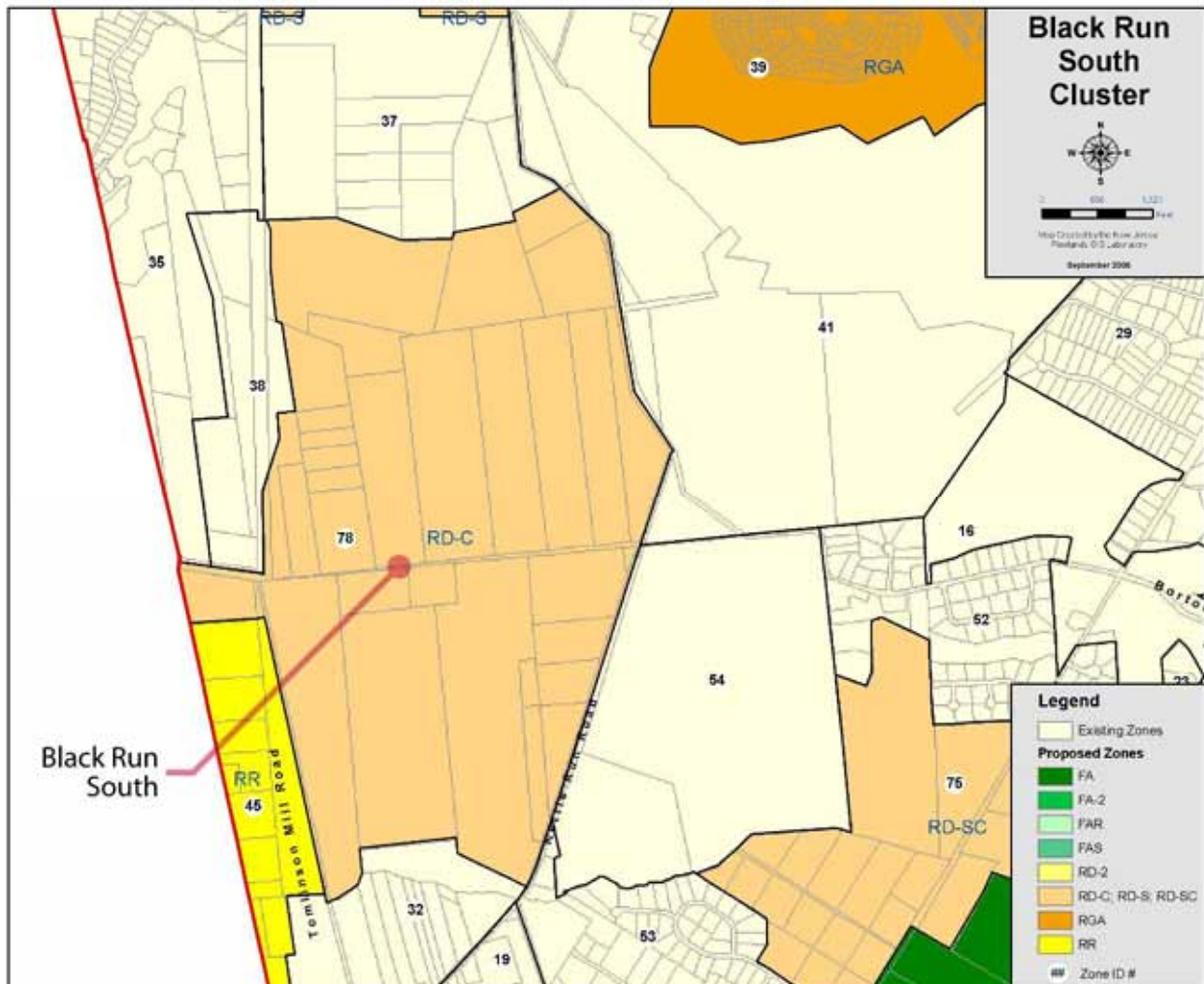
The calculated development density for these new zone designations is 1-unit/10 acres for on-site development or 1-unit/6 acres if density is transferred to the proposed Rural Development Receiving areas. This difference is intended to serve as an incentive to transfer development out of these ecologically important areas. The methodology to determine the development densities within the Black Run basin and the Connector area is detailed in *Appendix 3, Sub-basin Disturbance and Development Density Calculations*; and *Appendix 6, Residential Cover Types Analysis Methodology*. Also see *Appendix 2, Rural Development Sending/Receiving Area Density Transfer Methodology*, for a description of the calculation of development transfer density.

Rural Development Cluster

The parcels that encompass the southerly portion of the Black Run watershed basin, a 717-acre area west of Kettle Run Road (*see Black Run South Cluster map below*), should be re-designated from Rural Development (“RD-3”) to Rural Development-Cluster (“RD-C”). As with the Black Run-north Area, to assure that development does not exceed the 10% water-quality disturbance threshold (*see pg 15, Watershed Integrity*), the permitted density in the Black Run-South area should be set at 1 unit/10 acres. Mandatory clustering, on 1-acre lots, will be required for development proposed within this area.

OPTION: Density Transfer in the Rural Development Cluster (RD-C) Area

Because the Black Run-south has relatively higher development suitability than either the Black Run-north or the “Connector Area”, the proposed strategy to change the zoning of this area from Rural Development (RD-3) to Rural Development-Cluster (RD-C) does not include density transfer options. If this area was designated as a “sending area”, it would have an associated 128 sending opportunities. As a result, the



combined number of sending opportunities associated with the Black Run-north, the Connector Area, the Scattered Parcels in the existing RD-1, RD-2, and RD-3 zones, and the RD-C (Black Run-south) Area (239) would exceed the number of receiving opportunities in the Rural Receiving Area and the Scattered Parcels (162) by a considerable margin. Consequently, the sending/receiving strategy would no longer be feasible because the supply would outstrip capacity.

However, Evesham officials may wish to consider the following 2-part alternative that could render density transfer from the Black Run-south Area feasible:

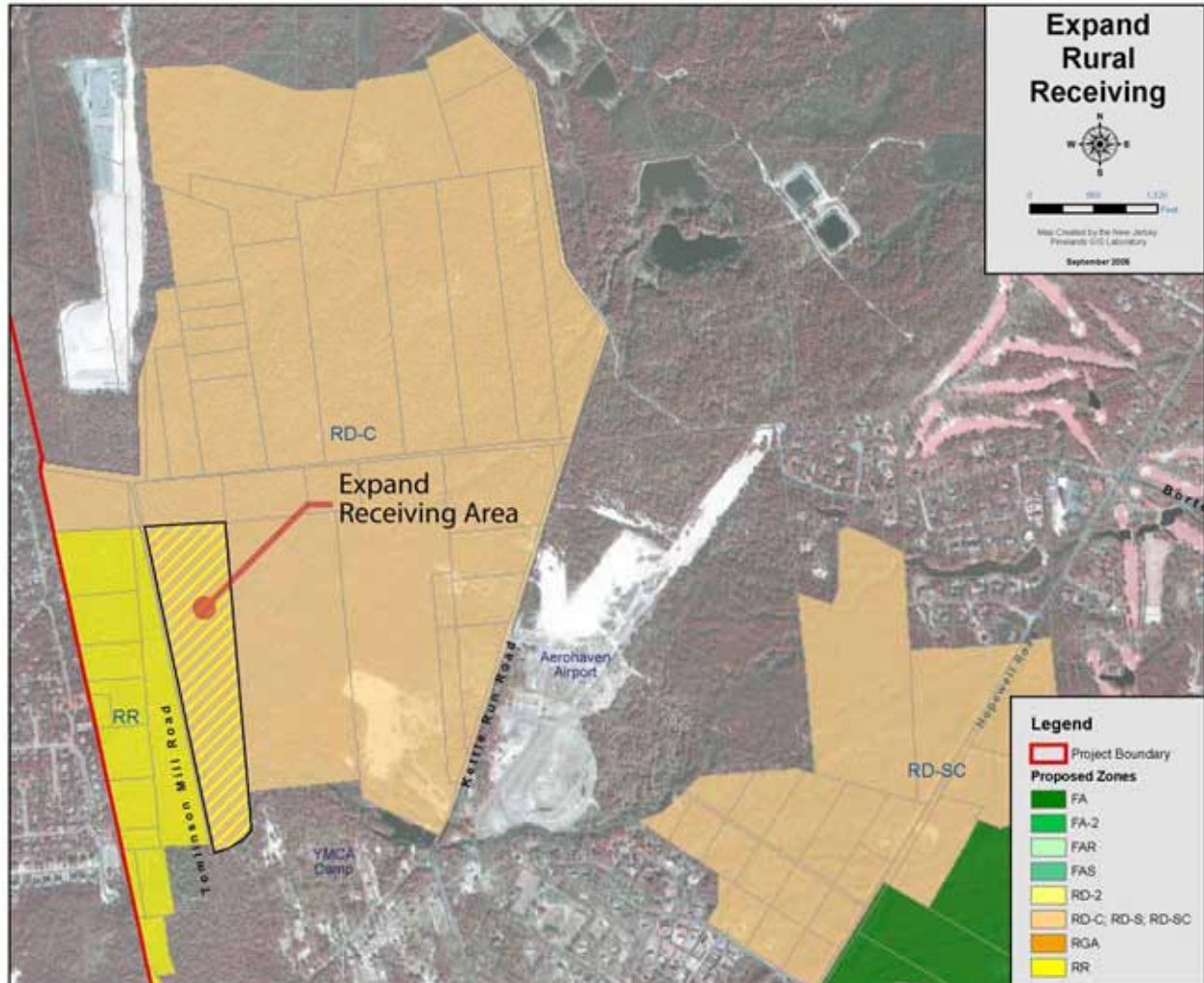
1. Expand the Rural Development Receiving (RR) area boundary to include a 50-acre portion of the 58.5-acre parcel immediately to the east of its current boundary (see *Expand Rural Receiving map, below*). If this parcel is included, the size of the Rural Receiving area would expand to 131 acres and the number of receiving opportunities would increase to 83.
2. Limit the sending opportunities in the Black Run-south to lots that would otherwise be undevelopable because they would not meet the base

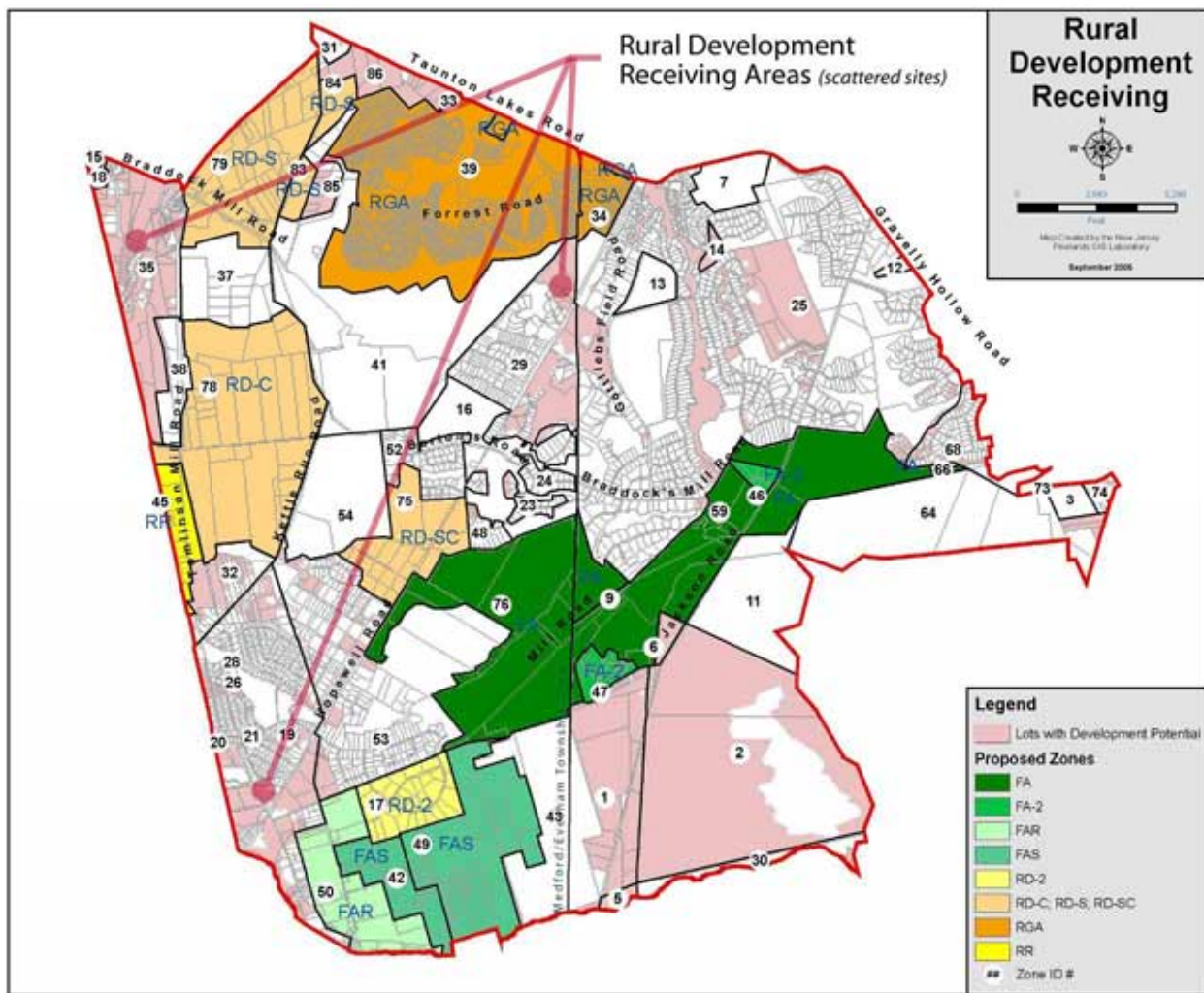
density requirement, lots that are less than 10-acre in size. By applying this approach, the number of potential sending opportunities in the Black Run-south Area would be 16.

Using this option, the total number of sending opportunities in the project area would be 127 and the total number of receiving opportunities would be 195. Using this approach, the Black Run-south could be designated as a Rural Development Cluster/Sending Area without adversely affecting the density transfer strategy (see *Appendix 2, Rural Development Sending/Receiving Area Density Transfer Methodology* for a detailed evaluation of this option).

Rural Development Receiving (scattered parcels)

Several parcels throughout Evesham Township’s Rural Development area have characteristics that are more suited to development than the parcels that comprise the proposed Forest Areas, Black Run watershed and the Connector parcels described in the foregoing protection strategies. A limited quantity of land within these areas remains vacant and available for development.





The objective of this strategy is to provide the opportunity for those scattered parcels with vacant, developable land within Evesham’s “RD-1”, “RD-2” and “RD-3” zones to serve as receiving areas, allowing density transfer from more environmentally fragile areas, such as the northern portion of the Black Run Basin. Parcels that meet these criteria encompass 240 acres (see *Rural Development Receiving map on the following page*). These zones have the potential to accommodate approximately 112 one-acre lots on properties that have realistic subdivision potential (at least 2 upland acres).

Since the Evesham Township ordinance already permits development transfers in the “RD-1”, “RD-2” and “RD-3” zones, primarily to allow for the development of existing, undersized lots, the existing zone designations can be used with some revisions to the existing Density Transfer provisions. In particular, the provisions to permit new 1-acre lots through subdivision will need to be expanded to all zones. In addition to serving as receiving areas for the Black Run North and Connector areas, provisions that permit density transfers *within* these zones will remain in effect.

It is estimated that about 27 *sending* opportunities exist within the “RD-1”, “RD-2” and “RD-3” zones. These sending opportunities are based upon the existing zone densities and the acreage of vacant lots that are either too small (less than 1 acre in size) or which are not likely to be developable.

The intent of this strategy is to encourage density transfers in order to protect areas with high resource value. Consequently, it is important to note that Evesham Township will need to revise its zoning ordinance provisions relating to density transfer in the Rural Development as well as Forest Area to establish a clear and simplified process that does not require lot size variances or create other obstacles that might otherwise discourage this technique, such as the requirement that non-contiguous lands purchased under the density transfer program consider a minimum of 25% upland (developable acres).

Expected Results – Management Area and Zoning Changes

Table 2, below, compares the existing and proposed management area and zoning changes. These zoning changes will accomplish the following:

- Development and disturbance levels in high-value natural resource areas will be reduced in order to maintain those resource values. It is estimated that the future zone capacity of the project area is being reduced from 579 homes to 270, a 53% reduction (see Appendix 7, Zone Capacity Analysis);
- Incentives are also created to transfer all development out of these natural resource areas to areas which are more capable of accommodating it;
- Permitted development within these high-value resource areas will be clustered, resulting in the conservation of more than 80% of the properties being developed;
- A contiguous green belt will be created that will extend through the entire mid-section of the study

area (running east to west) comprised of a combination of public lands, preservation areas, forest areas and, in limited locations, low-density developed areas. This green belt represents an important tool to protect the area’s water-quality and maintain its biodiversity.

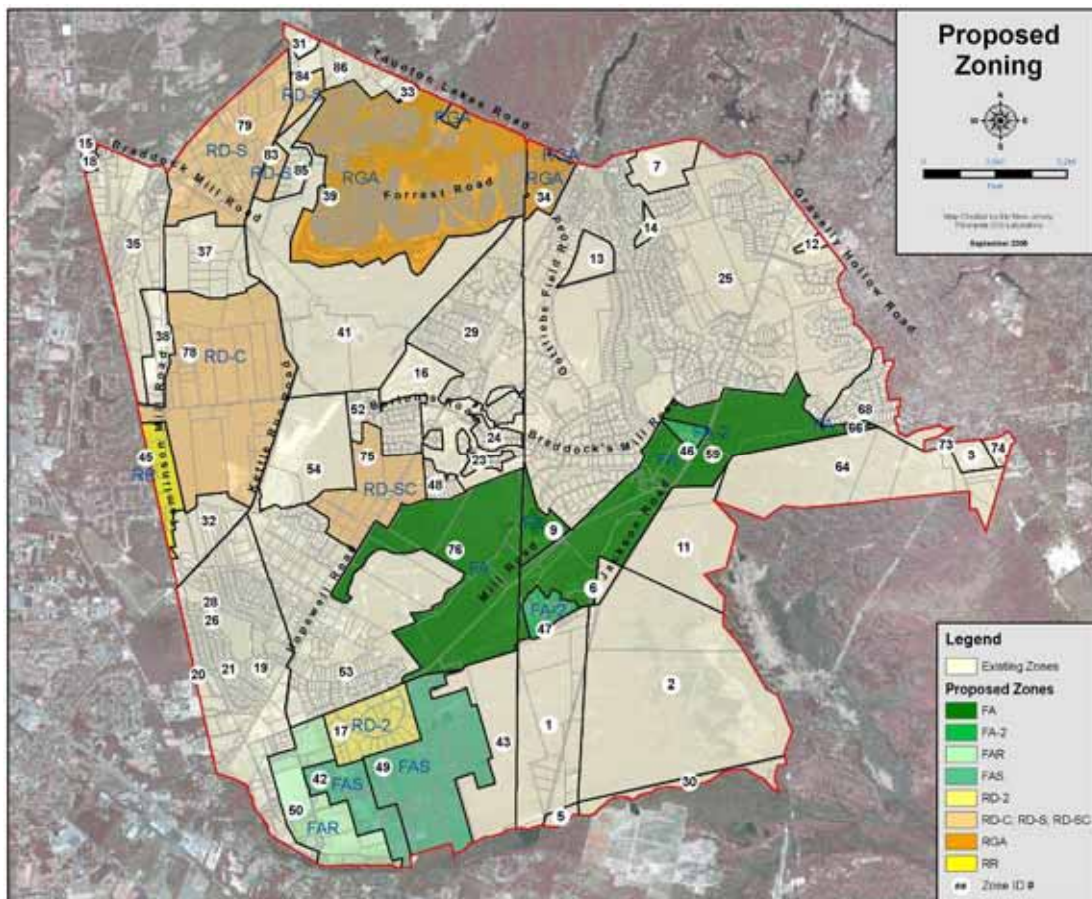
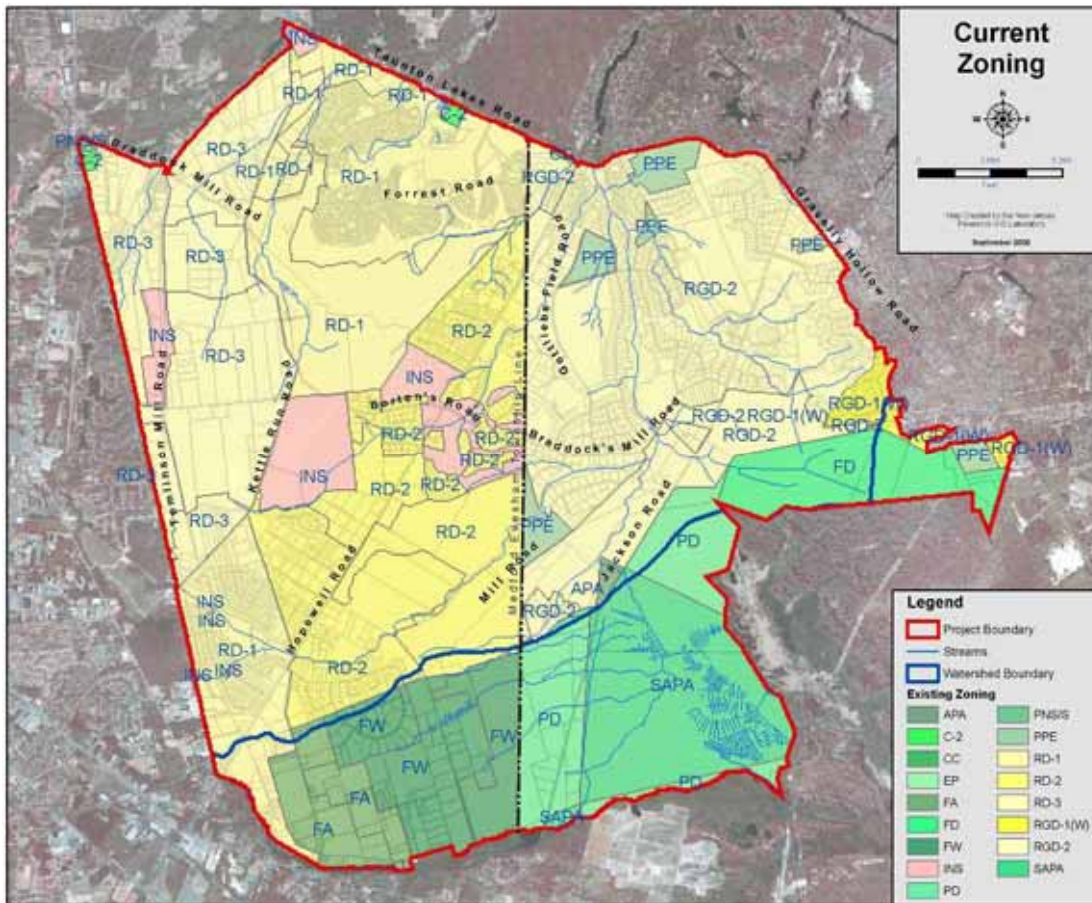
- Zoning designations will be adjusted in developed areas to reflect existing development patterns.

For purposes of comparison, a set of maps is provided on page 31 which illustrate the current and proposed zoning designations throughout the study area.

**Table 2
Comparison of Existing and Proposed Zones**

Proposed Change	Zone ID #	Municipality	Existing Zoning	Density (acres/du)	Proposed Zoning	Density (acres/du)	Area Acres
Expand Forest Area	33	Evesham	RD-1	6	FA	20	2
	76	Evesham	RD-2	4	FA	20	609
	57	Medford	RGD-1(W)	1.67	FA	23	0
	59	Medford	RGD-2	3.2	FA	23	622
	9	Medford	PPE	0	FA	23	65
	46	Medford	RGD-2	3.2	FA-2	23	23
	47	Medford	RGD-2	3.2	FA-2	23	50
Compass Point	17	Evesham	FW	12	RD-2	3.2	153
Kings Grant RGA	22	Evesham	C-2	0	RGA	*	11
	39	Evesham	RD-1	6	RGA	*	982
	34	Medford	RGD-2	0	RGA	*	77
	10	Medford	CC	3.2	RGA	*	4
FA Receiving	50	Evesham	FA	20	FAR	20	250
FA Sending	42	Evesham	FA	20	FAS	20	134
	49	Evesham	FW	12	FAS	20	411
Rural Receiving	45	Evesham	RD-3	3.2	RR	10	81
Rural Development Sending	83	Evesham	RD-1	6	RD-S	10	33
	84	Evesham	RD-1	6	RD-S	10	41
	75	Evesham	RD-2	4	RD-SC	10	221
	79	Evesham	RD-3	3.2	RD-S	10	362
Rural Dev. Cluster	78	Evesham	RD-3	3.2	RD-C	10	717
Rural Receiving (scattered parcels)		Evesham	RD-1	6	RD-1	6	148
		Evesham	RD-2	4	RD-2	4	152
		Evesham	RD-3	3.2	RD-3	3.2	134

*Zoning Regulations will reflect the existing development - no change in development potential will result



6.2 Other Regulatory Tools

Regulatory tools other than zoning changes that should be considered include:

Modified Threatened and Endangered Species Survey Requirements

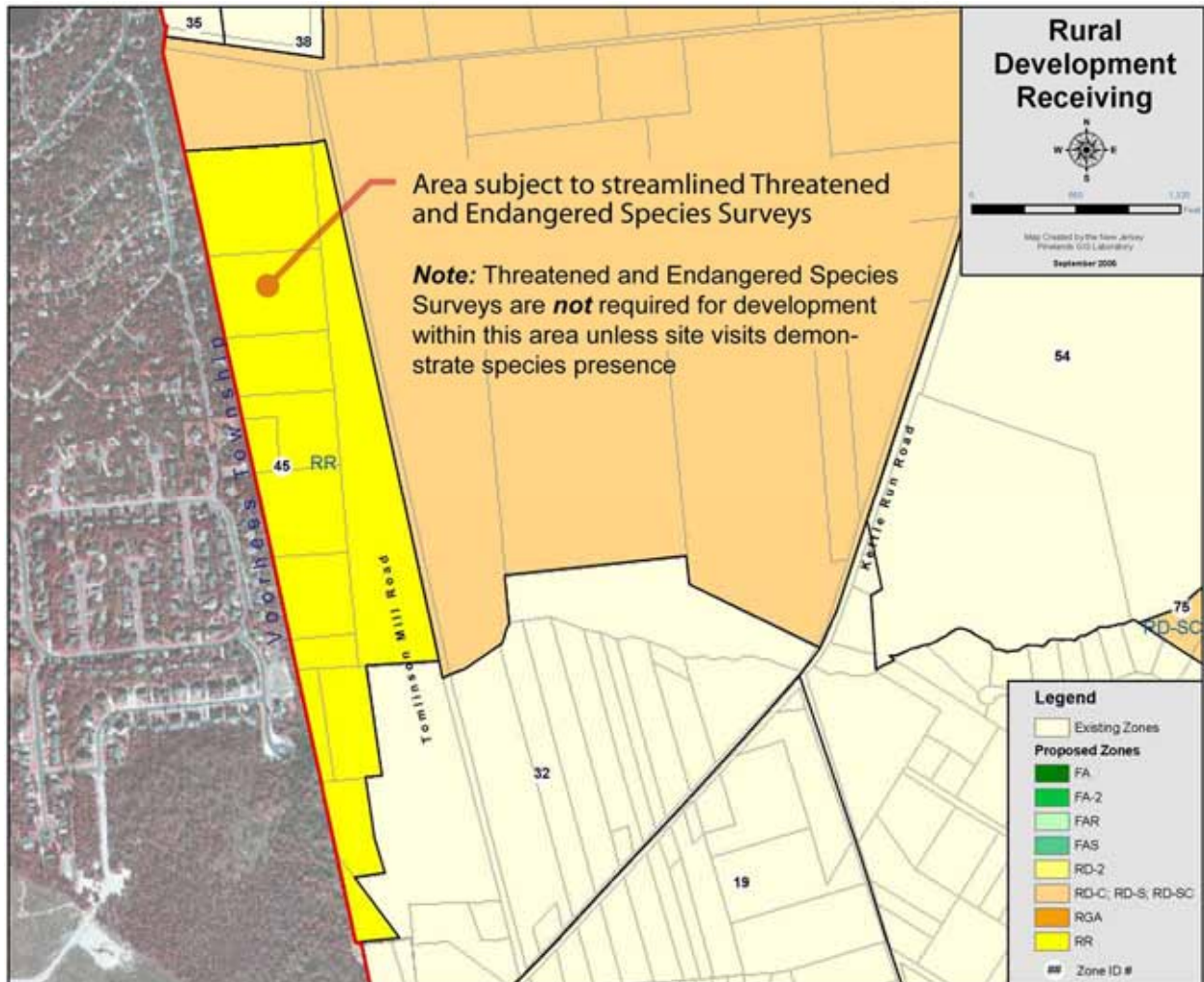
No survey would be required in conjunction with development proposals in the Rural Development Receiving Area where planning tools that reduce or minimize negative impacts on local populations of threatened and endangered plant and animal species will be used (*see map below*). It is important to emphasize that development subject to these revised survey requirements would only be permitted if significant areas within the Black Run and/or Connector areas are protected through density transfer. In all cases, a site visit by Pinelands Commission staff would be required. If compelling evidence of the presence of threatened or endangered species is discovered during this site visit, the applicant will be required to either:

1. Move the “footprint” of the development to an alternate area of the site to eliminate or mitigate the impact to such threatened or endangered species; or
2. Engage a consultant to complete a one-day visual

survey within the development area. This type of survey should be used to determine whether there are threatened or endangered plants present and/or whether there is evidence of habitual seasonal use (i.e., nesting/denning areas) by threatened or endangered animal species of the area to be cleared or developed. This survey should either confirm that an alternate development site should be selected or indicate that the proposed development is not likely to have a negative impact on threatened or endangered species and may be constructed as planned.

Official Map

New Jersey land use law confers upon governing bodies the right to adopt an official map which, among other things, can fix the location of streets, public areas and community facilities. When properties are proposed for development, a community may reserve the location for streets, public areas or facilities that have been included on the Official Map for a period of up to one year, during which time the municipality may purchase the property. Clearly, the flexibility afforded through the use of the Official Map could be used as a tool to assist in the implementation of preservation strategies. However, if the municipality ultimately elects not to



purchase a particular parcel that has been set aside for some public purpose, and which is also the subject of a development proposal, it may be required to compensate the owner/developer at fair market value for the period of time that the development proposal was deferred.

At a minimum, Evesham and Medford should adopt an Official Map that includes the parcels identified for acquisition described in Section 7.3, below.

Mandatory 300' Wetlands Buffer

According to the CMP, no development is permitted within 300' of a wetland unless an applicant can demonstrate that no significant adverse impact will occur. At a minimum, a 300' wetlands buffer should be required for any development within the Black Run sub-basin.

On-Site Clustering

Clustering directs development within the bounds of an individual property. The landowner is provided the opportunity to develop a permitted number of units on a property on reduced lot sizes, gathered in a particular area, while leaving the remainder of the property undisturbed. In some cases, a “development” area is specified or the maximum percentage of a property that may be developed is established in a municipal ordinance. The “conservation area” is chosen to best protect important habitat, water resources, or some other environmentally valuable attribute. Likewise, the location of development should be coordinated with development of other surrounding properties in order to achieve the highest contiguity of habitat and protection of water resources, the most efficient growth patterns, minimize roads and best use existing and planned infrastructure. Clustering development can also foster a sense of community through neighborhood development within the municipality.

In general, cluster ordinance provisions applicable to development within the project area should be designed to achieve the following:

1. The area selected for construction should be that portion of the tract where development will cause the least environmental impacts, and therefore should be:
 - a. the farthest possible distance from wetlands and wetlands buffers, known habitat for threatened and endangered species, adjacent open space, and other environmental assets;
 - b. in proximity to other development, roads, infrastructure, and other disturbed areas;
 - c. coordinated with the developed and open space areas of other surrounding properties to promote un-fragmented open space areas;
2. A substantial portion of the area set aside for open space, (generally 50% or more) should be “unconstrained” land, which does not have features

that would preclude its development, e.g., wetlands, steep slopes;

3. The development design should protect special site features which, while not being constraints to development, are elements which are desirable for conservation such as wooded areas, meadows, hedgerows, etc.;
4. The development design should afford the maximum number of lots direct access to the open space area.

The zoning regulations for both Medford and Evesham include provisions that enable clustering in Rural Development areas. However, both communities presently have a 25-acre tract size requirement (*this requirement is applicable only in the RD-2 District in Evesham*). In addition, Evesham does not permit cluster development in its RD-1 District. These requirements may discourage the use of cluster provisions in the project area. In the interest of promoting clustering to expand the opportunity for creation of increased open space while retaining currently permitted residential development density, the Townships should eliminate these limitations.

6.3 Non-Regulatory Strategies

The zoning and regulatory measures outlined in the foregoing section constitute only one series of strategies that Medford and Evesham need to employ to achieve the overall goals of this resource protection plan. It will also be necessary to integrate a fairly wide array of complementary, non-regulatory strategies into their efforts if the Townships expect to achieve a successful preservation program. Non-regulatory strategies generally fall into three major categories:

1. Land acquisition;
2. Inventory needs; and
3. Land stewardship.

Land Acquisition

One of the most direct means to ensure permanent open space protection is to acquire particularly important lands. Both Medford and Evesham have considerable experience with open space acquisition. Over 35% of the project study area has already been set aside as open space and much of that area has been purchased through the Townships' open space acquisition programs²⁰. As noted in Part 1 of this Plan, both Medford and Evesham Townships have fairly aggressive plans to *expand* their current open space holdings and Evesham Township is completing arrangements with its Municipal Utilities Authority to protect the Aerohaven and Kings Grant II parcels (*see Section 2.3 on page 7*). Acquisition, coupled with follow-up effective land management, will continue to be one of the most powerful tools the Townships can use for protection of important natural resources. Land acquisition, therefore, will be a critical element of the protection strategy.²¹

It is important to note that several parcels in the project area, described in the following sections, have been assigned high acquisition priority. However, Evesham's 3-cent open space tax yields approximately \$831,000 per year. Most of the funds Evesham expects to generate in the near term have already been committed to offset debt service payments for open space the Township has already purchased. Medford also has a 3-cent open-space tax, which yields approximately \$522,000 annually. In both municipalities, the money generated

²⁰ Evesham's open space acquisitions have been based upon it's 2000 Planning Incentive Grant Application

²¹ There are several financial arguments to justify land acquisition as a primary element of a preservation strategy. According to a resource paper recently published by the Association of New Jersey Environmental Commissions entitled "*Open Space is a Good Investment, The Financial Argument for Open Space Preservation*": "... Studies show that residential development costs a municipality more in education and public services than it generates in tax revenue. Over time, even commercial rates may not provide anticipated tax relief. In the long term, municipal investment in open space and farmland is usually less costly than allowing development."

www.anjec.org/pdfs/OpenSpaceGoodInvestment2004.pdf

through the open space tax is likely to be insufficient to offset all of the costs associated with the acquisition priorities. Other funding partners will be needed.

- *Connector parcels* – The Regulatory strategies, outlined above, included a recommendation to re-designate a cluster of 20 parcels, lying between the Aerohaven site and the proposed Evesham Forest Area, as a Rural Development Sending area. As noted above, these parcels form a link in a preservation corridor that could extend, in an east-west direction, through the entire project area. Although rezoning the parcel will help to limit development impacts within this 221-acre area, purchasing it would be a far more effective preservation method. A total of 15 of the parcels within this area, encompassing 149.9 acres, are vacant.

The State of New Jersey is the principal holder of open space within the Pinelands (presently owns 321,823 acres within the Pinelands Area) and is in the best position to acquire and manage significant tracts of land for preservation purposes. NJDEP's Green Acres Office has already acquired one of the parcels in this area through the Pinelands Commission's Limited Practical Use (LPU) program. Green Acres has agreed to take the lead in the effort to acquire parcels within the Connector Area. Once acquired, the parcels could be conveyed to Evesham Township or retained by the State.

- *Black Run* – The zoning recommendations presented in Section 7.1 are designed to reduce development-related impacts within this characteristic Pinelands watershed; however, land acquisition, which will avoid disturbance, is the best way to protect water quality as well as its value as rare plant and animal habitat. As noted in the Regulatory Strategies descriptions above, Evesham Township has already purchased a considerable amount of land within the central portion of this watershed. However, the headwaters of the Black Run are located in the 717-acre *southern* portion of the watershed, and are still privately owned.

Evesham Township is the most likely lead agency to acquire parcels in the Black Run watershed. The New Jersey Conservation Foundation could also be an acquisition partner. An added benefit to acquisition by NJCF is that, while purchased parcels would become tax exempt, the municipality would receive payments in lieu of taxes (PILOT) from the State for parcels acquired by a non-profit organization.

- *West Jersey Bogs* (Brick Enterprises) - This 1,114-acre parcel is located at the southeasterly border of the study area, immediately adjacent to the Wharton State Forest, in the Special Agricultural

Production Area. The parcel constitutes almost 20% of the entire Medford-portion of the project area. Other than a relatively small portion of the site that is actively farmed (blueberry/cranberry production), the parcel is largely comprised of undisturbed open space (hardwood and cedar swamps, pitch pine lowlands, bogs, inland marsh and surface water bodies).

Acquiring the West Jersey Bogs for open space would effectively preserve virtually the entire southerly portion of the study area in Medford. However, in light of the fact that the current parcel owner does engage in some active agriculture activity, a suitable alternative to fee-simple acquisition would be to purchase the development rights of the property using a combination of agricultural and conservation easements to retain as much of the property as possible in its natural state while precluding residential development.²²

Burlington County has extensive expertise through its Farmland Preservation Program and Open Space Acquisition programs. Therefore, Medford should work with Burlington County, serving as the lead agency, to acquire the development rights of the West Jersey Bogs.

- *Forest Area Sending zones* – The Regulatory strategies, outlined above, recommend that a cluster of parcels in the southern portion of Evesham Township be re-designated as a Forest Area “Sending” zone. This re-designation encourages property owners within this area to transfer development rights to the companion Forest Area “Receiving” zone; thus considerably reducing development impacts. However, as noted above, a far more effective preservation method would be to acquire parcels within this 546-acre area. Several non-profit agencies, including the Rancocas Conservancy and New Jersey Conservation Foundation, have expressed interest in purchasing properties within this area. Evesham Township

should assist these organizations in pursuing this objective.

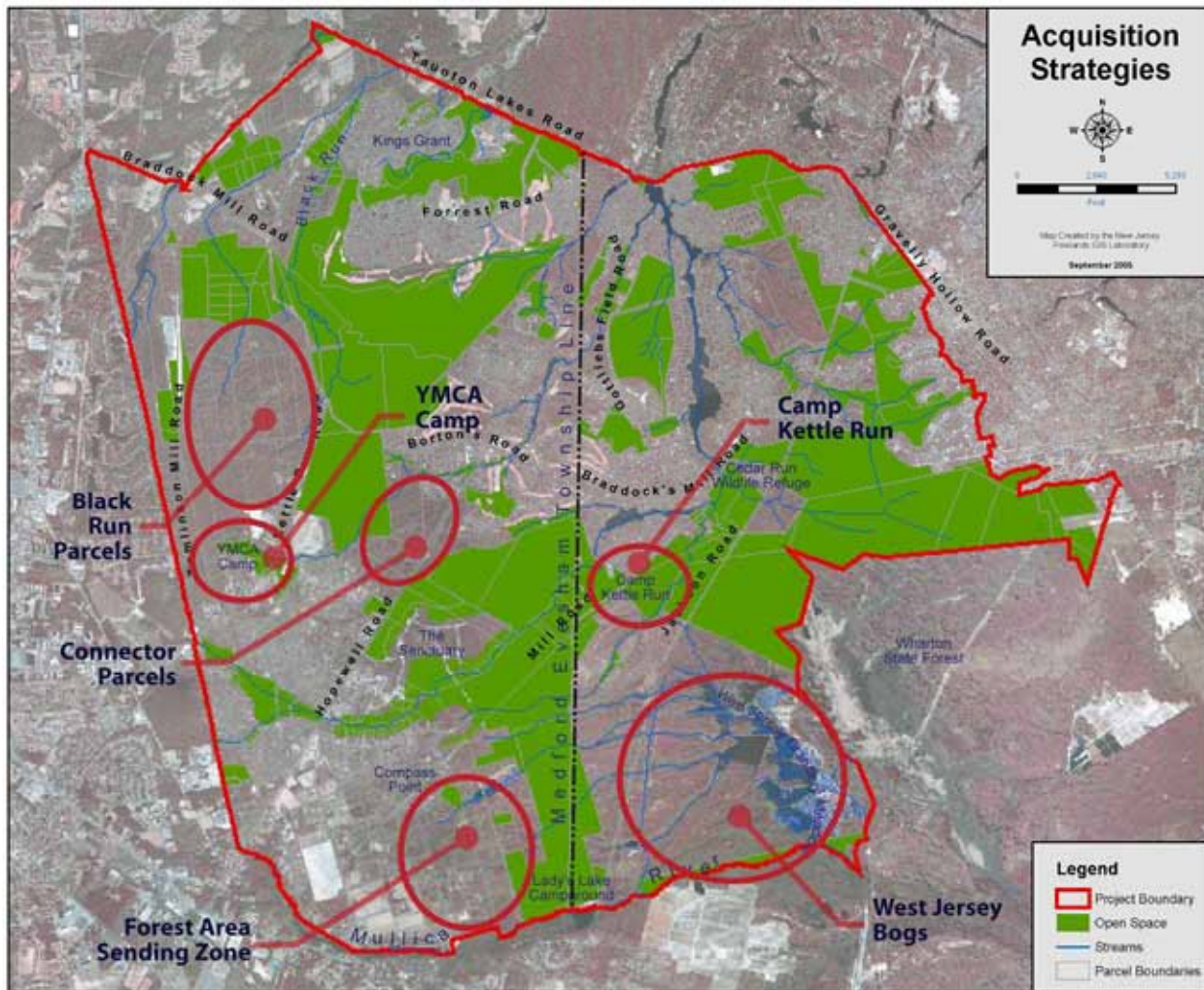
- *Camp Kettle Run/YMCA Camp*: A Girl Scout and a YMCA Camp are located within the project Study Area. The 290-acre Girl Scout camp, Camp Kettle Run, is located off Mill Road straddling the Medford/Evesham border. The 19-acre YMCA Camp is located off Kettle Run Road. NJDEP’s Green Acres office should be the lead agency to purchase the development rights associated with these camps in order to permanently preserve the parcels for open space and recreation purposes. Presently, representatives of the Girl Scouts are in active discussions with Green Acres to protect a large portion of their camp.
- *Acquisition Partners*: The description of pending development activity within the project area (*Section 2.4, pg. 7*) suggests that valuable open space resources that characterize the study area may be developed in the near future. As a consequence, acquisition of tracts within the Southern Medford/Evesham area should be assigned high priority for the use of available conservation funds. As noted above, although both Medford and Evesham have open space funds, the amount of money generated through these sources is likely to be inadequate to entirely offset acquisition costs. There are several partners who are well positioned to make financial contributions for acquisition.

Recently, the Pinelands Commission created the Pinelands Conservation Fund with \$6 million set aside for land acquisition. The Pinelands Commission should contribute money available through its Conservation Fund to help defray some costs associated with acquisition of parcels described above. In addition to the Pinelands Commission, the NJDEP through its Green Acres office, and Burlington County, through its Farmland and Open Space Acquisition programs, should also be active and engaged financial contributors.

Non-profit conservation organizations such as the Rancocas Conservancy, the Woodford Cedar Run Wildlife Refuge²³ and the NJ Conservation Foundation have expressed interest in purchasing property within the proposed Rural Development and Forest Area Sending areas, possibly after development rights have been severed, to permit public access and allow effective natural lands management within these areas. In addition, these organizations have expressed intentions to acquire

²² Easements allow landowners to retain possession of their land while sacrificing the right to some future usage, usually development, in return for monetary compensation or development privileges elsewhere. Conservation easements (as opposed to agricultural easements) are designed to preserve land in its natural, undisturbed state. When particular resources are present, the language of the easement can be quite specific and the restrictions on uses fairly encompassing in order to ensure adequate protection. Two important aspects of a conservation easement are the establishment of a monitoring protocol (including a monitoring agent and time table) to make certain that the provisions of the easement are being followed and a mechanism for enforcement should those provisions be violated. A draft conservation easement for use by governmental and non profit organizations, modeled after one that was developed in conjunction with the Toms River Corridor Plan, is provided in **Appendix 9**.

²³ The Pinelands Commission has earmarked funds from another acquisition fund to help purchase property to expand the Woodford Cedar Run Wildlife Refuge land holdings but no action has been taken to date.



an array of small parcels immediately adjacent to the priority acquisition areas.

The agencies and organizations identified above should be encouraged to use the Southern Medford/Evesham Sub-Regional Resource Protection Plan as a framework to pursue their acquisition objectives and coordinate their efforts.

Local ordinances which are enacted in both Medford and Evesham Township to implement the density transfer and clustering recommendations of this report should also seek to insure that the natural resources protected by such planning tools are properly managed in the future. One of the best ways to accomplish this would be to strongly encourage or even require the transfer, by donation or sale, of the restricted fee interest in lands which are subject to deed restrictions resulting from density transfers or clustering to a state or local government, or to a non-profit conservation organization. Such transfers would significantly increase the likelihood that these restricted lands will be managed in a way which provides the maximum degree of protection possible for the

natural resources found on these lands, as well as provide opportunities for public access to these lands.

Inventory Needs

Because some rare plant species require disturbance for perpetuation, they are often found along roadsides or within power line easements. Although few plant surveys and no roadside surveys have been performed within the study area, rare plant sightings along roadside shoulders have been documented. It is recommended that a roadside survey be undertaken to systematically determine the presence of such rare plants. Target roadways for this survey include: Kettle Run, Hopewell, Jackson, Braddocks Mill, Centennial and Tomlinson Mill Roads. In addition, surveys should be undertaken on public lands in the ownership of the state, nonprofit organizations and the two municipalities. Where it is necessary to document the presence of rare plants in conjunction with roadside surveys and where permission has been granted, surveys could extend to privately-held lands.

The roadside survey should be funded by the Pinelands Commission through natural resource planning funds it is scheduled to receive from the developer of the Sanctuary project. Based on the availability of such funding from the Pinelands Commission, it is recommended that the assistance of the Office of Natural Land Management (ONLM), Natural Heritage Program, be enlisted to develop the scope of work for these surveys and identify experienced contractors. The proposed inventory project should include, but not be limited to, the following two elements:

1. Identification of rare native plant populations; and
2. Rare plant stewardship recommendations aimed at helping municipal government, public landowners and homeowners' associations protect, manage and recover rare native plant populations.

These survey results and management recommendations will be presented to the Medford/Evesham Project Steering Committee, which should take the lead in determining how best to implement them.

The Steering Committee should also determine, at that time, how to promote public appreciation of the area's botanical heritage and to encourage residents, planning and zoning boards, builders and other businesses to adopt native plant landscaping. The program should be designed to provide specific, useable information that is adapted to the specific conditions of the planning area. At a minimum, this outreach effort should include 3 products:

1. *Homeowners' Guide*: A guide should be created for home owners interested in protecting and promoting native plant communities on their properties. The guide will be tailored to southern Medford and Evesham, and will provide specific recommendations for home landscaping, use of chemicals, and dealing with common pests and diseases of native plants;
2. *Builders' Guide*: A guide should also be created to help builders and contractors incorporate native plants in the landscaping they create for new development. As with the *Homeowners' Guide*, this guide will be tailored to southern Medford and Evesham; and,
3. *Presentations*: A series of presentations should be held to explain the area's botanical heritage and to discuss native plant landscaping and stewardship. Separate presentations can be designed for audiences of:
 - Homeowners,
 - Builders and contractors, and
 - Planning and zoning boards and their professionals

Stewardship

a. Backyard habitat protection

- The NJ Audubon Society has offered take the lead in developing a "Conservation Planning for Natural Yards" demonstration project that will provide specific information on native plantings and practices that homeowners can use to benefit particular species. This project will also provide assistance and information to homeowner associations and individual landowners on specific ways to enhance wildlife habitat. Conservation Resources has volunteered to work with both Townships' Environmental Commissions and Audubon to identify a likely demonstration project
- It is recommended that a project be designed to demonstrate measures that can be taken to improve the appearance and habitat value of storm water drainage basins.

b. Integration of Natural Resource Data

The Southern Medford/Evesham Sub-regional Resource Protection Plan should be adopted as an integral part of Medford's and Evesham's Master Plans as well as Burlington County's master plan and open space plan. Evesham is presently updating its Master Plan and should ensure that the two documents are coordinated.

c. Develop Golf Course Best Management Practices

The New Jersey Department of Environmental Protection, Division of Water Quality has adopted a policy calling for the beneficial reuse of treated wastewater and has aggressively promoted such reuse to reduce demands on existing water supply sources, to help reduce pollutant loading to surface and groundwater resources, and to postpone or alleviate the costly investment in the development of new water sources and supplies.

The Pinelands Commission is considering permitting the beneficial reuse of highly treated wastewater through the practice of controlled turf irrigation as a means of conserving Pinelands surface and groundwater resources, and to help reduce the application of commercial fertilizer products on maintained turf by taking advantage of the nutrient content of treated wastewater.

In view of their mutual interests, the DEP and the Pinelands Commission are in the process of negotiating a Memorandum of Agreement to establish a pilot program to allow the limited use of treated wastewater for the purpose of turf grass irrigation in the Pinelands. The Commission and DEP agree that golf courses provide good testing candidates for this type of pilot program. Two of the

four golf courses in the Pinelands targeted for the pilot program are the Links Golf Club and Little Mill, both in Evesham Township. The Evesham Municipal Utilities Authority (MUA) has already agreed, through its agreement with Evesham Township and the Pinelands Commission, to pursue these opportunities. The MUA should begin exploratory discussions with the golf course managers.

In addition, it is recommended that the Environmental Commissions in Medford and Evesham work with local golf courses to develop management practices that:

- (1) Reduce consumptive use of water;
 - (2) Reduce application of fertilizers;
 - (3) Reduce storm water runoff; and
 - (4) Create characteristic plant and animal habitats
- To launch these efforts the Pinelands Commission should provide to each Environmental Commission, background information on similar efforts undertaken elsewhere.

Other Considerations

All parties involved in this planning initiative recognize that illegal ATV use and dumping are issues of considerable concern in both municipalities. Evesham Township has recently posted warning signs at key access points, and enforcement officials confiscate ATVs and fine owners when they are caught engaging in these practices. However, illegal access on public and private lands is a long-standing issue that extends far beyond the boundaries of the Study Area and the jurisdiction of the municipalities. Never-the-less, some efforts can be undertaken at the local level that can help to address these issues. Consequently, it is recommended that the Townships' Environmental Commissions work with other relevant agencies such as local police forces and code enforcement officers to develop specific measures that could include:

- Coordinated education and enforcement programs between the two jurisdictions;
- Working with Burlington County prosecutor's office to conduct periodic "sting" operations for illegal ATV use and dumping within the study area. These types of operations have proved useful in Ocean County (e.g. "Eye on the Pines" program).

7. IMPLEMENTATION PROGRAM

There are several specific tasks that the four partners in this planning process - Medford and Evesham Townships, the New Jersey Department of Environmental Protection and the Pinelands Commission - will need to perform in order to implement the regulatory and non-regulatory strategies recommended in the Resource Protection Plan. These tasks, together with suggested assigned responsibilities, phasing and likely funding sources are listed in the Implementation Tasks table provided on the following pages (pages 41-45).

7.1 Questions Relating to Implementation

During a series of public meetings that were held to present the Plan (November 30, 2005 - public meeting; December 13, 2005 - presentation to Medford Township Council; December 20, 2005 - presentation to Evesham Township Council), questions were raised regarding various aspects of the regulatory and non-regulatory strategies that are also directly related to the Implementation Program. Responses to these questions are provided below.

Density Transfer Program administrative process

Meeting participants asked how the density transfer program would be administered. Density transfer is a principal component of the proposed zoning strategies for the Rural Development Sending areas. It will be necessary for Evesham Township and the Pinelands Commission to take an active role in the administration of this program to help assure its success. Following, is an outline of the key features and administrative procedures of the proposed density transfer program. The procedures are modeled after the Pinelands Development Credit Program.

Calculation of Transfer Opportunities

- Residential dwellings proposed in the Receiving Area will be clustered on 1 acre lots provided that for each one-acre lot created, the development lot owner acquires 5 acres of vacant land in the Sending Area.
- An owner of an existing lot between 1 and 5 acres in size in the RD-1, RD-2, and RD-3 zones may develop said lot by purchasing an amount of land, in the sending area, equivalent to the difference between the lot size and the zone density requirement.

Role of the Pinelands Commission

- Identify all properties in the proposed zones which may have sending and receiving opportunities.
- Estimate the number of sending and receiving opportunities associated with each lot.
- Assist the Township in establishing the density transfer program and to modify density transfer

provisions of Evesham's current zoning ordinance to allow for the new program requirements.

Role of Evesham Township

- Modify existing (Section 160-38 of the Township's Zoning Regulations) or new existing density transfer provisions.
- Establish and maintain a registry of properties with sending and receiving opportunities.
- Notify all potentially eligible property owners of their opportunities.
- Confirm the actual number of sending opportunities for any lot based on the Township assessor's records.
- Issue a letter of determination attesting to the number of opportunities allocated to a given parcel of land.
- Provide ongoing program information and promotion.

Process for severing opportunities

- Eligible owners negotiate with potentially interested buyers and enter into an agreement of sale.
- A deed restriction must be placed on the property when the sending opportunities are severed.
- The deed restriction permanently extinguishes the right to develop the property.
- Subdivision would not be required.
- A lot survey would not be required.

Deed restriction provisions

- The land acquired is permanently dedicated as open space through recordation of a deed to the property with no further development permitted except, forestry, existing agriculture, and low-intensity recreational uses.
- Applicants for development have the option to either maintain ownership of the deed-restricted land or transfer ownership to open space conservancies or nonprofit open space agencies/organizations.
- Third parties (e.g. non-profit organizations) can also purchase sending opportunities.

In the interest of program administration and for tax assessment purposes, it will be necessary for Evesham Township to determine the status it will assign to the sending lot, and its related development opportunities, and the receiving lot. Prior to initiating the program, the Township should select one of the following options to address this question:

- The sending lot and the receiving lot should be held in common ownership and linked to one another by deed and shown as one line item in the tax assessment records; or,
- The sending lot should be designated as a separate lot which could be owned and managed by a third party (e.g. a non-profit organization).

Infrastructure – Traffic Impacts

Meeting participants asked about potential traffic impacts related to the regulatory strategies in Evesham. The Township's traffic consultant was asked to respond to this question and provided the memo included in *Appendix 12, Evaluation of Traffic Impacts*. In summary, the memo indicates that current peak hour roadway volumes within the project area range from 300 to 400 vehicles (Kettle Run Road) and 700 to 800 vehicles (Hopewell and Tomlinson Mill Roads). These volumes are well within the roadways' operating capacity of 800 to 1,000 vehicles per hour. Consequently, shifting development from the proposed sending areas to a more concentrated pattern within the receiving area will not adversely affect traffic patterns on the roadways serving this area. In addition, because the roads traversing the Evesham portion of the study area primarily serve local traffic, regional development occurring outside the study area is unlikely to divert to these routes and, therefore, will have little, if any, impact on traffic volumes and patterns. It should be noted that the Township will test these assumptions through their ongoing review process as they evaluate the traffic impacts relating to individual applications for development in this area over time.²⁴

Tax incentives to off-set zoning changes

Meetings participants asked whether the municipalities could offer tax incentives to help off-set density changes associated with the various regulatory strategies. Property taxes are mandated by the State of New Jersey and, as a consequence, municipalities do *not* have the legislative authority to grant tax rebates. An action of this nature would require a change in the New Jersey State constitution. Never-the-less, changes in zoning may effect parcel-level assessment. Owners of properties that experience zone density changes as a consequence of enacting the strategies recommended in the Resource Protection Plan should discuss property reassessment with their local tax assessor. They may or may not be eligible for a reduction in valuation.

Clear cutting and pesticide application restrictions

Meeting participants asked about including clear cutting and pesticide application restrictions in the Plan. Evesham Township's zoning ordinance presently includes a fairly extensive set of standards governing landscaping, tree protection management and compensatory planting in the event that trees are removed for construction (§62-56 of the Township's subdivision and site plan design standards). However, these provisions are most effectively enforced when a property is being developed. Achieving compliance

with individual private property owners is far more difficult. Efforts to address these issues are more likely to succeed through education rather than legislation. These issues should be addressed through the Homeowners' and Builders' guides that will be developed as part of the proposed public information program described in the Non-Regulatory strategies section of the Plan (*see page 37*). This recommendation includes provisions for a series of presentations to homeowners, builders and contractors, and planning and zoning boards to promote stewardship. Clear cutting and pesticide application could and should be included topics of discussion during these presentations.

Public Outreach

Participants inquired about ongoing input opportunities. A Public Involvement Strategy was developed at the outset of the planning process to guide community participation efforts (*see Appendix 13*), and it was closely followed. During the course of the project planning process two meetings (04.14.05 and 11.30.05) were held to introduce the Plan, the analysis methodology, and the recommended protection strategies to the public and to solicit input. To inform people about the 04.14.05 meeting, notices were mailed on 03.14.05 to the address of every household in the project area included on the assessor's lists in both Townships. All of the people who attended the 04.14.05 meeting were personally contacted by phone and invited to the 11.30.05 public meeting. The Plan was also presented to both Township Councils twice - in the early stages of the process (04.20.05 and 04.27.05) and recently, after the details of the protection strategies had been formulated (12.13.05 and 12.20.05). The Pinelands Commission's Policy and Implementation Committee received two presentations during the course of the planning process (04.01.05 and 11.30.05) and the Plan was also presented to the Pinelands Commission on 01.13.06. These meetings were open to the public. The preliminary Plan was posted on the Commission's web site. An executive summary was also developed in an effort describe the key recommendations of the Plan in a simple, condensed format (*see Appendix 14*). Local newspapers have also published several articles about the Plan.

Future Participation Opportunity: Considerable effort has been made to inform property owners about the Plan and to afford interested parties an opportunity for input. In addition, the Townships are obligated to follow a public process to adopt the Plan and then, as they consider adopting the implementation strategies, will hold requisite public meetings to solicit comments from all interested parties. Specific details relative to each of the regulatory and non-regulatory strategies will be presented as each is formally enacted by the Townships. Interested parties will continue to have meaningful opportunity to provide input on each strategy prior to and at the time of the Townships' formal action.

²⁴ According to the Township's zoning regulations (Article VI, Traffic Impact Study Reports), all applications for Planning Board review and approval (other than minor subdivisions – division of land containing not more than three lots) shall contain a traffic impact statement.

7.2 Implementation Tasks

TASK	RESPONSIBILITY	PHASING	ESTIMATED COST	FUNDING SOURCE	COMMENTS
1. REGULATORY CHANGES					
a. Zoning District Changes: Expand Medford Forest Area, re-designate 81-acre area adjacent to Kings Grant in Evesham as RGA	Medford Township Planning Board/ Council. Pinelands Commission Certification	3-6 months	In-house Administrative Costs	General Funds	Immediate priority - creates legislative framework for density changes, creates Medford segment of green belt
b. Zoning District Changes - Evesham: Expand Forest Area; Re-designate Compass Point, Re-designate Kings Grant; create Forest Area Sending/Receiving Zones; Create Rural Development Receiving Areas 1 & 2; Establish Rural Development Sending Area; Modify cluster and density transfer provisions	Evesham Township Planning Board/ Council. Pinelands Certification	3-6 months	In-house Administrative Costs	General Funds	Immediate priority - creates legislative framework for density changes and preservation strategies (CMP Amendments are <i>not</i> necessary). It will be necessary for Township staff to develop zoning provisions reflecting existing development patterns in Kings Grant and Compass Point.
c. Zoning District Changes - Modify cluster provisions	Medford Township Planning Board/ Council. Pinelands Certification	3-6 months	In-house Administrative Costs	General Funds	Immediate priority - creates legislative framework for density changes and preservation strategies (CMP Amendments are <i>not</i> necessary).
d. Develop and adopt Official Map to identify open space acquisition priorities	Medford/Evesham Township Councils	3 - 6 months	In-house Administrative Costs	General Funds	At a minimum, Official Maps should identify open space acquisition priorities outlined in M/E Plan, planned open space acquisitions outlined in Open Space Plans, municipal facilities and roadways.
e. Apply a 300' Wetlands Buffer within the Black Run sub-basin	Evesham Township Planning Board/ Council	1-3 months	In-house Administrative Costs	General Funds	The proposed strategy would preclude reductions in buffer limits for any proposed development. May be accomplished administratively.

TASK	RESPONSIBILITY	PHASING	ESTIMATED COST	FUNDING SOURCE	COMMENTS
2. NON-REGULATORY STRATEGIES					
a. Acquire parcels within the 221-acre “Connector” area (15 vacant parcels, 150 acres)	NJDEP Green Acres, Evesham Township	6 months to 2 years	To be determined through appraisal ²⁵	State Open Space Acquisition Funds, Limited Practical Use Program, Pinelands Conservation Fund, Evesham Open Space Acquisition Funds	See footnote 26.
b. Acquire Parcels within the 717-acre Black Run-south watershed (32 vacant parcels, 689 acres)	Evesham Township, NJ Conservation Foundation	As acquisition opportunities arise	To be determined through appraisal	State Open Space Acquisition Funds, Limited Practical Use Program, Pinelands Conservation Fund, Evesham Open Space Acquisition Funds	See footnote 26.
c. Purchase West Jersey Bogs development rights (1,114 acres)	Burlington County, Medford Township	6 months to 2 years	Average assessed value \$3,500-\$4,000/acre ²⁶	Burlington County Open Space Fund and/or Farmland Preservation Fund	\$3,500-\$4,000 is the typical per-acre acquisition cost for development rights based on the State Agriculture Development Committee (SADC) regulations for Pinelands valuation. Actual cost will depend upon a fair market value appraisal and acquisition negotiation.
d. Purchase properties within 546-acre Forest Area Sending zone (26 vacant parcels, 293 acres)	Rancocas Conservancy, NJ Conservation Foundation	6 months to 2 years	To be determined through appraisal	Green Acres non-profit matching grants, private funds, foundation funds (e.g. William Penn Foundation), Pinelands Conservation Fund	See footnote 26.

²⁵ Property records indicate assessed values ranging from \$1,200 to \$6,500 per acre. However, assessment values are not necessarily indicative of fair market values. Appraisals attempt to establish fair market values through detailed property analysis and the evaluation of sales data for comparable properties.

²⁶ According to Medford’s Assessor (conversation 10.11.05), the official assessed value-to-market value ratio for property in the Township is 61.05% however recent sales data (within the last 2 years) suggests that the ratio is closer to 48% to 50%. Currently, the estimated market value of vacant, “land-locked” parcels, without development potential, ranges from \$800/acre to \$1,200/ acre. The market value for a developable lot, on which one dwelling unit could be constructed (irrespective of size), ranges from \$235,000 to \$315,000.

TASK	RESPONSIBILITY	PHASING	ESTIMATED COST	FUNDING SOURCE	COMMENTS
e. Purchase development rights of Camp Kettle Run (Girl Scouts) and YMCA Camp	NJDEP Green Acres Office	6 months to 2 years	To be determined through appraisal	Green Acres	Camp Kettle Run negotiations presently underway. Fee acquisition would also be an effective protection measure if the property owner prefers this option.
f. Conduct rare plant surveys and develop stewardship recommendations	NJDEP Natural Lands Management Program	1 year – 18 months	\$30,000 - \$50,000	Pinelands Commission Sanctuary Settlement Funds ²⁷	Natural Lands Management Office may elect to conduct staff surveys or to contract for the work. Consultation with experts is anticipated.
g. Incorporate plant stewardship recommendations into municipal and Pinelands programs	Steering Committee to work with municipal and public works departments, municipal planning boards, Township Councils and Pinelands Commission	6 months after completion of f , above	In-house administrative costs	General funds	The Steering Committee will need to determine how best to implement stewardship recommendations and will work with the appropriate agencies.
h. Develop backyard habitat protection education materials for developers, homeowners and public officials	Steering Committee, in cooperation with Township Environmental Commissions and various non-governmental organizations	1 year after completion of f , above	\$5,000-10,000	In kind contributions	The Steering Committee should work with non-governmental organizations to prepare the guides. Educational programs can then be conducted by the Townships' Environmental Commissions or non-governmental organizations.
i. Institute beneficial re-use of wastewater for golf course irrigation	Evesham Municipal Utilities Authority in cooperation with the golf courses, the Pinelands Commission and NJDEP	2 – 4 years	Unknown	To be determined	The MUA can begin preliminary discussions and planning while the Pinelands Commission and DEP finalize the agreement to permit this technique.

²⁷ As part of the 2004 settlement agreement between the developer of the Sanctuary and the Pinelands Commission, the developer agreed to a one-time contribution of \$75,000 which the Commission could use to help defray costs associated with natural resource monitoring and planning activities within the Pinelands.

TASK	RESPONSIBILITY	PHASING	ESTIMATED COST	FUNDING SOURCE	COMMENTS
j. Develop and implement golf course best management practices	Medford and Evesham Township Environmental Commissions in cooperation with golf course managers	1 year	Unknown	To be determined	Development of the management practices is an expensive undertaking. Implementation costs should be kept to a minimum or phased.
k. Investigate ATV and illegal dumping control initiatives	Medford and Evesham Township Environmental Commissions in cooperation with police department and Burlington County Prosecutor's office	Ongoing	In-house costs	General funds	This ongoing effort should be spearheaded by the two Township Environmental Commissions.

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 1

Forest Area
Zone Density Calculations

**APPENDIX 1
FOREST AREA DENSITY METHODOLOGY**

FOREST AREAS DENSITY CALCULATIONS

To calculate the zone density for the expanded forest areas, the standards governing the distribution and intensity of development and land use prescribed by the Comprehensive Management Plan (Section 7:50-5.23) were applied. These provisions establish that residential density in Forest Areas not exceed an average of one dwelling unit for every 15.8 acres of privately owned, undeveloped uplands. Based on this formula, the effective zone density is derived using the following two step calculation:

- Step 1:** Divide the total number of privately owned vacant upland acres (a figure generated through analysis of the Delaware Valley Regional Planning Commission's 2000 land use/land cover information) by 15.8 to derive the total number of units that could be built within the zone – "Zone Capacity".
- Step 2:** Divide the total number of privately owned, vacant acres (including wetlands) by the zone capacity to derive a gross "Zone Density".

**FOREST AREA DENSITY
CALCULATION TABLE**

Zone	Total acres	Private Vacant (PV) acres	Private Vacant Upland (PVU) acres	Zone Capacity (PVU/15.8) units	Zone Density (PVA/Units) units/acre
Medford					
FD	502	17	17		
FA	622	142	92		
FA-2	73	31	24		
FA-PPE	65	0	0		
Total	1,261	190	133	8	23
Evesham					
FA	611	10	8		
FAR	250	212	202		
FAS	546	480	396		
Total	1,407	702	606	38	18

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 2

***Rural Development Sending/Receiving Area
Density Transfer Methodology***

APPENDIX 2
RURAL DEVELOPMENT SENDING/RECEIVING AREA
DENSITY TRANSFER METHODOLOGY

DENSITY TRANSFER CALCULATIONS

To calculate the zone density for the proposed Rural Development Sending Areas, the standards governing the distribution and intensity of development and land use prescribed by the Comprehensive Management Plan (Section 7:50-5.26) were applied. These provisions establish that residential density in Rural Development Areas not exceed an average of one dwelling unit for every 3.2 acres of privately owned, undeveloped uplands. Based on this formula, the effective zone density is derived using the following two step calculation:

Step 1: Divide the number of privately owned vacant upland acres – 1,336 (a figure generated through analysis of the Delaware Valley Regional Planning Commission’s 2000 land use/land cover information), by 3.2 to derive the total number of units that could be built within the zone, the “Zone Capacity” – 418 units.

Step 2: Divide the total number of privately owned, vacant acres, including wetlands - 2,198, by the zone capacity to derive a gross “Zone Density” of 6 acres/unit (Note: 5.3 was rounded to 6).

A “*Sending Opportunity*”, therefore, is equivalent to **5 acres** – based on the fact that an owner of a 1-acre lot in the Receiving Area would need to purchase 5 acres of land in the Sending Area in order to build one residential unit.

Rural Development Area Calculation Table

Zone	Total acres	Private Vacant (PV) acres	Private Vacant Upland (PVU) acres	Zone Capacity (units) (PVU/3.2)	Zone Density (acres/unit) (PV/# Units)		
RR	81	81	81				
RS	657	519	206				
EP	262	0	0				
RD-1	1,599	337	197				
RD-2	1,400	224	173				
RD-3	661	342	191				
New RD-2	153	0	0				
RD-C	717	695	488				
Total	5,530	2,198	1,336			418	5.3

SENDING/RECEIVING OPPORTUNITIES CALCULATIONS

The next steps of the methodology, once the transfer density is calculated, is to ensure that the receiving opportunities are at least equal to, if not greater than, the sending opportunities in those portions of the Rural Development zones subject to density transfer. The calculations to reach this determination are outlined below:

Step 3: Determine the number of potential sending opportunities in the Sending Areas based on 1 opportunity for every 5 acres of vacant land. This was accomplished by assembling a table listing all properties within the Black Run-north and Connector Areas together with the size and the amount of developed and vacant area for each parcel (see tables entitled ***Black Run-north*** and ***Connector Area Sending Opportunities Analysis***, attached). The following table reveals that there are 84 sending opportunities in the Black Run-north and Connector areas.¹

Sending Opportunities

Sending Area	Total Acres	Undeveloped Acres	Sending Opportunities (@ 5 acres/unit)
Black Run-north	422	253	50
Connector	213	171	34
Total	635	424	84

Step 4: Determine the number of potential ***receiving*** opportunities in the RD-1, RD-2 and RD-3 zones. This was accomplished by assembling a table of all lots with subdivision potential within these Rural Development zones (lots greater than 2 acres in size) and determining how many 1-acre lots could be created based on the

¹ The methodology used herein equates the number of sending opportunities to lot size.

amount of available upland for each lot (see table entitled *Parcel Analysis – Receiving Opportunities RD-1, RD-2 and RD-3*, attached). All lots that were entirely encompassed by wetlands were excluded from this analysis. Using these criteria, the table below reveals that there are 112 potential receiving opportunities in the RD-1, RD-2 and RD-3 zones (based on a utilization factor² of .7). It is also estimated that there are 50 potential receiving opportunities in the proposed Rural Development Receiving (RR) Area (based on a 10 acre/unit base density, discounting the area’s 8 “of-right” development opportunities and assuming a utilization factor of .7) at the Evesham/Voorhees border, for a total of 162 receiving opportunities.

Receiving Opportunities

Zone	Acres subdivided (>2 ac)	Unuseable acres	Useable acres subdivided (>2 acres)
RD-1	112	51	61
RD-2	43	0	43
RD-3	85	29	56
Total	240	80	160
Receiving Opportunities with .7 utilization factor (Total x .7)			112
Other Opportunities (81-acre RR Area)			50
Total 1-acre opportunities			162

Note: Useable acres are mostly upland acres

Step 5: Determine the number of potential *sending* opportunities related to undersized and unusable existing lots in the RD-1, RD-2 and RD-3 zones. The table below reveals that there are 55 lots that are less than 1 acre in size, encompassing 30 acres, and 18 lots greater than 1 acre in size but which are predominantly wet (over 99% wet or with less than .2 acres of upland) and therefore not developable, encompassing 90 acres in the RD-1, RD-2 and RD-3 zones which, when divided by the current permitted density in each zone, represent an additional 27 sending opportunities (see attached table entitled *Parcel Analysis-Sending Opportunities RD-1, RD-2, RD-3*).

Undersize and unusable lots in RD-1, RD-2, and RD-3 that need to send

Zone	Density	Lots <1 Acre			Lots >1 Acre but unuseable		
		#	Acres	Sites Needed	#	Acres	Sites Needed
RD-1	6	26	14	2	13	59	10
RD-2	4	3	2	1	0	0	0
RD-3	3.2	26	14	4	5	31	10
Total		55	30	7	18	90	20

Note: Un-useable acres are more than 98% wet

Conclusion

Based on the foregoing methodology, there are a total of 162 potential receiving opportunities and 111 sending opportunities in the proposed Rural Development Sending and Receiving areas, or 51 more receiving than sending opportunities.

Zone	Receiving	Sending
RR Area (81 acres)	50	
Scattered Parcels	112	27
Black Run-north		50
Connector Area		34
Total	162	111

² Utilization factor is defined as the proportion of the area that is likely to be converted into 1-acre lots through subdivision, accounting for internal roadways and irregular parcel configuration.

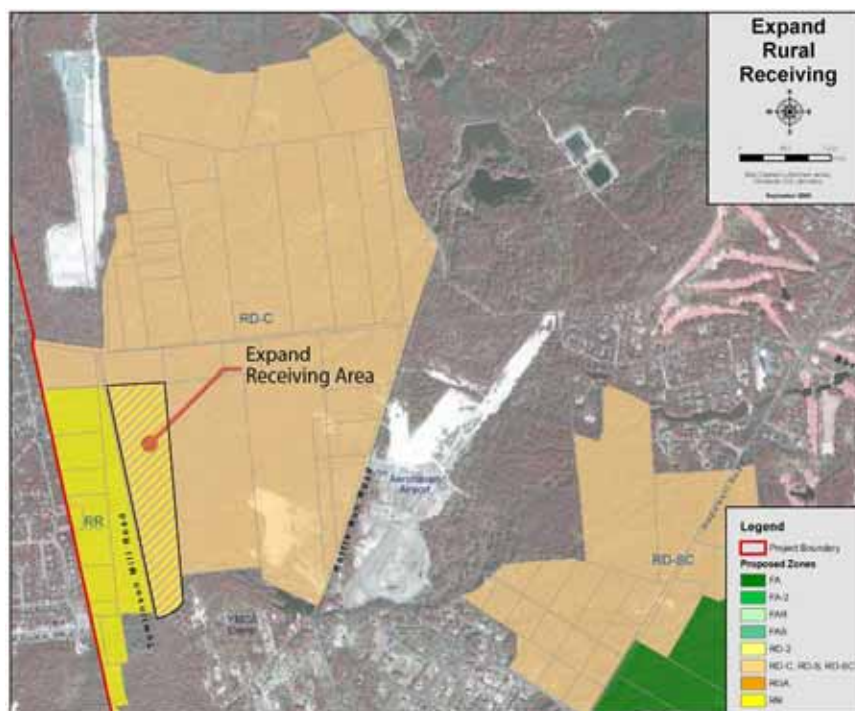
OPTION: Rural Development-Cluster (RD-C) Area Density Transfer

The eight regulatory strategies outlined in the Resource Protection Plan include a recommendation to change the zoning of a 717-acre cluster of parcels that encompasses the southern portion of the Black Run watershed. The proposal is to change the zoning designation for this area from Rural Development (RD-3) with a permitted density of 3.2 acres/unit, to Rural Development-Cluster (RD-C) with a density of 10 acres/unit. Clustering would be mandatory within this zone. Because the Black Run-south has relatively higher development suitability than either the Black Run-north or the “Connector Area”, the proposed strategy does not include density transfer options. Moreover, if this area is designated as a “sending area”, it will have an associated 128 sending opportunities, based on the Density Transfer Methodology outlined above. The table below reveals that the combined number of sending opportunities associated with the Black Run-north, the Connector Area, the Scattered Parcels in the existing RD-1, RD-2, and RD-3 zones, and the RD-C Area would exceed the number of receiving opportunities in the Rural Receiving Area and the Scattered Parcels by a considerable margin. Consequently, the sending/receiving strategy would no longer be feasible because the supply would outstrip capacity.

Zone	Opportunities	
	Receiving	Sending
RR Area (81 acres)	50	
Scattered Parcels	112	27
Black Run-north		50
Connector Area		34
Black Run-south		128
Total	162	239

However, the following two-part alternative could render density transfer from the Black Run-south area feasible:

1. The first part of this alternative would be to expand the Rural Development Receiving (RR) area boundary to include a 50-acre portion of the 58.5-acre parcel immediately to the east of its current boundary (*see* “Expand Rural Receiving” map below). This expanded receiving boundary encompasses the maximum acceptable area that could be subject to the relaxed threatened and endangered species survey requirements that are a central feature of the Receiving Area strategy.³



³ The 8.5-acre northerly portion of this lot is not included in this expanded Rural Receiving area because the headwaters of the Black Run originate in this location

If this parcel is included, the size of the RR area would expand to 131 acres. The number of receiving opportunities would increase to 83 (based on a 10 acre/unit base density, discounting the area's 13 "of-right" development opportunities and assuming a utilization factor of .7). Consequently, the combined total receiving opportunities in the RR Area and the Scattered Parcels would be 195, a number which is still 44 short of the 239 sending opportunities shown in the preceding table.

- The second element of this alternative is to limit the sending opportunities in the Black Run-south to lots that would otherwise be un-developable because they would not meet the base density requirement, lots that are less than 10-acre in size. By applying this approach, the number of potential sending opportunities in the Black Run-south area would be 16. The following table reveals that this option results in 68 more receiving than sending opportunities, a ratio which would help to ensure feasibility of the density transfer strategy (see table entitled *Black Run-south Sending Opportunities Analysis*).

Zone	Opportunities	
	Receiving	Sending
RR Area (131 acres)	83	
Scattered Parcels	112	27
Black Run-north		50
Connector Area		34
Black Run-south		16
Total	195	127

Conclusion

Based on the foregoing evaluation, the Black Run-south could be designated as a Rural Development cluster/sending area without adversely affecting the density transfer strategy if the Rural Receiving area was expanded to encompass an additional 50 acres (a 5 portion of the 58.5-acre parcel immediately to the east of the current proposed RR boundary) and sending opportunities are limited to lots that are less than 10-acre in size.

**Black Run-north
Sending Opportunities Analysis**

Object ID	Block	Lot	Existing Zone	Proposed Zone	Total Acres	Public Acres	Developed Acres	Non Vacant Acres	Vacant Acres	Vacant Upland Acres	Wetland Acres	Buffer Acres	Agriculture Acres
2572	46	6	RD-3	RS	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
5058	46	7	RD-3	RS	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
4397	46	4.01	RD-3	RS	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
3285	46	8	RD-3	RS	0.2	0.0	0.1	0.1	0.1	0.0	0.2	0.0	0.0
1463	46	5	RD-3	RS	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
2919	42	11.03	RD-3	RS	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.0
2564	42	8	RD-3	RS	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0
3807	46	9	RD-3	RS	0.3	0.0	0.1	0.1	0.2	0.2	0.0	0.3	0.2
1424	42	12	RD-3	RS	0.3	0.0	0.2	0.2	0.1	0.0	0.2	0.1	0.0
733	42	11.01	RD-3	RS	0.4	0.0	0.4	0.4	0.0	0.0	0.1	0.3	0.0
728	42	11.02	RD-3	RS	0.4	0.0	0.4	0.4	0.0	0.0	0.1	0.4	0.0
1099	42	11.05	RD-3	RS	0.4	0.0	0.4	0.4	0.0	0.0	0.0	0.4	0.0
910	46	1.01	RD-3	RS	0.5	0.0	0.4	0.4	0.1	0.1	0.0	0.4	0.0
3175	42	5	RD-3	RS	0.5	0.0	0.4	0.4	0.1	0.0	0.0	0.5	0.0
3580	46	1.02	RD-3	RS	0.5	0.0	0.4	0.4	0.1	0.0	0.4	0.2	0.0
849	42	1.02	RD-3	RS	0.6	0.0	0.5	0.5	0.1	0.0	0.1	0.5	0.0
2562	46	1.03	RD-3	RS	0.6	0.0	0.4	0.4	0.2	0.0	0.3	0.3	0.0
4305	48	1	RD-3	RS	0.6	0.0	0.4	0.4	0.2	0.2	0.0	0.6	0.0
55	42	1.01	RD-3	RS	0.6	0.0	0.5	0.5	0.1	0.0	0.1	0.5	0.0
620	42	3.02	RD-3	RS	0.7	0.0	0.4	0.4	0.3	0.2	0.1	0.6	0.1
5153	42	1.04	RD-3	RS	1.0	0.0	0.7	0.7	0.3	0.2	0.1	0.9	0.0
2869	41	17.01	RD-1	RS	1.0	0.0	0.7	0.7	0.3	0.2	0.1	0.9	0.0
526	46	24	RD-3	RS	1.4	0.0	0.5	0.5	0.9	0.9	0.0	1.4	0.0
3427	46	23.01	RD-3	RS	1.7	0.0	0.6	0.6	1.2	0.7	0.5	1.0	0.0
2547	42	11.04	RD-3	RS	2.0	0.0	1.5	1.5	0.4	0.0	2.0	0.0	0.0
3517	42	6	RD-3	RS	2.5	0.0	0.4	0.4	2.1	0.1	2.1	0.4	0.0
4269	48	3	RD-3	RS	2.9	0.0	0.9	0.9	2.0	2.0	0.0	2.7	0.3
3808	41	29.02	RD-1	RS	4.1	0.0	0.5	0.5	3.6	0.1	3.6	0.5	0.0
2704	46	22	RD-3	RS	4.2	0.0	0.7	0.7	3.5	3.0	0.5	2.3	0.0
2236	42	11	RD-3	RS	4.5	0.0	3.3	3.3	1.2	0.0	4.1	0.3	0.0
3996	41	29.01	RD-1	RS	5.0	0.0	1.6	1.6	3.4	0.1	3.6	1.5	0.0
229	42	9	RD-3	RS	5.1	0.0	0.1	0.1	5.0	0.0	5.1	0.1	0.0
124	41	28	RD-1	RS	7.1	0.0	0.2	0.2	6.9	2.5	4.5	2.6	0.0
1787	42	10	RD-3	RS	7.8	0.0	1.4	1.4	6.4	0.3	6.6	1.1	0.0
764	42	3	RD-3	RS	9.9	0.0	0.1	0.1	9.8	2.0	7.9	2.0	2.1
2092	41	17	RD-1	RS	11.9	0.0	6.4	6.4	5.5	0.8	7.4	4.5	0.0
3814	42	14	RD-3	RS	26.1	0.0	4.7	4.7	21.4	0.4	21.4	4.7	0.0
4815	48	2	RD-3	RS	36.1	0.0	0.3	0.3	35.9	18.1	17.7	15.5	0.0
4650	42	21	RD-3	RS	4.9	4.9	0.0	0.0	0.0	0.0	4.9	0.0	0.0
5086	42	22	RD-3	RS	4.1	4.1	0.0	0.0	0.0	0.0	4.0	0.0	0.0
4773	42	19	RD-3	RS	3.7	3.7	0.0	0.0	0.0	0.0	3.7	0.0	0.0
694	46	10	RD-3	RS	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.2
4439	46	20.01	RD-3	RS	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.0
2748	46	17	RD-3	RS	0.2	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2
233	46	14	RD-3	RS	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.3	0.2
4745	46	13	RD-3	RS	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.3	0.3
4523	46	12	RD-3	RS	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.2	0.3
216	42	1.03	RD-3	RS	0.3	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0
4171	42	2.01	RD-3	RS	0.4	0.0	0.0	0.0	0.4	0.3	0.1	0.3	0.4
5030	41	17.02	RD-1	RS	0.8	0.0	0.0	0.0	0.8	0.4	0.4	0.4	0.0
3460	42	3.01	RD-3	RS	0.8	0.0	0.0	0.0	0.8	0.5	0.3	0.5	0.8
5093	42	1.05	RD-3	RS	0.9	0.0	0.0	0.0	0.9	0.0	0.9	0.0	0.0
4854	46	15.01	RD-3	RS	1.0	0.0	0.0	0.0	1.0	0.9	0.1	0.9	0.0
5250	42	24	RD-3	RS	1.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
2396	42	24.01	RD-3	RS	1.1	0.0	0.0	0.0	1.1	0.0	1.1	0.0	0.0
4660	42	24.02	RD-3	RS	1.2	0.0	0.0	0.0	1.2	0.2	1.1	0.2	0.0
3240	46	15.02	RD-3	RS	1.2	0.0	0.0	0.0	1.2	1.2	0.0	1.2	0.4
4802	46	18	RD-3	RS	1.3	0.0	0.0	0.0	1.3	0.0	1.3	0.0	0.6
1642	42	13	RD-3	RS	1.4	0.0	0.0	0.0	1.4	0.0	1.4	0.0	0.0
2444	46	11	RD-3	RS	1.6	0.0	0.0	0.0	1.6	1.6	0.0	0.5	1.6
4259	48	2.01	RD-3	RS	1.6	0.0	0.0	0.0	1.6	1.6	0.0	0.9	0.0
588	46	23	RD-3	RS	1.6	0.0	0.0	0.0	1.6	1.3	0.3	1.1	0.0
1031	46	24.01	RD-3	RS	1.8	0.0	0.0	0.0	1.8	1.4	0.3	1.4	0.0
4830	46	19	RD-3	RS	2.1	0.0	0.0	0.0	2.1	0.1	2.0	0.1	0.0
2073	46	4.02	RD-3	RS	2.2	0.0	0.0	0.0	2.2	2.2	0.0	2.2	2.2
5107	42	18	RD-3	RS	2.3	0.0	0.0	0.0	2.3	0.0	2.3	0.0	0.0
5165	42	17	RD-3	RS	2.4	0.0	0.0	0.0	2.4	0.0	2.4	0.0	0.0
5112	41	31	RD-1	RS	2.4	0.0	0.0	0.0	2.4	0.0	2.4	0.0	0.0
1552	46	2	RD-3	RS	2.6	0.0	0.0	0.0	2.6	0.5	2.1	0.5	2.1
4435	46	21	RD-3	RS	2.8	0.0	0.0	0.0	2.8	0.6	2.2	0.6	0.0

**Black Run-north
Sending Opportunities Analysis**

Object ID	Block	Lot	Existing Zone	Proposed Zone	Total Acres	Public Acres	Developed Acres	Non Vacant Acres	Vacant Acres	Vacant Upland Acres	Wetland Acres	Buffer Acres	Agriculture Acres
5094	42	23	RD-3	RS	2.9	0.0	0.0	0.0	2.9	0.0	2.9	0.0	0.0
1785	42	28	RD-3	RS	3.3	0.0	0.0	0.0	3.3	0.1	3.2	0.1	0.0
4477	42	26	RD-3	RS	4.5	0.0	0.0	0.0	4.5	1.5	3.0	1.5	0.7
5514	46	1	RD-3	RS	18.2	18.2	0.0	0.0	0.0	0.0	18.2	0.0	0.0
5078	46	3	RD-3	RS	10.9	10.9	0.0	0.0	0.0	0.0	5.6	5.3	0.0
2145	42	16	RD-3	RS	9.4	9.4	0.0	0.0	0.0	0.0	9.4	0.0	0.0
5081	46	4	RD-3	RS	7.5	7.5	0.0	0.0	0.0	0.0	7.3	0.3	0.1
4778	42	20	RD-3	RS	7.4	7.4	0.0	0.0	0.0	0.0	7.4	0.0	0.0
3799	42	15	RD-3	RS	5.2	5.2	0.0	0.0	0.0	0.0	5.2	0.0	0.0
3571	46	2.01	RD-3	RS	5.2	0.0	0.0	0.0	5.1	1.7	3.4	1.7	4.3
646	46	15	RD-3	RS	6.3	0.0	0.0	0.0	6.3	3.8	2.5	3.8	2.2
3145	42	27	RD-3	RS	6.5	0.0	0.0	0.0	6.5	3.8	2.7	3.8	2.1
4433	46	20	RD-3	RS	6.6	0.0	0.0	0.0	6.6	5.4	1.2	5.3	0.0
1339	42	29	RD-3	RS	7.1	0.0	0.0	0.0	7.1	1.7	5.5	1.7	2.4
3620	42	1	RD-3	RS	7.8	0.0	0.0	0.0	7.8	0.6	7.2	0.6	0.0
402	42	25	RD-3	RS	8.0	0.0	0.0	0.0	8.0	1.0	7.0	1.0	0.1
2621	42	30	RD-3	RS	8.4	0.0	0.0	0.0	8.4	2.1	6.2	2.1	1.9
5506	42	2	RD-3	RS	8.7	0.0	0.0	0.0	8.7	1.7	7.0	1.7	7.7
2477	41	16	RD-1	RS	8.8	0.0	0.0	0.0	8.8	2.6	6.2	2.6	7.5
1142	42	7	RD-3	RS	12.9	0.0	0.0	0.0	12.9	0.1	12.8	0.1	0.0
3353	48	2.02	RD-3	RS	13.1	0.0	0.0	0.0	13.1	4.6	8.5	4.6	8.1
2143	41	14	RD-1	RS	14.5	0.0	0.0	0.0	14.5	2.0	12.5	2.0	6.6
5178	41	29	RD-1	RS	14.6	0.0	0.0	0.0	14.6	0.0	14.6	0.0	0.0
4863	46	16	RD-3	RS	16.1	0.0	0.0	0.0	16.1	1.6	14.5	1.6	2.4
4786	42	4	RD-3	RS	17.4	0.0	0.0	0.0	17.4	0.0	17.4	0.0	0.0
Total					422.1	71.3	30.3	30.3	320.4	80.6	315.4	100.0	58.1
Undeveloped Acres = (sum of the acres of all vacant, non-public lots)													208.8
+ ((sum of the (acres of each developed lot >10 acres in size - 10 acres))													44.2
Total Undeveloped Acres													253.0
Total Sending Opportunities (total undeveloped acres/5 acres)													50.6

**Connector Area
Sending Opportunities Analysis**

Object ID	Block	Lot	Existing Zone	Proposed Zone	Total Acres	Public Acres	Developed Acres	Non Vacant Acres	Vacant Acres	Vacant Upland Acres	Wetland Acres
5115	67	6	RD-2	RS	5.1	0.0	1.7	1.7	0.0	0.0	0.7
5491	66.03	35	RD-2	RS	6.0	0.0	1.2	1.2	0.0	0.0	1.4
4581	68	6	RD-2	RS	6.1	0.0	0.1	0.1	6.0	5.8	0.2
5055	90	1.02	RD-2	RS	12.3	1.0	0.9	0.9	10.3	6.1	5.3
4578	58	3.01	RD-2	RS	16.3	0.0	1.6	1.6	14.7	6.6	8.1
4455	57	6	RD-2	RS	23.9	0.0	0.2	0.2	23.7	8.0	15.7
4032	67	8	RD-2	RS	2.6	0.0	0.0	0.0	2.6	2.4	0.2
4824	68	2	RD-2	RS	4.3	0.0	0.0	0.0	4.3	3.6	0.7
4860	67	9	RD-2	RS	4.5	0.0	0.0	0.0	4.5	4.5	0.1
1991	67	13	RD-2	RS	4.6	0.0	0.0	0.0	4.6	0.8	3.9
4853	68	5	RD-2	RS	4.6	0.0	0.0	0.0	4.6	0.7	3.9
5120	67	7	RD-2	RS	4.7	0.0	0.0	0.0	4.7	3.7	1.0
4826	67	10	RD-2	RS	5.0	0.0	0.0	0.0	5.0	3.4	1.6
4831	67	12	RD-2	RS	5.1	0.0	0.0	0.0	5.1	2.6	2.5
4793	67	11	RD-2	RS	5.2	0.0	0.0	0.0	5.2	3.7	1.5
4818	68	1	RD-2	RS	7.0	0.0	0.0	0.0	7.0	7.0	0.0
4857	68	3	RD-2	RS	9.2	0.0	0.0	0.0	9.2	8.9	0.3
4799	68	4	RD-2	RS	10.4	0.0	0.0	0.0	10.4	7.4	3.0
69	58	3.02	RD-2	RS	17.4	0.0	0.0	0.0	17.4	7.7	9.8
4800	57	3	RD-2	RS	59.1	0.0	0.0	0.0	59.1	42.5	16.6
Total					213.4	1.0	5.7	5.7	198.4	125.3	76.2
Undeveloped Acres = (sum of the acres of all vacant, non-public lots)											149.9
+ ((sum of the (acres of each developed lot >10 acres in size - 10 acres))											21.4
Total Undeveloped Acres											171.3
Total Sending Opportunities (total undeveloped acres/5 acres)											34.3

Parcel Analysis - Receiving Opportunities
RD-1, RD-2, RD-3

Block	Lot	Current Zoning	Total acres	Public acres	Developed acres	Non Vacant acres	Vacant acres	Vacant Upland acres	Wetland acres	% Wet
81.03	51	RD-1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0%
41	16.01	RD-1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	30.1%
91	9	RD-1	0.2	0.0	0.0	0.0	0.2	0.0	0.2	100.0%
41	29	RD-1	0.3	0.0	0.0	0.0	0.3	0.0	0.3	100.0%
81.04	40	RD-1	0.5	0.0	0.0	0.0	0.5	0.1	0.3	72.0%
81.04	17	RD-1	0.5	0.0	0.0	0.0	0.5	0.3	0.1	26.0%
81.04	39	RD-1	0.5	0.0	0.0	0.0	0.5	0.1	0.4	77.6%
81.04	48	RD-1	0.5	0.0	0.0	0.0	0.5	0.3	0.2	46.6%
81.08	6	RD-1	0.5	0.0	0.0	0.0	0.5	0.0	0.5	100.0%
81.04	41	RD-1	0.5	0.0	0.0	0.0	0.5	0.2	0.3	59.2%
81.04	49	RD-1	0.5	0.0	0.0	0.0	0.5	0.1	0.4	72.4%
81.04	16	RD-1	0.6	0.0	0.0	0.0	0.6	0.5	0.0	7.6%
81.04	44	RD-1	0.6	0.0	0.0	0.0	0.6	0.4	0.1	24.2%
81.08	3	RD-1	0.6	0.0	0.0	0.0	0.6	0.0	0.6	100.0%
81.08	2	RD-1	0.6	0.0	0.0	0.0	0.6	0.1	0.5	80.0%
81.04	35	RD-1	0.6	0.0	0.0	0.0	0.6	0.6	0.0	0.6%
81.04	47	RD-1	0.6	0.0	0.0	0.0	0.6	0.6	0.0	3.5%
81.04	45	RD-1	0.6	0.0	0.0	0.0	0.6	0.3	0.3	52.6%
81.08	5	RD-1	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
81.04	43	RD-1	0.7	0.0	0.0	0.0	0.7	0.5	0.2	23.5%
81.04	46	RD-1	0.7	0.0	0.0	0.0	0.7	0.3	0.4	57.1%
47	3	RD-1	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
81.04	87	RD-1	0.7	0.0	0.0	0.0	0.7	0.5	0.2	30.8%
81.08	1	RD-1	0.8	0.0	0.0	0.0	0.8	0.7	0.1	9.0%
81.04	42	RD-1	0.8	0.0	0.0	0.0	0.8	0.5	0.3	39.9%
41	12.02	RD-1	0.9	0.0	0.0	0.0	0.9	0.0	0.9	100.0%
81.08	4	RD-1	1.0	0.0	0.0	0.0	1.0	0.0	1.0	100.0%
91	13	RD-1	1.1	0.0	0.0	0.0	1.1	0.2	0.9	81.3%
47	4	RD-1	1.3	0.0	0.0	0.0	1.3	0.0	1.3	100.0%
91	6	RD-1	1.7	0.0	0.0	0.0	1.7	0.0	1.7	100.0%
41	6.02	RD-1	1.8	0.0	0.0	0.0	1.8	0.0	1.8	100.0%
92	1.01	RD-1	1.8	0.0	0.0	0.0	1.8	1.8	0.0	0.0%
41	6.03	RD-1	1.8	0.0	0.0	0.0	1.8	0.0	1.8	100.0%
41	24	RD-1	2.7	0.0	0.0	0.0	2.7	0.0	2.7	100.0%
41	27	RD-1	2.7	0.0	0.0	0.0	2.7	0.0	2.7	100.0%
41	16.02	RD-1	2.9	0.0	0.0	0.0	2.9	0.5	2.3	81.2%
90	12	RD-1	2.9	0.0	0.0	0.0	2.9	0.1	2.8	96.3%
88	4	RD-1	3.1	0.0	0.0	0.0	3.1	3.1	0.0	0.0%
41	25	RD-1	3.4	0.0	0.0	0.0	3.4	0.0	3.4	100.0%
41	1	RD-1	4.0	0.0	0.0	0.0	4.0	1.3	2.7	68.0%
41	1.01	RD-1	5.7	0.0	0.0	0.0	5.7	0.1	5.6	98.7%
88	2.01	RD-1	6.5	0.0	0.0	0.0	6.5	6.5	0.0	0.0%
41	9	RD-1	7.5	0.0	0.0	0.0	7.5	0.0	7.5	100.0%
41	11	RD-1	8.9	0.0	0.0	0.0	8.9	0.8	8.1	90.6%
88	3	RD-1	10.2	0.0	0.0	0.0	10.2	10.2	0.0	0.0%
88	2	RD-1	11.2	0.0	0.0	0.0	11.2	11.2	0.0	0.0%
41	10	RD-1	11.4	0.0	0.0	0.0	11.4	0.0	11.4	100.0%
41	13	RD-1	14.6	0.0	0.0	0.0	14.6	2.0	12.6	86.1%
41	22	RD-1	15.1	0.0	0.0	0.0	15.1	0.0	15.1	100.0%
Total			137.6	0.0	0.0	0.0	137.6	44.3	93.3	
Total Area of Lots >2 acres			112.7							
Lots >2 acres <95% Wet			51.4							
Vacant Developable			61.3							
88.01	1	RD-2	0.4	0.0	0.0	0.0	0.4	0.4	0.0	0.0%
87	8	RD-2	0.7	0.0	0.0	0.0	0.7	0.7	0.0	0.0%
58	2	RD-2	0.9	0.0	0.0	0.0	0.9	0.9	0.0	0.1%
53.01	12	RD-2	2.4	0.0	0.0	0.0	2.4	0.9	1.5	63.4%
53.01	11	RD-2	3.2	0.0	0.0	0.0	3.2	1.9	1.3	40.3%
55	1.01	RD-2	6.4	0.0	0.0	0.0	6.4	5.1	1.3	20.7%

Parcel Analysis - Receiving Opportunities
RD-1, RD-2, RD-3

Block	Lot	Current Zoning	Total acres	Public acres	Developed acres	Non Vacant acres	Vacant acres	Vacant Upland acres	Wetland acres	% Wet
53	1	RD-2	15.2	0.0	0.0	0.0	15.2	8.7	6.5	42.6%
53	2	RD-2	16.6	0.0	0.0	0.0	16.6	11.6	5.0	30.0%
Total			45.7	0.0	0.0	0.0	45.7	30.2	15.5	
Total Area of Lots >2 acres			43.7							
Lots >2 acres <95% Wet			0.0							
Vacant Developable			43.7							
50.02	19	RD-3	0.1	0.0	0.0	0.0	0.1	0.1	0.0	6.8%
49	6	RD-3	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0%
50.03	6	RD-3	0.2	0.0	0.0	0.0	0.2	0.0	0.2	100.0%
73.01	4	RD-3	0.2	0.0	0.0	0.0	0.2	0.0	0.2	95.1%
50	24	RD-3	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0%
50	6	RD-3	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.0%
50.03	9.02	RD-3	0.3	0.0	0.0	0.0	0.3	0.0	0.3	87.4%
50.03	10	RD-3	0.4	0.0	0.0	0.0	0.4	0.0	0.4	92.9%
50.03	9.01	RD-3	0.5	0.0	0.0	0.0	0.5	0.3	0.1	30.2%
50.02	6	RD-3	0.6	0.0	0.0	0.0	0.6	0.5	0.0	6.2%
50.01	10	RD-3	0.6	0.0	0.0	0.0	0.6	0.3	0.3	45.5%
50.02	7	RD-3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	5.7%
50.02	8	RD-3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	3.0%
50.02	5	RD-3	0.6	0.0	0.0	0.0	0.6	0.5	0.0	6.9%
50.01	8	RD-3	0.6	0.0	0.0	0.0	0.6	0.5	0.1	12.8%
50.01	9	RD-3	0.6	0.0	0.0	0.0	0.6	0.5	0.2	25.4%
50.01	4	RD-3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	0.0%
50.01	7	RD-3	0.7	0.0	0.0	0.0	0.7	0.6	0.1	11.4%
71.01	29	RD-3	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
50.01	15	RD-3	0.7	0.0	0.0	0.0	0.7	0.3	0.4	59.5%
50.01	14	RD-3	0.7	0.0	0.0	0.0	0.7	0.4	0.3	45.5%
50.01	5	RD-3	0.7	0.0	0.0	0.0	0.7	0.7	0.0	1.0%
50.01	6	RD-3	0.7	0.0	0.0	0.0	0.7	0.7	0.0	6.6%
50.01	11	RD-3	0.7	0.0	0.0	0.0	0.7	0.5	0.2	28.2%
50.03	8.03	RD-3	0.8	0.0	0.0	0.0	0.8	0.5	0.3	35.0%
50.01	12	RD-3	0.9	0.0	0.0	0.0	0.9	0.7	0.2	23.4%
49	10.01	RD-3	1.0	0.0	0.0	0.0	1.0	0.9	0.0	5.2%
50.03	8	RD-3	1.0	0.0	0.0	0.0	1.0	0.8	0.2	22.6%
50.01	13	RD-3	1.0	0.0	0.0	0.0	1.0	0.7	0.3	27.9%
49	7	RD-3	1.0	0.0	0.0	0.0	1.0	0.6	0.5	45.1%
50.03	2	RD-3	1.5	0.0	0.0	0.0	1.5	0.0	1.5	98.9%
49	4	RD-3	2.1	0.0	0.0	0.0	2.1	2.1	0.0	0.0%
50	12	RD-3	2.2	0.0	0.0	0.0	2.2	0.0	2.2	100.0%
49	17	RD-3	2.3	0.0	0.0	0.0	2.3	0.0	2.3	100.0%
50	14	RD-3	2.7	0.0	0.0	0.0	2.7	2.7	0.0	0.0%
50.01	16	RD-3	3.1	0.0	0.0	0.0	3.1	1.0	2.1	68.2%
70.01	9	RD-3	3.1	0.0	0.0	0.0	3.1	0.0	3.1	99.8%
50.03	8.02	RD-3	3.4	0.0	0.0	0.0	3.4	1.0	2.3	69.3%
70.01	8	RD-3	3.8	0.0	0.0	0.0	3.8	2.2	1.6	42.2%
49	8	RD-3	4.0	0.0	0.0	0.0	4.0	2.2	1.8	44.3%
50	24.01	RD-3	4.0	0.0	0.0	0.0	4.0	2.1	1.9	47.6%
49	11.01	RD-3	5.0	0.0	0.0	0.0	5.0	4.8	0.2	3.3%
50.03	8.01	RD-3	8.2	0.0	0.0	0.0	8.2	7.5	0.6	7.6%
50	23	RD-3	19.5	0.0	0.0	0.0	19.5	19.2	0.2	1.2%
50	22	RD-3	22.1	0.0	0.0	0.0	22.1	0.3	21.7	98.5%
Total			104.5	0.0	0.0	0.0	104.5	58.0	46.6	
Total Area of Lots >2 acres			85.4							
Lots >2 acres <95% Wet			29.7							
Vacant Developable			55.6							
Total Receiving Opps.			160.7							

Parcel Analysis - Sending Opportunities
RD-1, RD-2, RD-3

Block	Lot	Current Zoning	Permitted Density	Total acres	Public acres	Developed acres	Non Vacant acres	Vacant acres	Vacant Upland acres	Wetland acres	% Wet
81.03	51	RD-1	6	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0%
41	16.01	RD-1	6	0.1	0.0	0.0	0.0	0.1	0.1	0.0	30.1%
91	9	RD-1	6	0.2	0.0	0.0	0.0	0.2	0.0	0.2	100.0%
41	29	RD-1	6	0.3	0.0	0.0	0.0	0.3	0.0	0.3	100.0%
81.04	40	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.1	0.3	72.0%
81.04	17	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.3	0.1	26.0%
81.04	39	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.1	0.4	77.6%
81.04	48	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.3	0.2	46.6%
81.08	6	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.0	0.5	100.0%
81.04	41	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.2	0.3	59.2%
81.04	49	RD-1	6	0.5	0.0	0.0	0.0	0.5	0.1	0.4	72.4%
81.04	16	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.5	0.0	7.6%
81.04	44	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.4	0.1	24.2%
81.08	3	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.0	0.6	100.0%
81.08	2	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.1	0.5	80.0%
81.04	35	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.6	0.0	0.6%
81.04	47	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.6	0.0	3.5%
81.04	45	RD-1	6	0.6	0.0	0.0	0.0	0.6	0.3	0.3	52.6%
81.08	5	RD-1	6	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
81.04	43	RD-1	6	0.7	0.0	0.0	0.0	0.7	0.5	0.2	23.5%
81.04	46	RD-1	6	0.7	0.0	0.0	0.0	0.7	0.3	0.4	57.1%
47	3	RD-1	6	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
81.04	87	RD-1	6	0.7	0.0	0.0	0.0	0.7	0.5	0.2	30.8%
81.08	1	RD-1	6	0.8	0.0	0.0	0.0	0.8	0.7	0.1	9.0%
81.04	42	RD-1	6	0.8	0.0	0.0	0.0	0.8	0.5	0.3	39.9%
41	12.02	RD-1	6	0.9	0.0	0.0	0.0	0.9	0.0	0.9	100.0%
81.08	4	RD-1	6.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	100.0%
91	13	RD-1	6.0	1.1	0.0	0.0	0.0	1.1	0.2	0.9	81.3%
47	4	RD-1	6.0	1.3	0.0	0.0	0.0	1.3	0.0	1.3	100.0%
91	6	RD-1	6.0	1.7	0.0	0.0	0.0	1.7	0.0	1.7	100.0%
41	6.02	RD-1	6.0	1.8	0.0	0.0	0.0	1.8	0.0	1.8	100.0%
92	1.01	RD-1	6.0	1.8	0.0	0.0	0.0	1.8	1.8	0.0	0.0%
41	6.03	RD-1	6.0	1.8	0.0	0.0	0.0	1.8	0.0	1.8	100.0%
41	24	RD-1	6.0	2.7	0.0	0.0	0.0	2.7	0.0	2.7	100.0%
41	27	RD-1	6.0	2.7	0.0	0.0	0.0	2.7	0.0	2.7	100.0%
41	16.02	RD-1	6.0	2.9	0.0	0.0	0.0	2.9	0.5	2.3	81.2%
90	12	RD-1	6.0	2.9	0.0	0.0	0.0	2.9	0.1	2.8	96.3%
88	4	RD-1	6.0	3.1	0.0	0.0	0.0	3.1	3.1	0.0	0.0%
41	25	RD-1	6.0	3.4	0.0	0.0	0.0	3.4	0.0	3.4	100.0%
41	1	RD-1	6.0	4.0	0.0	0.0	0.0	4.0	1.3	2.7	68.0%
41	1.01	RD-1	6.0	5.7	0.0	0.0	0.0	5.7	0.1	5.6	98.7%
88	2.01	RD-1	6.0	6.5	0.0	0.0	0.0	6.5	6.5	0.0	0.0%
41	9	RD-1	6.0	7.5	0.0	0.0	0.0	7.5	0.0	7.5	100.0%
41	11	RD-1	6.0	8.9	0.0	0.0	0.0	8.9	0.8	8.1	90.6%
88	3	RD-1	6.0	10.2	0.0	0.0	0.0	10.2	10.2	0.0	0.0%
88	2	RD-1	6.0	11.2	0.0	0.0	0.0	11.2	11.2	0.0	0.0%
41	10	RD-1	6.0	11.4	0.0	0.0	0.0	11.4	0.0	11.4	100.0%
41	13	RD-1	6.0	14.6	0.0	0.0	0.0	14.6	2.0	12.6	86.1%
41	22	RD-1	6.0	15.1	0.0	0.0	0.0	15.1	0.0	15.1	100.0%
Total				137.6	0.0	0.0	0.0	137.6	44.3	93.3	
No. Lots <1 ac.				26							
Acres Lots <1 ac.				14							
Sites Needed				2							
No. Lots >1 ac but Unuseable				13							
Acres Lots >1 ac but Unuseable				59							
Sites Needed				10							

Parcel Analysis - Sending Opportunities
RD-1, RD-2, RD-3

Block	Lot	Current Zoning	Permitted Density	Total acres	Public acres	Developed acres	Non Vacant acres	Vacant acres	Vacant Upland acres	Wetland acres	% Wet
88.01	1	RD-2	4	0.4	0.0	0.0	0.0	0.4	0.4	0.0	0.0%
87	8	RD-2	4	0.7	0.0	0.0	0.0	0.7	0.7	0.0	0.0%
58	2	RD-2	4	0.9	0.0	0.0	0.0	0.9	0.9	0.0	0.1%
53.01	12	RD-2	4	2.4	0.0	0.0	0.0	2.4	0.9	1.5	63.4%
53.01	11	RD-2	4	3.2	0.0	0.0	0.0	3.2	1.9	1.3	40.3%
55	1.01	RD-2	4	6.4	0.0	0.0	0.0	6.4	5.1	1.3	20.7%
53	1	RD-2	4	15.2	0.0	0.0	0.0	15.2	8.7	6.5	42.6%
53	2	RD-2	4	16.6	0.0	0.0	0.0	16.6	11.6	5.0	30.0%
Total				45.7	0.0	0.0	0.0	45.7	30.2	15.5	
No. Lots <1 ac.				3							
Acres Lots <1 ac.				2							
Sites Needed				1							
No. Lots >1 ac but Unuseable				0							
Acres Lots >1 ac but Unuseable				0							
Sites Needed				0							
50.02	19	RD-3	3	0.1	0.0	0.0	0.0	0.1	0.1	0.0	6.8%
49	6	RD-3	3	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0%
50.03	6	RD-3	3	0.2	0.0	0.0	0.0	0.2	0.0	0.2	100.0%
73.01	4	RD-3	3	0.2	0.0	0.0	0.0	0.2	0.0	0.2	95.1%
50	24	RD-3	3	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0%
50	6	RD-3	3	0.3	0.0	0.0	0.0	0.3	0.3	0.0	0.0%
50.03	9.02	RD-3	3	0.3	0.0	0.0	0.0	0.3	0.0	0.3	87.4%
50.03	10	RD-3	3	0.4	0.0	0.0	0.0	0.4	0.0	0.4	92.9%
50.03	9.01	RD-3	3	0.5	0.0	0.0	0.0	0.5	0.3	0.1	30.2%
50.02	6	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.5	0.0	6.2%
50.01	10	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.3	0.3	45.5%
50.02	7	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	5.7%
50.02	8	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	3.0%
50.02	5	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.5	0.0	6.9%
50.01	8	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.5	0.1	12.8%
50.01	9	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.5	0.2	25.4%
50.01	4	RD-3	3	0.6	0.0	0.0	0.0	0.6	0.6	0.0	0.0%
50.01	7	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.6	0.1	11.4%
71.01	29	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.0	0.7	100.0%
50.01	15	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.3	0.4	59.5%
50.01	14	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.4	0.3	45.5%
50.01	5	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.7	0.0	1.0%
50.01	6	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.7	0.0	6.6%
50.01	11	RD-3	3	0.7	0.0	0.0	0.0	0.7	0.5	0.2	28.2%
50.03	8.03	RD-3	3	0.8	0.0	0.0	0.0	0.8	0.5	0.3	35.0%
50.01	12	RD-3	3	0.9	0.0	0.0	0.0	0.9	0.7	0.2	23.4%
49	10.01	RD-3	3.2	1.0	0.0	0.0	0.0	1.0	0.9	0.0	5.2%
50.03	8	RD-3	3.2	1.0	0.0	0.0	0.0	1.0	0.8	0.2	22.6%
50.01	13	RD-3	3.2	1.0	0.0	0.0	0.0	1.0	0.7	0.3	27.9%
49	7	RD-3	3.2	1.0	0.0	0.0	0.0	1.0	0.6	0.5	45.1%
50.03	2	RD-3	3.2	1.5	0.0	0.0	0.0	1.5	0.0	1.5	98.9%
49	4	RD-3	3.2	2.1	0.0	0.0	0.0	2.1	2.1	0.0	0.0%
50	12	RD-3	3.2	2.2	0.0	0.0	0.0	2.2	0.0	2.2	100.0%
49	17	RD-3	3.2	2.3	0.0	0.0	0.0	2.3	0.0	2.3	100.0%
50	14	RD-3	3.2	2.7	0.0	0.0	0.0	2.7	2.7	0.0	0.0%
50.01	16	RD-3	3.2	3.1	0.0	0.0	0.0	3.1	1.0	2.1	68.2%
70.01	9	RD-3	3.2	3.1	0.0	0.0	0.0	3.1	0.0	3.1	99.8%
50.03	8.02	RD-3	3.2	3.4	0.0	0.0	0.0	3.4	1.0	2.3	69.3%
70.01	8	RD-3	3.2	3.8	0.0	0.0	0.0	3.8	2.2	1.6	42.2%
49	8	RD-3	3.2	4.0	0.0	0.0	0.0	4.0	2.2	1.8	44.3%
50	24.01	RD-3	3.2	4.0	0.0	0.0	0.0	4.0	2.1	1.9	47.6%
49	11.01	RD-3	3.2	5.0	0.0	0.0	0.0	5.0	4.8	0.2	3.3%

Parcel Analysis - Sending Opportunities
RD-1, RD-2, RD-3

Block	Lot	Current Zoning	Permitted Density	Total acres	Public acres	Developed acres	Non Vacant acres	Vacant acres	Vacant Upland acres	Wetland acres	% Wet
50.03	8.01	RD-3	3.2	8.2	0.0	0.0	0.0	8.2	7.5	0.6	7.6%
50	23	RD-3	3.2	19.5	0.0	0.0	0.0	19.5	19.2	0.2	1.2%
50	22	RD-3	3.2	22.1	0.0	0.0	0.0	22.1	0.3	21.7	98.5%
Total				104.5	0.0	0.0	0.0	104.5	58.0	46.6	
No. Lots <1 ac.				26							
Acres Lots <1 ac.				14							
Sites Needed				4							
No. Lots >1 ac but Unuseable				5							
Acres Lots >1 ac but Unuseable				31							
Sites Needed				10							
Total Sending Opps.				27							

**Black Run-south
Sending Opportunities Analysis**

Object ID	Block	Lot	Existing Zone	Proposed Zone	Total Acres	Public Acres	Developed Acres	Non Vacant Acres	Vacant Acres	Vacant Upland Acres	Wetland Acres
2416	60	9.02	RD-3	RS-C	7.6	0.0	1.7	1.7	5.9	5.9	0.0
1851	48	17.01	RD-3	RD-C	0.2	0.2	0.0	0.0	0.0	0.0	0.2
653	56	1.01	RD-3	RD-C	0.6	0.0	0.0	0.0	0.6	0.6	0.0
4816	59	10	RD-3	RD-C	0.6	0.0	0.0	0.0	0.6	0.6	0.0
5161	60	7.01	RD-3	RD-C	2.6	0.0	0.0	0.0	2.6	2.6	0.0
4803	48	29	RD-3	RS-C	3.0	0.0	0.0	0.0	3.0	1.0	2.0
4821	48	30	RD-3	RS-C	4.0	0.0	0.0	0.0	4.0	3.7	0.3
4823	48	28	RD-3	RS-C	4.0	0.0	0.0	0.0	4.0	0.8	3.2
4431	48	31	RD-3	RS-C	4.1	0.0	0.0	0.0	4.1	3.6	0.5
4798	60	3	RD-3	RS-C	6.2	0.0	0.0	0.0	6.2	6.2	0.0
4796	60	7	RD-3	RS-C	7.2	0.0	0.0	0.0	7.2	7.2	0.0
2753	48	18	RD-3	RS-C	8.4	0.0	0.0	0.0	8.4	0.3	8.1
4817	60	9.01	RD-3	RS-C	8.8	0.0	0.0	0.0	8.8	8.8	0.0
5367	48	33	RD-3	RS-C	9.2	0.0	0.0	0.0	9.2	8.7	0.5
3909	60	9	RD-3	RS-C	9.5	0.0	0.0	0.0	9.5	9.5	0.0
834	60	2	RD-3	RS-C	9.6	0.0	0.0	0.0	9.6	9.5	0.1
4454	48	33.01	RD-3	RS-C	10.3	0.0	0.0	0.0	10.3	10.3	0.0
1088	59	1	RD-3	RS-C	11.0	0.0	0.0	0.0	11.0	11.0	0.0
4936	48	25	RD-3	RS-C	11.9	0.0	0.0	0.0	11.9	0.0	11.9
5510	48	27	RD-3	RS-C	13.4	0.0	0.0	0.0	13.4	0.0	13.4
207	48	32	RD-3	RS-C	15.1	0.0	0.0	0.0	15.1	12.4	2.7
4458	48	20	RD-3	RS-C	18.7	0.0	0.0	0.0	18.7	13.6	5.1
4438	48	17	RD-3	RS-C	19.4	0.0	0.0	0.0	19.4	2.1	17.4
4188	60	10	RD-3	RS-C	20.8	0.0	0.0	0.0	20.8	20.8	0.0
5433	48	18.01	RD-3	RS-C	27.7	0.0	0.0	0.0	27.7	0.0	27.7
4795	48	21	RD-3	RS-C	29.1	0.0	0.0	0.0	29.1	25.1	4.0
4436	48	26	RD-3	RS-C	34.7	0.0	0.0	0.0	34.7	17.0	17.8
4861	48	22	RD-3	RS-C	36.0	0.0	0.0	0.0	36.0	29.8	6.2
4434	48	23	RD-3	RS-C	39.7	0.0	0.0	0.0	39.7	32.0	7.6
4456	48	24	RD-3	RS-C	53.0	0.0	0.0	0.0	53.0	36.2	16.8
5088	48	19	RD-3	RS-C	54.7	0.0	0.0	0.0	54.7	0.0	54.7
4885	60	1	RD-3	RS-C	58.5	0.0	0.0	0.0	58.5	57.8	0.7
4883	60	4	RD-3	RS-C	74.2	0.0	0.0	0.0	74.2	69.6	4.6
4887	60	6	RD-3	RS-C	82.5	0.0	0.0	0.0	82.5	81.4	1.1
Total					696.4	0.2	1.7	1.7	694.5	488.1	206.6
Option 4 - All Lots Equivalent											
Undeveloped Acres = (sum of the acres of all vacant, non-public lots <10 acres in size)										77.9	
+ ((sum of the (acres of each developed lot >10 acres in size - 10 acres))										0.0	
Total Undeveloped Acres										77.9	
Total Sending Opportunities (total undeveloped acres/5 acres)										15.6	

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 3

Watershed Integrity
Sub-basin Disturbance Methodology

**APPENDIX 3
WATERSHED INTEGRITY
SUB-BASIN DISTURBANCE METHODOLOGY**

SUB BASIN DISTURBANCE ANALYSIS

The sub-basin disturbance/zone capacity analysis is based on research findings that characteristic Pinelands water-quality conditions begin to change when altered land in a watershed exceeds 10% of the area of the basin. Since water quality changes at this point, the objective is to constrain development impacts so that they do not exceed this 10% threshold. Consequently, a 9% disturbance level was used as the basis of the following six-step methodology used for the analysis of the Black Run watershed basin:

1. Multiply the number of acres in each Black Run sub-basin [*that is less than 10% developed*] by **9%** to determine the total possible land disturbance that could occur within the sub-basin
2. Subtract the number of acres *already* disturbed from the product of Step 1 to determine the *total* number of **additional acres** that could be disturbed in each sub-basin
3. Divide the number of acres derived in Step 2 by the amount of land disturbed as a result of residential development on a 1-acre lot (*see Residential Cover Types Methodology, Appendix 6*) to determine the number of **potential units** that could be developed at the 9% disturbance level
4. Add together the number of units derived in Step 3 for each sub-basin to determine the **total number of potential units** that could be developed within the entire Black Run area at the 9% disturbance level
5. Divide the total number of vacant acres available for development in the basin by the results from Step 4 to determine the **overall zone density** (expressed as acres/unit)
6. Divide the number of vacant acres available for development within each zone in the Rural Development Sending Area by the overall zone density derived in Step 5 into¹ to determine the **zone capacity**

The following description and the accompanying tables are intended to clarify the foregoing methodology.

According to the attached table, entitled “*Sub-basin Disturbance Analysis- 9%*” there are 5 sub-basins within the Black Run that are less than 9% developed encompassing 1,350 acres². The number of acres that could be developed before the disturbance level in these sub-basins reaches 9% is 122. The total number of acres that are already disturbed in these sub basins is 60; therefore up to 62 additional acres could be developed within these sub basins ($122 - 60 = 62$).

The methodology described in Appendix 6 yields a .6-acre disturbance for each 1-acre lot developed for residential use. Therefore, the total number of units that could be developed on the 62 developable acres within the Black Run is 103 ($62 \div .6 = 103$ units).³

Since there are 1,016 private, vacant developable acres available for development within those zones in the Rural Development Sending Areas that comprise the Black Run sub basins, the gross density is 9.8 acres/unit ($1,016 \text{ acres} \div 103 \text{ units} = 9.8$). This is rounded to 10 acres.

¹ See Zone Capacity Analysis (08-05-05 Concept) and Proposed Zoning Concept Map

² Sub-basin numbers 94, 95, 96, 97, 98

³ See **Appendix 6** for a detailed description of the methodology used to calculate area associated with residential units, road frontage, and storm water basins

**Medford/Evesham Resource Protection Plan
Sub-basin Disturbance Analysis - 9%**

Object ID	Stream	Basin	Sub-Basin Number	Sub-Basin Area (acres)	Acres in Sub-basin x 9%	Presently Disturbed (acres)	Number of acres that could be disturbed to = 9%	Number of potential units at 9% disturbance	Overall Density Based on 9% Disturbed
7	Haynes Creek Tributary	Rancocas	48	810	73	147	0	0	
6	Haynes Creek Tributary	Rancocas	49	61	5	22	0	0	
4	Haynes Creek Tributary	Rancocas	59	205	18	34	0	0	
5	Haynes Creek Tributary	Rancocas	60	290	26	85	0	0	
14	Barton Run	Rancocas	86	993	89	639	0	0	
13	Barton Run Tributary	Rancocas	87	145	13	26	0	0	
15	Barton Run	Rancocas	88	287	26	96	0	0	
12	Barton Run	Rancocas	89	122	11	9	0	0	
3	Barton Run	Rancocas	91	130	12	78	0	0	
8	Black Run Tributary	Rancocas	94	830	75	58	17	28	
2	Black Run Tributary	Rancocas	95	75	7	0	7	11	
10	Black Run	Rancocas	96	314	28	1	27	45	
9	Black Run Tributary	Rancocas	97	69	6	0	6	10	
1	Black Run	Rancocas	98	61	6	0	6	9	
16	Black Run	Rancocas	99	322	29	109	0	0	
17	Black Run	Rancocas	100	108	10	46	0	0	
18	Black Run Tributary	Rancocas	101	76	7	46	0	0	
11	Barton Run Tributary	Rancocas	104	686	62	222	0	0	
Total of Sub-basins with less than 9% disturbance					122	60	62	103	9.8

Note
Area of Zones = total area of zone - (disturbed, non agricultural lands + deed restricted lands + rights of way + non-developable public lands (public lands in wetlands and wetlands buffers))

Assumptions
Area of Zones in Black Run Basin **1,016**

<i>Residential Disturbance</i>	<i>Value</i>
Residential Footprint	0.07
Other Impervious	0.07
Managed Grass	0.23
Roadways (access and frontage)	0.15
Storm Drainage	0.08
Total Disturbance	0.60

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 4

***Landscape and Wetlands Integrity
Spatial Analysis Methodology***

APPENDIX 4
LANDSCAPE AND WETLAND INTEGRITY
SPATIAL ANALYSIS METHODOLOGY

The methodology used for the project mapping analysis to evaluate Landscape Integrity and Wetland Integrity, described in Section 6 of the Plan, is outlined below:

Part 1: Distance from Altered Lands

The following datasets were used to perform the spatial analysis:

- A 2000 land use/land cover dataset developed by the DVRPC
- A drainage basins dataset developed by the NJ Pinelands Commission
- A project area dataset developed by the NJ Pinelands Commission

- 1) The DVRPC 2000 land use/land cover dataset was used as the basis of altered land. The dataset was clipped to the boundary of the drainage basins affecting the project area.
- 2) Altered land was classified using the description field. The following descriptions were classified as altered land, queried, and exported to a new altered land dataset: Agriculture, Commercial, Community Services, Manufacturing: Heavy Industrial, Manufacturing: Light Industrial, Mining, Parking: Commercial, Parking: Community Services, Parking: Light Manufacturing, Parking: Multi-Family, Parking: Recreation, Parking: Transportation, Parking: Utility, Recreation, Residential: Multi-Family, Residential: Row Home, Residential: Single-Family Detached, and Transportation.
- 3) A straight line distance spatial analysis was performed on the altered land dataset to create a grid encompassing all of the sub-basins. Each grid cell was five feet on a side and contained the distance of the cell to the nearest altered land.
- 4) A grid of the project area was created with cells five feet on a side.
- 5) The straight line distance grid was then clipped to the project area grid to eliminate the cells outside the study area.
- 6) A grid of altered/non-altered lands was created with cells five feet on a side.
- 7) The project area grid and the Altered Lands grid were combined to create a grid with altered and unaltered lands.
- 8) A grid of unaltered lands was created from the combined grid
- 9) The straight line distance grid was clipped to the unaltered grid to remove the altered area cells.
- 10) The remaining set of cells from the straight line distance grid, or the unaltered cells, was then subdivided into ten equal groups according to their distance value. For example, the top ten percent of the cell values, or the ten percent of the cells that were the greatest distance from altered land, were given the highest value of 10. The bottom ten percent of the cell values, or the ten percent of the cells that were the closest to the altered land, were given the lowest value of 1.

Part 2: Wetlands Grid

- A straight line distance grid from Part 1 developed by the NJ Pinelands Commission
 - A project area dataset developed by the NJ Pinelands Commission
 - A 1995 land use/land cover dataset developed by the NJDEP
- 1) The 1995 land use/land cover dataset was clipped with the project area dataset.
 - 2) A wetlands dataset was created from the 1995 land use/land cover NJDEP dataset by selecting areas classified by the NJDEP as “Wetlands” or “Water” in the type95 field.
 - 3) The wetlands dataset was converted into a grid with cells that were 5 feet on a side.

- 4) The straight line distance grid was clipped with the grid of the wetlands to produce a grid of the distance to altered land for the wetland areas.
- 5) The wetlands grid cells were then subdivided into ten equal groups according to their distance value. For example, the top ten percent of the cell values, or the ten percent of the cells that were the greatest distance from altered lands, were given the highest value of 10. The bottom ten percent of the cell values, or the ten percent of the cells that were the closest to the altered lands, were given the lowest value of 1.

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 5

Basin Analysis Methodology

APPENDIX 5 BASIN ANALYSIS METHODOLOGY

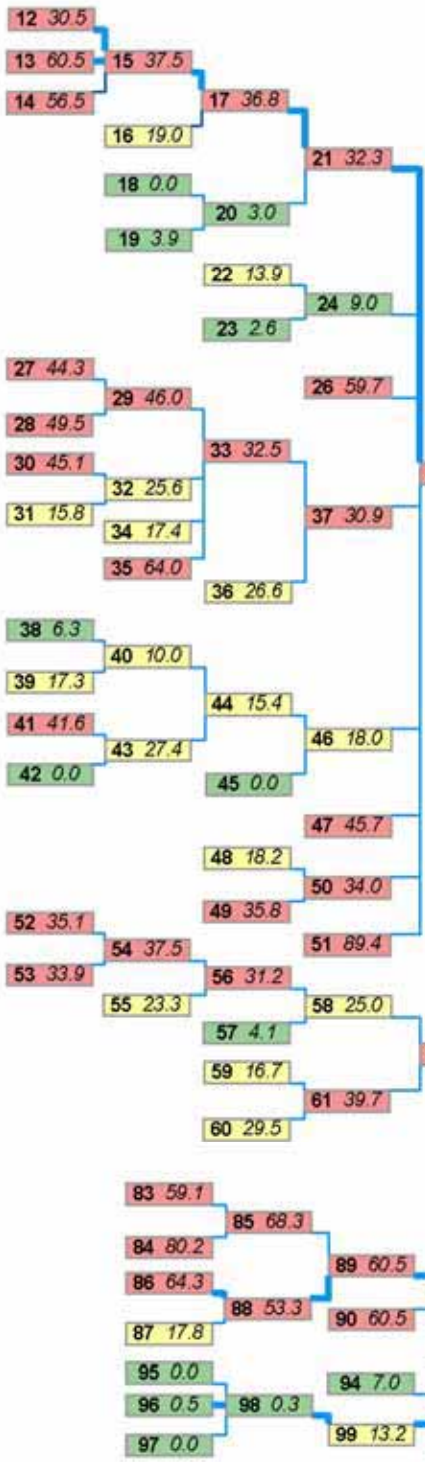
The methodology used for the project mapping analysis to evaluate Watershed Integrity, described in Section 6 of the Plan, is outlined below:

The following datasets were used to perform the basin analysis:

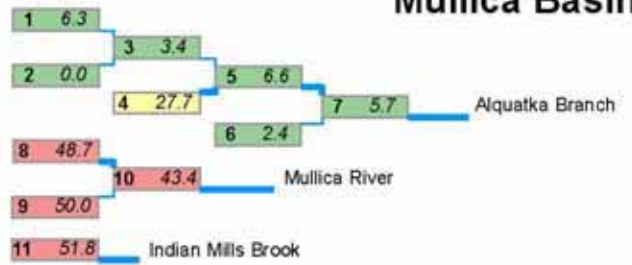
- A 2000 land use/land cover dataset developed by the DVRPC
- A drainage basins dataset developed by the NJ Pinelands Commission

- 1) The DVRPC 2000 land use/land cover dataset was used as the basis of altered land. The dataset was clipped to the boundary of the drainage basins within the project area.
- 2) Altered lands were classified using the description field. The following descriptions were classified as altered land, queried, and exported to a new altered land dataset:
 - Agriculture,
 - Commercial,
 - Community Services
 - Manufacturing: Heavy Industrial
 - Manufacturing: Light Industrial
 - Mining
 - Parking: Commercial
 - Parking: Community Services
 - Parking: Light Manufacturing
 - Parking: Multi-Family
 - Parking: Recreation
 - Parking: Transportation
 - Parking: Utility
 - Recreation
 - Residential: Multi-Family
 - Residential: Row Home
 - Residential: Single-Family Detached
 - Transportation.
- 3) The altered land dataset was merged with the drainage basins dataset to determine the percentage of altered land in each basin, which was derived by summing the area of developed and upland agricultural land for the entire upstream drainage area and dividing it by the total area of each basin.
- 4) The basins were reclassified into 3 categories by the percentage of altered land. Basins from 0 to 10 percent altered were the least altered and most characteristic of unaltered Pinelands watershed, while basins over 30 percent altered were the most altered (*see Watershed Integrity map on page 16 of the Plan*).
- 5) A flow chart of the project area basins was created (*see Sub-Basin Disturbance Flow Chart on the following page*).

Rancocas Basins



Mullica Basins



Sub-Basin Disturbance Flow Chart

Legend

Basin Number
Percent Disturbed

Percent Disturbed

0.0 - 10.0
10.1 - 30.0
30.1 - 100.0

Note: Please see Report, Section 3, Watershed Integrity Map

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 6

***Residential Cover Type
Analysis Methodology***

APPENDIX 6 METHODOLOGY – RESIDENTIAL COVER TYPES

In order to evaluate the number of new residential units that could be constructed within the vacant-developable acres of the Black Run sub basins, it was first necessary to determine how much land area is likely to be needed to accommodate a typical single-family residential use (area of disturbance). Once the area needed for a typical residential use was calculated it could then be used in the calculation of future residential development, following the methodology described in Appendix 3. Three factors contribute to the area of a residential unit: the development envelop, the area set aside for storm water management, and internal subdivision roads. A description of the approach to calculate area associated with these three factors is provided below:

Building Envelope:

The methodology used to evaluate residential cover types, undertaken by the Pinelands Science Office in conjunction with a study of the Mullica River Basin¹ served as the basis to determine the size of a typical residential building envelope. Using aerial photography from 1979 and 1991, Commission scientists mapped land cover in order to quantify landscape changes in the Mullica River Basin². Scientists used a sample of 72 photo-plots, covering 11% of the Basin, to create a land cover classification system. Cover-area statistics were calculated for twelve different land cover types:

1. developed land
2. managed grassland
3. barren land
4. crop land
5. orchards
6. blueberry fields
7. cranberry bogs
8. forest
9. scrub/shrub
10. herbaceous
11. salt marsh
12. water

Residential developed land was composed of several cover types including: houses, driveways, outbuildings, swimming pools, and managed grasslands (lawns).

Cover-area statistics for residential land prepared for the Mullica study were based on interpretation of 1979 and 1991 aerial photographs. However, 2002 aerial photographs are now available for the study area and it was decided that sample areas from these more current aerials would be evaluated, using the photo-interpretation methodology employed in the Mullica study. Thirty 1-acre residential parcels within the study area were identified on the 2002 aerials (*see Illustration on the following page*). For comparison purposes, a different set of thirty 1-acre residential parcels from the photo-plots delineated for the Mullica study were also reviewed. Areas associated with houses, other impervious surfaces (driveways, outbuildings, swimming pools) and managed grass were calculated. The accompanying data table, entitled “***Typical Proportion of Residential Disturbance – 1 Acre Lot***” reflects the results of this evaluation.

The average building envelope in the photo-plots used for the Mullica report encompassed .24 acres. In comparison, the average building envelope for the residential parcels examined in the 2002 aerial photographs encompassed .37 acres. As the accompanying table reveals, the areas associated with the residential structure and the other impervious surfaces were roughly equivalent for the two time periods. However, the area associated with managed grass appeared to have increased by almost 250%, which seems to be consistent with current typical building practices. (*However, it should be noted that the 1991 photos were of relatively poorer quality, as compared to the 2002 photographs and were scanned at a coarse resolution. Consequently, it was more difficult to separate lawns from evergreen vegetation, as compared to the 2002 aerials. Therefore, it is possible that the lawn size in the 2002 Mullica report was underestimated.*)

¹ “The Mullica River Basin, A Report to the Pinelands Commission on the Status of the Landscape and Selected Aquatic and Wetland Resources”, Pinelands Commission, Long-Term Environmental-Monitoring Program, 2001. Zampella, Robert A.; Bunnell, John F.; Laidig, Kim J.; Dow, Charles L.

² Bunnell et al. 2001

Roadway Surfaces

A typical builders lot, with uniform dimension of 200' x 200' was used to determine the coverage factor associated with roadway surfaces. A lot with these dimensions would have a 200' frontage. A 50' width was considered to be the typical cartway dimension. A 200'-long, 50'-wide cartway has a 10,000 square foot paved surface, or 5000 square feet serving a residential lot. The coverage factor for the roadway would be .1 (5,000/45,000). The area associated with road frontage was multiplied by a factor of 1.5 to account for access roads yielding a per-unit road surface coverage factor of .15

Storm Water Management:

The Pinelands Commission's procedures for calculating the size of storm water basins are based on runoff rates for a 10-year storm. This calculation assumes that it is necessary to accommodate 4.96" of runoff for every 12" of impervious surface. For the typical single family residential unit, described in the section on Building Envelope above, this calculation would result in a basin of between .05 and .1 of an acre, depending on basin depth³, to accommodate runoff from impervious surfaces relating to the house and driveway (.14 of an acre) and the impervious surface of the road (5000 sf). The storm water basin factor used to calculate residential development capacity was .08

Conclusion:

Combining the factors for development envelope, roadway surfaces and stormwater management yields an overall residential coverage ratio of .6 of an acre

RESIDENTIAL COVER TYPES METHODOLOGY AERIAL PHOTOGRAPHY ANALYSIS



³ Based on the analysis of building envelop size above, approximately 11,300 square feet of impervious surface is associated with a typical residential unit, driveways, roadways, outbuildings, swimming pools, etc. Using the ratio of 4.96"/12" (.413) to calculate runoff volume, the storm water basin serving this residential unit would need to accommodate 4,667' of runoff. Consequently a total of .1 of a 45,000 s.f. lot would have to be reserved for a basin with a 1' depth, or .05 of a 45,000 s.f. lot would have to be reserved for a basin with a 2' depth.

Medford/Evesham Resource Protection Plan
Typical Proportion of Residential Disturbance - 1 Acre Lot
 Data Source: 2002 DVRPC LULC

Object ID	Block	Lot	Total (acres)	Building Footprint (acres)	% of Total	Other Impervious Area (acres)	% of Total	Managed Grass (acres)	% of Total	Trees (acres)	% of Total
1	5505.04	4	1.21	0.09	0.07	0.13	0.11	0.49	0.41	0.49	0.41
2	89.03	3	1.05	0.04	0.04	0.02	0.02	0.12	0.12	0.86	0.82
3	89.03	26	1.00	0.06	0.06	0.04	0.04	0.47	0.46	0.44	0.44
4	89.03	8	1.18	0.06	0.05	0.04	0.03	0.42	0.36	0.66	0.56
5	89.03	29	1.06	0.07	0.06	0.07	0.07	0.23	0.22	0.69	0.65
6	5505.04	13	1.16	0.10	0.08	0.11	0.09	0.37	0.31	0.59	0.51
7	5505.02	1	1.00	0.08	0.08	0.04	0.04	0.04	0.04	0.84	0.84
8	89.03	13	1.08	0.05	0.04	0.05	0.04	0.22	0.20	0.77	0.71
9	89.01	6	1.00	0.04	0.04	0.06	0.06	0.23	0.23	0.67	0.67
10	89.02	2	1.07	0.05	0.05	0.06	0.05	0.20	0.19	0.76	0.71
11	5505.02	12	1.04	0.07	0.07	0.13	0.12	0.32	0.31	0.52	0.50
12	89.03	10	1.30	0.06	0.05	0.12	0.10	0.18	0.14	0.93	0.72
13	5505.02	17	1.02	0.05	0.05	0.02	0.02	0.07	0.07	0.88	0.86
14	5505.03	6	1.07	0.11	0.10	0.18	0.17	0.26	0.25	0.52	0.48
15	5505.03	2	1.07	0.08	0.08	0.15	0.14	0.09	0.09	0.75	0.70
16	5505.03	8	1.08	0.12	0.11	0.16	0.15	0.09	0.08	0.71	0.66
17	89.03	35	1.06	0.07	0.07	0.03	0.03	0.21	0.20	0.75	0.70
18	5505.02	20	1.03	0.08	0.07	0.11	0.11	0.15	0.15	0.69	0.67
19	89.04	23	1.14	0.11	0.10	0.05	0.04	0.20	0.18	0.78	0.68
20	89.01	15	1.23	0.07	0.06	0.03	0.03	0.24	0.20	0.88	0.71
21	5505.02	10	1.22	0.05	0.04	0.08	0.06	0.13	0.10	0.97	0.79
22	89.03	32	1.07	0.07	0.07	0.03	0.03	0.42	0.39	0.55	0.52
23	89.03	20	1.02	0.07	0.07	0.04	0.04	0.42	0.42	0.48	0.47
24	89.02	9	1.17	0.09	0.07	0.05	0.05	0.41	0.35	0.62	0.53
25	5505.02	23	1.02	0.08	0.08	0.12	0.12	0.13	0.13	0.68	0.67
26	5505.02	30	1.00	0.14	0.14	0.13	0.13	0.18	0.18	0.55	0.55
27	89.04	21	1.19	0.07	0.06	0.03	0.02	0.32	0.27	0.78	0.65
28	5505.03	10	1.17	0.09	0.08	0.20	0.17	0.55	0.47	0.34	0.29
29	89.01	3	1.09	0.05	0.05	0.08	0.07	0.29	0.27	0.66	0.61
30	89.01	9	1.27	0.06	0.05	0.04	0.03	0.35	0.27	0.82	0.64
Average			1.10	0.07	0.07	0.08	0.07	0.26	0.23	0.69	0.62

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 7

Zone Capacity Methodology

APPENDIX 7 ZONE CAPACITY METHODOLOGY

ZONE CAPACITY ANALYSIS

In order to evaluate the effect of the proposed regulatory changes on development potential within the Southern Medford/Evesham project area, the development capacity within each of the *proposed* zones was calculated and compared to the development capacity based on the *existing* zone designations. The methodology for conducting this analysis is outlined below:

Step 1 - Delineate Zones

2000 land use/land cover digital maps from the Delaware Valley Regional Planning Commission were used as the information source for this analysis. Using the Pinelands Commission's geographic information system, the boundaries of each of the proposed zones were delineated and overlaid on the DVRPC land use/land cover maps. Each zone was assigned a separate Object ID number.

Step 2 - Calculate Land Use Characteristics

The following variables were calculated for each individual Zone:

- Total area
- The total amount of permanently protected land in public ownership
- The amount of disturbed, non-agriculture land; defined as all land area upon which residential, commercial, institutional structures have been constructed
- The amount of land area subject to development restrictions or within rights-of way
- Privately held, vacant upland
- Wetlands

Step 3 – Calculate Developable Land

Private vacant land available for development was calculated by subtracting the number of acres of permanently protected public lands, disturbed non-agriculture land and land subject to development restrictions or within rights-of way from the total land area within each zone.

Step 4 – Calculate *Existing* Zone Capacity

The zone capacity under the Township's zoning designations currently in effect was derived by dividing the number of acres of private vacant land available for development by the prescribed zoning density, the number of acres required for each residential unit within the zone.

Step 5 - Determining *Proposed* Zone Capacity

The density characteristics of the proposed zones fall into the following three different categories:

1. Zones for which the density would remain the same (Optional Sending Areas)
2. Zones for which density would be fixed so that development potential would not exceed the number of units that presently exist within the zone (RGA designation in the Kings Grant area or new FW/RD-2 designation in the Compass Point area)
3. Revised and reduced density prescriptions (proposed Forest, Sending and Receiving, and the Mandatory Clustering areas)

In those cases where revised or reduced density prescriptions are proposed, it was necessary to calculate the density of the proposed zones before the zone capacity could be derived.

The accompanying table, entitled "*Zoning Capacity Analysis – 08-05-05 Concept*", provides a detailed comparison between existing and proposed development capacity for each of the zoning designations recommended in the regulatory strategies.

Medford/Evesham Resource Protection Plan
Zone Capacity Analysis
 11.05 Concept

1	2	3	4	5	6	7	Column				12	13	14	15	
							Zone ID Num	Mun	Total (acres)	Public (acres)					Disturbed Non-Agriculture (acres)
1 Expand Forest Area	33	Evesham	2	0	0	0	2	0	0	RD-1	6	0	FA	20	0
	76	Evesham	609	585	2	14	8	8	8	RD-2	4	2	FA	20	0
	57	Medford	0	0	0	0	0	0	0	RGD-1(W)	1.67	0	FA	23	0
	59	Medford	622	471	0	8	142	92	92	RGD-2	3.2	44	FA	23	6
	9	Medford	65	63	0	1	0	0	0	PPE	0	0	FA	23	0
	46	Medford	23	0	0	3	20	0	0	RGD-2	3.2	0	FA-2	3.2	0
	47	Medford	50	7	7	5	31	24	24	RGD-2	3.2	10	FA-2	3.2	10
			1,371	1,127	12	48	183	124				57			16
2 Compass Point	17	Evesham	153	9	52	93	0	0	0	FW	12	0	RD2	4	0
			153	9	52	93	0	0				0			0
3 Kings Grant RGA	22	Evesham	11	0	4	1	6	1	1	C-2	0	0	RGA	6	0
	39	Evesham	982	628	329	16	10	4	4	RD-1	6	2	RGA	6	0
	34	Medford	77	2	28	47	0	0	0	RGD-2	3.2	0	RGA	6	0
	10	Medford	4	0	3	1	0	0	0	CC	3.2	0	RGA	6	0
				1,074	629	363	66	16	5				2		
4a FA Receiving	50	Evesham	250	0	33	5	212	202	202	FA	20	11	FAR	20	11
			250	0	33	5	212	202				11			11
4b FA Sending	42	Evesham	134	0	28	1	105	105	105	FA	20	5	FAS	20	5
	49	Evesham	411	5	31	1	375	291	291	FW	12	31	FAS	20	19
			546	5	59	2	480	396				36			24
5 Rural Receiving	45	Evesham	81	0	0	0	81	81	81	RD-3	3.2	25	RR	10	8
			81	0	0	0	81	81				25			8
6 Rural Development Sending	83	Evesham	33	0	2	2	28	3	3	RD-1	6	5	RD-S	10	3
	84	Evesham	41	0	8	1	32	6	6	RD-1	6	5	RD-S	10	3
	75	Evesham	221	1	6	15	198	125	125	RD-2	4	50	RD-SC	10	20
	79	Evesham	362	71	22	9	260	72	72	RD-3	3.2	81	RD-S	10	26
			657	72	38	28	519	206				141			52
7 Rural Dev. Cluster	78	Evesham	717	0	2	20	695	488	488	RD-3	3.2	217	RD-C	10	69
			717	0	2	20	695	488				217			69
8 Rural Receiving (scattered parcels)		Evesham	148	0	25	25	123	123	123	RD-1	6	20	RD-1	6	20
		Evesham	152	0	13	13	139	117	117	RD-2	4	35	RD-2	4	35
		Evesham	134	0	22	22	111	106	106	RD-3	3.2	35	RD-3	3.2	35
			434	0	61	61	373	346				90			90
Total			5,284	1,844	619	322	2,559	1,848			579			270	

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 8

Resources

*Federal, State, County, Private-sector
Land Preservation/Acquisition Assistance Programs*

APPENDIX 8 RESOURCES

Federal, State, County and Private-sector Land Preservation/Acquisition Assistance Programs

LAND PRESERVATION PROGRAMS

Funding for land preservation in New Jersey is generally accomplished through partnerships between local, county, and state government agencies as well as non-profit land trusts. Local municipalities and county governments raise tax revenues specifically dedicated for land preservation. At the present time, more than 200 of the 566 municipalities in the State collect such dedicated open space taxes, and each of the 21 counties in New Jersey do so as well. These municipal and county taxes generate substantial funding for open space acquisition projects, especially since these local funds can be matched by state funds. For example, the 21 counties in New Jersey collect over \$157 million per year in open space taxes, of which some \$10.2 million is collected by Burlington County. Both Medford and Evesham Townships have dedicated Open Space Taxes as well. It should also be noted that both municipal and county taxes are frequently leveraged by long term borrowing, with the annual debt service paid by the annual tax levy, which allows local governments to undertake substantially larger projects than could be supported by the annual tax revenue collected in a single year.

A 1998 state constitutional amendment and the Garden State Preservation Trust Act of 1999 established a statewide land preservation fund by the dedication of \$98 million per year in sales tax revenues for 30 years. This dedicated funding stream is further leveraged through the issuance of \$1.15 billion in revenue bonds by the Garden State Preservation Trust, in a program designed to provide funds for state land acquisition, as well as state grants and loans to local governments and state grants to non-profit conservation organizations, for the period from 1999 through 2009. By law, some 40% of these funds are allocated to farmland preservation purposes, and some 60% are allocated for open space purposes through the New Jersey Department of Environmental Protection (NJDEP) Green Acres Program. For fiscal year 2006, which began on July 1, 2005, the Green Acres Program received an allocation of \$157,893,525 from the Garden State Preservation Trust, and the Legislature has already appropriated that amount to Green Acres, so that this money is immediately available for land preservation projects.

Using Funding from the Garden State Preservation Trust, the NJDEP Green Acres Program has two specific ways of financing permanent land preservation. The first is for direct state purchase of lands through the

“State Park and Open Space Acquisition Program” to permanently protect property to add to the existing system of state-owned parks, forests, wildlife management areas, and nature preserves. Many of the largest acquisitions (acreage-wise) over the past several years have been through this program. Green Acres also provides financial assistance through the “Local Government and Nonprofit Funding Program,” whereby they provide 50% matching grants and 2% interest loans to counties and municipalities, as well as 50% matching grants to non-profits, for land preservation projects. In some cases, counties and municipalities are also eligible for even lower interest loans through a separate loan program offered by the New Jersey Environmental Infrastructure Trust. It should also be noted that, in many cases, the state will partner with a county or local government, as well as a non-profit organization, so that a given transaction might include state acquisition funds as well as grants and/or loans to a local government, as well as a grant to a non-profit organization.

The final source of funding comes from the private sector. A substantial amount of money is raised by New Jersey’s nonprofit land trusts through private and corporate foundation and individuals, including individual landowners who take advantage of federal and state tax incentives to donate land, or to sell land for less than its appraised fair market value. These private contributions, in turn, provide the required match for grants to these non-profit groups, from state, county and municipal governments. In some cases, private contributions raised by non-profits also provide the required match for state grants to county or municipal local governments, or for county grants to municipal governments.

Following is a detailed list of these resources available for Land Preservation in the Medford/Evesham region of the Pinelands.

COUNTY

1. Burlington County Open Space Trust Fund

Eligible applicants: Municipalities and non-profit land trusts

Eligible projects: Open space acquisition, outdoor recreational facility development, and farmland preservation easement acquisition.

Tax Funds raised through the collection of a maximum tax of four cents per \$100 of assessed valuation in any given year will be used for land acquisition and recreational facility development. This funding, estimated at about \$10.2 million per year, will supplement the county's continued active participation in the state's Farmland Preservation Program and Green Acres land acquisition program.

Contact: Matt Johnson and Julie Gandy, Burlington County Office of Resource Conservation, 856-642-3850

2. Burlington County Farmland Preservation Program

See 2, c. - State Farmland Preservation Program below

STATE

1. NJDEP Green Acres Program

Eligible applicants: Municipalities, counties, and non-profit land trusts

Eligible projects: Open space acquisition and outdoor recreational facility development

Program Categories:

- a. Planning incentive Program - Offers 50% loan, 50% grant to those local governments that have enacted an open space tax and have adopted an open space and recreation plan.
- b. Nonprofit Organization Program: The Green Acres Program also runs Green Trust Funding Rounds for nonprofit charitable conservancies. The program offers 50% grants, with the match being made with cash or a donation of land.

Contact: Terry Caruso, Team Leader 609-984-0570

Website: www.state.nj.us/dep/greenacres/

2. Farmland Preservation Program

Eligible applicants (depending on Project):

Municipalities, counties, and non-profit land trusts

Eligible projects: Farmland Preservation

The Farmland Preservation Program is administered by the State Agriculture Development Committee (SADC), which coordinates with County Agriculture Development Boards, municipal governments, nonprofit organizations and landowners in the development of plans that best meet the needs of individual landowners.

Program Categories

- a. SADC Direct Easement Purchase - Landowners sell the development rights on

their farmland directly to the State Agriculture Development Committee (SADC). When landowners sell their development rights — also known as development easements — they retain ownership of their land, agree to permanent deed restrictions that allow only agricultural use. Note that the traditional method for determining easement value relies on two independent appraisals. In the Pinelands, appraisals generally reflect the value of the Pinelands Development Credits (PDCs) that have been assigned to the land. Because easements historically have had a low market value, landowners have been discouraged from pursuing preservation. Under the Garden State Preservation Trust Act, the Legislature directed the SADC to develop an alternative method of determining easement value under the SADC Direct Easement Purchase Program that considers a variety of factors relevant to this unique area as an incentive to enroll more Pinelands Farms in the farmland preservation program.

- b. SADC Fee Simple Purchase Program - The State Agriculture Development Committee (SADC) purchases farms outright from willing sellers. The SADC then deed-restricts the farms to permanently preserve them for agricultural use and resells them at auction to the highest bidders.
- c. Burlington County Easement Purchase Program - Landowners sell the development rights on their farmland to their county. When landowners sell their development rights — also known as development easements — they retain ownership of their land, but agree to permanent deed restrictions that allow only agricultural use. The State Agriculture Development Committee (SADC) provides counties with grants to fund 60-80 percent of the costs of purchasing development rights on approved farms. It generally holds one funding round per year for this program.
- d. Nonprofit program - The State Agriculture Development Committee (SADC) provides grants to nonprofit organizations to fund up to 50 percent of the fee simple or development easement values on farms to ensure their permanent preservation.
- e. Eight-Year Preservation - Landowners can choose to voluntarily restrict development on their land for a period of eight years. Although landowners receive no payment for this, they are eligible to apply for cost-sharing grants for soil and water conservation projects, as well as for the Farmland Preservation Program's other benefits and protections.

3. New Jersey Environmental Infrastructure Trust (Clean Water Financing)

Eligible Applicants: Municipalities, counties, sewerage or utility authorities, improvement authorities or local government units constructing new or improving existing wastewater stormwater or nonpoint source management facilities.

Eligible Projects: Land Purchase and conservation that protects water quality, wastewater collection and conveyance facilities, combined sewer overflow abatement facilities, rehabilitation of existing sewer systems, pump stations, stormwater basins, sewer maintenance equipment, lake restoration activities, landfill closure facilities (such as capping systems or leachate collection and treatment systems), new landfill facilities (such as double-composite liner systems and leachate collection and treatment systems), salt domes and others. The Financing Program also includes activities such as remedial action activities (including brownfields) and well sealing. Although the EIFP does not directly finance planning and design costs, an allowance (calculated as a percentage of the allowable building costs) to assist in defraying these costs is provided by the EJFP as part of the loan package.

Maximum Grant: Financing is provided from two sources, the New Jersey Department of Environmental Protection and the New Jersey Environmental Infrastructure Trust. The Department provides loans at 0% interest for approximately 20 years for up to one-half the allowable project costs. The Trust offers loans at about the market rate or less for the remaining allowable project costs, also for a 20-year term. Between these two funding sources, the rate on the loans is essentially half the market rate. Approximately \$100 million-\$200 million is available per year

Application Round: Deadline: on or about March 1st.

Notification: early September of same year

Contact: Nicholas G Binder Assistant Director 609-219-8600

Website: www.njeit.org

4. Tax Exempt Program and Payment in Lieu of Taxes (PILOT)

The Tax Exemption Program provides exemption from local property taxes to eligible nonprofit organizations that own recreation or conservation lands and open their private lands to the public.

Coupled with this tax exemption, the Garden State Preservation Trust program established a sliding scale for per acre in lieu of tax payments to local municipalities based on the percentage of a municipality's total land area in State and tax exempt nonprofit conservation and recreation land. Municipalities with less than 20% receive \$2 per acre for State and permanently preserved nonprofit

conservation and recreation land. Municipalities with 20% up to 40% open space receive \$5 per acre. Municipalities with 40% up to 60% open space receive \$10 per acre. Municipalities with 60% or more open space receive \$20 per acre.

Contact: Terry Caruso, Team Leader, NJDEP Green Acres Program (609) 984-0500

4. Pinelands Conservation Fund

The Pinelands has created the Pinelands Conservation Fund with \$6 million set aside for land acquisition.

Contact: John Stokes, Executive Director, Pinelands Commission (609) 894-7300

LAND TRUSTS AND LOCAL ENVIRONMENTAL ORGANIZATIONS

1. Rancocas Conservancy

The Rancocas Conservancy is a local land trust dedicated to Land Preservation in the Rancocas watershed. They work with local governments, Burlington County, the NJDEP Green Acres program and private foundations and individuals to permanently protect land.

Contact: Chris Jage, Trustee (856) 767-2632

2. New Jersey Conservation Foundation

The New Jersey Conservation Foundation preserves land and natural resources for the benefit of all.

Through acquisition and stewardship, NJCF protects strategic lands; promotes strong land use policies; and forges partnerships to achieve conservation goals. Since 1960, NJCF has protected tens of thousands of acres of open space - from the Highlands to the Pine Barrens to the Delaware Bayshore, from farms to forests to urban and suburban parks. For more information, call 1-888-LAND-SAVE, or visit www.njconservation.org. NJCF has 50% matching funding from NJDEP Green Acres Program to work on land preservation projects in the Medford/Evesham area.

Contact: Chris Jage, South Jersey Director (856) 767-2632

3. Cedar Run Refuge

Through the New Jersey Green acres Program the Woodford Family has preserved Cedar Run for future generations. They are working with state and local agencies and private non-profits to create a Greenway across the southern parts of Medford and Evesham townships. The Refuge has provided educational programs on behalf of the Rattlesnake Protection Coalition working to save endangered species habitat at “The Sanctuary.”

4. Pinelands Preservation Alliance

The mission of Pinelands Preservation Alliance is to preserve the resources of the New Jersey Pine Barrens. Although they are not a land trust, they assist public and private conservation agencies in acquiring ecologically and culturally significant land and development rights. They also maintain a professional staff, a body of scientific advisers, and an extensive volunteer network.

Contact: Carleton Montgomery, Executive Director (609) 859-8860

5. Trust for Public Land

The Trust for Public Land (TPL) is a national, nonprofit, land conservation organization that conserves land for people to enjoy as parks, community gardens, historic sites, rural lands, and other natural places, ensuring livable communities for generations to come. TPL’s River to Bay Greenway initiative, which passes through Medford and Evesham townships, is a vision

for a multi-use recreational route that will span 70 miles of southern New Jersey to link the Delaware River to the Barnegat Bay.

By providing linkages between existing and proposed open space sites, the River to Bay Greenway will provide much needed recreational resources - a “green infrastructure” for urban and suburban residents throughout Camden, Burlington, and Ocean counties. The Greenway will create the type of connectivity vital to pedestrian and bicycle access with the built environment in addition to protecting natural environments. The proposed Greenway will unite neighborhoods, waterfront parks, historic sites, active and passive municipal and county recreational lands, habitat conservation areas, bicycle-pedestrian corridors, state forests and the Forsythe National Wildlife Refuge.

Contact: Cindy Roberts at cindy.roberts@tpl.org

6. The Nature Conservancy

The mission of The Nature Conservancy (TNC) is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

TNC administers money from the Cape May Landfill settlement fund which is used for land acquisition in targeted TNC project areas of the Pinelands. The settlement fund is also used to for a grant program and has been used in the Medford Evesham area.

Contact: Jay Laubengeyer (609) 861-0600 ext 24

PRIVATE FOUNDATIONS and Other Sources of Capital

1. Victoria Foundation

Eligible applicants: Nonprofit organizations with 501(c)(3) status

Eligible projects: For land acquisition—projects must be eligible for consideration by the state Green Acres Program, must have passed their initial screening process, and must be in active consideration by Green Acres. Special consideration is given to projects that will protect wetlands and transition areas, farmland, critical wildlife habitats, headwaters, exceptional ecosystems, watershed lands, and aquifer recharge areas. Other eligible projects involve environmental education and leadership training, environmental research, public education and advocacy, and resource conservation in New Jersey

Maximum grant: Land Acquisition - grants may be used toward all or part of the 50% match for Green Acres grants, usually up to \$500,000. Other projects generally range from \$8,000 to \$50,000.

Required match: Land acquisition - Green Acres grant, Other grants - No

Application Round: Ongoing

Contact: 973-748-5300

Website: www.victoriafoundation.org/application.htm

2. William Penn Foundation

Eligible applicants: Nonprofit organizations with 501(c)(3) status

Eligible projects: Projects that support the goals of promoting open space preservation, promoting development, maintenance and use of natural areas within the Philadelphia region, and that support environmental education.

Maximum grant: Grants range from a few thousand to several million dollars, depending on the size of the organization and the scope of the project. Required match: None, but the foundation prefers to make grants for projects that receive support from several sources and that do not depend upon the Foundation for total funding.

Application Round: Accepts grant requests throughout the year

Contact: Geraldine Wang, 215-988-1830

Website: www.wpennfdn.org/what_we_fund/natural.asp

3. Geraldine R. Dodge Foundation

Eligible applicants: Nonprofit organizations with 501(c)(3) status

Eligible projects: Projects that fit under the foundation's "Public Issues" category that focus on issues of sustainability, ecosystem preservation, energy conservation, pollution prevention and reduction, and

environmental education and outreach that lead to enlightened environmental policy

Maximum grant: Grants generally range from \$10,000 to \$100,000

Required Match: None

Application Round: A one-page letter of inquiry by the applicant is encouraged to determine if a project fills within the foundation guidelines. Applications for Public Issues Grants must be postmarked by September 15 of each year

Contact: 973-540-8440

Website: www.grdodge.org/environment.html

4. Conservation Resources Inc.

Eligible Applicants: Non-profit conservation organizations with 501(c)(3) status

Conservation Resources Inc. (CRI) is a non-profit organization providing financial and technical services to the conservation community in New Jersey.

CRI features and markets New Jersey's exemplary land acquisition, stewardship and restoration projects in seven Geographic Funds representing the entire Garden State. These Featured Projects provide a means for philanthropic individuals, foundations, corporations and regulatory contributors to efficiently provide capital on conservation projects. CRI pre-screens Featured Projects and provides project oversight and technical assistance to the sponsoring conservation organizations.

Website: www.conservationresourcesinc.org

Contact: Michael Catania, President (908) 879-7942

5. Pew Charitable Trust

Eligible applicants: Organizations class as non profit under section 501(c)(3,) of the IRS Code, and as charitable under 509(a) of that code.

Eligible projects: Projects whose goals are to reduce the use and production of highly persistent toxic substances that adversely affect the environment and public health, and projects that halt the destruction and further degradation of forest and marine ecosystems in North America

Maximum grant: Majority of grants range from \$50,000 to \$250,000

Required match: None

Application Round: Proposals accepted year round and reviewed on rolling basis.

Contact: Joshua S Reichert, 215-575-4740

Website: www.pewtrusts.com/grants/index.cfm?image=img3

Land Stewardship

STATE

1. National Recreational Trails Act Projects

Administered through NJDEP, Division of Parks and Forestry, Office of Natural Lands Management

Eligible applicants: Public agencies and nonprofit organizations

Eligible projects: Trail proposal must be located on land that is publicly owned or privately owned with a government agency holding an easement or lease for public access. Projects must be completed within 3 years.

Maximum grant: \$25,000

Match required: 20% of total project, may be cash or fair market value of labor or materials Application round: Varies yearly

Contact: Larry Miller, Office of Natural Lands Management, 609-984-1339.

2. Landowner Incentive Program

The New Jersey Landowner Incentive Program (LIP), administered by the NJ Division of Fish and Wildlife Endangered and Nongame Species Program, can provide private landowners interested in conserving threatened and endangered species on their property with financial and technical assistance. It is the goal of LIP to work with private landowners to protect important habitats.

Eligible applicants: Private landowners, property must provide potentially suitable habitat for targeted threatened or endangered species.

Match requirement: landowner needs to provide 25% of total project cost, can be in-kind

Contact: nj_lip@yahoo.com, (609) 292-9400 FAX (609) 984-1414

3. Forest Stewardship Program and Forest Land Enhancement Program

The Forest Stewardship Program (FSP) is a federally funded forest management program designed by the US Forest Service and National Association of State Foresters. The program is intended to encourage management of private forestland for non-commodity benefits, such as wildlife, recreation, aesthetics and water quality as well as traditional commodities like timber and wood products. Forest Stewardship promotes long-term active management while emphasizing consideration of all the forest resources and benefits. The New Jersey Forest Service will refund landowners up to 75% for the cost of a new or revised Forest Management Plan to help meet the criteria necessary to participate in the state's Forest Stewardship Program.

The Forest Land Enhancement Program (FLEP) is a new cost-share program available starting in 2003. The cost-share funds available through FLEP are intended as

incentives to encourage private landowners to be good land stewards and actively manage their woodlands for a wide variety of objectives.

Eligible applicants: Private landowners, nonprofit land trusts

Contact: Jim Haase, NJ Forest Service, Central Region (609) 726-1621

4. New Jersey Department of Environmental Protection Nonpoint Source Pollution Control 319 (h) Grants

Eligible Applicants: Entities that may be eligible for funding include but are not limited to:

1. Municipal and county planning and health departments or boards
2. Designated water quality management planning agencies
3. State and regional entities entirely within New Jersey
4. State and federal government agencies
5. Universities and colleges
6. Interstate agencies of which New Jersey is a member
7. Watershed and water resource associations and other local Nonprofit 501(c) (3) organizations

In order to be eligible for these funds, the applicant must have:

1. Staff and resources with the capability, expertise and environmental experience to perform the proposed work
2. Ability and authority to implement the proposed project
3. Ability to establish and maintain partnerships to ensure project implementation as well as long term maintenance/management.

Eligible Projects: Specifically, funds are available for projects that: 1) identify and address nonpoint source pollution in a defined project area with priority given to those projects addressing 303(d) listed impairments, and 2) implement measures to protect currently unimpaired waters that are threatened by reasonably foreseeable degradation. The focus of the projects should be on specific measures that will mitigate or prevent adverse impact to lakes, bathing areas, drinking water intakes, shellfish beds, special aquatic habitats, and stream corridor integrity. Examples of eligible projects include urban retrofit, stream bank restoration, non-structural and structural stormwater management and/or water quality measures, development and implementation of regional stormwater management plans, source assessment leading to remediation, and projects to affect the non-point source load allocation implementation plans for established Total Maximum Daily Loads (TMDLs). (Please note the EPA 319 guidelines (Federal FY 2002/ State FY 2003) regarding the current shift in

emphasis on funding TMDL and watershed based projects.)

Eligible activities include construction activities, design, monitoring (to assess the success of spec nonpoint source implementation projects), and resource restoration to prevent the need for future remediation.

Priority will be given to those projects that propose implementation of a non-point source or stormwater management measure to improve an existing impairment on the 303(d) list, prevent future impairment at an Ambient Biological Monitoring Station currently assessed as “non-impaired” or implement a stormwater management and or water quality measure that has been identified under previous assessment projects, such as TMDLs and regional stormwater management plans. Interested parties should submit projects that target the priority impairments in each region and involve some activity related to assessment and/or implementation of NPS pollution issues, whether through prevention or reduction.

Section 319 funds may not be used for the following purposes:

1. Funding the purchase of land, major capital improvements, or computer hardware
2. Implementation of permit application requirements of federal, state, or local storm water regulations.
3. Implementation of activities required by the NJPDES regulations.
4. Implementation of lake dredging, weed harvesting, or dam maintenance without addressing the sources of the NPS pollutants causing the impairment.
5. Funding may not be used on private lands with the exception of demonstration projects, or if maintenance, access, and conservation easements have been obtained/or the area by an eligible entity. Demonstration projects reflect innovative methods in addressing non-point source pollution.
6. Education and Outreach. For projects involving implementation, education and outreach may be funded as a de minimus component of the project and no greater than 3% of the grant amount requested.
7. Funding food or promotional items.
8. Other ineligible activities based on current EPA guidelines/or Section 319(h) grants. Application Round: Pre-proposals due September 3, 2002
Contact: Karen Dorris, 609-984-6577 or karen.dorris@dep.state.nj.us

Website: nj.us/dep/watershedmgt/DOCS/BMP_DOC S/319afterDH_June7.doc

5. New Jersey Office of Environmental Services Matching Grants Program

Eligible applicants: Local environmental agencies

Eligible projects: Projects that promote the protection of natural resources by documenting those resources,

preparing policy recommendations to protect those resources, and by preparing and disseminating information about the ways in which the public can participate in protecting the environment. Examples of previously funded projects include: natural resource inventories, water quality studies, master plan and zoning ordinance amendments, open space plans, greenway planning, environmental trail designs, GIS mapping projects and public education programs.

Maximum grant: \$2,500

Required match: At least 50%

Application Round: Deadline is December 1; notification is March 15 of following year

Contact: John Rogers, Program Manager 609-984-0828 or: jrogers@dep.state.nj.us

Website: www.state.nj.us/depgrantandloanprograms/beamglea.htm

6. NJDEP Clean Lakes Program (currently unfunded)

Eligible applicants: Municipal, county and regional government agencies

Eligible projects: Projects that improve the recreational water quality at public lakes
Maximum grant: Up to 70% USEPA funding for Phase I Diagnostic Feasibility Projects; up to 50% state funding for Phase I Diagnostic Feasibility Projects. Up to 50% USEPA funding for Phase II Implementation Projects; up to 75% state funding for Phase II Implementation Projects.

Application round: Typically September 1 each year

Contact: Bud Cairn, Supervising Environmental Specialist, Water Monitoring Management, 609-292-0427

Website: www.state.nj.us/depgrantandloanprograms/beamglea.htm

FEDERAL

1. Programs of USDA NRCS

Natural Resources Conservation Service (NRCS) has a variety of conservation grant programs with the goal of improving fish and wildlife habitat. Two of the more commonly used programs include the Wildlife Habitat Incentives Program (WHIP) and the Wetlands Reserve Program (WRP).

Eligible applicants: State, County & Local governments, private landowners, and nonprofit organizations (NRCS determines final eligibility)

Required Match: depends on program.

Application round: Ongoing, open sign-up in New Jersey began October 1, 1996.

Contact: Betsy Clarke, Biologist, (609) 561-3223 ext. 22

2. Partners for Fish and Wildlife, US Fish and Wildlife Service

The Partners for Fish and Wildlife Program provides technical and financial assistance for landowners to protect, enhance, and restore habitats that benefit threatened and endangered species, migratory birds, anadromous fish, and some marine mammals.

Required Match: Generally 50% landowner match required

Contact: Eric Shrading, (609) 646-1456

3. Environmental Protection Agency Environmental Education Grants Program

Eligible applicants: Government agencies, school districts, colleges or universities, nonprofit organizations, and noncommercial educational broadcasting entities

Eligible activities: include, but are not limited to: training educators; designing and demonstrating field methods, educational practices and techniques, including assessing environmental and ecological conditions or specific environmental issues or problems; designing, demonstrating or disseminating environmental curricula; and fostering international cooperation in addressing environmental issues and problems in the U.S., Canada and/or Mexico.

Maximum Grant: Approximately \$3 million was available for FY 98; 25% of available funds must go to small grants of \$5,000 or less, maximum limit of \$250,000 for any single grant.

Required Match: A minimum of 25% of total cost of project required

Application round: Varies yearly

Contact: Terry Ippolito and Josephine Lagenda, USEPA Region 2, ippolito.teresa@epa.gov or lagenda.josephine@epa.gov or Customer Service hotline: 1-800-438-2474.

Website: www.epa.gov/enviroed/grants.html

OTHER SOURCES

1. Conservation Resources Inc. Small Grants Program

Exemplary stewardship projects featured in the Geographic Funds may be eligible for small grants of \$1,000 to \$10,000.

Eligible applicants: 501(c) (3) nonprofit organizations

Application round: Ongoing

Website: www.conservationresourcesinc.org

Contact: Michael Catania, (908) 879-7942

2. National Parks Service Rivers, Trails and Conservation Assistance Program

Eligible applicants: Community groups, municipalities, partnerships.

Eligible protects: Greenway plans, stream restoration, trail design, conservation workshops, and inventories of natural, cultural and recreational resources.

Maximum grant: Staff involvement (technical assistance) rather than financial assistance.

Required match: Projects are undertaken as partnerships, and costs are shared with other organizations. Cost-sharing arrangements may involve money and/or in-kind services.

Application Round: Ongoing assistance offered to applicants developing proposals, July deadline for formal application for assistance

Contact: Robert Potter Program Manager 215-597-1787

Website: www.nps.gov/chal/rtca/intro1.htm

OTHER SOURCES OF INFORMATION ON GRANTS:

Environmental Grant Making Foundations published by Resources for Global Sustainability, PO Box 22770, Rochester NY 14692-2770.

Telephone: 1-800-724-1857; Fax: 716-473-0968

E-mail: rgs.net

Website: <http://home.eznet.net/>

Costs: approximately \$90

The Mitchell Guide to New Jersey Foundations

published by Janet Mitchell, 430 Federal City Road, Pennington, NJ 08534-4209, 609-737-7224. The guide profiles 412 private foundations that donated more than \$200 million to 18,000 charitable agencies.

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 9

Model Conservation Easement

APPENDIX 9
SAMPLE CONSERVATION EASEMENT

PREPARED BY:

Signature

Typed or Printed Name

DEED OF CONSERVATION EASEMENT

THIS INDENTURE is dated as of _____, 20____, by and between **(Property Owner)**, having an address at _____, (hereinafter referred to as “Grantor”) and **Township OF Evesham**, an incorporated municipality within the County of Ocean, State of New Jersey, having an address at _____, (hereinafter referred to as “Grantee”).

WITNESSETH:

- A. WHEREAS, Grantor is the fee simple owner of certain real property (hereinafter referred to as “the Property”) known and designated as Block ____, Lot ____, on the tax map of the Township of Evesham, County of Burlington, State of New Jersey, which property is described in Schedule A annexed hereto.
- B. WHEREAS, Grantee is a municipal body whose intent is to preserve and protect certain lands within the municipality that are critical habitat for threatened and endangered species.
- C. WHEREAS, the Legislature of the State of New Jersey has declared that the retention of land for open space purposes is important to the present and future economy of the State and the welfare of the citizens of the State. [NEED CITATION]
- D. WHEREAS, a portion of the Property has been determined to contain critical habitat for threatened and endangered species. This portion of the Property is the Natural Area and is described in Schedule B. The physical features, vegetation, and other characteristics of the Natural Area have been or will be catalogued in the Baseline Documentation described in Schedule C and compiled in connection with the transfer of this Easement.
- E. WHEREAS, the Natural Area has further been identified as providing critical habitat for a local population of (Pine snake/Timber rattlesnake/Corn snake/Other) , a (threatened) /(endangered) species in New Jersey. The Pinelands Commission has issued a Certificate of Filing stating that “no development, including clearing and land disturbance, is permitted” within this portion of the Property.
- F. NOW, THEREFORE, in consideration of the foregoing, the covenants and agreements contained herein and other good and valuable consideration, the Grantor hereby grants, bargains, conveys, transfers and assigns to Grantee, its successors and assigns, in perpetuity, the conservation easements and restrictions described hereinafter on the Natural Area described in Schedule B.

DEFINITIONS:

The following terms shall have the following meanings when used herein, unless the context clearly requires otherwise. Terms defined in the singular shall have a correlative meaning when used in the plural and *vice versa*, and other inflected forms of such defined terms shall likewise have correlative meanings.

The term “**Baseline Documentation**” means an inventory report or other documentation cataloging the physical features, vegetation, condition of the Natural Area, condition and location of the Natural Area boundaries and access points, and other characteristics of the Natural Area, including but not limited to a USGS topographic map showing property lines and other nearby protected land; aerial photographs; on-site photographs showing resources protected, existing structures and improvements and other areas of concern; annotated survey plan or detailed property map including man-made features and approximate photo locations and perspectives; excerpt of soils map, showing property lines and soils productivity classifications; and a recorded copy of this Deed of Conservation Easement (submitted after closing). (Intended to satisfy Section 1.170A-14(g)(5) of the federal tax regulations.)

The term “**Conservation Values**” means all those natural, scenic, aesthetic, open space, ecological, plant and wildlife habitat, soil and water resource quality, watershed, wetland, and similar features and values that characterize, or are or become associated with the Property.

The term “**Easement**” means this Deed of Conservation Easement.

The term “**hazardous or toxic substance**” means such elements, compounds and substances which pose a present or potential threat to human health, living organisms or the environment. They consist of all hazardous or toxic substances defined as such by the Department of Environmental Protection and the Environmental Protection Agency as of May 20, 1996 and any other substances defined as hazardous or toxic by the Department of Environmental Protection and the Environmental Protection Agency subsequent to May 20, 1996. See N.J.A.C. 7:50-2.11.

The term “**Natural Area**” means the portion of the Property that has been determined to contain critical habitat for threatened and endangered species and is described in Schedule B.

The term “**passive recreational activities**” means low-impact outdoor recreational pursuits that do not involve the use, placement, construction or installation of any structure or items of fixed or semi-fixed equipment, or result in any alteration of the land, other than those trail-related structures and surface alterations expressly permitted below. By way of example, and without limiting the generality of the foregoing, passive recreational activities shall not include such things as athletic fields, playgrounds, racquet courts, golf courses, skating rinks, tracks, sports stadiums, downhill ski runs and lifts, water parks, shooting ranges, and similar installations.

The term “**structure**” means any combination of materials to form a construction, fabrication, or any thing of human manufacture, for temporary or permanent occupancy, use or ornamentation, whether constructed on, above or below the surface of the land comprising the Property, including, but not limited to: (i) houses, cabins, mobile homes, trailers, barns, stables, sheds, silos, greenhouses, outhouses, cabanas, and other buildings and similar items of every kind and description, (ii) swimming pools, fences, docks, bridges, decks, satellite dishes and antennae, cellular telephone and other towers, billboards, signs, storage tanks and other accessory structures and fixed items of equipment; (iii) water, sewer, power, fuel and communication lines, other utility systems and related facilities; (iv) culverts, detention basins, and other stormwater or groundwater storage and control facilities; and (v) pads, patios, playing courts, riding rings, paddocks, corrals, pens, walkways, roads, driveways, parking areas and other areas constructed of or surfaced with wood, concrete, macadam, brick, paving stones, cinder block, gravel, clay, stone dust or other impervious or semi-pervious material.

The term “**Qualified Entity**” means a nonprofit organization, governmental body, or other legal entity legally qualified to be a holder of conservation easements in the State of New Jersey.

The terms “**wetlands**” and “**wetland areas**” mean wetlands as defined at N.J.A.C. 7:50 as those lands which are inundated or saturated by water at a magnitude, duration and frequency sufficient to support the growth of hydrophytes. Wetlands include lands with poorly drained or very poorly drained soils as designated by the National Cooperative Soils Survey of the Soil Conservation Service of the United States Department of Agriculture. Wetlands include coastal wetlands and inland wetlands, including submerged lands. The "New Jersey Pinelands Commission Manual for Identifying and Delineating Pinelands Area Wetlands - a Pinelands Supplement to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands," dated January, 1991, as amended, may be utilized in delineating the extent of wetlands based on the definitions of wetlands and wetlands soils contained in this section, N.J.A.C. 7:50-2.11, 6.4 and 6.5. See N.J.A.C. 7:50-6.3.

PURPOSES:

The purposes of this Easement include, but are not limited to, the following:

- (a) that the lands subject to this Easement be protected in their natural, scenic, open and existing state in perpetuity, subject only to the specific rights expressly reserved to the Grantor herein;
- (b) that the natural features of the Natural Area and the Conservation Values associated with the Natural Area be respected and preserved to the maximum extent consistent with Grantor’s exercise of the rights expressly reserved to Grantor by the terms of this Easement;
- (c) that the Natural Area be forever protected and preserved in its natural, scenic and existing state free from all activities that might damage, compromise or interfere with its ecological diversity, natural beauty or resource quality, or with the natural processes occurring therein;
- (d) that future uses of the Natural Area be confined to such activities as are not inconsistent with the said purposes or with the terms and conditions of this Easement.

GRANT OF PERPETUAL EASEMENT:

1. **Structures.** No structure or structures (as defined herein) shall be constructed, built, installed, placed, erected, assembled, manufactured, fabricated, altered, enlarged, renovated or replaced on, above or beneath the surface of the Property, except:
 - (a) trail-related structures as provided in Paragraph 15.3;
 - (b) signs as provided in Paragraph 15.3 and Paragraph 16.4; and/or
 - (c) where existing structures require such maintenance or repair as is required to prevent a safety hazard, as approved by Grantee.
2. **Surface Alteration.** The surface topography and natural features of the Natural Area shall not be disturbed or altered, except if:
 - (a) the same is reasonably necessary in order to carry out an activity expressly permitted by this Easement;
 - (b) all proposed alterations are expressly reviewed and approved by Grantee; and
 - (c) appropriate measures are taken to minimize and mitigate any adverse impacts on the Natural Area or the Conservation Values.
3. **Alteration of Wetlands.** No wetland area shall be drained, dredged, filled, diked, or otherwise disturbed except for such conservation and water quality improvement measures as Grantee may approve in writing, which approval shall be within Grantee's sole discretion.
4. **Alteration of Streams and Water Bodies.** The course, flow, size, quality, or other characteristics of streams, rivers, lakes or other water bodies located within the Natural Area shall not be altered or manipulated, except for such conservation and water quality improvement measures as Grantee may approve in writing, which approval shall be within Grantee's sole discretion.
5. **Cutting and Destruction of Vegetation.** Tree limbs, shrubs, native plants, vegetation or other plant material shall not be cut, destroyed or removed from the Natural Area, except that (a) dead, fallen, diseased or infected tree limbs or other vegetation that pose a health or safety hazard may be trimmed or removed, and (b) non-native vegetation may be controlled by physical means or through responsible application of herbicides and biological control measures in accordance with Paragraph 7.
6. **Invasive Plant Species.** No invasive or non-native species shall be planted within the Natural Area. Plantings within the Natural Area shall be approved by Grantee and shall be limited to native shrubs, trees and other vegetation which is adapted to the droughty, nutrient-poor conditions characteristic of the New Jersey Pinelands, as described at N.J.A.C. 7:50-6.21 et seq.
7. **Harmful Substances.** Substance(s), including, but not limited to fertilizers, herbicides, pesticides or fungicides, shall not be used on the Natural Area if such use would pose a threat of harm to any threatened or endangered plant or animal species or rare community type as identified by the New Jersey Natural Heritage Database or similar compendium, including, but not limited to, timber rattlesnakes and northern pine snakes.
8. **Refuse and Offensive Materials.** There shall be no processing, storage, disposal, spreading, placing or dumping of refuse, rubbish, debris, dredge spoil, chemicals, Hazardous Materials, animal waste, fertilizers or abandoned vehicles within the Natural Area.
9. **Motorized Vehicles.** No automobiles, trucks, all-terrain vehicles, trail bikes, motorcycles, snowmobiles or other motorized vehicles shall be used within the Natural Area except for emergency purposes.
10. **Commercial Uses.** No commercial or industrial uses shall be made of the Natural Area.
11. **Mining and Extraction.** No loam, peat, turf, soil, gravel, sand, coal, rock, minerals, petroleum, or natural gas, or other natural resource shall be mined, quarried, drilled, excavated, dredged, extracted or otherwise removed from the Natural Area.
12. **Other Activities.** No other activity shall be conducted on, or use made of, the Property or the Natural Area that is likely to have an adverse impact on the critical habitat for threatened/endangered species located on the Natural Area.
13. **Subdivision.** There shall be no partition, division or subdivision, legal or de facto, of the Property, or any portion thereof, into more than one ownership, including along any existing interior lot lines.

14. **Public Access.** Nothing contained herein shall be construed to convey to the public any right of access to or use of the Property, and the Grantor, for itself, its successors and assigns shall, subject to Paragraph 9 hereof, shall retain the exclusive right of access to and use of the Property.
15. **Grantor's Reserved Rights.** The prohibitions set forth herein notwithstanding, Grantor reserves the right to engage in those uses and activities described in this Article 15, subject to any and all conditions, limitations and restrictions imposed by law or by other applicable provisions of this Easement.
- 15.1 **Acts and Uses Not Otherwise Prohibited.** Grantor reserves all rights inherent in the ownership of the Property that are not prohibited by, or inconsistent with, the terms and purposes of, this Easement.
- 15.2 **Soil and Water Conservation or Habitat Restoration.** Grantor may engage in such soil and water conservation practices or habitat restoration projects within the Natural Area as may be necessary or appropriate, provided that such activities further the goals intended to be achieved by this Easement and protect the Conservation Values.
- 15.3 **Passive Recreational Activities.** Grantor may use and allow the Natural Area to be used for passive recreational activities (as defined herein), such as: nature study and observation, hiking, picnicking, cross-country skiing and hunting. Recreational activities other than passive recreational activities shall not be permitted. The scope and frequency of, number of participants in, and manner of carrying out such passive recreational activities shall be limited as necessary to ensure that they do not result in damage to, or degradation of, the Natural Area or the Conservation Values. In connection with, and to enhance and support, the foregoing permitted passive recreational activities, Grantor may:
- (a) maintain existing trails, provided that no trail shall be improved with mac adam, gravel, paving stones or other impervious or semi-pervious material, with the exception of designated handicap-accessible trails as approved by the Grantee;
 - (b) construct and maintain minor rustic boundary markers and trail markers;
 - (c) construct and maintain other trail-related improvements reasonably necessary for safe enjoyment of the Natural Area or the control of runoff or trail-related damage, such as: steps, bog bridges, erosion bars and railings and small unlighted informational and interpretive signs, provided that they shall be constructed of rustic natural colored materials that blend in with the natural surroundings and complement the natural and scenic features of the landscape; and
 - (d) install barriers and low fences where necessary to prevent use or access by motor vehicles or to protect fragile natural resources, provided that they shall be constructed of rustic natural colored materials that blend in with the natural surroundings and complement the natural and scenic features of the landscape.
16. **Rights of Grantee.** To accomplish the purposes of this Easement, the following rights are hereby conferred upon Grantee and its employees, agents and representatives.
- 16.1 **Access.** To have access to and enter upon the Natural Area at reasonable intervals for the purpose of inspecting the Natural Area to monitor compliance with and otherwise enforce the terms of this Easement, and to conduct scientific research and biological inventories including, if necessary, the right to enter upon and cross over other lands owned by Grantor, or over which Grantor has a right of ingress and egress; provided, however, that except in cases in which Grantee determines that immediate entry is required to prevent, terminate or mitigate any violation of this Easement, such entry shall be upon prior reasonable notice to Grantor, and Grantee shall not unreasonably interfere with Grantor's use and quiet enjoyment of the Property.
- 16.2 **Protection of Conservation Values.** To protect and preserve the Conservation Values of the Natural Area (subject to the rights reserved to Grantor herein), and in connection therewith, to determine the consistency of any activity or use for which no express provision is made herein with the purposes of this Easement and the Conservation Values.
- 16.3 **Monitoring and Enforcement.** To enforce this Easement in the case of any breach or violation by Grantor or by third persons (whether or not claiming by, through, or under Grantor) by means of any remedy provided for herein or otherwise available at law or in equity; to conduct regular biological and ecological monitoring activities with prior reasonable notice to Grantor; to require of Grantor or third persons the restoration of such areas or features of the Property as may be damaged by any inconsistent activity or use, and, if Grantor shall fail to do so and if Grantee shall so elect, to carry out reasonable and appropriate restoration activities on the Property following a violation of this Easement.

16.4 **Easement Signs.** To erect signs on the Natural Area indicating that the Natural Area is restricted by this Easement, identifying Grantee as the holder of this Easement, demarcating the location of the perimeter of the area covered by this Easement, and identifying various activities that are prohibited on the Property, which signs shall be approximately one (1) square foot in size and consistent in general design with those used by Grantee on other properties as to which Grantee has stewardship or management responsibilities.

17. **Enforcement.** This conservation restriction shall be fully enforceable by the Grantee, which is a special beneficiary of the conservation restriction, in an action at law or equity or both. Moreover, Grantee and its respective agents shall be permitted access to, and to enter upon Property at all reasonable times but solely for the purpose of scientific monitoring activities and inspection in order to enforce and assure compliance with the terms and conditions herein contained. Grantee agrees to give Grantor 24 hours advance notice of their intention to enter the Property, and further, to limit such times of entry to the daylight hours.

18. **Successors and Assigns.** This instrument shall be binding upon the Grantor, its successors and assigns.

19. **Future Instruments and Notice of Transfer.** This instrument shall be recorded in the Office of the Clerk of Burlington County and a reference to this instrument shall be contained in a separate paragraph of any future deed, lease, or document of transfer or conveyance affecting the Property described in Schedule A, of which the restricted portion is a part. Grantor shall give written notice to the Grantee of any such transfer or conveyance of interest in the Property described in Schedule A prior to or within ten (10) days following such transfer or conveyance. Such notice shall include the name and address of the Grantee of such interest. Grantor shall provide a copy of this instrument to all subsequent Grantees of a fee simple interest in any part or all of the Property. The failure of the Grantor to perform any act required by this Paragraph shall not impair the validity of this instrument or limit its enforceability in any way.

20. **Additional Monitoring and Enforcement Rights.** Grantee shall have the right to grant to the State of New Jersey Pinelands Commission or to any other governmental agency or Qualified Entity the power to monitor and/or enforce any or all of the terms and conditions of this Easement in the same manner and to the same extent as could be done by Grantee.

21. **Schedules & Exhibits.** The following schedules and exhibits are annexed to and shall form a part of this Easement:

- Schedule A: Description of the Property
- Schedule B: Description of the Natural Area
- Schedule C: Baseline Documentation
- Exhibit 1: Drawing depicting the Property and the Natural Area

IN WITNESS WHEREOF, and intending to be legally bound, the GRANTOR has executed this indenture.

By: _____ By: _____

Witness GRANTOR

By: _____

GRANTOR

STATE OF NEW JERSEY, COUNTY OF BURLINGTON:

I CERTIFY that on _____, 200__, _____ personally came before me and acknowledged under oath, to my satisfaction that this person (or if more than one, each person):

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document at his or her act and deed; and
- (c) this transfer is made for no monetary consideration

Signed and Sworn to before me on _____, 200_

(Print name of attesting witness below signature)

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 10

Information Sources

APPENDIX 10
INFORMATION SOURCES

- *Evesham Township Traffic Circulation Plan, 1988*
- *Evesham Township Open Space, December 2004 (potential open space acquisitions)*
- *Evesham Township Water Distribution Plan, Last revised April 1995*
- *Evesham Township Wastewater Management Plan, Last revised September 25, 1998*
- *Evesham Township Master Plan Update: Traffic Circulation Plan Element, January 6, 2000*
- *Township of Medford Master Plan: Traffic Circulation Plan Element; March 1995*
- *Medford Township Wastewater Facilities Plan, last revised July 30, 1997*
- *Medford Township Wastewater Management Plan, last revised November 1987*
- *Medford Township Water Service System Plan, undated*
- *Medford Township Water Master Plan Service Area Map, February 14, 1989*
- *Medford Township Open Space and Farmland Inventory Map Map, November 1999*
- *Burlington County Parks and Open Space Master Plan; August 2002*
- *Burlington County Parks and Open Space Master Plan, Background Report #1, Parks and Open Space Inventory and needs Assessment, August, 2002*
- *Burlington County Parks and Open Space Master Plan, Background Report #2, Population Characteristics, August, 2002*
- *Burlington County Parks and Open Space Master Plan, Background Report #3, Natural Resource Inventory, August, 2002*
- *Clean and Plentiful Water: A Management Plan for the Rancocas Creek Watershed, Burlington County Department of Resource Conservation; March 2003*
- *Rancocas Main Branches Greenway Plan, Delaware Valley Regional Planning Commission, December, 2002*
- *Pine Snakes Surveys on the Aerohaven Site for the Evesham Municipal Utilities Authority in Evesham Township, Burlington County, New Jersey, January 13, 2004*
- *Assessing Timber Rattlesnake Movements Near a Residential Development and Locating New Hibernacula in the New Jersey Pinelands, 2004*
- *Summary of Northern Pine Snake Observations on and in the Vicinity of the Sanctuary Development in Evesham Township, Burlington County, New Jersey; Submitted October 22, 2004*
- *A Regional Natural Resource Protection Plan for the Toms River Corridor, Jackson and Manchester Townships, Ocean County, New Jersey; February 2004*
- *The Mullica River Basin, A report to the Pinelands Commission on the Status of Selected Aquatic and Wetland Resources; 2001*
- Laidig, K. J. and D. M. Golden. 2004. Pinelands timber rattlesnake study: final report. Pinelands Commission, New Lisbon, NJ.
- Dow, C. L. and R. A. Zampella. 2000. Specific conductance and pH as indicators of watershed disturbance in streams of the New Jersey Pinelands, U.S.A. *Environmental Management*. 26:437-445.
- Zampella, R. A., C. L. Dow, and J. F. Bunnell. 2001. Using reference sites and simple linear regression to estimate long-term water levels in Coastal Plain forests. *Journal of the American Water Resources Association*. 37:1189-1201

- Zampella, R. A., J. F. Bunnell, K. J. Laidig, and C. L. Dow. 2001. The Mullica River Basin: A report to the Pinelands Commission on the status of the landscape and selected aquatic and wetland resources. Pinelands Commission, New Lisbon, NJ.
- Zampella, R. A. and J. F. Bunnell. 1998. Use of reference-site fish assemblages to assess aquatic degradation in Pinelands streams. *Ecological Applications* 8:645-658.
- Zampella, R. A. and K. J. Laidig. 1997. Effect of watershed disturbance on Pinelands stream vegetation. *Journal of the Torrey Botanical Society* 124:52-66.
- Zampella, R. A., J. F. Bunnell, K. J. Laidig, and N. A. Procopio. 2003. The Rancocas Creek Basin: A report to the Pinelands Commission on the status of selected aquatic and wetland resources. Pinelands Commission, New Lisbon, NJ.

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 11

***Explanation of Codes
Used in Natural Heritage Reports***

Appendix 11 EXPLANATIONS OF CODES USED IN NATURAL HERITAGE REPORTS

Federal Status Codes

The following U.S. Fish and Wildlife Service categories and their definitions of endangered and threatened plants and animals have been modified from the U.S. Fish and Wildlife Service (F.R. Vol. 50 No. 188; Vol. 61, No. 40; F.R. 50 CFR Part 17). Federal Status codes reported for species follow the most recent listing.

- LE** Taxa formally listed as endangered.
- LT** Taxa formally listed as threatened.
- PE** Taxa already proposed to be formally listed as endangered.
- PT** Taxa already proposed to be formally listed as threatened.
- C** Taxa for which the Service currently has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species.
- S/A** Similarity of appearance species.

State Status Codes

Plant taxa listed as endangered are from New Jersey's official Endangered Plant Species List (N.J.A.C. 7:5C – 5.1).

- E** Native New Jersey plant species whose survival in the State or nation is in jeopardy.

Regional Status Codes for Plants and Ecological Communities

- LP** Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction. Not all species currently tracked by the Pinelands Commission are tracked by the Natural Heritage Program. A complete list of endangered and threatened Pineland species is included in the New Jersey Pinelands Comprehensive Management Plan.
- HL** Indicates taxa or ecological communities protected by the Highlands Water Protection and Planning Act within the jurisdiction of the Highlands Preservation Area.

Explanation of Global and State Element Ranks

The Nature Conservancy developed a ranking system for use in identifying elements (rare species and ecological communities) of natural diversity most endangered with extinction. Each element is ranked according to its global, national, and state (or sub national in other countries) rarity. These ranks are used to prioritize conservation work so that the most endangered elements receive attention first. Definitions for element ranks are after The Nature Conservancy (1982: Chapter 4, 4.1-1 through 4.4.1.3-3).

Global Element Ranks

- G1** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2** Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3** Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; with the number of occurrences in the range of 21 to 100.
- G4** Apparently secure globally; although it may be quite rare in parts of its range, especially at the periphery.
- G5** Demonstrably secure globally; although it may be quite rare in parts of its range, especially at the periphery.

- GH** Of historical occurrence throughout its range i.e., formerly part of the established biota, with the expectation that it may be rediscovered.
- GU** Possibly in peril range-wide but status uncertain; more information needed.
- GX** Believed to be extinct throughout range (e.g., passenger pigeon) with virtually no likelihood that it will be rediscovered.
- G?** Species has not yet been ranked.
- GNR** Species has not yet been ranked.

State Element Ranks

- S1** Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres). Elements so ranked are often restricted to very specialized conditions or habitats and/or restricted to an extremely small geographical area of the state. Also included are elements which were formerly more abundant, but because of habitat destruction or some other critical factor of its biology, they have been demonstrably reduced in abundance. In essence, these are elements for which, even with intensive searching, sizable additional occurrences are unlikely to be discovered.
- S2** Imperiled in New Jersey because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences, primarily because of habitat destruction. Diligent searching may yield additional occurrences.
- S3** Rare in state with 21 to 100 occurrences (plant species and ecological communities in this category have only 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreage or elements with restricted distribution, but locally abundant. Not yet imperiled in state but may soon be if current trends continue. Searching often yields additional occurrences.
- S4** Apparently secure in state, with many occurrences.
- S5** Demonstrably secure in state and essentially ineradicable under present conditions.
- SA** Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include European strays or western birds on the East Coast and vice-versa.
- SE** Elements that are clearly exotic in New Jersey including those taxa not native to North America (introduced taxa) or taxa deliberately or accidentally introduced into the State from other parts of North America (adventive taxa). Taxa ranked SE are not a conservation priority (viable introduced occurrences of G1 or G2 elements may be exceptions).
- SH** Elements of historical occurrence in New Jersey. Despite some searching of historical occurrences and/or potential habitat, no extant occurrences are known. Since not all of the historical occurrences have been field surveyed, and unsearched potential habitat remains, historically ranked taxa are considered possibly extant, and remain a conservation priority for continued field work.
- SP** Element has potential to occur in New Jersey, but no occurrences have been reported.
- SR** Elements reported from New Jersey, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. In some instances documentation may exist, but as of yet, its source or location has not been determined.
- SRF** Elements erroneously reported from New Jersey, but this error persists in the literature.
- SU** Elements believed to be in peril but the degree of rarity uncertain. Also included are rare taxa of uncertain taxonomical standing. More information is needed to resolve rank.
- SX** Elements that have been determined or are presumed to be extirpated from New Jersey. All historical occurrences have been searched and a reasonable search of potential habitat has been completed. Extirpated taxa are not a current conservation priority.

- SXC** Elements presumed extirpated from New Jersey, but native populations collected from the wild exist in cultivation.
- SZ** Not of practical conservation concern in New Jersey, because there are no definable occurrences, although the taxon is native and appears regularly in the state. An SZ rank will generally be used for long distance migrants whose occurrences during their migrations are too irregular (in terms of repeated visitation to the same locations), transitory, and dispersed to be reliably identified, mapped and protected. In other words, the migrant regularly passes through the state, but enduring, mappable element occurrences cannot be defined.

Typically, the SZ rank applies to a non-breeding population (N) in the state - for example, birds on migration. An SZ rank may in a few instances also apply to a breeding population (B), for example certain lepidoptera which regularly die out every year with no significant return migration.

Although the SZ rank typically applies to migrants, it should not be used indiscriminately. Just because a species is on migration does not mean it receives an SZ rank. SZ will only apply when the migrants occur in an irregular, transitory and dispersed manner.

- B** Refers to the breeding population of the element in the state.
- N** Refers to the non-breeding population of the element in the state.
- T** Element ranks containing a “T” indicate that the infraspecific taxon is being ranked differently than the full species. For example *Stachys palustris* var. *homotricha* is ranked “G5T? SH” meaning the full species is globally secure but the global rarity of the variety *homotricha* has not been determined; in New Jersey the variety is ranked historic.
- Q** Elements containing a “Q” in the global portion of its rank indicates that the taxon is of questionable, or uncertain taxonomical standing, e.g., some authors regard it as a full species, while others treat it at the sub-specific level.
- .1** Elements documented from a single location.

Note: To express uncertainty, the most likely rank is assigned and a question mark added (e.g., G2?). A range is indicated by combining two ranks (e.g., G1G2, S1S3)

Revised June 2005

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 12

Evaluation of Traffic Impacts



December 16, 2005

Mr. Edward M. Sasdelli
Evesham Township Manager
Evesham Township Municipal Building
984 Tuckerton Road
Marlton, NJ 08053

RE: Evaluation of Traffic Impacts
"Preliminary Zoning Concept"
for Southern Evesham and
Medford Townships
by the N.J. Pinelands Commission

Dear Ed:

In accordance with your request I have examined the potential traffic impact associated with the "Preliminary Zoning Concept" for the southern parts of Evesham and Medford Townships as proposed by the New Jersey Pinelands Commission. In the course of my examination I have spoken with Mr. David Kutner, Director of Special Programs for the Pinelands Commission and have reviewed a map illustrating the preliminary zoning concept within the 'project area' (i.e., southern parts of Evesham and Medford Townships) as well as supporting information provided by Mr. Kutner.

It is my understanding that the calculated potential development yield within the 'project area' would be reduced from 579 single family dwelling units permitted under existing zoning to 270 units under the preliminary zoning concept. Traffic engineering studies/research over the past quarter century show that on average, a single family dwelling unit generates one vehicular trip during the typical A.M. and P.M. peak traffic hours on a weekday (i.e., typically between 7:00 A.M. and 8:00 A.M. and between 5:00 P.M. and 6:00 P.M.) and about 10 vehicular trips (five in/five out) in the course of a typical 24-hour weekday period. In general then it is my opinion that the potential reduction in about 309 single family units in the 'project area' resulting from the "Preliminary Zoning Concept" will result in the generation of about 300 fewer peak hour trips (total in plus out) from the 'project area' and about 3,000 fewer daily trips.

I also understand that the "Preliminary Zoning Concept" will result in the reduction in number of potential dwelling units in selected 'sub-areas' within the 'project area' (i.e., 'sending areas') and an associated increase in other areas (i.e., 'receiving areas'). Specifically,

- the Rural Development Receiving Area, 81 acres adjacent to the Evesham/Voorhees border off Tomlinson Mill Road, which is currently zoned to permit 25 single family units could accommodate as many as 75 units under the 'Preliminary Zoning Concept'
- the Black Run North Area (in the northwest quadrant of the 'project area' in Evesham) and the Connector Area (immediately east of the Aerohaven site) are 'sending areas' which together might be able to transfer as many as 100 units to other 'receiving areas' including the Rural Development Receiving Area
- the Black Run South Area (between Tomlinson Mill and Kettle Run Roads), which has a potential yield of as many as 50 units under current zoning would have a potential yield of only 20 units under the "Preliminary Zoning Concept"

Given the relatively small number of potential transfers within the Evesham Township part of the 'project area' and the associated number of peak hour and daily trips (most likely, less than 50 peak hour trips) as well as the configuration of the roadway network in the southern part of the Township I don't believe there will be any significant traffic impact resulting from the "Preliminary Zoning Concept".

Orth-Rodgers conducted a traffic engineering assessment of Kettle Run Road and other roads in that part of the Township about five years ago. That study suggested that two lane roads such as Kettle Run, Hopewell and Tomlinson Mill Roads could accommodate hourly traffic volumes of as much as 800 to 1,000 vehicles (total, both directions) before motorists would begin to feel any significant constraint. Current peak hourly volumes on those roads range from about 300 to 400 vehicles (Kettle Run) to as much as 700 to 800 vehicles (Hopewell and Tomlinson Mill). **It is my opinion that potential changes in traffic volumes/patterns along these roads resulting from the "Preliminary Zoning Concept" will not have any significant impact on traffic flow or operations on any of these routes.**

Mr. Edward M. Sasdelli
Page 3
December 16, 2005

It is also my opinion that Kettle Run, Tomlinson Mill and Hopewell Roads function as collector roadways within the Township road network. Regional growth and development outside the 'project area' will have little, if any, impact on traffic volumes and patterns on any of these routes.

I hope I have addressed the traffic-related questions/concerns which have been raised with regard to the "Preliminary Zoning Concept" presented by the Pinelands Commission. If you have any questions or need additional information, please contact me.

Very truly yours,

ORTH-RODGERS & ASSOCIATES, INC.



H. Richard Orth, P.E.
Senior Consultant
Evesham Township Traffic Engineer

HRO/brn
cc: David Kutner, Pinelands Commission

SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 13

Public Involvement Strategy

SOUTHERN MEDFORD/EVESHAM
SUB REGIONAL NATURAL RESOURCES PROTECTION PLAN

PUBLIC INVOLVEMENT STRATEGY

MEDFORD TOWNSHIP
EVESHAM TOWNSHIP
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
NEW JERSEY PINELANDS COMMISSION

NOVEMBER, 2004

MEDFORD/EVESHAM
SUB-REGIONAL NATURAL RESOURCES PROTECTION PLAN

PUBLIC INVOLVEMENT STRATEGY

TABLE OF CONTENTS

1. Introduction	1
2. Description of the Project:	1
3. Project Committees:	2
4. Project Schedule	2
5. Public Participation Activities And Responsibilities	2
6. Public Involvement Tools	2
7. Point Of Contact	3
8. Glossary	4

ATTACHMENTS

Attachment 1 Committee Membership	5
Attachment 2 Project Schedule	6
Attachment 3 Notice to Interested Parties	7

Exhibits

Exhibit 1 Study Area Map	8
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1. INTRODUCTION

The purpose of this Public Involvement Strategy is to assist in promoting public understanding of and participation in the Medford/Evesham Sub-Regional Resource Protection Plan. This project is being undertaken with assistance from the William Penn Foundation. The principal parties participating in this Project, the Townships of Medford and Evesham, the New Jersey Department of Environmental Protection and the New Jersey Pinelands Commission, are fully aware of the need for consensus among a variety of potentially affected parties to support land use and preservation strategies that are expected to be developed through the planning process. Consequently, the application for funding to the William Penn Foundation included the preparation of this Public Involvement Strategy as a specific product of this project.

This Public Involvement Strategy outlines a variety of tools and activities to encourage public involvement. The goal of this Public Involvement Strategy is to promote public understanding of the objectives of Medford/Evesham Sub-Regional Resource Protection Plan project, including opportunities for public involvement, so that the community can provide comments and be involved in a meaningful way throughout the planning process. The following sections provide background information on the project, the project area and the anticipated project outcomes and outline public involvement tools and activities.

2. DESCRIPTION OF THE PROJECT

In June, 2004, the William Penn Foundation awarded a grant to the Pinelands Commission to prepare a detailed conservation plan for a 22.5 square mile area encompassing the southern portion of Medford and Evesham Townships (*see Exhibit 1 – Study Area Map*). The Pinelands Commission will prepare this conservation plan in conjunction with a Steering Committee of the principal governmental partners: the NJ Department of Environmental Protection, Evesham Township and Medford Township. A project advisory committee that includes a broad cross-section

of representatives from non-governmental sectors, including environmental and development organizations has been formed to assist the Steering Committee. An experienced project manager has been engaged to organize the project and manage a team of technical experts planning and design professionals who will assemble and analyze the relevant data and prepare policy recommendations for the steering committee's consideration. This effort and the lessons learned from it will serve as a model for future efforts elsewhere in the Pinelands and New Jersey.

Planned Outputs: This project will result in the following five major outputs

- Formation of an Inter-governmental steering committee
- Development and implementation of a Public involvement strategy.
- Completion of an up-to-date comprehensive inventory of natural resources in the study area.
- A sub-regional conservation plan, including land use and land preservation strategies, developed for the southern portions of Evesham and Medford Townships.
- Two statewide educational seminars conducted for state and local government officials to encourage replication of sub-regional elsewhere in the state.

Grant Period Outcomes: This project will result in the following four major outcomes

- Inter-governmental steering committee endorses conservation plan and takes action to implement its recommendations.
- Increased coordination of local, county, and state conservation activities in Pinelands growth areas, as evidenced by the identification of target areas for coordinated land conservation and acquisition activity.
- Understanding of the benefits of sub-regional conservation planning improved among state and local officials throughout NJ as evidenced by attendance at statewide educational seminars.

3. PROJECT COMMITTEES

Three committees have been formed to undertake this project, a Project Steering Committee, a Project Advisory Committee and a Technical Support Group. The roles and responsibilities of these committees are outlined below. A listing of the membership of these committees is provided as an attachment to this Public Involvement Strategy (*please see Attachment 1- Committee Participants*).

Project Steering Committee will be the chief decision making body for this project. This four-person Committee will be comprised of representatives from the primary governmental bodies participating in the development of the resource protection plan – the Township of Medford, the Township of Evesham, the New Jersey Department of Environmental Protection and the Pinelands Commission

Project Advisory Committee is intended to represent a broad range of interests and will be comprised of representatives from local, regional and statewide organizations, including environmental and development interests. This committee will be appointed by the Steering Committee and its responsibility will be to provide the project facilitator and the Steering Committee with recommendations and feedback relative to the preservation and land use policies that will be considered.

Technical Support Group will be comprised of natural resource experts and planning and design professionals. This group, drawn from the organizations represented on the Steering Committee and the Project Advisory Committee, will be assembled by the project facilitator and its primary responsibility will be to provide the project facilitator and the Steering Committee with technical guidance on land use and environmental data and issues.

4. PROJECT SCHEDULE

A schedule has been developed for all of the Committee meetings and general public meetings that will be held throughout the planning process. This schedule is provided as an attachment to this Public Involvement Strategy (*please see Attachment 2- Project Schedule*). It is important to note that the

schedule is a draft and is subject to change. It is suggested that interested parties contact the Pinelands Commission web site periodically for a current listing of meeting dates and times.

5. PUBLIC PARTICIPATION ACTIVITIES AND RESPONSIBILITIES

The purpose of this Public Involvement Strategy is to promote public understanding and participation in the Southern Medford/Evesham Sub-Regional Resource Protection Plan. This section of the Strategy addresses how public comments and community input on this Plan will be obtained throughout the planning process. The staff of the Pinelands Commission retains lead responsibility for these activities.

6. PUBLIC INVOLVEMENT TOOLS

A variety of tools aimed at facilitating public participation will be used during the planning process for the Southern Medford/Evesham Sub-Regional Resource Protection Plan. Following is a list of these tools, their purposes, and how they will be used.

Mailing List

The Project Steering Committee will compile a mailing list for the project. The list will include potentially affected landowners, residents, and individuals, and other interested parties within the project area. All of these parties will receive a letter of introduction that will describe the project and identify opportunities for participation and input during the planning process (*See Attachment 3 – Notice to Potentially Affected Landowners, Residents, Businesses and and Other Interested Parties*).

Public Meetings

Two public meeting will be held at two specific points during the planning process to obtain input from landowners, residents, and individuals, and other interested parties – at the point when preservation and land use strategies are initially developed and at the point when the draft plan is completed. These meetings are intended to provide an opportunity for the community to ask questions and voice concerns In addition, one meeting will be conducted with the elected officials of Medford Township and one meeting with the elected officials of Evesham Township to review the draft conservation and land use

strategies. A second series of meetings will be conducted with the elected officials of Medford Township Evesham Township to present the final plan. These meetings will be open, public sessions and will also provide an opportunity for public input.

Public Comment Periods

Throughout the life of the project, and particularly after public meetings to present the draft preservation and land use strategies and the draft Resource Protection Plan, the public will have an ongoing opportunity to provide written comments on the draft documents via mail or e-mail.

Responsiveness Summary

After the public comment periods, the Project Steering Committee will review and respond to any comments received in a responsiveness summary. The Steering Committee will consider changes or revisions based on input from the public. If no significant changes are recommended, then the documents will be considered final. A copy of the responsiveness summary will be made available at the Information Repository listed below with the other site documents.

Information Repository

The schedule for all public meetings will be posted on the Pinelands Commission web site. Immediately prior to the public meetings presentation documents will be available for review on the Pinelands Commission website, <http://www.state.nj.us/pinelands>. In addition, other agencies participating in the project will be asked to post project information on their web sites

7. POINT OF CONTACT

David M. Kutner, Director of Special Programs
 New Jersey Pinelands Commission
 P.O. Box 7
 New Lisbon, NJ 08064
 Phone: 609.894.7300 x 111
 E-mail: David.Kutner@njpines.state.nj.us

8. GLOSSARY

Comment Period: A time period during which the public can review and comment on various documents actions. For example, a comment period is provided to allow community members to review and comment on proposed preservation and land use alternatives. Also, a comment period is held to allow community members to review and comment on draft resource protection plan.

Public Involvement Strategy: A plan prepared to encourage coordinated and effective public involvement designed to the public's needs.

Responsiveness Summary: A summary of oral and/or written public comments received by the Project Steering Committee during a comment period on key documents, and Steering Committee's responses to those comments. The responsiveness summary is especially valuable during the strategies development phase when it highlights community concerns.

ATTACHMENT 1 COMMITTEE MEMBERSHIP

Project Steering Committee

Alan Feit	Medford Township Manager
Jose Fernandez.....	Director of Parks and Forestry NJ Department of Environmental Protection ¹
Candace McKee Ashmum	Member, Pinelands Commission
Edward Sasdelli	Evesham Township Manager

Project Advisory Committee

Gina Berg.....	Burlington County, Department of Resource Conservation
Salvatore Cardillo	Evesham Council
Hank Cram.....	Medford Planning Board
Kathi Croes.....	New Jersey Green Acres
Bill Dalton	New Jersey Concrete and Aggregate Association
Julie Gandy.....	Burlington County, Department of Resource Conservation
Gabor Grunstein	New Jersey Farm Bureau
John Hooper.....	Builders League of South Jersey
Anne Heasley	The Nature Conservancy
Rob Hofstrom	Medford Open Space and Environmental Commission
Richard McDonald	Rancocas Conservancy
Carleton Montgomery.....	Pinelands Preservation Alliance
Lew Nagy	Medford Economic Development Committee
Mary Pat Robbie.....	Burlington County, Department of Resource Conservation
Steffi Pharo.....	Evesham Environmental Commission
Barbara Rich.....	Association of New Jersey Environmental Commissions
Lee Snyder.....	New Jersey Sierra Club
George Youngkin	Medford Zoning Board

Technical Support Group

James Barresi.....	NJ Department of Environmental Protection
Bob Cartica.....	NJ Department of Environmental Protection
Emile DeVito.....	New Jersey Conservation Foundation
Troy Eittle.....	New Jersey Audubon Society
Dennis Funaro	Medford Township Planning and Zoning Director
David Golden.....	New Jersey Division of Fish and Wildlife, Endangered and Non-game Species Program
Ted Gordon.....	Pine Barrens Inventories
Doug Heinold	Evesham Township Attorney
Russell Juleg.....	Pinelands Preservation Alliance
Donald McCloskey	Public Service Electric and Gas Company
Bob Nicholson	U. S. Geological Survey
Chris Noll	Medford Township Engineer
Tom Norman	Medford Township Planning Board Attorney
Mark Remsa.....	Burlington County Land Use Office
F. Robert Perry	Evesham Township Planner
Jim Ruddiman.....	Evesham Township Engineer
David Schneider	Herpetological Associates, Inc.

¹ Amy Cradic, Deputy Director of Parks and Forestry NJ Department of Environmental Protection also frequently participated in the discussions of the Steering Committee

**ATTACHMENT 2
PROJECT SCHEDULE**

MEETING DATE	MEETING TIME	MEETING GROUP	MEETING PURPOSE
9/27/04	10:00a.m.	Joint SC/PAC/TSG ²	Kickoff, Project organization/initial review of the elements of the public participation plan
10/27/04	10:00a.m.	TSG	Review natural resources and land use data ³
10/27/04	1:00 p.m.	PAC	Review natural resources and land use data
11/22/04	10:00a.m.	SC	Review and approve Public Participation Plan, review natural resources and land use data report
12/15/04 ⁴	10:00a.m.	SC	Review natural resources and land use data report
1/12/05	10:00a.m.	SC	Review <i>draft</i> conservation and land use strategy recommendations
1/18/05	10:00a.m.	TSG	Review <i>draft</i> conservation and land use strategy recommendations
1/18/05	1:00 p.m.	PAC	Review <i>draft</i> conservation and land use strategy recommendations
1/18/05	9:00a.m.	PLP ⁵	Project status report, <i>draft</i> recommendations
2/9/05	10:00a.m.	Joint SC/PAC/TSG	Review refined conservation and land use strategy recommendations/Plan organization
3/1/05	7:00 p.m.	Public Meeting ⁶	Meeting with property owners to present conservation and land use strategy recommendations
3/9/05	7:00 p.m.	Medford Township Council	Present conservation and land use strategy recommendations
3/16/05	7:00 p.m.	Evesham Township Council	Present conservation and land use strategy recommendations
3/23/05 ⁷	10:00a.m.	Joint SC/PAC/TSG	Review input from meetings with the property owners and Township officials
5/11/05 ⁸	10:00a.m.	SC	Review <i>draft</i> Final plan
5/25/05	10:00a.m.	TSG	Review <i>draft</i> Final plan
5/25/05	1:00 p.m.	PAC	Review <i>draft</i> final plan
6/15/05	10:00a.m.	Joint SC/PAC/TSG	Review refined Final Plan
6/15/05	9:00a.m.	PLP	Project status report, review Plan
6/29/05	7:00 p.m.	Public Meeting	Meeting with property owners to present Final Plan
7/6/05	7:00 p.m.	Medford Township Council	Present Final Plan
7/13/05	7:00 p.m.	Evesham Township Council	Present Final Plan

² SC = Steering Committee; PAC = Project Advisory Committee; TSG = Technical Support Group

³ It is likely that it will be necessary to create working groups of the TSG and schedule interim meetings to evaluate different elements of the land use and natural resources data

⁴ Meeting was not included in original SC meeting schedule, would have to be arranged

⁵ PLP = Permanent Land Protection Committee – Pinelands Commission

⁶ The public meetings sequence are subject to the preparation of the Public Participation Plan

⁷ Meeting shifts SC meeting schedule, originally set for March 30th

⁸ Meeting shifts SC meeting schedule, originally set for April 13th, deletes meeting originally set for April 27th

ATTACHMENT 3
NOTICE TO POTENTIALLY AFFECTED PROPERTY OWNERS, RESIDENTS, BUSINESSES
AND OTHER INTERESTED PARTIES

The Pinelands Commission, in cooperation with the NJ Department of Environmental Protection, Evesham Township and Medford Township is in the process of preparing a detailed conservation plan, including innovative zoning, land preservation and community design recommendations, for a 22.5 square mile area encompassing the southern portions of Evesham and Medford Townships. As a property owner, resident or business owner within this project area, and in accordance with the Public Involvement Strategy that has been developed in conjunction with this project's planning process, you are being notified of this plan and your opportunity to participate in its development. A more thorough description of the project is provided below

Project Description:

In June, 2004, the William Penn Foundation awarded a grant to the Pinelands Commission to prepare a detailed conservation plan for a 22.5 square mile area encompassing the southern portion of Medford and Evesham Townships (*see Study Area Map, attached*). The Pinelands Commission will prepare this conservation plan in conjunction with a Steering Committee of the principal governmental partners: the NJ Department of Environmental Protection, Evesham Township and Medford Township. A project advisory committee that includes a broad cross-section of representatives from non-governmental sectors, including environmental and development organizations has been formed to assist the Steering Committee. An experienced project manager has been engaged to organize the project and manage a team of technical experts planning and design professionals who will assemble and analyze the relevant data and prepare policy recommendations for the steering committee's consideration. This effort and the lessons learned from it will serve as a model for future efforts elsewhere in the Pinelands and New Jersey

This project will result in the following five major outputs

- Formation of an Inter-governmental steering committee
- Development and implementation of a Public involvement strategy.
- Completion of an up-to-date comprehensive inventory of natural resources in the study area.
- A sub-regional conservation plan, including land use and land preservation strategies, developed for the southern portions of Evesham and Medford Townships.
- Two statewide educational seminars conducted for state and local government officials to encourage replication of sub-regional elsewhere in the state.

Two public meeting will be held at two specific points during the planning process to obtain input from landowners, residents, and individuals, and other interested parties – at the point when preservation and land use strategies are initially developed (March, 2005) and at the point when the draft plan is completed (June, 2005). These meetings are intended to provide an opportunity for you to ask questions and voice your concerns In addition, one meeting will be conducted with the elected officials of Medford Township and one meeting with the elected officials of Evesham Township to review the draft conservation and land use strategies (March 2005). A second series of meetings will be conducted with the elected officials of Medford Township Evesham Township to present the final plan (June 2005). These meetings will be open, public sessions and will also provide an opportunity for you input. Please consult the Pinelands Commission web site for the time and date of these meetings <http://www.state.nj.us/pinelands>.

You will have an ongoing opportunity to provide written comments on draft documents via mail or e-mail throughout the life of the project, and oral comments during the public meetings, noted above, that will be held to present the draft preservation and land use strategies and the draft Resource Protection Plan.

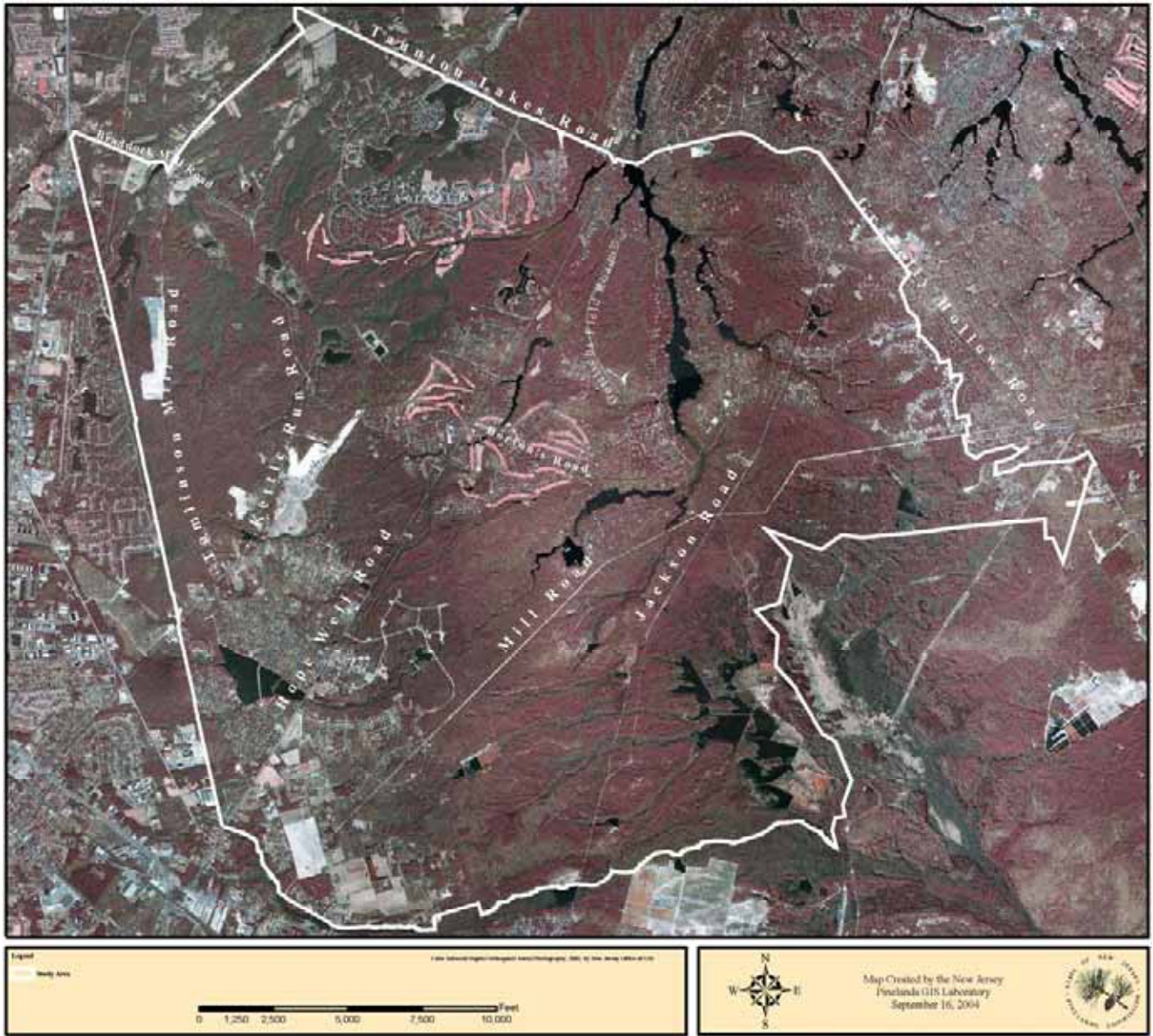
If you have any questions, or require additional information, please feel free to contact:

David M. Kutner
Director of Special Programs
The Pinelands Commission
P.O. Box 7
New Lisbon, NJ 08064
609.894.7300 x 111
David.Kutner@njpines.state.nj.us

SINCERELY

JOHN C. STOKES,
EXECUTIVE DIRECTOR

EXHIBIT 1 PROJECT AREA MAP



SUB-REGIONAL RESOURCE PROTECTION PLAN
FOR
SOUTHERN MEDFORD/EVESHAM

Appendix 14

Executive Summary

RESOURCE ANALYSIS

Project Area: The 14,521-acre (22.7 square miles) Medford/Evesham project area is located in the northwesterly quadrant of the Pinelands National Reserve at the western border between Burlington and Camden Counties. The project area is bounded by the Mullica River to the south, the Evesham/Voorhees Township line to the west, Braddock Mill/Tomlinson Mill/Taunton Lake/Fairview Roads to the north, and the westerly border of the Wharton State Forest to the east (see "Project Area" Map). The project area straddles the southern portion of Medford and Evesham Townships with approximately 60% (8,543 acres) in Evesham and the remaining 40% (5,978 acres) in Medford.

Approximately 74% of the project area is vacant, wooded or covered by water bodies. Approximately 19% of the project area is occupied by residential development. Almost 35% of the project area (5,060 acres) has already been purchased for open space. In the Evesham portion of the project area 2,806 acres, or 32%, is open space. Almost 38% of the Medford portion, 2,253 acres, is designated as open space.

An examination of the Pinelands Commission permit data for the past 5 years revealed that 72 active applications have been filed, primarily associated with residential development within the project area. These applications propose the construction of over 400 new residential dwellings, on lands 1,100 acres, or almost 8% of the entire project area. Accounting for lands already set aside for open space and those portions of the project area that are already developed, virtually all remaining large, vacant parcels of land are under active consideration for development.

As development pressure within the Pinelands continues to intensify, and as vacant developable land becomes increasingly scarce, remaining open areas that previously had marginal growth potential but high natural resource value are being considered for development. As a result of this trend, conflicts between development and natural areas become virtually inevitable. The desire to minimize or avoid these conflicts, to strike a balance between development and preservation objectives, is one of the chief objectives of the Medford/Evesham planning process.

Natural Resources Assessment: Water quality is a critical consideration of any preservation or land use planning study and the desire to protect water quality in the project area is one of the principal objectives of the Medford/Evesham Resource Protection planning effort. Preserving the high water quality of the region's aquifers as well as its wetland, stream and lake systems is essential in meeting not only the domestic needs of the human population that inhabits the area but the unique plant and animal communities that characterize the Pinelands. Several studies undertaken by the Commission have clearly demonstrated the direct link between water quality and development. In general, these studies indicate that characteristic Pinelands water-quality conditions are found in stream basins where altered lands represent less than 10% of the total land area. Characteristic Pinelands water-quality may begin to change when altered land in a watershed exceeds 10%. When the amount of altered land in a basin exceeds 30%, streams typically no longer exhibit Pinelands water quality characteristics.

The northerly portion of the project area (77% of the project area, or 11,232 acres) lies within the Rancocas Creek watershed. The southern portion of the study area, (23% of the project area, or 3,289 acres) is in the Mullica River watershed. The most recent surface water quality data, collected by the Pinelands Science Office staff in 1999 and 2001, reveals that, the Black Run, located in the northwesterly portion of the project area, exhibits minimally-disturbed Pinelands water quality. The data also reveals that portions of many of the other streams to the Rancocas and the Mullica are exhibiting signs of water degradation.

During the planning process a set of core natural resource characteristics were evaluated in order to identify those strategies deemed most appropriate to preserve the area's resources; Landscape Integrity, Wetlands Integrity

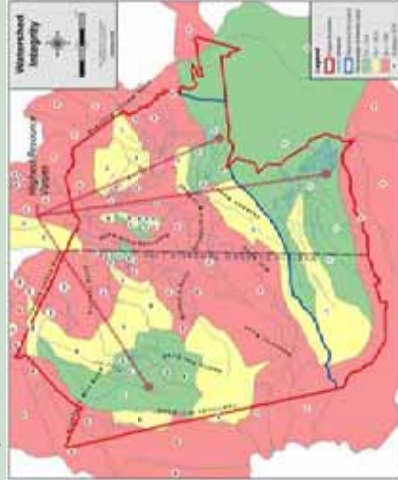
and Watershed Integrity. The results of these evaluations served as the primary basis for the recommended Protection Strategies.

Landscape Integrity: Habitat suitability was evaluated in relation to proximity to altered land. To undertake this assessment, the entire project area was subdivided into grid cells (5 feet on a side). The set of cells was then subdivided into ten equal groups according to their distance values as compared to the distance value of all other cells. The top 10 percent of the cell values, the cells with the greatest distance from altered land, were deemed to have the greatest landscape integrity.

Wetlands Integrity: Since many Pinelands plant and animal species are wetlands-dependent, an analysis based on proximity to wetlands was also performed. As with the landscape-integrity analysis, the wetlands in the project area were subdivided into grid cells and the distance to altered land was determined for each cell. The cells were then divided into ten equal groups according to their distance values. Wetlands farthest from such altered areas were deemed to have the highest wetlands-integrity values.

Watershed Integrity: To evaluate watershed integrity, the entire project area was subdivided into 104 sub-basins (see "Watershed Integrity" Map, below). The percentage of altered land was determined for each subbasin by summing the area of developed and upland agricultural land for the entire upstream drainage area. The basins were then reclassified into 3 categories (less than 10% disturbed; 10% to 30% disturbed; over 30% disturbed) based on the relative extent of disturbed land and their contribution to the water quality of the next basin downstream.

In each of the analyses described above, the same three segments of the project area were identified as having particularly high resource value: the eastern most quadrant of the study area; the south-central portion of the study area; and the north-westerly area encompassing the Black Run drainage basin. The clear interest in developing within the project area and the fact that these three portions of the study area with high resource value are largely undeveloped underscores the need to take effective measures that will protect them.



FOR MORE INFORMATION ABOUT THIS PLAN Contact the Evesham Township Planning Department at 856-983-2900; or the Medford Township Planning Department at 609-654-2608. The full text of the Southern Medford/Evesham Sub-Regional Resource Protection Plan has been posted on the Pinelands Commission Website: <http://www.nj.gov/pinelands>

EXECUTIVE SUMMARY

BACKGROUND
The Pinelands Comprehensive Management Plan establishes a region-wide framework for the protection of important natural and cultural resources through the establishment of land use policies and regulatory standards that govern the future use and development of land within the Pinelands. As the Pinelands Commission's natural-resource database grows, however, more focused, sub-regional conservation planning offers an opportunity to take a much closer look at particularly challenging geographic regions where potential conflicts between natural resources and development objectives may arise.

Evesham and Medford Townships are suburbanizing municipalities within Burlington County. Portions of both municipalities are located within the Pinelands. The southern parts of the Townships, encompassing over 14,500 acres, are rural in character and proximate to Wharton State Forest and other permanently protected open space. The Pinelands-approved master plans and zoning ordinances for these areas, formulated in the 1980's, were based upon the best available information at that time.

Through ongoing natural resource work by the Pinelands Commission and the New Jersey Department of Environmental Protection (NJDEP), much more of the ecological resources within the southern portions of these two municipalities have been identified than was the case when their zoning plans were initially adopted and implemented. These ongoing natural-resource inventory and watershed management efforts show that a re-evaluation of the zoning and development policies for this sub-region in Evesham and Medford Townships is needed to better protect natural resources and avoid development conflicts.

In June, 2004, the Pinelands Commission received a grant from the William Penn Foundation to engage a variety of representatives from organizations and government agencies that have an interest in this area to discuss and recommend actions through a regional resource-protection effort. Shortly after grant award, a Steering Committee was formed (comprised of the Managers from Medford and Evesham, a representative from NJDEP, and a Commission member) that would serve as the chief decision making body for the project. The Steering Committee appointed an 18-person Project Advisory Committee, comprised of representatives from local, regional and statewide organizations, including environmental and development interests, and a 17-person Technical Support Group, comprised of natural resource experts and planning and design professionals, that would help to guide the decisions of the Steering Committee.



PROJECT OBJECTIVES

The Plan's recommended resource protection strategies are the culmination of an extensive planning process that has, at its core, the following objectives:

1. Protect important natural resource values, including water quality, within the project area;
2. Accommodate future development within appropriate areas;
3. Promote less land-consumptive land use patterns as a means to reduce the fragmentation of important landscapes and to lessen municipal service costs;
4. Reduce the extent of non-conformity between existing developed areas and municipal zoning policies;
5. Encourage land stewardship practices that further conservation objectives;
6. Use a variety of regulatory and non-regulatory techniques to achieve conservation and development objectives; and
7. Establish greater predictability in the development permit process to avoid site-specific development and natural resource conflicts.

KEY FINDINGS

The following conclusions were drawn from the assessment of the natural resource and land use characteristics collected during the data analysis stage of the project:

1. Infrastructure (sewer, water supply and transportation) systems currently serve only limited portions of the project area and no significant investments are planned to expand the existing systems. Therefore, current and planned capital investments are not conducive to extensive future development.
2. Existing zoning would permit a relatively modest level of future growth. However, that development is likely to be scattered throughout the region and consequently will fragment relatively undisturbed forest communities and increase disturbance levels within characteristic Pinelands watersheds. Zoning policies should, therefore, be modified to significantly reduce these types of impacts
3. Both municipalities have purchased extensive portions of the project area for open space. However, remaining vacant parcels throughout the project area are under active consideration for development, and therefore are at immediate risk.
4. Several drainage areas within the project area, most notably the Black Run, exhibit characteristic Pinelands water-quality. Water quality and levels of disturbance in several other drainage units suggest that natural watershed characteristics are only slightly altered.
5. The area has not been widely surveyed for rare plants and animals. However, surveys that have been undertaken reveal that the majority of locations that are considered to have higher ecological integrity are in wetlands or undeveloped portions of the project area. These surveys also suggest that many more rare plants may be found within the project area than were previously thought to exist.
6. Maintenance of uninterrupted, undisturbed forests is necessary to support many rare plant and animal populations, particularly snakes. Conservation of these forests also helps to maintain regional biodiversity.
7. There was considerable agreement between the results of the landscape, wetland and watershed-integrity analysis relating to those portions of the study area that were considered important for resource protection. Conservation efforts need to be targeted to these areas.

The objectives of this Plan, coupled with the findings developed through the analysis of the natural resource and land use data, provide direct support for the recommended regulatory and non-regulatory preservation strategies described on the following pages.

SOUTHERN MEDFORD/EVESHAM SUB-REGIONAL RESOURCE PROTECTION PLAN • PROTECTION STRATEGIES SUMMARY

PROTECTION STRATEGIES:

Working groups of the Project Advisory Committee and the Technical Support Group were formed to identify specific protection strategies that fulfill the project objectives and respond to the key findings identified through the project data analysis. The Steering Committee then worked to refine these strategies. Regulatory and non-regulatory strategies are recommended, and are summarized below.

REGULATORY STRATEGIES

Eight (8) specific regulatory strategies are recommended, none of which will require an amendment of the Pinelands Comprehensive Management Plan. The strategies are outlined below and keyed to the "Regulatory Strategies" map to the right.

- 1 Expand Forest Areas** straddling Medford and Evesham to encompass 1,371 acres creating an open space corridor that extends from the Wharton State forest tract, located to the west of the project area immediately outside its borders, through both municipalities.
- 2 Re-designate Compass Point** from the Forest Area to the Rural Development to reflect its existing development pattern. The re-designation of this 153-acre area will result in no change in development potential within the study area.
- 3 Re-designate Kings Grant** (982 acres) from Rural Development to Regional Growth Area to reflect the existing development, resulting in no change in development potential within the study area
- 4 Create a 546-acre "Sending" zone ("FAS") and a 250-acre "Receiving" zone ("FAR")** within the existing Forest Area to shift development to areas that would be more suited to growth while expanding open space areas contiguous to lands already preserved through state acquisition, reducing habitat fragmentation.
- 5 Designate an 81-acre Rural Development "Receiving" area ("RR")** permitting development opportunities to be transferred from the Black Run-North and Connector areas (described below). Development applications in this area will be subject to streamlined threatened and endangered species survey and permitting requirements.
- 6 Create two Rural Development Sending zones:**
 - 6a Designate a Rural Development Sending ("RD-S") zone** encompassing a 436-acre area in the northerly portion of the Black Run watershed basin. Development opportunity in this area would be shifted to the rural Development Receiving Areas. The Black Run is a characteristic Pinelands stream running through the northwesterly quadrant of the study area. Less than 10% of the area of the watershed-basins draining into the Black Run has been altered by development. Consequently, this area has among the highest resource value in the project area. The objective of this strategy is to set development densities at levels (proposed at 1 home per 10 acres) that do not exceed this 10% disturbance threshold (the point at which water quality will change) or shift development that might otherwise occur within this area to locations more suited to growth.
 - 6b Designate a Rural Development-Sending Cluster ("RD-SC") zone** encompassing the "Connector" area, a 221-acre group of 17 parcels, lying between the Aerohaven site and the proposed Evesham Forest Area. Proposed development would either be shifted to other Rural Development Receiving areas or be subject to mandatory clustering.

NON REGULATORY STRATEGIES

The regulatory measures constitute only one series of strategies that need to be employed to achieve the overall goals of the resource protection plan. It will also be necessary to integrate a fairly wide array of complementary, non-regulatory strategies into their efforts if the Townships expect to achieve a successful preservation program. Non-regulatory strategies generally fall into three major categories: Land acquisition; Inventory needs; and Land stewardship.

Land Acquisition

Because acquisition, coupled with effective land management, continues to be one of the most powerful tools a municipality can use for protection of important natural resources, land acquisition will be a critical element of the Medford/Evesham protection strategy. Both municipalities have considerable experience with open space acquisition. Over 35 % of the project study area has already been set aside as open space and much of that area has been purchased through the Townships' open space acquisition programs. However, an effective open space acquisition strategy will require the participation of several other funding partners.

Several parcels within the project area have been assigned high acquisition priority (see "Acquisition Strategies" Map, below, left). Zoning changes have been recommended to help protect many of these areas, however, purchasing them would be a far more effective preservation method.

- **Connector parcels:** This 221 acre area forms an important link in a preservation corridor that could extend, in an east-west direction, through the entire project area. NIDEP's Green Acres Office has already acquired one of the parcels in this area through the Pinelands Commission's Limited Practical Use (LPU) program. Green Acres has agreed to take the lead in the effort to acquire parcels within the Connector Area.
- **Black Run:** Purchasing parcels throughout this characteristic Pinelands watershed will avoid disturbance and protect water quality as well as its value as rare plant and animal habitat. Evesham Township is the most likely lead agency to acquire parcels in this watershed. The non-profit New Jersey Conservation Foundation could also be an acquisition partner, which would result in the added benefit of payments in lieu of taxes (PILOT) to the municipality
- **West Jersey Bog (Brick Enterprises):** This 1,114-acre parcel, immediately adjacent to the Wharton State Forest, encompasses almost 20% of the entire Medford-portion of the project area. The parcel is largely comprised of undisturbed open space. Acquiring this parcel, or its development rights, would preserve virtually the entire southerly portion of the study area in Medford. The Township should work with Burlington County, serving as lead agency through its Open Space and/or Farmland Protection Program, to acquire the development rights of the West Jersey Bogs
- **Forest Area Sending zones:** Several non-profit agencies, including the Ramcoas Conservancy and New Jersey Conservation Foundation, have expressed interest in purchasing properties within this 546-acre area. Evesham Township should assist these organizations in pursuing this objective
- **Camp Kettle Run/YMCA Camp:** A 290-acre Girl Scout camp, Camp Kettle Run, is located off Mill Road straddling the Medford/Evesham border and a 19-acre YMCA Camp is located off Kettle Run Road. NIDEP's Green Acres office should be the lead agency to purchase the development rights associated with these camps in order to permanently preserve the parcels for open space and recreation purposes.

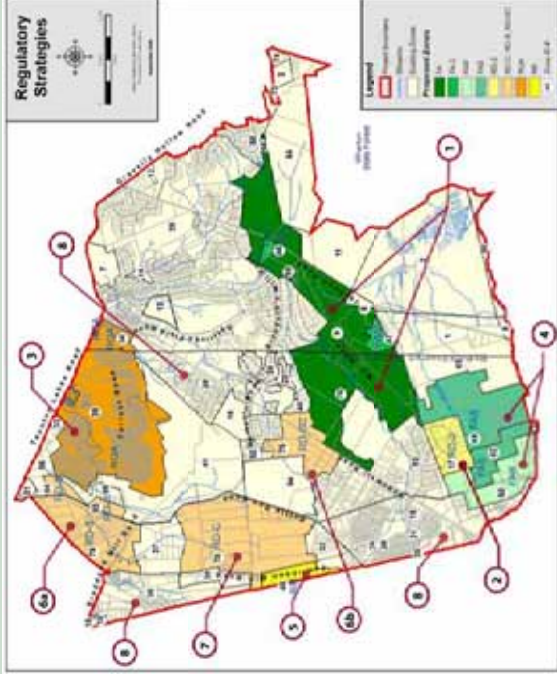
Inventory Needs

Because some rare plant species require disturbance for perpetuation, they are often found along roadsides or within power line easements. Although few plant surveys and no roadside surveys have been performed within the study area, rare plant sightings along roadside shoulders have been documented. NIDEP's Office of Natural Land Management (ONLM), Natural Heritage Program should be enlisted to conduct roadside surveys, funded by the Pinelands Commission. The surveys should be designed to identify rare native plant populations; and rare plant stewardship recommendations aimed at helping the Townships, public landowners and homeowner's associations protect, manage and recover rare native plant populations.

Stewardship

Backyard Habitat protection: The NJ Audubon Society has offered take the lead in developing a "Conservation Planning for Natural Yards" demonstration project that will provide specific information on native plantings and practices that homeowners can use to benefit particular wildlife species.

Develop Golf Courses Best Management Practices: The Evesham Municipal Utilities Authority, in cooperation with the Pinelands Commission and NIDEP, should begin exploratory discussions with the Links and Little Mill golf course managers for the beneficial reuse of water. In addition, the Environmental Commissions in Medford and Evesham should work with the golf courses to develop management practices that reduce consumptive use of water; reduce application of fertilizers; reduce storm water runoff; and create characteristic plant and animal habitats



- 8 Permit scattered parcels in the "RD-1", "RD-2" and "RD-3" zones** to serve as receiving areas, allowing density transfer from more environmentally fragile areas, such as the northern portion of the Black Run Basin. Parcels with development potential encompass a total of 240 acres.

EXPECTED RESULTS – MANAGEMENT AREA AND ZONING CHANGES

- Development and disturbance levels in high-value natural resource areas will be reduced in order to maintain those resource values. It is estimated that the future zone capacity of the project area is being reduced from 579 homes to 270, a 53% reduction;
- Incentives are created to transfer all development out of high-value natural resource areas to areas that are more capable of accommodating it;
- Development that does occur within these high-value resource areas will be clustered, resulting in the conservation of more than 80% of the properties being developed;
- A contiguous green belt will be created that will extend through the entire mid-section of the study area (running east to west) comprised of a combination of public lands, preservation areas, forest areas and, in limited locations, low-density developed areas. This green belt represents an important tool in maintaining biodiversity;
- Zoning designations will be adjusted in developed areas to reflect existing development patterns.