



BURGIS ASSOCIATES, INC.

COMMUNITY PLANNING AND DEVELOPMENT CONSULTANTS

25 Westwood Avenue
Westwood, New Jersey 07675
Phone (201) 666-1811
Fax (201) 666-2599
e-mail: jhb@burgis.com

Community Planning
Land Development and Design
Landscape Architecture

HIGHLANDS INITIAL ASSESSMENT REPORT

**TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY**

PREPARED FOR:

**TOWNSHIP OF ROCKAWAY PLANNING BOARD AND TOWNSHIP COUNCIL
BA# 2085.24**

May 26, 2009

HIGHLANDS INITIAL ASSESSMENT REPORT

**TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY**

PREPARED FOR:

**TOWNSHIP OF ROCKAWAY PLANNING BOARD AND TOWNSHIP COUNCIL
BA# 2085.24**

The original document was appropriately signed and sealed on May 26, 2009 in accordance with Chapter 41 of Title 13 of the State Board of Professional Planners.


Joseph Burgis, P.P., AICP
Professional Planner #2450

MEMBERS OF THE TOWNSHIP OF ROCKAWAY PLANNING BOARD

Morton Dicker, Chairman
David Washington, Secretary
Louis S. Sceusi, Mayor
John DiMaria, Councilman
Carolyn Keegan
Robert Santoro
Joseph Chovanec
Frank Barilla
Vincent Brennan
John Quinn
James Kickham, Alternate #1
Jack Elko, Alternate #2

Planning Board Secretary
Phyllis Hantman

Planning Board Attorney
William Dimin, Esq.

Municipal Engineer
James Lutz, P.E.

Planning Consultant
Joseph H. Burgis, PP, AICP

MEMBERS OF THE TOWNSHIP COUNCIL

Louis S. Sceusi, Mayor
Michael Dachisen
John Quinn
Frank Berman
Alexander Gellman
David Press
Stephen Antonelli
Paul Minnena
John DiMaria

TABLE OF CONTENTS

I. Introduction	1
II. Overview of Relevant Documents	3
a. The Highlands Act	
b. Highlands Regional Master Plan (RMP)	
c. Rockaway Township Master Plan Documents	
d. Rockaway Township Land Use Regulations	
e. Rockaway Valley Regional Sewer Authority (RVRSA) Wastewater Management Plan	
III. Consistency Review	14
a. Forested Areas	
b. Open Waters and Riparian Areas	
c. Steep Slopes	
d. Critical Habitats	
e. Land Preservation and Stewardship	
f. Carbonate Rock (Karst) Topography	
g. Lake Management	
h. Water Resources Availability	
i. Prime Groundwater Recharge	
j. Water Quality	
k. Public Water/Wastewater Utilities and Private Septic Systems	
l. Agricultural Resources	
m. Historic, Cultural, and Archaeological Resources	
n. Transportation	
o. Redevelopment, Smart Growth, Housing and Community Facilities	
IV. Steps to Basic Plan Conformance.....	49
a. Basic versus Full Plan Conformance	
b. Key Requirements for Basic Plan Conformance	
V. Anticipated Costs & Project Timeframes.....	58

APPENDICES

- A-1: Maps** (see list on following page)
- A-2: Initial Assessment Report Addendum**
- A-3: Highlands Act Exemptions**

LIST OF MAPS

Land Use Capability Zone Map
Potential Voluntary TDR Receiving Zones Map
Forest Resource Area Map
Forest Cover Integrity Map
Highlands Open Waters and Riparian Areas Map
Riparian Integrity by HUC14 Map
Steep Slopes Protection Areas Map
Critical Wildlife Habitat Map
Significant Natural Areas and Vernal Pools Map
Preserved Lands Map
Conservation Priority Area Map
Carbonate Rock Area Map
Lake Management Area Map
Net Water Availability by HUC14 Map
Land Use Capability Water Availability Map
Prime Ground Water Recharge Areas Map
Impaired Waters Overall Assessment by HUC14 Map
Wellhead Protection Areas Map
Land Use Capability Public Community Water Systems Map
Land Use Capability Domestic Sewerage Facilities Map
Land Use Capability Septic System Yield Map
Median Nitrate Concentration by HUC14 Map
Historic Preservation Map
Roadway Network Map
Transit Network Map

I. INTRODUCTION

On July 17, 2008, the Highlands Council adopted the Highlands Regional Master Plan (RMP). This plan is a requirement of the Highlands Act approved in 2004. The plan was endorsed by Governor Corzine on September 5, 2008, who issued Executive Order 114 to further protect the Highlands Region. The RMP provides a regional outlook and guidance for counties and local municipalities in this region.

In order to determine the anticipated level of effort needed to bring Rockaway's planning program into conformance with the RMP, the Township has been awarded an Initial Assessment Grant. This Grant allows the municipality to conduct an initial review of the goals, policies and objectives contained in the RMP, evaluate the local planning program for consistency with the RMP, and determine the steps necessary for the municipality to achieve Basic and/or Full Plan Conformance. The following report addresses each of these items, as well as provides a rough estimate of the time, effort and cost involved in completing them.

In preparing this report, we have consulted the following documents:

1. 1992 Rockaway Township Master Plan.
2. 1999 Rockaway Township Master Plan Reexamination Report.
3. 2005 Rockaway Township Housing Element and Fair Share Plan.
4. 2005 Rockaway Township Stormwater Management Plan.
5. 2006 Rockaway Township Master Plan Reexamination, Land Use Plan, and Open Space Plan.
6. Rockaway Valley Regional Sewer Authority existing and future sewer service area maps.
7. Rockaway Township Land Use Ordinances.
8. 2008 Highlands Regional Master Plan.
9. Highlands Council 'Basic Plan Conformance for Municipalities, Key Requirements'.
10. Highlands Council 'Plan Conformance Guidelines'.
11. Highlands Council 'Initial Assessment Grant Program'.
12. Digital spatial data available for download from the Highlands Council website, as well as updated data transmitted to the Township.

It is important to note that the purpose of this report is to provide a general overview of the goals, policies and objectives contained within the RMP, as well as to give a broad outline of the Township's current level of consistency therewith. This report is not designed to provide an exhaustive review of the RMP's provisions or the specific changes that will ultimately need to be made to the Township's planning

programs. Clearly, at the time that the Township's planning documents are amended to conform to the RMP, it will have to address all relevant items. However, that level of detail is not necessary for the purposes of this report.

It is also important to note that, given the fact that all of Rockaway's planning documents were adopted prior to adoption of the RMP, a high level of consistency cannot be expected. **As discussed in more detail in the body of this report, it is anticipated that the Township will need to prepare the following items in order to bring its planning program into Full Plan Conformance with the RMP:**

- An updated Environmental Resource Inventory (ERI);
- An updated Master Plan document, which will include revised goals, policies, and objectives, and the creation of or amendments to an existing Land Use Plan, Housing Plan, Conservation Plan, Utilities Plan, Circulation Plan, Open Space Plan, Community Facilities Plan, Economic Plan, and Historic Preservation Plan. Incorporated within these plans will be a new or revised Community Forestry Plan, Stream Corridor Protection/Restoration Plan, Critical Habitat Conservation and Management Plan, Lake Management Plans, Water Use and Conservation Management Plans, Stormwater Management Plan and Wastewater Management Plan. In addition, if the Township elects to participate in the optional Highlands TDR Program, it will need to prepare a Development Transfer Plan.
- Updated land use regulations, which amend or incorporate definitions, zone districts and district regulations, regulations pertaining to water and wastewater and all Highlands resources, low impact development best management practices, application procedures and submission checklists, and notice requirements. Amended stormwater management regulations also appear to be necessary.
- RMP Updates and/or Map Adjustments, which include factual revisions, corrections or updates to the RMP as well as other adjustments that go beyond factual updates to ensure sound regional planning in support of the RMP and the Highlands Act.

Because the Highlands Council recognizes the large volume of work that will need to be done in order to bring most municipalities into conformance with the RMP, it has created a two-step process for achieving Plan Conformance. The first step is "Basic" Plan Conformance, wherein the Township is required to complete only the most immediate mandatory conformance requirements by **December 8, 2009**. These requirements are outlined in Chapter IV of this report. As detailed therein, the Township is required to complete a Municipal Self-Assessment and Implementation Schedule, which details the remaining steps and expected timeframe to achieve "Full" Plan Conformance. Under Full Plan Conformance, the Township's planning program will reflect all elements of the RMP, and will entail all of the changes detailed above.

These issues are discussed in more detail in the body of this report.

II. OVERVIEW OF RELEVANT DOCUMENTS

a. The Highlands Act

On August 10, 2004, the New Jersey Legislature enacted the Highlands Water Protection and Planning Act in an effort to protect water and other critical natural resources in the Highlands region. The Highlands region is located in the northwest part of New Jersey, encompassing 88 municipalities in seven counties. It includes 859,358 acres and is divided into two areas: Preservation Area and Planning Area. The Township of Rockaway has land in both the Preservation and Planning Areas. Whereas 17,823 acres in the northern portion of the Township is within the Preservation Area, the remainder of the Township, comprising 11,582 acres, is located within the Planning Area.

The Highlands Act sets forth a number of goals for these Areas, as well as for the Highlands region as a whole. These are as follows:

Region-Wide Goals:

- Protect, restore and enhance the quality and quantity of surface and ground waters.
- Preserve farmland and historic sites and other historic resources.
- Preserve outdoor recreation opportunities, including hunting and fishing on publically owned lands.
- Promote conservation of water resources.
- Promote brownfield remediation and redevelopment.

Preservation Area Goals:

- Preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of Highlands environment which contains the unique and significant natural, scenic and other resources representative of the Highlands Region.
- Protect the natural, scenic, and other resources of the Highlands Region, including, but not limited to, contiguous forests, wetlands, vegetated stream corridors, steep slopes, and critical habitat for fauna and flora.
- Promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment.
- Prohibit or limit, to the maximum extent possible, construction or development which is incompatible with preservation of this unique area.

Planning Area Goals:

- Preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes.
- Protect and maintain the essential character of the Highlands environment.
- Promote the continuation and expansion of agricultural, horticultural, recreational, and cultural uses and opportunities.
- Encourage, consistent with State Development and Redevelopment Plan and smart growth

strategies and principles, appropriate patterns of compatible residential, commercial and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes; discourage piecemeal, scattered and inappropriate development, in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts thereof.

- Promote a sound, balanced transportation system that is consistent with smart growth strategies and principles and which preserves mobility in the Highlands Region.

The Preservation Area, as the name suggests, is the area with the highest resource value that was subject to the immediately effective standards in the Highlands Act, governed by rules and regulations adopted by the New Jersey Department of Environmental Protection (NJDEP). The Planning Area, however, was not subject to the immediately effective standards. Instead, the Highlands Council was required to analyze the protection needs of the Planning Area through preparation of the Regional Master Plan (RMP).

b. Highlands Regional Master Plan (RMP)

The Regional Master Plan (RMP) establishes a regional planning framework for resource protection as a complement to local land use planning efforts. Its major purpose is to determine the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain. As such, the RMP sets forth a series of goals, policies and objectives guiding development in the Preservation and Planning Areas, as well as a set of programs to implement them.

As noted previously, the Preservation Area is subject to detailed and stringent standards through the RMP as well as the Highlands Water Protection and Planning Act Rules. The RMP additionally sets forth goals specific to the Planning Area. It contemplates that development and redevelopment within the Planning Area could incorporate development rights transferred from lands in the Preservation Area in order to mitigate any disproportionate burden imposed on Preservation Area landowners and to protect the most critically sensitive natural and agricultural resources. The RMP also promotes organic development in the Planning Area which respects and reflects historical development practices in individual communities balanced by the preservation of core environmentally sensitive lands.

In order to guide the implementation of the policies contained in the RMP, the Highlands Council developed the Land Use Capability Zone Map. The Land Use Capability Zone Map divides the region into three primary overlay zones and four sub-zones, each of which is based upon a determination of overall carrying capacity for development. The underlying municipal zoning establishes permitted land uses, while the overlay zones may detail more site specific requirements aimed at a certain goal, with the stricter standard applying. Examples of these standards may include best management practices related to preservation of agricultural lands or green building approaches for development initiatives.

The three primary overlay zones include the Protection Zone, Conservation Zone, and Existing Community Zone. The four Sub-Zones include the Wildlife Management Sub-Zone, Conservation Zone – Environmentally Constrained Zone, Existing Community Zone – Environmentally Constrained Sub-Zone, and Lake Community Sub-Zone. As shown in the accompanying Land Use Capability Zone Map, those relevant to Rockaway include the Protection Zone, Existing Community Zone, Existing Community Zone

– Environmentally Constrained Sub-Zone, Lake Community Sub-Zone, and Wildlife Management Sub-Zone. These overlay zones and Sub-Zones are described in the table below:

**Applicable Land Use Capability Zones
Township of Rockaway**

Overlay Zone	Description
Protection Zone	Consists of areas with high natural resource value that are important to maintaining water quality and quantity, and sensitive ecological resources and processes. Land acquisition is a high priority in the Protection Zone and development activities will be extremely limited. Any development will be subject to stringent limitations on consumptive and depletive water use, degradation of water quality, and impacts to environmentally sensitive lands.
Existing Community Zone (ECZ)	Consists of areas with regionally significant concentrated development signifying existing communities. These areas tend to have limited environmental constraints due to previous development patterns, and may have existing infrastructure that can support development and redevelopment, if such development is compatible with the protection and character of the Highlands environment, at levels that are appropriate to maintain the character of established communities.
Existing Community Zone – Environmentally Constrained Sub-Zone	Consists of significant contiguous Critical Habitat, steep slopes and forested lands within the Existing Community Zone that should be protected from further fragmentation. They serve as regional habitat “stepping stones” to larger contiguous Critical Habitat and forested areas. As such, they are not appropriate for significant development, and are best served by land preservation and protection. Development is subject to stringent limitations on consumptive and depletive water use, degradation of water quality, and impacts to environmentally sensitive lands.
Lake Community Sub-Zone	Consists of patterns of community development that are within the Existing Community Zone within 1,000 feet of lakes. The Highlands Council focused on lakes that are 10 acres or greater and delineated lake management areas consisting of an area of up to 1,000 feet (depending on the protection focus) from the lake shoreline in order to protect water quality, resource features, shoreline development recreation, scenic quality and community character. A future management area is planned, encompassing the full lake watershed, for protection of the lake water quality. This sub-zone has unique policies to prevent degradation of water quality, and watershed pollution, harm to lake ecosystems, and promote natural aesthetic values within the Existing Community Zone.
Wildlife Management Sub-Zone	Consists of areas managed by the U.S. Fish and Wildlife Services, administered by the NJDEP Division of Fish and Wildlife’s Bureau of Land Management. These areas are part of a network of lands and water for conservation, management, and, where appropriate, restoration of fish, wildlife and plant resources and their habitats and permit compatible wildlife-dependent recreational uses, such as hunting, fishing, wildlife observation, and environmental education.

Another key program developed by the Highlands Council to implement the policies of the RMP is the

Highlands Transfer of Development (TDR) Program. This program is intended to preserve lands containing sensitive resources by permitting the transfer of development potential from areas identified for preservation, called Sending Zones, to areas that are more appropriate to accommodate increased growth, called Receiving Zones. Landowners in the Sending Zones receive compensation for the transferable development potential of their property that has been restricted in support of preservation. Payment for this lost development potential comes from purchasers who buy credits (terms HDCs within the RMP) representing the lost development potential of parcels in the Sending Zones. The credits then entitle the purchaser to build in a Receiving Zone at a density greater than that permitted in the existing zoning.

Lands that are eligible to apply for HDCs as a Sending Zone include those located within a Protection or Conservation overlay zone, whether in a Preservation Area or Planning Area. Lands that are eligible as Receiving Zones must be within the Planning Area and located within an Existing Community overlay zone, a Highlands Redevelopment Area, or a Conservation overlay zone (so long as the development does not conflict with viable agriculture). The Highlands Council has identified several parcels within the Township on the accompanying Potential Voluntary TDR Receiving Zones Map. It is important to emphasize the fact that any Receiving Zones in the TDR Program are strictly voluntary and not a requirement of Plan Conformance.

Conformance with the RMP is mandatory for municipalities wholly or partially located in the Preservation Area, whereas it is voluntary for those municipalities in the Planning Area. For the Preservation Area, municipalities are required to petition the Highlands Council for conformance with respect to that area within 9 to 15 months of adoption of the RMP, or no later than December 8, 2009. For the Planning Area, municipalities may file petitions relative to that area at any time. However, because the Township of Rockaway has already adopted a "Notice of Intent" to pursue Plan Conformance for both the Preservation and Planning Areas, it must meet the December 8, 2009 deadline for both Areas.

The RMP encourages Plan Conformance through a variety of benefits and incentives, as detailed below:

- Council on Affordable Housing (COAH) Relief. On September 5, 2008, Governor Corzine officially endorsed the RMP and called for a balance between the constitutional obligation to provide affordable housing and the protection of critical natural resources in the Highlands region. Subsequently, the Highlands Council and the Council on Affordable Housing (COAH) entered into a joint Memorandum of Understanding to implement the provisions of E.O. 114. Among these provisions is that COAH will grant an extension for submitting housing Elements and fair share plans from December 31, 2008 to December 8, 2009 for those municipalities participating in Plan Conformance. Also, Plan Conformance will entitle municipalities to an adjusted growth projection, which will most likely reduce their affordable housing obligation.
- Planning Grants and Technical Assistance. The Highlands Council will make grant funds and other financial and technical assistance available to municipalities at all stages of Plan Conformance. Examples of grant funding include Initial Assessment Grants, Plan Analysis and Conformance Grants, and Voluntary Receiving Zone Feasibility Grants for assessing the potential for participation in a TDR Program. Examples of technical assistance include numerous model planning documents and land use regulations for use by municipalities.
- Tax Stabilization Funds. Funds may be authorized through the Highlands Property Tax

Stabilization Board, which is in, but not of, the New Jersey Department of Treasury, to stabilize municipal budgets due to implications stemming from RMP implementation, including a decline in property values that is directly related to the Highlands Act.

- Strong Presumption of Validity, Extraordinary Deference, and Burden of Proof. For municipalities in conformance with the RMP, a strong presumption of validity shall apply to master plans, land use ordinances, and local decisions. If a conforming municipality is challenged in court, the actions it has taken to conform to the RMP shall be given extraordinary deference and the burden of proof shall be on the plaintiff to prove that the municipality acted in an arbitrary, capricious, or unreasonable manner.
- Legal Representation. The Highlands Council shall, where appropriate in accordance with the Highlands Act, provide legal representation to any requesting municipality that conforms with the RMP in any cause of action filed against the municipality.
- Equivalency of State Plan Endorsement. For any municipality in conformance with the RMP, the local plan for that municipality will be considered equivalent to having been endorsed by the State Planning Commission. This means that in addition to State monetary benefits available to the municipality, a housing plan Element and fair share plan previously approved by COAH will continue to be recognized as valid by COAH.

c. Rockaway Township Master Plan Documents

Rockaway Township's most recent comprehensive master plan document was adopted in 1992. This document contains a Land Use Plan Element, Circulation Plan Element, Community Facilities Plan Element, Utility Services Plan Element, Recreation Plan Element, and Recycling Plan Element. Subsequently, the Township has adopted an amended Land Use Plan Element (2006), two Open Space Plan Elements (1998 and 2006), two Housing Elements and Fair Share Plans (1995 and 2005), and a Stormwater Management Plan (2005). The Township has also adopted periodic master plan reexamination reports in 1999 and 2006.

The Township's most up-to-date goals and objectives are as follows:

- To maintain and enhance the existing areas of stability in the community; to encourage a proper distribution of land uses by designating areas which have their own uniform development characteristics. A principal goal is to preserve and protect the residential character and existing density of the community by restricting incompatible land uses from established residential areas, and limiting intensities of use to the levels, and locations, prescribed herein.
- To enhance the development pattern and land use arrangement in White Meadow Lake and reinforce the minimum 0.3-acre lot area requirement for this portion of the municipality.
- To concentrate development in the southerly portion of the Township.
- To include all of Rockaway Township that is not within the Highlands Preservation Area in the

sewer service area, while ensuring that public sewers and water supply be initially provided in those areas serving the greatest number of residences at a minimum cost to taxpayers.

- To ensure that any prospective development is responsive to the Township's environmental features, and can be accommodated while preserving these physical characteristics.
- To encourage the design of open space features in cluster developments to abut the open space of open space elements of adjacent properties.
- To provide a variety of housing types, densities and a balanced housing supply, in appropriate locations, to serve the Township.
- To encourage and provide buffer zones to separate incompatible land uses.
- To discourage the creation of flag lots in the Township.
- To encourage new development, and redevelopment, to take into account the aesthetic character of the community, in an effort to enhance the visual and aesthetic appearance of the municipality.
- To preserve and enhance the Township's retail commercial areas by defining their functional role in the community.
- To establish conservation easements around abandoned mine shafts and primary aquifer areas.
- To promote a sidewalk master plan in selected areas of the community.
- To promote the conservation of energy and the use of renewable energy sources whenever possible as the Township develops.
- To support Picatinny Arsenal's retention as an armament research, development and engineering center, and participate in its efforts to establish a development plan to utilize its underdeveloped and underutilized assets to create a public/private partnership to provide development within the Arsenal, provided that such development complements and reinforces the Township's overall approach to land use, environmental, traffic, and related planning issues.
- To support the overall philosophy of the Highlands Water Protection and Planning Act.
- To support the overall philosophy of the State Development and Redevelopment Plan (SDRP) as a means of providing growth management on a state-wide basis while retaining the principles of home-rule.

The Land Use Plan Element proposes 10 land use categories, including three categories of single-family residential land uses, an attached multi-family residential category, two categories of commercial land uses, an office category, an industrial category, a planned economic district category, and a government reservation category (which encompasses the Picatinny Arsenal site). The large majority of the

Preservation Area in Rockaway is designated for Very Low Density Residential use, which corresponds with zoning districts of minimum 20-acre, 5-acre, and 2-acre lot sizes. The Land Use Plan Element also proposes two overlay designations, including a Critical Water Resources overlay and a Conservation overlay. The Critical Water Resources overlay is intended to protect the Township's most valuable water resources and imposes additional restrictions on development in this area. The Conservation overlay identifies those properties that have been acquired for permanent recreation or open space, as well as those properties proposed for open space acquisition. The Conservation overlay encompasses approximately 15,000 acres, the majority of which are located in the Preservation Area.

Also included in the Land Use Plan Element are a number of recommended ordinance amendments intended to protect the Township's environmentally sensitive features and promote the use of renewable energy sources. Specifically, the Plan includes the following proposed ordinances: 1) a steep slope ordinance, which requires increased lot sizes and reduced coverage on lots with slopes 15 percent or greater; 2) a tree protection and removal ordinance, which restricts cutting and removal of trees with a caliper of 6 DBH or greater and provides a tree replacement schedule; 3) a stream corridor ordinance, which requires a minimum buffer of 300 feet along both sides of Category 1 streams and 50 feet along both sides of all other stream corridors; 4) a wetlands ordinance, which promotes the NJ Freshwater Wetlands Protection Act Rules; and 5) a solar energy ordinance, which permits solar energy panels within certain height and coverage restrictions.

The Open Space Plan Element includes a set of goals and policies specifically pertaining to open space in the Township, an environmental resource database, as well as a prioritized inventory of property proposed for open space preservation. The environmental resource database provides a comprehensive inventory of natural resources in the Township. It covers topography and slope, wetlands, floodplains, Category One waters and buffers, watersheds, primary aquifers and ground water recharge areas, threatened and endangered species habitat, septic limitations based on soil suitability, and abandoned mines. Each of these resources is described in text and accompanied by figures, tables, and maps. The environmental resource database also provides an inventory of the nearly 18,000 acres of dedicated open space and public property in the Township. Finally, the Plan concludes with an updated priority rank list of 98 sites proposed for open space acquisition and preservation, which totals approximately 4,500 acres of land.

The Circulation Plan Element provides, in both text and map form, an overview of street classifications throughout the Township and recommendations regarding intersection improvements and proposed new streets. The Plan highlights the need for a number of specific circulation improvements in the vicinity of the Rockaway Townsquare Mall, Route 15, and Green Pond Road. According to the 1999 Periodic Reexamination Report, the Township has constructed few of the traffic and transportation improvements referred to in the Plan. The only notable traffic improvement to have been built since the Plan is the installation of the light at the corner of Green Pond and Sanders Roads.

The Community Facilities and Recreation Plan Elements provides an inventory of existing and proposed educational or cultural facilities, historic sites, libraries, firehouses, police stations, utilities, parks and recreation opportunities, and conservation areas. Recommendations include a new school site along Snake Hill Road across from Lake Ames Park, a new neighborhood park between Old Beach Glen Road and Meriden Road, a new firehouse along Meriden Road, new community centers at Peterson Field and the Marcella Recreation Center, as well as four new municipal wells and one new storage tank.

The Utility Services Plan Element identifies those areas of the Township that are presently served by municipal water and/or sanitary sewer systems, and those areas that are proposed to be served by such systems in the future. The Plan indicates that the Township's municipal water system is dependent on municipal wells and water storage tanks, and that sanitary sewer service is provided by the Rockaway Valley Regional Sewer Authority (RVRSA). Both the existing water and sanitary sewer service areas encompass the southern portion of the Township, up to and including the White Meadow Lake development and along Green Pond Road up to Meriden Road. The Plan shows proposed future expansion of the service areas into the northern portion of the Township, primarily concentrated around Green Pond Road. This proposed expansion is partially intended to coordinate service areas with new development, but also to provide service to existing developments that are experiencing problems with septic systems, such as the Lake Telemark area. It is noted that the proposed sewer service area extends beyond the area which RVRSA has agreed to serve.

The Housing Elements and Fair Share Plans prepared for Rockaway over the years have addressed the Township's fair share affordable housing obligation for COAH's second and third rounds. The Township received substantive certification of its second-round fair share plan on July 17, 1996. This plan addressed the Township's 1987 to 1999 cumulative obligation of 412 units of affordable housing. The Township then filed its third round housing plan in December 2005, however COAH's third round rules were subsequently determined, through litigation, to require modification. A new set of revised third round rules were adopted in 2008. Rockaway, due to its participation in Highlands Plan Conformance, was granted an extension to prepare a new Housing Element and Fair Share Plan. The Township must prepare and adopt a new housing plan no later than December 8, 2009.

Finally, the Stormwater Management Plan Element documents the strategy for Rockaway to address stormwater-related impacts. The Plan sets forth a series of goals relating to stormwater management, including the minimization of increases to stormwater runoff from new development, maintenance of groundwater recharge, prevention of an increase in nonpoint pollution, and protection of safety through design and operation of stormwater basins. To achieve these goals, the Plan outlines stormwater design and performance standards for new major development, defined as projects that disturb one acre or more of land or include ¼ acre or more of new impervious surface. Additionally, the Plan includes preventative and corrective maintenance strategies to ensure the long-term effectiveness of stormwater management facilities, as well as safety standards for stormwater infrastructure. Finally, the Plan also addresses the review and update of existing ordinances and other master plan documents to allow for project designs that include low impact development techniques.

d. Rockaway Township Land Use Regulations

As noted in the above discussion on Rockaway's Land Use Plan Element, the Township has a wide range of single-family residential, attached multi-family residential, commercial/office, and industrial zone districts. A majority of the Township's lands within the Preservation Area are zoned for very low density residential use, which includes the R-20 Acre, R-5 Acre, and R-88 Zones. However, there are also Preservation Area lands in low and moderate density residential use zones (R-40, R-20 and R-13), neighborhood business zones (B-1), office building/research zones (OB-RL), industrial zones (I), and mining zones (M). Although the 2006 Land Use Plan Element recommended the elimination of the R-40 Zone (permits single-family residential on minimum one acre lots) and M Zone (permits mining activities and single-family residential on minimum two acre lots) and that such previously zoned lots be rezoned to

R-5 Acre, the Township has not implemented those recommendations.

Clustering is an optional approach in many of the Township’s single-family residential zones. The following table provides an overview of the conventional requirements in these zones, as well as the requirements for clustering.

**Conventional and Cluster Requirements, Single-Family Residential Zones
Township of Rockaway**

Zone	Min. Lot Size	Max. Impervious Coverage	Max. Density	Min. Open Space Ratio	Min. Lot Size, Open Space
R-20 Acre Conventional lot	20 ac	3%	--	--	--
Clustered lot	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted
R-5 Acre Conventional lot	5 ac	8%	--	--	--
Clustered lot	43,750 sf	15%	No bonus	43,750 sf/lot	10 ac
R-88 Conventional lot	88,000 sf	10%	--	--	--
Clustered lot	44,000 sf	15%	No bonus	44,000 sf/lot	10 ac
R-40 Conventional lot	40,000 sf	20%	--	--	--
Clustered lot	Not permitted	Not permitted	Not permitted	Not permitted	Not permitted
R-20 Conventional lot	20,000 sf	25%	--	--	--
Clustered lot	17,500 sf	25%	No bonus	2,500 sf/lot	6 ac
R-13 Conventional lot	13,125 sf	25%	--	--	--
Clustered lot	10,575	25%	No bonus	2,625 sf/lot	5 ac

It was also previously noted that Rockaway contains a Critical Water Resources (CWR) Overlay District. The CWR Overlay restricts impervious coverage on all properties within the district to 45 percent, regardless of the property’s underlying zone regulations. All of the lands designated for the CWR Overlay are located in the southern portion of the Township, the majority of which are in the Planning Area.

Rockaway’s existing land use regulations also contain a number of additional provisions relating to environmental protection. What follows is a summary of each of these provisions:

- *Flood Damage Prevention.* Establishes regulations that must be met for any property that falls within a flood boundary as set forth on the FEMA Flood Insurance Rate Map.
- *Potable Water Supply Protection.* Prohibits structures within 1,500 feet of any public water supply source, unless adequate protections established. Prohibits installation of a sanitary sewer, septic system, or line carrying sanitary or industrial wastes within 100 feet of any well, infiltrated gallery, spring, or similar source of ground water developed for public water supply, unless of suitable materials and construction. Prohibits connections to a sanitary sewer system within 50 feet of any well developed as a public water source.

- *Monitoring Wells.* Requires that monitoring wells be installed prior to the approval of any application for industrial use, or any other nonresidential use that results in the potential discharge of any pollutant or contaminant on or into the ground within the Township. Further requires that a ground water monitoring program be implemented and carried out during the life of the facility, which determines the impact of the use on the quality of ground water underlying the facility.
- *Underground Mines.* Prohibits construction of buildings within 100 feet of a mine shaft. Permits buildings between 100 and 500 feet of a mine shaft only upon submission of evidence that development will not result in any adverse environmental impacts.
- *Stormwater Management.* Requires that any project not regulated under the municipal Stormwater Control rules be designed such that the rate of runoff is no greater than before its natural condition.
- *Soil Erosion and Sedimentation Control.* Requires that all developments protect streams, lakes and ponds from sedimentation damage and prepare a soil erosion and sedimentation control plan.
- *On-Site Septic Systems.* Requires that all on-site septic systems be reviewed and approved by the Township Department of Health.
- *Conservation Areas.* Prohibits development within designated Conservation Areas, as shown in the Township Master Plan. (It is noted that this requirement does not pertain to lands proposed for conservation, but not yet acquired.)
- *Vegetation.* Restricts the disturbance of vegetation to no more than 40 percent on slopes between 10 and 15 percent, to no more than 30 percent on slopes between 15 and 25 percent, and to no more than 15 percent on slopes 25 percent or greater. However, disturbance on any grade is permitted if 200 square feet or less.
- *Shoreline Development.* Prohibits the filling in or development of lakes, ponds, and water bodies larger than one acre in size. Prohibits construction of any building within 100 feet of the shoreline of any such water body (with exemptions for pre-existing dwellings in the R-13 Zone).
- *Stream Encroachment.* Prohibits development within 100 feet of the centerline of any stream or brook set forth on the Community Facilities Plan Element of the Township Master Plan, or any stream or brook that has water in it all year.
- *Wetlands.* Prohibits the connection of any structure to the Rockaway Valley Regional Sewer Authority (RVRSA) sewer system on wetlands, unless a waiver is granted by the Authority.
- *Seasonal High Water Table.* Restricts development on land with a seasonal high water table within 0 to 1 foot of the surface during certain periods of the year to structure without basements. Requires that applicants submit engineering evidence that the structure will not adversely impact ground water.

- *Protection of Critical Features.* Identifies “critical features” as slopes 15 percent or greater, flood plains and flood hazard areas, wetlands and wetland transition areas, soils with severe limitations for development, Category One streams, sites above a sole source aquifer, sites within 200 feet of public wells, sites with rare or endangered species, and sites within the Preservation Area. Requires reduced impervious coverage on properties containing a minimum of six or more critical features and certain additional factors. Prohibits development on lakes, ponds, wetlands, flood plains, and Category One stream buffer areas.

It is noted that the Township has not adopted any of the various environmental ordinances proposed in the 2006 Land Use Plan Element.

e. Rockaway Valley Regional Sewer Authority (RVRSA) Wastewater Management Plan

As previously noted, Rockaway Township contracts with the Rockaway Valley Regional Sewer Authority (RVRSA) for sewage collection and treatment. In the late 1990s, the RVRSA prepared a Wastewater Management Plan (WMP), which identified an overall capacity of 12 million gallons per day (MGD) and included Rockaway Township in its sewer service areas. This WMP was sent to NJDEP for approval, however the State only granted the RVRSA conditional approval. This was because the WMP’s capacity of 12 MGD did not address the identified need of 13.67 MGD.

The RVRSA then made changes to its WMP in order to address the discrepancy between need and capacity, and submitted a revised WMP to the State in the early 2000s. The Department did not accept the revised WMP and therefore the RVRSA is currently operating without an approved WMP. As such, the current relationship between the RVRSA and Rockaway Township (as with all the municipalities it contracts with) is that of “first come, first served”. That is, if a permitted development is within an existing or future service area and there is enough capacity, the RVRSA will serve that development. It is noted that the RVRSA’s existing and future sewer service areas are fairly consistent with those shown in the Township’s 1992 Utility Plan Element, except that the RVRSA’s future sewer service area does not extend into the Highlands Preservation Area.

As of 2008, the NJDEP has delegated responsibility for preparing and adopting a new WMP for the areas served by RVRSA to Morris County. The implications of this delegation will be discussed in more detail in the following chapter of this report.

III. CONSISTENCY REVIEW

The Highlands Regional Master Plan (RMP) is divided into several elements, which represent the major policy areas covered in the document and correspond with the goals set forth in the Highlands Act. These elements and their projected impact on Rockaway Township's planning program are discussed in detail below. It is noted that where a change to the Township's existing planning program appears to be required for Plan Conformance, such change is highlighted in **bold**.

a. Forested Areas

RMP Analysis

Protecting the integrity of Highlands region forests is dependent on the maintenance of large contiguous forested areas and healthy forest stands. The Highlands Council has prepared a Forest Resource Area Map, which delineates the areas within the Highlands region that exhibit the least fragmentation and are the most vital for the maintenance of ecological processes. Lands within the Forest Resource Area were included because they express one or more of the following indicators: a contiguous forest patch of equal to or greater than 500 acres in size; an area consisting of greater than 250 acres of core forest area greater than 300 feet from an altered edge; or areas that include greater than 45 percent of mean total forest cover and mean distance to the nearest patch.

Also of importance to the Highlands region forests is the integrity of the forested subwatersheds that provide important water quality benefits. The Forest Cover Integrity Map assigns an integrity level to every subwatershed in the Highlands region, including high, moderate and low. A high integrity forest subwatershed is defined as one which is predominantly forested, including a high proportion of forest cover consisting of high core area, large patch size, and a low distance to nearest patch. Moderate integrity forest subwatersheds are those that are predominantly forested, but do not exhibit a high proportion of forest cover, core area or patch size and an increase in distance to nearest patch. Low integrity forest subwatersheds are those that are predominantly non-forested or include low values for proportion of forest cover and patch size, or a high distance to nearest patch.

The RMP sets forth a number of goals, policies and objectives relating to Forested Areas, as follows:

- To limit human development in the Forest Resource Area in the Preservation Area as follows: implement regulations which limit permissible uses to maintenance of pre-existing uses and restoration of impaired forest areas; prohibit deforestation for human development, except where exempt from the Highlands Act; and prohibit the expansion or creation of public water supply systems and public or community wastewater systems into forested areas.
- To prohibit in the Planning Area the expansion or creation of public water supply systems and public or community wastewater systems into forested areas of the Forest Resource Area where located in a Protection Zone, Conservation Zone, or Environmentally-Constrained Sub-Zone.
- To prohibit forest clear-cutting within the Forest Resource Area, except in accordance with a Forest Management Plan.
- To limit human development of forests to low impact residential development in the Protection Zone and the Conservation Zone in the Planning Area.
- To limit deforestation in the Forest Resource Area and forested lands within High Integrity Forest

- Subwatersheds within the Existing Community Zone (ECZ) to the maximum extent practicable.
- To ensure that forest resources are protected on a site-specific basis during local development review.
 - To address the protection of Forest Resource Areas and High Integrity Forest Subwatersheds in municipal master plans and development regulations, including the adoption of a Community Forestry Plan Element of the master plan and municipal tree protection and clearing ordinances.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model documents that can be adopted or used to supplement the existing planning program. Specifically, the Council will provide a model municipal tree protection ordinance, as well as guidance on Community Forestry Plans, forest conservation and mitigation plans, forest stewardship plans, and low impact development best management practices.

Rockaway Township Plans and Regulations

The accompanying Forest Resource Area map delineates the forest resource areas within Rockaway Township. As shown, the entire Preservation Area is classified as Forest Resource Area. In addition, there are several portions of the Planning Area classified as Forest Resource Area, including Picatinny Arsenal and surrounding properties along Route 15, the area east of Meriden-Lyonsville Road, and an area west of Green Pond Road.

Additionally, the accompanying Forest Cover Integrity Map assigns an integrity level to every subwatershed in the Township, including high, moderate and low. As shown, the majority of the Township is classified as High Integrity Forest. However, the southwestern portion of the Township (Rockaway River (BM 534 Bridge to 74d 33m 30s) Subwatershed) is classified as Low Integrity Forest, and a small area east of Meriden-Lyonsville Road (Rockaway River (Stony Brook to BM 534 Bridge) Subwatershed) is classified as Moderate Integrity Forest.

Rockaway Township does not have a stand-alone Environmental Resource Inventory (ERI), but does have an environmental resource inventory contained within its 2006 Open Space Plan Element. A review of this inventory indicates that Rockaway's forested areas are addressed only in relation to threatened and endangered species. That is, forests and forested wetlands are identified in the Township, but only where there is critical habitat present. Furthermore, because the environmental resource inventory was prepared before the adoption of the RMP, it does not identify forest resources and forest cover integrity. **Therefore, in order to achieve Plan Conformance, the environmental resource inventory must be amended to reflect the locations and descriptions of Forest Resource Areas and Forest Cover Integrity, as contained in the RMP. In addition, the ERI must be adopted as a stand-alone document.**

The 2006 Land Use Plan Element contains a goal of "ensuring that any prospective development is responsive to the Township's environmental features, and can be accommodated while preserving these physical characteristics." The accompanying policy statement says, "the township seeks to limit development to that which is sensitive to the community's particular physical characteristics, and preserve the township's sensitive environmental elements." In furtherance of this goal and policy statement, the Plan designates the majority of lands within the Preservation Area in a Very Low Density Residential Land Use Category, as well as recommends that many properties therein be permanently preserved for open space. The Plan also contains a proposed tree protection and removal ordinance, which would restrict

cutting and removal of trees with a caliper of 6 DBH or greater and clusters of trees which may be of lesser caliper if determined appropriate. However, no formal action has been taken to adopt this proposed ordinance. **In order to achieve Plan Conformance, the Township must amend its master plan documents to include the following: First, the Township must prepare a Conservation Plan Element, which incorporates the goals, policies and objectives related to Forested Areas in the RMP. Second, because many of the RMP's goals, policies and objectives rely on Land Use Capability Zone designations, the Township must adopt the Land Use Capability Zones into the Land Use Plan Element. Lastly, the Township must also prepare a Community Forestry Plan Element, which will be used to maintain and improve forest cover in developed areas and provide the basis for a required tree clearing ordinance.**

The Township's land use ordinance requires that all development applications prepare an Environmental Impact Statement, which shall describe existing vegetation at the project site and identify potential damage to plant, tree and wildlife systems. With regard to specific restrictions on tree clearing, Rockaway's land use ordinance addresses this topic only insofar as it relates to steep slopes. Specifically, the ordinance restricts the disturbance of vegetation to no more than 40 percent on slopes between 10 and 15 percent, to no more than 30 percent on slopes between 15 and 25 percent, and to no more than 15 percent on slopes 25 percent or greater. Disturbance on any grade is permitted if 200 square feet or less. These regulations are inconsistent with the RMP in that they do not regulate activities or deforestation in accordance with the RMP definitions of Forest Resource Area, Forest Cover Integrity, or Land Use Capability Zones. **Therefore, in order to achieve Plan Conformance, the Township's land use ordinance will need to be revised to incorporate the Land Use Capability Zone designations, regulations that address each of the applicable RMP goals, policies and objectives set forth above, low impact development best management practices, and tree protection and clearing ordinances.**

b. Open Waters and Riparian Areas

RMP Analysis

Highlands Open Waters include all springs, wetlands, intermittent or ephemeral streams, perennial streams, and bodies of surface water, whether natural or artificial, located wholly or partially within the boundaries of the Highlands Region. Riparian Areas are areas adjacent to, and hydrologically interconnected with, rivers and streams. They are areas that exhibit periodic inundation or saturation of soils, are subject to periodic flooding, and include wildlife corridors within 300 feet of a surface water feature. These two resources are presented together in the Highlands Open Waters Map and Riparian Areas Map.

The integrity of Riparian Areas may be defined by that area's ability to provide water protection and ecological function. High Integrity Riparian Areas exhibit predominantly natural vegetation, including high quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses, and/or road crossings. Moderate Integrity Riparian Areas contain a higher incidence of impervious area, agricultural uses, and road crossings, and a reduced proportion of natural vegetation, including high quality habitat for water/wetland dependent species. Low Integrity Riparian Areas contain a high proportion of impervious area, agricultural uses, and road crossings, and minimal natural vegetation, including high quality habitat for water/wetland dependent species. The Highlands Council assigned a Riparian Area value class to each subwatershed in the region, which is presented in the

Riparian Integrity by HUC14 Map.

A high priority is for municipalities to develop and implement a Stream Corridor Protection/Restoration Plan, which will be used as a basis for both development review and restoration activities. The Stream Corridor Protection/Restoration Plan shall identify existing disturbed areas within Highlands Open Waters buffers, identify and require opportunities for restoration of such areas, and identify the extent of stream corridor features that are critical to supporting the functions of a healthy Highlands Open Waters buffer. Where a Stream Corridor Protection/Restoration Plan has not been approved by the Highlands Council, site-by-site development applications in municipalities will be required to strictly adhere to the RMP goals, policies and objectives below.

The RMP goals, policies and objectives relating to Open Waters and Riparian Areas are as follows:

- To establish a protection buffer of 300 feet from the edge of the discernable bank of streams, from the delineated LOI line for wetlands, or from a field delineated boundary for other Highlands Open Waters features. The protection buffer width may be modified for Category 2 streams in the Planning Area or in approved Redevelopment Areas.
- To require that all local development applications include the identification and mapping of Highlands Open Waters and Riparian Areas.
- To prohibit all major Highlands developments within Highlands Open Waters and their 300-foot buffer in the Preservation Area, except for linear development, which may be permitted provided there is no feasible alternative.
- In the Protection, Conservation and Existing Community Zones, to allow disturbances of Highlands Open Waters buffers only in previously disturbed areas.
- To limit disturbance of existing natural vegetation or increases in impervious area within High and Moderate Integrity Riparian Areas in any Land Use Capability Zone to the minimum alteration feasible in areas beyond Highlands Open Waters buffer requirements; protect the water quality of adjacent Highlands Open Waters; and maintain or restore habitat value of the Riparian Area.
- To prohibit modifications to Riparian Areas in the Protection Zone, except where a waiver is approved by the NJDEP or Highlands Council.
- To restrict modifications to Riparian Areas in the ECZ that would alter or be detrimental to the water quality and habitat value of a Riparian Area.
- To implement Low Impact Development Best Management Practices for any development activity proposed within a Riparian Area, which minimize both alterations of natural vegetation and increases in impervious area and provide for mitigation through restoration of impaired Riparian Areas in the same subwatershed.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide technical guidance for the development of Stream Corridor Protection/Restoration Plans, and for the restoration of impaired streams and riparian areas.

Rockaway Township Plans and Regulations

The accompanying Highlands Open Waters and Riparian Areas Map delineates the location of these resources within Rockaway Township. As shown, Highlands open waters, their associated buffer areas,

and riparian areas are extensive in the Township, but particularly in the Preservation Area and the Picatinny Arsenal site in the Planning Area.

Additionally, the accompanying Riparian Integrity by HUC14 Map assigns a riparian area integrity level to every subwatershed in the Township, including high, moderate and low. As shown, the majority of the Township is classified as High Integrity Riparian Area. However, a small area east of Meriden-Lyonsville Road (Rockaway River (Stony Brook to BM 534 Bridge) Subwatershed) is classified as Moderate Integrity Riparian Area, and the southwestern and southeastern portions of the Township (Rockaway River (BM 534 Bridge to Stephens Brook) Subwatersheds) is classified as Low Integrity Riparian Area.

The Township's environmental resource inventory provides an extensive overview, in both text and mapped form, of Rockaway's wetlands, streams, and other surface water features. However, because the inventory was prepared before the adoption of the RMP, the inventory does not identify or describe riparian areas or their integrity, nor does it show 300-foot protection area buffers for all Highlands Open Waters. **Therefore, the Township's environmental resource inventory must be revised to reflect the locations and descriptions of Highlands Open Waters and associated buffers, Riparian Areas, and Riparian Integrity, as contained in the RMP.**

The Township's 1992 Community Facilities Plan Element proposes conservation areas within 100 feet of stream corridors in order to minimize stream pollution of these areas. Also, as previously discussed, the 2006 Land Use Plan Element designates the majority of the Preservation Area for Very Low Residential land use and recommends that a number of properties located therein be acquired and preserved for open space. Additionally, the Plan contains a proposed wetlands ordinance, which promotes the NJ Freshwater Wetlands Protection Act Rules, and a proposed stream corridor ordinance, which would require a minimum buffer of 300 feet along both sides of Category 1 streams and 50 feet along both sides of all other stream corridors. These proposals are inconsistent with the RMP requirement to establish 300-foot buffers along all open water features. No formal action has been taken to adopt either of these proposed ordinances. **Therefore, in order to achieve consistency with the RMP, the Township's master plan must be revised to include a Conservation Plan Element, containing the goals, policies and objectives related to Highlands Open Waters and Riparian Areas, as set forth in the RMP; a Stream Corridor Protection/Restoration Plan; and adoption of the Land Use Capability Zones into the Land Use Plan Element, because many of the RMP's goals, policies and objectives rely on these designations.**

The Township's land use regulations contain a number of protections relating to surface water features. First, the regulations require that all site plan and subdivision applications submit an Environmental Impact Statement addressing existing water features and potential negative impacts thereto. Also, as discussed in the previous chapter of this report, the regulations prohibit construction of any building within 100 feet of any water body larger than one acre; prohibit development within 100 feet of any stream or brook set forth on the Community Facilities Plan Element or any stream or brook that has water in it all year; prohibit the connection of any structure on wetlands to the Rockaway Valley Regional Sewer Authority (RVRSA) sewer system; and require that all developments protect streams, lakes and ponds from sedimentation damage via a soil erosion and sedimentation control plan..

The Township's critical features ordinance also addresses surface water features by prohibiting development on lakes, ponds, wetlands, flood plains, and Category One stream buffer areas and reducing the permitted impervious coverage on sites with six or more "critical features". In addition, the stormwater

management regulations establish a 300-foot protection area buffer around Category One streams, wherein disturbance can only occur where previous development or disturbance has occurred. None of these ordinances, however, address riparian areas, riparian area integrity, or 300-foot protection buffers for all Highlands Open Waters. Furthermore, these regulations do not limit disturbance based on Land Use Capability Zones, as required by the RMP. **Therefore, the Township's land use regulations must be revised as follows: require that applicants identify and map Highlands Open Waters, 300-foot buffer areas for all Highlands Open Waters, and Riparian Areas; incorporate the Land Use Capability Zone designations; and limit development in accordance with each of the applicable RMP goals, policies and objectives set forth above.**

Also, although the stormwater management regulations contain some low impact development standards, they do not specifically relate to the disturbance of Highlands Resources. **Therefore, the Township's land use regulations will also need to be revised to include low impact development best management practices relating to Highlands Open Waters and Riparian Areas.**

c. Steep Slopes

RMP Analysis

The Highlands Council conducted an analysis of the Highlands region to identify areas that are significantly constrained by steep slopes and to ensure that the level of protection for these areas is appropriate. The resultant Steep Slope Protection Areas Map identifies slopes in the Highlands region that encompass a minimum of 5,000 square feet and that exhibited one of the following grade classifications: slopes of 20 percent or greater, slopes between 15 percent and 20 percent, and slopes between 10 percent and 15 percent that occur within Riparian Areas.

The RMP goes on to define slopes as follows: Lands with slopes of 20 percent or greater and lands within Riparian Areas with slopes of 10 percent and greater are considered Severely Constrained Slopes. All non-Riparian Area lands having a slope of 15 percent to less than 20 percent, which are forested, are considered Moderately Constrained Slopes. All non-Riparian Area lands having a slope of 15 percent to less than 20 percent, which are non-forested, and either are highly susceptible to erosion, have a shallow depth to bedrock, or have a Soil Capability Class indicative of wet or stony soils are considered Moderately Constrained Slopes. All non-Riparian Area lands having a slope of 15 percent to less than 20 percent, which are non-forested, and are not highly susceptible to erosion, do not have a shallow depth to bedrock, and do not have a Soil Capability Class indicative of wet or stony soils are considered Limited Constrained Slopes.

The RMP goals, policies and objectives relating to Steep Slopes are as follows:

- To require that applications for development include topographic information identifying the location of any Steep Slope Protection Areas.
- To require that applications for development involving parcels of land with slopes of 10 percent or greater include identification of forested lands, areas which are highly susceptible to erosion, depth to bedrock, and Soil Suitability Classes.
- To prohibit land disturbance within areas which are considered Severely Constrained Slopes and Moderately Constrained Slopes, except for linear development that meets the requirements of the

Highlands Water Protection and Planning Act Rules.

- To require the use of Low Impact Best Development Practices for any land disturbance or human development within areas which are Constrained or Limited Constrained Slopes, or that involves an approved disturbance of a Severely Constrained or Moderately Constrained Slope.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model steep slope protection standards for inclusion in municipal planning and regulatory documents, as well as other technical guidance in support of Plan Conformance activities.

Rockaway Township Plans and Regulations

As shown on the accompanying Steep Slope Protection Areas Map, the majority of the Township's steep slopes are located in the Preservation Area and the Picatinny Arsenal site in the Planning Area. Although there are also a number of other steep slope areas in the Planning Area of the Township, they are considerably more isolated. It is noted that this map only identifies slopes by steepness and does not further define slopes as Severely, Moderately or Limited Constrained Slopes. Discussions with Highlands Council staff members indicate that maps identifying the locations of these categories will be released soon.

The Township's environmental resource inventory includes text and maps relating to steep slope areas in Rockaway, however the NRI only addresses slopes greater than 15 percent and does not distinguish between different slope classes in the same way as the RMP. Furthermore, the environmental resource inventory does not define or identify Severely, Moderately or Limited Constrained Slopes. **Therefore, the Township's environmental resource inventory will need to be revised to provide definitions and mapping of steep slopes which reflects the different slope categories (greater than 20 percent, greater than 15 percent, and greater than 10 percent within riparian areas) contained in the RMP, as well as the different slope constraint classes (Severe, Moderate, Limited) contained in the RMP.**

In furtherance of its policy to "limit development to that which is sensitive to the community's particular physical characteristics, and preserve the township's sensitive environmental elements", the 2006 Land Use Plan Element designates the majority of lands with the Preservation Area for Very Low Density Residential land use and recommends acquisition and preservation of a number of properties therein. The Plan also contains a proposed steep slope ordinance, which would require increased lot sizes and reduced coverage on lots with slopes of 15 percent or greater. This proposal is inconsistent with the RMP requirement in that it does not include protections for slopes between 10 and 15 percent, and it does not limit disturbance based on Severely, Moderately, or Limited Constrained Slopes. No formal action has been taken to adopt this proposed ordinance. **In order to achieve Plan Conformance, the Township's master plan documents must be revised to include a Conservation Plan Element, which incorporates the goals, policies and objectives related to Steep Slopes, as contained in the RMP.**

The Township's land use regulations pertaining to steep slopes restrict the disturbance of vegetation to no more than 40 percent on slopes between 10 and 15 percent, to no more than 30 percent on slopes between 15 and 25 percent, and to no more than 15 percent on slopes 25 percent or greater. Disturbance on any grade is permitted if 200 square feet or less. These regulations are inconsistent with the RMP in that they do not categorize steep slope classes or limit disturbance based on slope constraint classes as defined in the RMP. **Therefore, the Township's land use regulations must be revised to require applicants to**

identify steep slopes and slope constraint classes as defined in the RMP; to limit development in accordance with each of the applicable RMP goals, policies and objectives set forth above; and to include low impact development best management practices related to steep slope areas.

d. Critical Habitats

RMP Analysis

There are three categories of Critical Habitat in the Highlands region: 1) Critical Wildlife Habitat, which includes habitat for rare, threatened or endangered species; 2) Significant Natural Areas, which are regionally significant ecological communities, including habitat for documented threatened and endangered plant species; and 3) Vernal Pools, which are confined, ephemeral wet depressions that support distinctive, and often endangered, species that are specially adapted to periodic extremes in water pool levels. These categories are identified spatially on the Critical Wildlife Habitat Map and Significant Natural Areas and Vernal Pools Map.

A high priority is for municipalities to develop and implement a Critical Habitat Conservation and Management Plan, which will be used as a basis for both development review and restoration activities. Critical Habitat Conservation and Management Plans shall address the applicable goals, policies and objectives outlined in the RMP. Where a Critical Habitat Conservation and Management Plan has not been approved by the Highlands Council, site-by-site development applications in municipalities will be required to strictly adhere to the RMP goals, policies and objectives below.

The RMP goals, policies and objectives relating to Critical Habitats are as follows:

- To prohibit the direct impact of new human development or expansion or increased intensity of existing development within Critical Habitat.
- To implement a Habitat Conservation and Management Program through a Critical Habitat Conservation and Management Plan. Such Plan shall establish performance standards requiring all development to employ Low Impact Development Best Management Practices as follows: 1) avoid the disturbance of Critical Habitat, 2) minimize impacts to Critical Habitat, and 3) mitigate all adverse modification to Critical Habitat so that there is no net loss of habitat value. Additional performance standards shall include requirement and criteria for mitigation of disturbed Critical Habitat, and the enhancement or restoration of historically disturbed Critical Habitat.
- To include in a Critical Habitat Conservation and Management Plan a Critical Habitat Overlay District, which identifies habitat in need of protection from fragmentation and other anthropogenic impacts, habitat critical to maintaining wildlife and plant populations, and habitat that serves other essential ecosystem functions such as carbon sequestration and ground water recharge.
- To require that applications for any local development review for Critical Habitat be subject to minimum standards and criteria outlined in a Habitat Conservation and Management Plan.
- To require that projects qualifying as major Highlands developments, affecting or potentially affecting Critical Habitat in the Preservation Area, comply with the Highlands Water Protection and Planning Act Rules and with the minimum standards and criteria outlined in the Critical Habitat Conservation and Management Plan.

In order to assist municipalities with the implementation of these goals, policies and objectives, the

Highlands Council will provide a model municipal conservation and management overlay district ordinance, and a Critical Habitat Conservation and Management Plan guidance document.

Rockaway Township Plans and Regulations

The accompanying Critical Wildlife Habitat Map and Significant Natural Areas and Vernal Pools Map identify the locations of these resources within Rockaway Township. As shown on the Critical Wildlife Habitat Map, critical habitat areas cover nearly the entire Township, with the exception of the southwestern portion of the Township, wherein critical habitat areas are still present but more isolated. The Significant Natural Areas and Vernal Pools Map shows there are significant natural areas in the northeastern portion of the Township, in the vicinity of Green Pond, Lake Denmark, Picatinny Lake, and Farney State Park, as well as in the southern portion of the Township, near Mount Hope Lake. Several vernal pools are also identified in both the Preservation Area and Planning Area.

The discussion of Rockaway's threatened and endangered species in the Township's environmental resource inventory is consistent with the RMP in that it is based on the New Jersey Landscape Project and the New Jersey Natural Heritage Program. The New Jersey Landscape Project data identifies locations of critical habitat throughout the state. The New Jersey Landscape Project map contained in the environmental resource inventory is generally consistent with the RMP's Critical Wildlife Habitat Map, but because the Township's map only shows the locations of Federal threatened and endangered species, it does not show all of the critical wildlife areas shown in the RMP. The New Jersey Natural Heritage Program data identifies the state's most valuable natural areas. The New Jersey Natural Heritage Program map contained in the environmental resource inventory includes all of the Significant Natural Areas shown on the RMP map, as well as other areas not included on the RMP map. Vernal pools are not discussed or identified, however. **Therefore, the Township's environmental resource inventory must be revised to reflect the locations and descriptions of Critical Wildlife Habitat and Vernal Pools, as contained in the RMP.**

In furtherance of its policy to "limit development to that which is sensitive to the community's particular physical characteristics, and preserve the township's sensitive environmental elements", the 2006 Land Use Plan Element designates the majority of lands with the Preservation Area for Very Low Density Residential land use and recommends acquisition and preservation of a number of properties therein. Although these efforts are generally consistent with the intent of the RMP, they do not cover all the critical habitat areas in the Township and do not specifically address the RMP provisions related to critical habitat, namely the creation of a Critical Habitat Conservation and Management Plan and Critical Habitat Overlay District. **Therefore, the Township must prepare a Conservation Plan Element, which incorporates the goals, policies and objectives related to Critical Habitat, as contained in the RMP. Also, the Township must prepare a Critical Habitat Conservation and Management Plan, which incorporates all of the performance standards set forth in the RMP and establishes a Critical Habitat Overlay District.**

The Township's land use regulations address critical habitat in a variety of ways. First, potential adverse impacts on wildlife habitat is required to be addressed by all development applications as part of an Environmental Impact Statement. Also, the stormwater management regulations require that stormwater management measures for major development avoid adverse impacts of concentrated flow on habitat for threatened and endangered species, as documented in the NJDEP Landscape Project and Natural Heritage

database. In addition, the Township’s critical features ordinance identifies sites with rare or endangered species as a “critical feature” and requires a reduction in the permitted impervious coverage on sites with six or more “critical features”. These regulations do not, however, address critical habitat to the extent required in the RMP. **Therefore, the Township must amend its land use regulations to incorporate minimum performance standards and a Critical Habitat Overlay District ordinance, as set forth in the Township’s Critical Habitat Conservation and Management Plan. The Township must also revise its land use regulations to require that all major Highlands development in the Preservation Area comply with the Highlands Act Rules relating to critical habitats.**

e. Land Preservation and Stewardship

RMP Analysis

The Highlands Council has prepared a Preserved Lands Map, which identifies the location of preserved open space, farmland, water supply watershed lands, and conservation easements throughout the Highlands region. The Highlands Act contemplates preservation of additional open space and farmland resources in order to protect and enhance ecosystem function, protect drinking water resources, and provide for passive and recreational lands. These lands are identified on the Conservation Priority Area and Agricultural Priority Area Maps. In order to accomplish these purposes, the RMP includes strategies for land preservation and stewardship among preservation partners, and ensuring that sufficient financial, institutional, and innovative resources are available for land preservation and stewardship.

The RMP goals, policies and objectives relating to Land Preservation and Stewardship are as follows:

- To establish and fund local open space acquisition and stewardship programs or to expand existing open space and stewardship programs.
- To adopt and enforce development regulations for the Special Environmental Zone in the Preservation Area, where development shall not occur in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools including, but not limited to, fee simple acquisition, easement acquisition, TDR programs, and development regulations. These zones are identified spatially on the Conservation Priority Area Map.
- To include an Open Space Preservation and Land Stewardship Element in municipal master plans.
- To identify and delineate existing preserved open space, including fee simple and easements; maintain a current Recreation and Open Space Inventory (ROSI); and identify lands subject to stewardship programs in municipal master plans.
- To require conservation or land stewardship easements as a condition of development approval for lands within parcels proposed for development that are identified for preservation on a proposed site plan or subdivision plat.
- To establish stewardship and monitoring programs for preserved lands owned by the municipality or county by fee acquisition or easement acquisition.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model Cluster/Conservation Design development standards, and will establish a technical assistance program to aid in the development of stewardship plans. The Highlands Council will also develop an outreach and education program for Highlands landowners to help them take

advantage of funding opportunities and incentives available for land preservation.

Rockaway Township Plans and Regulations

As shown on the accompanying Preserved Lands Map, Rockaway Township has a large number of parcels preserved from future development. Whereas the northern portion of the Township is largely in water supply/watershed lands and protected by State Conservation Easements, the central portion of the Township is characterized by State and Municipal Open Space lands. The majority of the Township's preserved lands are located in Rockaway's Preservation Area. The map also identifies the location of the U.S. Military-owned Picatinny Arsenal site, which is in the western portion of the Township. It is noted that the Township was required to verify the accuracy of this data during Plan Conformance Module 1 (Current Municipal Conditions & Build-Out Analysis) and found a number of preserved parcels that were not recognized on the RMP map. These parcels were submitted to the Highlands Council as RMP Updates, which, as discussed in more detail in the next chapter of this report, are factual corrections to the data in the RMP. **The Township should continue to monitor and inform the Highlands Council of additional parcels acquired for preservation.**

As previously noted, areas prioritized by the Highlands Council for future preservation are shown on the Conservation Priority Area and Agricultural Priority Area Maps. As shown on the accompanying Conservation Priority Area Map, the Highlands Council designates a number of areas in both the Preservation and Planning Areas for moderate and high conservation priority, including the Picatinny Arsenal site. The Map also designates a number of properties as Special Environmental Zones, all of which are located in the Preservation Area. An Agricultural Priority Area Map has not been included in this report because the Highlands Council does not designate any land in Rockaway Township as priority for agricultural preservation.

The Township's environmental resource inventory contains an extensive inventory of Rockaway's parks and dedicated open space. The inventory is presented in text, maps, and tables and identifies all of the Township's preserved lands as either federal, state, county, municipal, utility, or private open space. The inventory also identifies which properties have been preserved with Green Acres funding and which are listed on the Township's ROSI. It appears that the topic of preserved lands in the Township's environmental resource inventory is consistent with the RMP requirements. **However, the Township should review the inventory to ensure it is up-to-date and, if necessary, submit additional RMP Updates to the Highlands Council. In addition, the Township should ensure that the ROSI remains current.**

Both the 2006 Open Space Plan Element and Land Use Plan Element address the issue of existing and proposed preserved lands. The Open Space Plan Element includes the inventory of preserved lands discussed above, as well as a priority rank list of 98 sites proposed for open space acquisition and preservation, which totals approximately 4,500 acres of land. In concert with the Open Space Plan Element, the Land Use Plan Element recommends that the Township's approximately 11,000 acres of existing preserved land and the 4,500 acres of land proposed for preservation be designated as a Conservation Overlay district. It is noted that the majority of these lands are located within the Very Low Density Residential land use designation, which is designed to protect the Township's most environmentally sensitive areas. Despite the generally high level of consistency between the Township's existing Open Space Plan and the RMP provisions related to land preservation and stewardship, the Plan is

lacking stewardship strategies, as required in the RMP. **Therefore, the Township must amend its Open Space Plan to include land stewardship strategies. In addition, as part of its review of land stewardship strategies, the Township should consider participation in the voluntary Highlands TDR Program, which is further discussed in the previous chapter of this report.**

The Township's land use regulations contain a provision that prohibits development within Conservation Areas, as shown in the Township Master Plan. It is noted, however, that this requirement does not pertain to lands proposed for conservation, but not yet acquired. The land use regulations also permit optional clustering in the R-5 Acre, R-88, R-20, and R-13 Zones and, where employed, require that open space be set aside and preserved in perpetuity. The required open space area may be dedicated to the Township or owned and maintained by an organization for the benefit of owners or residents of the development. The minimum open space ratios and lot sizes that are required for each zone district that permits clustering are set forth in the table on Page 11 of this report. **To be consistent with the RMP, the Township must amend its land use regulations to incorporate the goals, policies and objectives related to Land Preservation and Stewardship, as contained in the RMP, including regulations pertaining to lands designated as Special Environmental Zones in the Preservation Area and regulations requiring conservation easements on lands identified for preservation in the master plan.**

f. Carbonate Rock (Karst) Topography

RMP Analysis

The term karst describes a distinctive topography that indicates dissolution of underlying carbonate rocks by surface water or ground water over time. This dissolution process causes surface depressions and the development of such features as sinkholes, sinking streams, enlarged bedrock fractures, caves and underground streams. Such features function as funnels, directing surface water runoff into karst aquifers with little or no attenuation of any transported contaminants. Stormwater basins, septic system leaching fields, sewers, agricultural runoff, lawn runoff, underground pipelines, and soil disturbance may also contribute contaminants directly to ground water through karst features. Therefore, management of development activities in carbonate rock areas is necessary to address the potential problems that are common to karst areas.

The Highlands Council relied upon existing New Jersey Geologic Survey and United States Geological Survey data to map areas of the Highlands region that are underlain by carbonate rocks. These areas are identified on the Carbonate Rock Area Map.

The RMP goals, policies and objectives relating to Carbonate Rock are as follows:

- To identify and delineate karst features and subwatersheds that drain surface water into the Carbonate Rock Area.
- For municipalities in, or within subwatersheds draining directly to, the Carbonate Rock Area, to ensure protection of public health and safety and the quality of ground waters from inappropriate land uses and pollutant discharges.
- To require that applications for site plan or subdivision approval include a multi-phased geotechnical site investigation to locate any potential karst features and potential hazards to public health and safety, structures, and ground water quality.

- To require that all potential hazards to public health and safety, structures, and ground water quality are fully addressed and mitigated in the construction plans and subsequent approval process, with the maximum emphasis on nonstructural measures, including avoidance of modifications to the karst features.
- To prohibit new land uses and facilities that constitute unacceptable risks of discharge due to karst topography where karst features have been identified, including, but not limited to, underground storage tanks, solid waste landfills, hazardous waste storage and disposal, and hazardous materials storage and handling

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide critical requirements for development ordinances, as well as develop a technical guidance manual containing requirements for multi-phased geotechnical studies.

Rockaway Township Plans and Regulations

As shown on the accompanying Preserved Lands Map, carbonate rock formations form two narrow bands in Rockaway Township. One is located in the northwest corner of the Township, which is located in the Preservation Area and is further constrained by a Category One stream, wetlands, and flood hazard area. This area is located within dedicated open space. The second carbonate rock area is located in the southwest corner of the Township, which is located in the Planning Area and is further constrained by streams, wetlands, and a primary aquifer. This area is partially located within the Picatinny Arsenal site and partially within lands zoned for office and industrial use.

The Township's environmental resource inventory does not address the topic of bedrock geology, or carbonate rock topography. **Therefore, the Township's environmental resource inventory must be revised to reflect the locations and descriptions of Carbonate Rock (Karst) Topography, as contained in the RMP, as well as subwatersheds that drain surface water into Carbonate Rock Areas.**

The Township's Stormwater Management Plan Element and stormwater management regulations generally emphasize the protection of public health and safety and the quality of ground water through design and performance standards intended to minimize pollutants in stormwater and maintain ground water recharge. The Plan and regulations also generally emphasize the use of nonstructural management strategies and mitigation plans to address stormwater management. With regard to karst features, the regulations require that structural stormwater management measures be designed to account for existing site conditions, including carbonate rocks. However, these regulations are not fully consistent with the RMP provisions related to Carbonate Rock. **Therefore, the Township must revise its land use regulations to incorporate the RMP goals, policies and objectives set forth above, including a requirement that development applications include a multi-phased geotechnical site investigation to locate any potential karst features and potential hazards; address and mitigate potential hazards with a maximum emphasis on nonstructural measures; and the prohibition of new land uses and facilities that constitute unacceptable risks of discharge due to karst topography, where identified. In addition, the Township must prepare a Conservation Plan Element, and possibly amend its Stormwater Management Plan Element, to incorporate the goals, policies and objectives related to Carbonate Rock (Karst) Topography, as contained in the RMP.**

g. *Lake Management*

RMP Analysis

Efforts to protect, restore and enhance the water quality of Highlands lakes and to protect the unique character of Highlands lake communities require a delineation of lake resources to facilitate land use and water resource planning. The Highlands Council therefore created a Lake Management Area Map, which identifies the locations of lakes greater than 10 acres in size and associated Lake Management Areas throughout the region. Lake Management Areas are defined to include four tiers: 1) Shoreland Protection Tier, consisting of an area measured 300 feet or the first public road perpendicular to the shoreline of the lake; 2) Water Quality Management Tier, consisting of an area measured 1,000 feet perpendicular from the shoreline of the lake, including the Shoreland Protection Tier; 3) Scenic Resources Tier, consisting of an area measured 300 to 1,000 feet perpendicular from the shoreline of the lake; and 4) Lake Watershed Tier, consisting of the entire land area draining to the lake.

The RMP goals, policies and objectives relating to Lake Management are as follows:

- To establish unique standards (as compared to lakes within the Protection and Conservation Zones) for the Lake Community Sub-Zone within the ECZ within 1,000 feet of lakes, particularly with respect to the Shoreline Protection Tier, to prevent degradation of water quality, harm to lake ecosystems, and promote aesthetic values within the ECZ.
- To adopt and implement standards for application to public lakes in the Shoreland Protection Tier to address direct and proximate impacts upon the lake, such as shoreline modification and development, docks, piers, boathouses, dredging, vegetation removal, increased impervious cover, and pollutant discharges.
- To adopt and implement standards for application to public lakes in the Water Quality Management Tier to prevent or minimize continuous pollutant sources that can contribute pollutants overland or through ground water to the lake from greater distances than the Shoreland Protection Tier.
- To adopt and implement standards for application to public lakes in the Scenic Resources Tier, including requirements for vegetative screening of buildings, building height limitations, and limits on tree and understory removal.
- To develop and adopt lake restoration plans for each of the municipality's developed lakes that has been identified as water quality impaired to restore, protect and, where possible, enhance lake water quality through management of pollutant sources in the Lake Watershed Tier. Total Maximum Daily Loads (TMDLs) adopted by the NJDEP to address known pollution problems may be used as lake restoration plans.
- To adopt standards for lake character and aesthetics for application to public lakes.
- To encourage increased public access to publicly-owned lakes, within the lake's carrying capacity and while maintaining the lake character.
- To discourage or control teardowns that result in altered lake-community character, and the potential loss of historic and cultural values, and to encourage community-supported limitations in lot coverage and building height for new construction.
- To establish and implement performance and development standards for shoreline uses which achieve compatibility among shoreline activities and nearby neighborhoods.

- To utilize recreational sites as opportunities to educate the public regarding the ecological value of the lake environs.
- To explore appropriate means to provide public recreation at the shoreline and on the water while ensuring retention of opportunities for passive recreation.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will establish standards for adoption by municipalities for the Shoreland Protection Tier, Water Quality Management Tier, and Scenic Resources Tier. The Highlands Council will also implement measures to encourage the maintenance of public and private lakes and the restoration of lake beds and downstream areas when lakes are drained.

Rockaway Township Plans and Regulations

The accompanying Lake Management Area Map identifies the locations of lakes greater than 10 acres in size and associated Lake Management Areas within Rockaway Township. As shown, there are a total of 15 lakes greater than 10 acres in the Township, including Green Pond, Charlotteburg Reservoir, Splitrock Reservoir, Lake Denmark, Picatinny Lake, Mount Hope Lake and White Meadow Lake. There are also Lake Management Areas in the Township that are associated with two other lakes in neighboring municipalities, including one in the Borough of Rockaway and one in Boonton Township. The majority of Rockaway's lakes and Lake Management Areas are located in the Preservation Area. The Lake Management Area surrounding White Meadow Lake, as well as portions of other Lake Management Areas, are located within a Lake Community Sub-Zone.

The Township's environmental resource inventory includes maps of the lakes included on the Lake Management Area Map, as well as several smaller lakes located in Rockaway. However, because the inventory was prepared before the adoption of the RMP, it does not address Lake Management Areas or the four tiers that comprise them. **Therefore, the environmental resource inventory will need to be revised to reflect the locations and descriptions of Lake Management Areas, as contained in the RMP.**

Rockaway's 2006 Master Plan Reexamination Report and Land Use Plan addresses lakes and their surrounding areas to a limited extent. The Reexamination Report and Land Use Plan both address the Township's continuing concern with development around White Meadow Lake and Green Pond. With regard to the White Meadow Lake area, the document discussed the need to ensure that infill development does not adversely impact the environmental character of the area, or physical features, and recommended that the minimum 13,125 square foot lot size be reinforced in this area. With regard to the Green Pond area, the document reaffirms the propriety of dwellings in this area being situated on the interior or lake side of the road, while their septic systems are located on a different lot on the other side of the road, given the character of the lots and the environmental factors that impact development in this area.

Additionally, the Open Space Plan indicates that a number of properties surrounding the Township's lakes are already preserved for open space, particularly in the northern portion of the Township, and that a number of additional properties surrounding lakes are prioritized for acquisition, including those around Mount Hope Lake and Green Pond. Finally, the Township's Stormwater Management Plan Element also provides general goals and recommendations for the minimization of pollutants in stormwater runoff from new and existing development. **In order to achieve consistency with the RMP, the Township must**

first prepare a Conservation Plan Element, which incorporates the goals, policies and objectives related to Lake Management Areas, as contained in the RMP. Also, the Township will need to develop and adopt Lake Restoration Plans for each of the Township's developed lakes that has been identified as water quality impaired. These may be contained within the Conservation Plan Element.

The Township's land use regulations address lake management by prohibiting the filling in or development of lakes, ponds, and water bodies larger than one acre in size and by prohibiting construction of any building within 100 feet of the shoreline of any such water body (with exemptions for pre-existing dwellings in the R-13 Zone). This appears to be inconsistent with the RMP provisions, at least with respect to the Lake Community Sub-Zone, unique standards are required within 1,000 feet of lakes. In addition, the stormwater management regulations contain standards for the minimization of pollutant sources, both over land or through ground water, however these standards are general and do not contain the specific requirements contained in the RMP. **As such, the Township must amend its land use regulations to require that all applications for development identify lakes and Lake Management Areas in accordance with the following categories: Shoreland Protection Tier, Water Quality Management Tier, Scenic Resources Tier, and Lake Watershed Tier. The Township must also revise its land use regulations to incorporate the applicable performance and development standards set forth in the RMP's goals, policies and objectives relating to Lake Management Areas.**

h. Water Resources Availability

RMP Analysis

Sustaining the region's water resources is of significant statewide importance. The availability of water for human use is an essential factor in determining the capacity for growth and continued economic stability for existing development within and outside of the Highlands region. The availability of water for ecological purposes is critical to sustaining the aquatic ecosystems of streams, ponds, and lakes in the Highlands region.

The RMP provides a method for identifying the quantity of available water resources throughout the region. Net water availability was determined by: 1) estimating the ground water capacity within each HUC14 subwatershed of the Highlands Region; 2) multiplying ground water capacity by percentage thresholds for each Land Use Capability Zone based on environmental constraints and conservation objectives specific to each zone (the product is ground water availability); and 3) subtracting from ground water availability an estimate of maximum monthly consumptive and depletive ground water and surface water use (the difference is net water availability).

The results of this analysis are shown in the Net Water Availability by HUC14 Map. Where Net Water Availability is positive, it is assumed there are water resources available beyond the existing demand. Where Net Water Availability is negative, the subwatershed is deemed a Current Deficit Area, meaning existing demand is exceeding sustainable supplies. For those subwatersheds deemed a Current Deficit Area, the Land Use Capability Water Availability Map displays net water available if conditional availability was granted.

The RMP goals, policies and objectives relating to Water Resources Availability are as follows:

- To develop Water Use and Conservation Management Plans for all subwatersheds that will set priorities for use of available water (where net water availability is positive) and will establish provisions to reduce or manage consumptive and depletive uses of ground and surface waters (where developed for Current Deficit Areas). In all cases, efficient use of water is required through water conservation and Low Impact Development Best Management Practices to make the best use of limited resources.
- To require that proposed new consumptive or depletive water uses within a Current Deficit Area only occur under the auspices of an approved Water Use and Conservation Management Plan, or through mitigation of the proposed use through a permanent reduction of existing consumptive and depletive water uses, ground water recharge in excess of Stormwater Management Rules, or other permanent means.
- To conditionally provide water availability (Conditional Water Availability) within a Current Deficit Area with appropriate standards regarding its use. A Current Deficit Area subwatershed that is primarily within the Protection Zone or Conservation Zone shall be assigned Conditional Water Availability not to exceed an aggregate of 1 percent of Ground Water Capacity. A Current Deficit Area subwatershed that is primarily within the ECZ shall be assigned Conditional Water Availability not to exceed an aggregate of 2 percent of Ground Water Capacity.
- To assign highest priority for the use of non-agricultural Net Water Availability or Conditional Water Availability within Protection Zone and Conservation Zone subwatersheds to uses that address threats to public health and safety from contaminated water supplies, cluster developments (subject to certain conditions), affordable housing projects where at least 10 percent of the units are affordable, and development permitted through a Highlands Redevelopment Area or takings waiver.
- To assign highest priority for the use of Net Water Availability or Conditional Water Availability within an ECZ to uses that address threats to public health and safety from contaminated water supplies, designated TDR Receiving Zones, infill development, designated Highlands Redevelopment Area, affordable housing projects where at least 10 percent of the units are affordable, or new areas for development that meet all other requirements of the RMP.
- To assign highest priority for agricultural water uses in the Conservation Zone to those Preservation Area uses that promote agricultural and horticultural uses and opportunities compatible with protection of the Highlands environment, and those Planning Area uses that promote the continuation and expansion of agricultural, horticultural, recreation and cultural uses and opportunities.
- To require the use of water conservation, recycling, and reuse methods and devices for any redevelopment or development activity, including renovations to existing structures, to minimize consumptive water use.
- To ensure that areawide Water Quality Management Plans (WQMPs), Wastewater Management Plans (WMPs) or their amendments will not directly or indirectly cause or contribute to a Net Water Availability deficit, and will help mitigate any existing deficit.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council is currently working to prepare guidelines for the development of municipal Water Use and Conservation Management Plans.

Rockaway Township Plans and Regulations

As shown on the accompanying Net Water Availability by HUC14 Map, there are two subwatersheds in the central portion of the Township (Green Pond Brook (above Burnt Meadow Brook) Subwatershed and Hibernia Brook Subwatershed) that are considered to have positive net water availability. The remainder of Rockaway Township has negative net water availability and is therefore deemed a Current Deficit Area. The subwatershed with the most severe deficit (-7.10 to 1.00 MGD) is the Beaver Brook Subwatershed in the eastern portion of the Township. It is partially located in both the Preservation Area and Planning Area.

The accompanying Land Use Capability Water Availability Map displays net water available if conditional availability were granted in the Township's Current Deficit Areas. The Map shows that all of the Current Deficit Area subwatersheds are assigned a conditional net water availability of 0.01 to 0.05 MGD.

The Township's environmental resource inventory only addresses groundwater to a limited extent. The environmental resource inventory provides a discussion and mapping of the Township's subwatersheds and primary aquifers, which are aquifers that yield an average of 251-500 gallons of groundwater per minute to high-capacity wells. The 2005 Stormwater Management Plan also contains an inventory of the Township's two Watershed Management Areas. However, these documents do not address the availability of water resources consistent with the data presented in the RMP. **Therefore, the Township will need to review and verify the accuracy of the RMP data as it relates to Water Resources Availability, and amend the NRI to incorporate this data in both text and map form.**

Rockaway's 1992 master plan document addresses the Township's water resources availability only as it relates to the water distribution system. The Utility Serves Plan Element indicates that the Township's water system is dependent upon two municipal wells and six water storage tanks. The wells are located in the Hibernia flats, including one on the former Hewlett-Packard site and one off of Mt. Hope Avenue just north of I-80, whereas the storage tanks are located at higher elevations within the service area. The Community Facilities Plan Element proposes an increase to the number of municipal wells and storage tanks, including three new wells on the Pondview Estates project site, one additional well on the former Hewlett-Packard site, and one new storage tank on the Copperas Ridge project site. Municipal water service areas are proposed for expansion beyond the southern portion of the Township, where they currently exist, into the northern portion of the Township near Lake Telemark/Hibernia. The 1992 master plan document also contains a goal of extending municipal services such as public sewers and water supply into defined areas which will result in the greatest number of existing and future homes being served at a minimum cost to the taxpayers. This goal has been retained, with slight modifications, in subsequent reexamination reports.

The 2006 Land Use Plan Element also addresses water resources availability as it relates to the primary aquifers located in the southern portion of the Township. The Plan designates several areas within and surrounding these aquifers as a Critical Water Resources (CWR) Overlay District. The intention of the CWR District is to implement zoning and development control measures in an effort to help protect the Aquifer as a major source of potable water supply. Specifically, the Plan recommends that impervious coverage within the CWR District be limited to 45 percent, regardless of the underlying zone designation. As shown on the accompanying Net Water Availability by HUC14 Map, these areas are deemed a Current Deficit Area.

Although the master plan documents contain valuable information regarding the Township's water supply system and planning specific to the CWR District, they do not address water resources availability to the extent prescribed in the RMP. **Therefore, in order to achieve consistency with the RMP, the Township must prepare a Conservation Plan Element, which incorporates the relevant goals, policies and objectives related to Water Resources Availability, as contained in the RMP. Also, the Land Use Plan Element must be revised to assign density/intensity of development in accordance with the relevant goals, policies and objectives contained in the RMP. Lastly, the Township will also need to develop Water Use and Conservation Management Plans for all subwatersheds that will set priorities for use of available water (where net water availability is positive) and establish provisions to reduce or manage consumptive and depletive uses of ground and surface waters (where developed for Current Deficit Areas).**

The Township's land use regulations address water resources availability in that it requires that all development applications contain an Environmental Impact Statement, wherein water supply, geologic and hydrologic conditions on the site are addressed and potential adverse impacts to these conditions are described and mitigated. The regulations pertaining to Environmental Impact Statements also require that applicants show that an adequate water supply is available and that it is not threatened by nearby use of other land. Specifically, if the supply is from off-site public facilities, the applicant must provide the amount of diversion granted by the Division of Water Resources, present diversion, and diversions expected from other approved subdivisions that are also dependent upon the present diversions. If the supply is from on-site sources, the applicant must provide the location and depth of all private and public water supplies within 100 feet of the improvement, location, depth and adequacy of proposed private or public water supplies to serve the proposed improvement, and geologic description of subsurface conditions, including expected groundwater yields.

In addition, the Township's design guidelines, standards and construction specifications contain requirements for the provision of water supply. Specifically, every developer is required to make an adequate supply of water available to each property within the development, with the supply subject to the approval of the Board, Township Engineer and the Township Health Department. Subdivisions are required to be connected to an existing public water supply system if the property is located within the proposed service area in the Township Master Plan or other official document, and public service is available within a reasonable distance. The regulations further state that if public service is not available, or is not available within a reasonable distance, the Board may nonetheless require the installation of water mains for the future provision of water, or alternatively, payment in lieu of installation.

Although these land use regulations represent important actions taken within the Township's planning program to control water use and availability, it appears that additional regulations will need to be incorporated in order to be consistent with the RMP. **Specifically, the Township must amend its land use regulations in conformance with the Water Use and Conservation Management Plans required for all subwatersheds, including the criteria for prioritizing and assigning conditional water availability based on Land Use Capability Zones, as set forth in the RMP. Also, the Township must adopt low impact development best management practices relating to water resources availability, including the use of water conservation, recycling, and reuse methods and devices for any redevelopment or development activity, including renovations to existing structures, to minimize consumptive water use.**

i. Prime Groundwater Recharge

RMP Analysis

The RMP focuses on a variety of measures to protect the replenishment of water resources in the Highlands region through ground water recharge and other means to ensure the maintenance of aquatic ecosystems and human water uses. The Highlands Council has mapped the best areas for recharge, defined as the areas in each subwatershed that have the highest recharge rates and, in total, provide 40 percent of total recharge for that subwatershed. This is reflected in the Prime Ground Water Recharge Areas Map. Protection of these lands and the quality and quantity of recharge from them has a high priority in the RMP.

The RMP goals, policies and objectives relating to Prime Groundwater Recharge are as follows:

- To implement master plans and development review ordinances that protect Prime Ground Water Recharge Areas and minimize the potential for disruption of recharge in such areas by development.
- To establish minimum site design guidelines and permissible uses within a Prime Ground Water Recharge Area, including identification of land use categories or other activities posing sufficient risk of contamination that are not allowed within Prime Ground Water Recharge Areas.
- To apply standards for development in Prime Ground Water Recharge Areas. Specifically, development shall not occur in Prime Ground Water Recharge Areas unless necessary to avoid Critical Habitat, Highlands Open Waters Buffers and Moderately and Severely Constrained Slopes. Any development approved to occur in a Prime Ground Water Recharge Area shall provide an equivalent of 125 percent of pre-construction recharge volumes for the affected Prime Ground Water Recharge Area of the site. The disruption of Prime Ground Water Recharge Area shall be minimized through implementation of Low Impact Development Best Management Practices, limited to no greater than 15 percent of the Prime Ground Water Recharge Area on the site, and preferentially sited on that portion of the Prime Ground Water Recharge Area with the lowest ground water recharge rates and the lowest potential for aquifer recharge.
- To prohibit the expansion or creation of public water supply systems or public wastewater collection and treatment systems or community-based on-site wastewater facilities into Prime Ground Water Recharge Areas within the Protection or Conservation Zone.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model municipal development regulations and master plan Elements for the protection of Prime Ground Water Recharge Areas. In addition, the Highlands Council will develop technical guidance for Low Impact Development and other Best Management Practices.

Rockaway Township Plans and Regulations

The accompanying Prime Ground Water Recharge Areas Map displays the areas within Rockaway Township that have the highest recharge rates, based on soil, precipitation, land cover and other factors. As shown, the areas defined as Prime Ground Water Recharge Areas in Rockaway, according to the RMP, correspond with the undeveloped portions of oversized lots and other relatively less developed areas of the

Township.

The Township's environmental resource inventory identifies, in both text and map form, Rockaway's ground water recharge areas. These areas are ranked by inches of ground water recharge per year, which are based on New Jersey Geological Survey data from 1999. The Township's 2005 Stormwater Management Plan also contains a map which presents this data. A review of both of these documents indicates that although the areas shown as "prime" ground water recharge areas on the RMP map are shown in the Township maps, they are not identified as "prime" in the way prescribed in the RMP. **Therefore, the Township must amend its environmental resource inventory to identify and define the "prime" ground water recharge areas, as set forth in the RMP.**

Rockaway's Stormwater Management Plan Element and stormwater management regulations address ground water recharge in the Township. However, since they were prepared prior to the adoption of the RMP, they are not quite consistent with that document. For example, as discussed above, the Stormwater Management Plan Element and associated regulations do not define Prime Ground Water Recharge Areas, as defined in the RMP, and therefore do not set forth specific requirements for these areas. In addition, whereas the RMP requires that any development in a Prime Ground Water Recharge Area provide an equivalent of 125 percent of pre-construction recharge volumes for the affected area of the site, the existing regulations only require that stormwater management measures maintain 100 percent of the average annual pre-construction recharge volume for the site. **As such, in order to achieve Plan Conformance, the Township's Stormwater Management Plan Element and stormwater management regulations must be revised to identify Prime Ground Water Recharge Areas and incorporate permitted uses, minimum site design guidelines and development standards for such areas, in accordance with the RMP. Also, the Township must prepare a Conservation Plan Element, which incorporates the goals, policies and objectives related to Prime Ground Water Recharge Areas, as contained in the RMP. Lastly, the Township must review the low impact development best management practices contained in its stormwater management regulations and, if necessary, amend them to address Prime Ground Water Recharge Areas.**

j. Water Quality

RMP Analysis

The RMP focuses on three aspects of water quality: 1) surface water quality, 2) ground water quality, and 3) wellhead protection. Each are discussed in more detail below.

Surface Water Quality: The Highlands Council, working with the NJDEP, prepared a map which displays the quality of surface water by HUC14 subwatershed throughout the Highlands region. This map, known as the Impaired Waters Overall Assessment by HUC14 Map, illustrates that waterbodies in 119 of the 183 subwatersheds in the Highlands region are impaired or threatened. The NJDEP, as required by the Federal Clean Water Act, has adopted regulatory, enforceable plans, known as Total Maximum Daily Loads (TMDLs) for many waterbodies to reduce pollutant levels and restore surface water quality.

Ground Water Quality: The NJDEP has identified (but not mapped) several categories of ground water contamination areas, which provide information on ground water quality impacts related to natural ground water quality, permitted discharges or contaminated site remediation. Classification Exception Areas and

Well Restriction Areas are areas where the ground water quality standards are exceeded. Currently Known Extent Areas are those areas known to be compromised because the water quality fails to meet drinking water and/or ground water quality standards. Deed Notice Exhibits document known soil contamination at levels that may restrict the use of, or access to, a property because soil contamination can lead to impacts on ground water quality. There is no equivalent to the TMDL process for ground water quality, but several programs exist to regulate ongoing discharges, reduce the potential for accidental discharges, and restore ground water quality from past pollution events.

Wellhead Protection: A Wellhead Protection Area (WHPA) is a mapped area around a public water supply well that delineates the horizontal extent of ground water captured by a public water supply well pumping at a specific rate over a specific time. A WHPA has three tiers which serve to mark the boundaries for priority areas for the protection of ground water quality. Tier 1 is a two-year time of travel (that is, the ground water within this tier flows to the well within a two-year time period); Tier 2 is equivalent to a five-year time of travel; and Tier 3 is equivalent to a twelve-year time of travel. The WHPAs for public community water supply systems in the Highlands region are depicted in the Wellhead Protection Areas Map.

The RMP goals, policies and objectives relating to Water Quality are as follows:

- To adopt and implement water quality protections, including: the prohibition of land uses that would increase pollutant loadings to waters for which TMDLs have been adopted by the NJDEP unless in compliance with the relevant TMDL; the insurance that new land uses draining to a stream designated as impaired but lacking a TMDL avoid increased pollutant loadings for the parameter or parameters for which a TMDL is required; and the requirement that WQMPs, WMPs, or amendments demonstrate that the proposed service area will not directly or indirectly support development that would be in violation of an adopted TMDL.
- To adopt and implement stormwater management controls, which require recharge of clean stormwater rather than contaminated stormwater wherever feasible, pretreatment of contaminated stormwater wherever its recharge is required, and implementation of Low Impact Development and Agricultural Best Management Practices standards.
- To implement municipal master plans and development regulations which incorporate relevant TMDLs, additional water quality protection measures, and wellhead protection for public water supply wells and nitrate standards.
- To develop and implement resource protection measures to protect and enhance ground water and water supply resources within Wellhead Protection Areas consistent with the source water assessments for each water supply source.
- To revise municipal master plans and development regulations to address wellhead protection requirements, including the restriction of development activities which pose threats to the water quality of public water supply wells and the implementation of best management practices for development activities and existing land use activities.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model municipal development regulations and master plan Elements to protect the quality of ground and surface water and address wellhead protection requirements. In addition, the Highlands Council will develop technical guidance for Low Impact Development and other Best Management Practices.

Rockaway Township Plans and Regulations

As shown on the accompanying Impaired Waters Overall Assessment by HUC14 Map, the northern and southern portions of the Township are deemed to have impaired water quality, whereas the two subwatersheds in the central portion of the Township (Green Pond Brook (above Burnt Meadow Brook) Subwatershed and Hibernia Brook Subwatershed) have insufficient data available to determine water quality. It is noted that these two subwatersheds are those that are considered to have positive net water availability, as discuss previously in this chapter.

The accompanying Wellhead Protection Areas Map displays the locations of the two-year, five-year and twelve-year protection tiers calculated around Public Community Water Supply (PCWS) wells in the Township. As shown, the southern portion of the Township includes Tiers 1, 2 and 3 wellhead protection areas. The wellhead protection areas more or less correspond with the areas designated by the Township as a Critical Water Resources (CWR) Overlay District.

The Township's environmental resource inventory does not address water quality or wellhead protection areas. However, the Township's Stormwater Management Plan Element does contain discussion and some mapping related to these issues. Specifically, the Stormwater Management Plan provides text and mapping of Rockaway's wellhead protection areas, which reflect the data contained in the RMP's Wellhead Protection Areas Map. Also, the Stormwater Management Plan discusses water quality as it relates to the Ambient Biomonitoring Network (AMNET), which the NJDEP has established to document the health of the State's waterways. The NJDEP samples streams for benthic macroinvertebrates on a five-year cycle and then uses this data to classify the streams as non-impaired, moderately impaired, or severely impaired. The Plan indicates that Rockaway contains three AMNET sites, including Green Pond Brook, Rockaway River, and Beaver Brook. These waterways appear to correspond geographically with the subwatersheds deemed to have impaired water quality in the RMP. **In order to achieve Plan Conformance, the Township will need to incorporate the Wellhead Protection Areas Map into the environmental resource inventory. Additionally, the Township must review and verify the accuracy of the RMP data as it relates to surface and ground water quality, and amend the environmental resource inventory and Stormwater Management Plan to incorporate this data in both text and map form.**

Rockaway's Stormwater Management Plan Element is fairly consistent with the RMP's goals, policies and objectives relating to water quality. The Plan provides background discussion, goals, and design and performance standards for the protection of ground water and water supply resources, in accordance with the RMP. The only RMP provision related to water quality that appears to be lacking in the Stormwater Management Plan is specific recommendations to address wellhead protection, including the restriction of development activities which pose threats to the water quality of public water supply wells and the implementation of best management practices. In addition, it is unclear from the Stormwater Management Plan whether or not Rockaway contains any waters for which a TMDL has been adopted by NJDEP. Although the Plan indicates that NJDEP has not issued a specific TMDL for the Township, there may be TMDLs for the Passaic Basin, which may extend into the Township's watershed management areas. **Therefore, as part of Plan Conformance, the Township must confirm whether or not there are TMDLs adopted for any waters extending into Rockaway. Also, the Township will need to prepare a Wellhead Protection Management Plan or amend its Stormwater Management Plan to address**

wellhead protection requirements, as forth in the RMP. Additionally, the Township’s master plan documents must be supplemented with a Conservation Plan Element, which incorporates the goals, policies and objectives related to water quality, as contained in the RMP.

The Township’s land use regulations contain a number of requirements pertaining to water quality and the protection thereof. First, the Township’s Environmental Impact Statement regulations require that all development applications identify existing conditions related to water quality on site and evaluate any potential for water pollution as a result of the proposed development. Also, as discussed previously in this chapter, the land use regulations restrict impervious coverage on those areas designated in the Critical Water Resources (CWR) Overlay District to 45 percent, regardless of the underlying zone designation.

Additionally, the land use regulations contain specific requirements related to monitoring wells and potable water supply protection. The regulations pertaining to monitoring wells requires that monitoring wells be installed prior to the approval of any application for industrial use, or any other nonresidential use that results in the potential discharge of any pollutant or contaminant on or into the ground within the Township, and requires that a ground water monitoring program be implemented and carried out during the life of the facility. The potable water supply protection requirements prohibit structures within 1,500 feet of any public water supply source; prohibit the installation of a sanitary sewer, septic system, or line carrying sanitary or industrial wastes within 100 feet of any well, infiltrated gallery, spring, or similar source of ground water developed for public water supply; and prohibit connections to a sanitary sewer system within 50 feet of any well developed as a public water source.

The Township’s stormwater management regulations also address water quality, as indicated above. The stormwater management regulations appear to be generally consistent with the RMP’s goals, policies and objectives related to water quality in that they require recharge of clean stormwater rather than contaminated stormwater wherever feasible, pretreatment of contaminated stormwater wherever its recharge is required, and implementation of Low Impact Development Best Management Practices standards.

Although the Township has made significant efforts to protect water quality in its land use regulations, it appears that there are additional steps that the Township must take to be consistent with the provisions of the RMP. For one, the stormwater management regulations do not contain restrictions on land uses that would increase pollutant loadings to waters for which TMDLs have been adopted by the NJDEP, nor are there requirements that new land uses draining to a stream designated as impaired but lacking a TMDL avoid increased pollutant loadings. Also, although it appears that the potable water supply protection requirements, in concert with the CWR District restrictions, address the issue of contamination to the Township’s public water supply wells, it is not clear that these regulations protect wellhead protection areas to the extent intended in the RMP. **Therefore, the Township must amend its stormwater management regulations to address TMDLs and review the Highlands Council model wellhead protection regulations, once released, to determine the adequacy of the Township’s existing regulations. If insufficient, the Township must amend its land use regulations accordingly.**

k. Public Water/Wastewater Utilities and Private Septic Systems

RMP Analysis

The Highlands Council developed three maps as part of the Land Use Capability Map Series that pertain to public water/wastewater utilities and private septic systems. The Land Use Capability Public Community Water Systems Map provides an overview of the areas of the Highlands region that are currently served by the public community water systems and their estimated net capacity. The Land Use Capability Domestic Sewerage Facilities Map provides an overview of the areas of the Highlands region that are currently served by the Highlands Domestic Sewerage Facilities and their estimated capacity. Highlands Domestic Sewerage Facilities include publicly-owned and investor-owned domestic wastewater treatment facilities. Finally, the Land Use Capability Septic System Yield Map identifies septic system yields by HUC14 subwatersheds, the results of which are based on the median nitrate concentration analysis illustrated in the Median Nitrate Concentration by HUC14 Map.

The RMP goals, policies and objectives relating to Public Water/Wastewater Utilities and Private Septic Systems are as follows:

- To prohibit the expansion or creation of public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities in the Preservation Area, unless approved through a Highlands Applicability Determination (HAD) or a HPAA waiver.
- To prohibit the creation or extension of public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities within the Protection Zone, the Conservation Zone and the Environmentally Constrained Sub-Zones of the Planning Area, unless they are shown to be necessary to address threats to public health and safety from contaminated water supplies, cluster developments (subject to certain conditions), and development permitted through a Highlands Redevelopment Area or takings waiver.
- To allow for the creation or extension of public water supply systems or wastewater collection systems within the ECZ of the Planning Area to serve lands that are appropriate for designated TDR Receiving Zones, infill, redevelopment, to serve new areas for development that meet all other requirements of the requirements of the RMP, or to address the same provisions set forth above for the Protection Zone, the Conservation Zone and the Environmentally Constrained Sub-Zones.
- To require that new residential development served by public water supply systems and public wastewater collection and treatment systems be at a minimum density of ½ acre per dwelling unit for the developed part of the site (excluding wetlands, Highlands Open Waters buffers, and recreational space).
- To require that new non-residential development served by public water supply systems and public wastewater collection and treatment systems be designed to target a floor area ratio (FAR) of 0.84 for the developed part of the site, to the maximum extent feasible.
- To require the use of recycled or re-used water wherever possible, including aesthetic purposes and non-potable purposes such as fountains, golf courses, and other recreational, commercial or agricultural uses.
- To use the median nitrate concentrations in ground water as a basis for establishing septic system densities in the Planning Area (septic system densities in the Preservation Area shall rely on the NJDEP Highlands Preservation Area rules). The median nitrate concentrations for the Protection and Conservation Zones within the Planning Area are 0.72 mg/L and 1.87 mg/L, respectively. The median that shall be used, on a project-by-project basis, for the ECZ in the Planning Area is 2 mg/L. New residential development using septic systems where clustering or conservation design

techniques are employed shall have a gross density based on the nitrate dilution target appropriate for the Land Use Capability Zone, but with the density for the developed portion of the site based on a nitrate dilution target not to exceed 10 mg/L.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide a model Utility Services Element for a municipal master plan, which will include water and wastewater utility components. However, where a County Wastewater Management Plan has been approved by the NJDEP that includes the necessary information, it may be incorporated by reference. The Highlands Council will also prepare model development standards regarding water and wastewater utility capacity, service areas, service densities, environmental protection requirements, and other relevant issues. In addition, the Council will provide a build-out analysis tool, which can be used by municipalities to determine the ability of a water supply or wastewater utility to serve additional development.

Rockaway Township Plans and Regulations

The accompanying Land Use Capability Public Community Water Systems Map and Land Use Capability Domestic Sewerage Facilities Map illustrate the areas within Rockaway Township that are currently served by potable water utilities and sewer utilities, respectively. It is noted that the Township was required to verify the accuracy of this data during Plan Conformance Module 1 (Current Municipal Conditions & Build-Out Analysis) and found a number of discrepancies between the RMP maps and data provided by the Rockaway Township Water and Sewer Department. Corrected data was submitted to the Highlands Council as RMP Updates, which, as discussed in more detail in the next chapter of this report, are factual corrections to the data in the RMP. **The Township should continue to monitor and inform the Highlands Council of additional areas being actively served by water and sewer service providers.**

The accompanying Land Use Capability Septic System Yield Map identifies septic system yields in Rockaway by HUC14 subwatershed, the results of which are based on the median nitrate concentration analysis illustrated in the accompanying Median Nitrate Concentration by HUC14 Map.

As discussed in the previous chapter of this report, Rockaway Township contracts with the Rockaway Valley Regional Sewer Authority (RVRSA) for its sewer collection and treatment. However, the RVRSA does not have an approved Wastewater Management Plan (WMP) and NJDEP has delegated responsibility to Morris County to prepare and adopt a WMP for those municipalities served by the RVRSA. Morris County has been working with NJDEP since mid-2008 towards the preparation of a County-wide WMP that will be in conformance with the New Jersey Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.) and Water Quality Management Planning Rules (N.J.A.C. 7:15-3.4). This revised Wastewater Management Plan is expected to be completed by September 15, 2009.

Based on discussions with Morris County officials, it is expected that although the County WMP will be consistent with NJDEP regulations, it will not be consistent with the RMP in that it will not remove properties within the Protection Zone, the Conservation Zone and the Environmentally Constrained Sub-Zones of the Planning Area from future sewer service areas. Instead, the County WMP will simply contain a notation that municipalities participating in Highlands Plan Conformance will prepare their own WMP in conformance with the provisions of the RMP.

A review of Rockaway's 1992 Utility Plan Element indicates that the Township's recommendations regarding proposed expansion of the water and sewer service areas are also not consistent with the RMP's requirements for future service areas. However, this is to be expected, given the fact that the Utility Plan Element was prepared well before the adoption of the RMP.

Therefore, in order to achieve Plan Conformance, the Township will need to prepare its own Wastewater Management Plan, which restricts future creation or extension of sewer service based on Land Use Capability Zones, as set forth in the RMP. The Township must also amend its Utilities Plan Element to incorporate the RMP goals, policies and objectives relating to water and wastewater. Lastly, the Township must prepare land use regulations specifying where new or expanded public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities can be provided, based on the RMP goals, policies and objectives.

With regard to density and intensity of development, it appears that the Township is already fairly consistent with the RMP provisions pertaining to public water and wastewater utilities. For example, as set forth above, the RMP requires that new residential development served by public water supply systems and public wastewater collection and treatment systems are at a minimum density of ½ acre per dwelling unit for the developed part of the site. A review of current municipal zoning indicates that all of the properties within the permitted water and sewer service areas are zoned for densities greater than ½ acre per dwelling. Also, the RMP requires that new non-residential development served by public water supply systems and public wastewater collection and treatment systems be designed to target a floor area ratio (FAR) of 0.84 for the developed part of the site. The only limitation on FAR in the Township's land use regulations pertains to commercial planned village centers in the PED district, where it is limited to 0.12.

It is not clear, however, whether the density regulations in the Planning Area for new residential development using septic systems are based on median nitrate concentrations in ground water. It is also unclear as to whether septic system densities in the Preservation Area comply with the NJDEP Highlands Preservation Area Rules. **As such, as part of Plan Conformance, the Township should review and possibly amend its Land Use Element and land use regulations to ensure they are consistent with the RMP's provisions relating to density and intensity of development.**

l. Agricultural Resources

RMP Analysis

Agriculture is a vital component of the economy, culture and landscape of the Highlands region. It provides economic benefits through agricultural production and agri-tourism, provides a local food source to area residents, and helps maintain the rural character of Highlands communities. For purposes of identifying critical agricultural lands in the Highlands region, the Highlands Council examined the distribution, size and quality of existing farms. The most important agricultural resources were determined to be those farming landscapes that account for 250 acres or more of contiguous farmland, farms that include Important Farmland Soils, extent of the lands adjoining a farm that is in agricultural use, and concentrations of preserved farmland. These lands are spatially represented in the Agricultural Resource Area Map.

The RMP goals, policies and objectives relating to Agricultural Resources are as follows:

- To implement Agriculture Retention/Farmland Preservation Plan Elements and development regulations promoting preservation in Agricultural Resource Areas (ARAs) and limiting non-agricultural uses within the ARA to those uses that support the preservation of farmland, avoid conflicts with agriculture, maintain and enhance the sustainability and continued viability of the agricultural industry, protect important farmland soils, and meet resource management and protection requirements of the RMP.
- To require mandatory clustering for residential development in an ARA, where it is not feasible to preserve agricultural lands within the ARA by such methods as fee simple acquisition, easement acquisition, or a TDR Program. The use of clustering shall preserve at least 80 percent of the total cluster project area in perpetuity in agricultural use or for environmental protection.
- To permit limited development, including family and farm labor housing in ARAs, which are necessary to support the viability of the agricultural operation, upon a demonstration that the proposed development is consistent with the resource management and protection requirements.
- To prohibit the development of additional water and wastewater infrastructure in an ARA within the Conservation and Protection Zones of the Planning Area, unless it meets the provisions for water and wastewater utility creation and expansion in the RMP, and will maximize the preservation of agricultural lands within the ARA.
- To require any agricultural or horticultural development in the Preservation Area and the Planning Area which involves new agricultural impervious cover to the total land area of a Farm Management Unit of greater than 3 percent but less than 9 percent to develop and implement a Farm Conservation Plan.
- To require any agricultural or horticultural development in the Preservation Area and the Planning Area which involves new agricultural impervious cover to the total land area of a Farm Management Unit of 9 percent or greater to develop and implement a Resource Management System Plan.
- To include an Agriculture Retention/Farmland Preservation Plan (AR/FPP) Element in municipal master plans and development regulations.
- To incorporate Right to Farm provisions into municipal master plans and development regulations where farmland preservation programs or a significant agricultural land base exist.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will develop Cluster/Conservation Design Development Conformance Guidelines for incorporation into municipal planning programs. Such guidelines will address required AR/FPP Elements and cluster ordinances. The Council will also provide a model Right to Farm ordinance.

Rockaway Township Plans and Regulations

According to the Agricultural Resource Area Map in the RMP, Rockaway Township does not contain any such areas and therefore the map is not included in this report. As part of Plan Conformance Module 1 (Current Municipal Conditions & Build-Out Analysis), the Township reviewed and identified those properties in the municipality assessed as Qualified Farms, revealing a number of farmland parcels scattered throughout the Township. **Therefore, the Township should verify that there are, in fact, no**

areas in the Township that meet the RMP definition of Agricultural Resource Area. If such areas are found within the municipality, the Township will need to pursue RMP Updates and revise its NRI, master plan, and land use regulations in accordance with the RMP goals, policies and objectives, as set forth above.

If the analysis of Rockaway's farmland reveals that there are, in fact, no Agricultural Resource Areas, no planning program amendments would be required for Plan Conformance. **However, it is recommended that the Township consider whether an optional Agriculture Retention/Farmland Preservation Plan Element would be appropriate for Rockaway.** The Township may elect to prepare such a plan in order to acknowledge the one farm that has already been preserved in Rockaway (David and Joann Oakes' farm on Charlotteburg Road), as well as to promote preservation of the other existing farms in the Township. Although the 2006 Open Space Plan does include a number of these farms on its prioritized list of proposed open space candidates, this plan does not contain recommendations specific to agricultural preservation and therefore may not adequately protect the Township's farmland resources.

m. Historic, Cultural, and Archaeological Resources

RMP Analysis

Historic, cultural and archeological resources play a critical role in defining the character of the Highlands region. These resources will continue to attract people to the region and must be managed to take advantage of their contribution to economic vitality and a high quality environment for the future. In collaboration with the State Historic Preservation Office (SHPO), the Highlands Council prepared a baseline inventory of the 618 historic and cultural resources within the Highlands region. This includes all properties listed on the New Jersey or the National Register of Historic Places, all properties which have been deemed eligible for listing on the New Jersey or National Register, and all properties for which a formal SHPO opinion has been issued. The inventory is illustrated in the Historic Preservation Map.

The RMP goals, policies and objectives relating to Historic, Cultural and Archaeological Resources are as follows:

- To include a Historic, Cultural and Archaeological Resource Protection Element in municipal master plans and development regulations and update the Historic and Cultural Resources Inventory through local development reviews.
- To adopt a local historic preservation ordinance with minimum standards for the protection and enhancement of historic, cultural, and archaeological resources listed in the Highlands Historic and Cultural Resources Inventory in municipal development regulations.
- To require that all applications for site plan or subdivision approval shall include identification of any resources listed on the Highlands Historic and Cultural Resources Inventory and, where the municipality has adopted an historic preservation ordinance, comply with minimum standards for the preservation of the affected resources.
- To establish a local advisory historic preservation body to review and make recommendations on applications for development or municipal permits which affect historic, cultural, and archeological resources listed on the Highlands Historic and Cultural Resources Inventory.

In order to assist municipalities with the implementation of these goals, policies and objectives, the

Highlands Council will provide model historic preservation standards for inclusion in municipal planning and regulatory documents, as well as other technical guidance in support of Plan Conformance activities.

Rockaway Township Plans and Regulations

The accompanying Historic Preservation Map identifies the locations of Rockaway's historic, cultural and archeological resources listed on the New Jersey or the National Register of Historic Places, deemed eligible for listing on the New Jersey or National Register, and/or have been issued a formal SHPO opinion. As shown, the Township contains one historic district (the Mount Hope Mine Historic District), as well as 63 historic properties (52 of which are associated with activities at Picatinny Arsenal). With the exception of those historic properties located within Picatinny Arsenal, all of the Township's historic sites are located within the Preservation Area.

The Township's environmental resource inventory does not address historic, cultural or archeological resources in Rockaway, however its 1992 Community Facilities Plan Element does contain a mapped inventory of such resources in the Township. The Community Facilities Plan map appears to identify a few of the historic sites shown on the RMP map – namely the Split Rock Furnaces, Ford-Faesch Manor House, and Hibernia Underground Railroad. However, the Community Facilities Plan map does not identify the Mount Hope Mine Historic District, nor any of the historic sites within Picatinny Arsenal. Furthermore, although the 1992 Master Plan also contains a goal of reserving areas to meet existing and future community facility needs, such as historical sites, the Master Plan does not contain any other language regarding the steps needed to protect local historic resources. **Therefore, the Township must prepare an updated inventory of historic, cultural and archeological resources within Rockaway, and incorporate this inventory into the environmental resource inventory and a Historic Preservation Plan Element. The Township must also prepare a Historic Preservation Plan Element, which incorporates the RMP's goals, policies and objectives relating to Historic, Cultural and Archeological Resources.**

Rockaway's land use ordinances require that all development applications identify historic sites and potential negative impacts thereto as part of an Environmental Impact Statement. However, the ordinances do not contain any additional standards for the protection and enhancement of historic, cultural and archeological resources in the Township, nor do the ordinances establish a historic preservation review commission to oversee the protection of such resources. **Therefore, to be consistent with the RMP, the Township must amend its land use regulations to incorporate the goals, policies and objectives related to Historic, Cultural, and Archeological Resources, as contained in the RMP, including the adoption of a local historic preservation ordinance and the establishment of a local advisory historic preservation body.**

n. Transportation

RMP Analysis

The Highlands transportation system is a complex network of roads, railways, and bridges that supports various modes of travel, including automobile, bus, rail, truck, bicycle and pedestrian. The major roadways and commuter rail lines in the Highlands region are shown on the Roadway Network Map and Transit Network Map, respectively.

One of the critical challenges of the transportation system is one of balancing regional transportation needs and environmental integrity. The region can achieve the goals outlined in the Highlands Act by encouraging a more compact mixed-use pattern for new development and redevelopment, creating more transportation choices, including mass transportation, bicycle, and pedestrian travel. The RMP supports Transit-Oriented Development as one example of a method that integrates mixed uses and transportation planning, by promoting more compact development in and around existing transportation infrastructure as an alternative to sprawl. The RMP also supports low impact development practices as a key to reducing surface runoff pollution, as well as context sensitive design as a strategy based on designing and planning projects in close collaboration with communities and stakeholders.

The RMP goals, policies and objectives relating to Transportation are as follows:

- To improve public safety through implementation of traffic calming measures in areas with high pedestrian activity.
- To provide for safe and efficient pedestrian connections and promote safe routes for children to travel to and from school.
- To promote more efficient use of existing road capacity by appropriate means, including increased bus, van, jitney, and car pool ridership.
- To require an evaluation of potential growth inducing effects such as substantial new land use, new residents, or new employment that could occur as a result of road improvements for increased motorized vehicle traffic capacity.
- To prohibit road improvements in areas for which a Growth Inducing Study demonstrates that proposed improvements do not support the RMP resource protection and smart growth policies and are likely to be growth-inducing for lands with limited or no capacity to support human development without a significant adverse impact on the Highlands ecosystem.
- To limit road improvements where roads are constrained by topography, forested lands, or the community character of land uses fronting on the road.
- To promote the use of mass transit and other alternative modes of transportation.
- To adopt a Circulation Plan Element in municipal master plans that coordinates with the Land Use Plan and demonstrates consistency with the RMP. Additionally, the Circulation Plan Element and associated development regulations shall facilitate the development of mixed land uses in locations that result in reduced average trip lengths, increase community and regional connectivity, and support existing development patterns, as well as include an evaluation of shared parking opportunities to support transit, commuter, commercial and mixed-use neighborhoods.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide a model Circulation Plan Element for adoption onto municipal master plans, model development standards relating to circulation, as well as other technical guidance in support of Plan Conformance activities.

Rockaway Township Plans and Regulations

The accompanying Roadway Network and Transit Network Maps depict the major roadways and public transportation opportunities within Rockaway Township. As shown on the Roadway Network Map,

Rockaway's major roadways include Interstate Route 80, U.S. Route 46, and State Route 15, all which are located in the southern portion of the Township. As shown on the Transit Network Map, New Jersey Transit and private bus lines provide bus service along these major roadways, with a park and ride located at the Rockaway Townsquare Mall. In addition, the map shows that both active and abandoned freight rail lines traverse the Township.

The Township's most recent Circulation Plan Element was prepared in 1992 and contains, in both text and map form, an overview of street classifications throughout the Township and recommendations regarding intersection improvements and proposed new streets. An inventory of Rockaway's mass transit opportunities or goals and objectives promoting such options are not contained in the Plan. Pedestrian circulation is also not addressed in the Plan.

The 1999 Master Plan Reexamination Report, however, discusses the release of Morris County's Draft Bicycle and Pedestrian Master Plan Element, which calls for sidewalks to be constructed on Dover-Rockaway Road, East Blackwell Street, Hibernia Avenue, Morris Avenue, Mount Hope Avenue, and West Dewey Avenue, and for multi-use trails to be constructed on the abandoned Wharton and Northern Railroad and West Morris Greenway. The Reexamination Report goes on to recommend that the Township's land use regulations be amended to include a requirement that sidewalks be constructed on those streets set forth in Morris County's Plan.

The 2006 Land Use Plan also makes specific recommendations relating to pedestrian circulation in the Township. The Plan includes a goal to promote a sidewalk master plan in selected areas of the community. The policy statement associated with this goal states that "the Township recognizes the need to provide sidewalks in certain heavily traveled areas of town to improve pedestrian safety. Consequently, it is the policy of the Township to identify those corridors that are appropriate for sidewalk construction. In addition, the Township is encouraged to establish a sidewalk fund, which will allow developers to contribute to the fund in lieu of building sidewalks in their developments, thereby directing funds to where they are needed most."

Despite these efforts, the Township has made little progress towards implementing the recommendations contained in the 1999 and 2006 Master Plan documents. Not only has the Township not adopted a sidewalk master plan or established a sidewalk fund, but it has also not amended its regulations to incorporate the recommendations contained in the Morris County Draft Bicycle and Pedestrian Master Plan Element. In fact, the Township's land use regulations currently set forth design standards for sidewalks, but do not identify any areas within the Township where such sidewalks are required.

The Township's lack of action in promoting its pedestrian circulation policies, combined with the lack of emphasis on mass transit and other alternative modes of transportation in its policy documents, signifies that Rockaway must make a number of changes to its planning program in order to make it consistent with the RMP. Additionally, this is made apparent by the fact that many of the Township's recommendations for road improvements, as outlined in the 1992 Circulation Plan Element, are for areas within the Preservation Area, which is inconsistent with the RMP provisions as well as the Township's own goal of concentrating growth within the southern portion of the Township, as contained within the 1992, 1999 and 2006 Master Plan documents. **Therefore, in order to be consistent with the RMP, the Township must amend its Circulation Plan to incorporate all of the goals, policies and objectives related to Transportation in the RMP, and coordinate its recommendations with changes to development**

density/intensity in the Land Use Plan Element.

o. Redevelopment, Smart Growth, Housing and Community Facilities

RMP Analysis

As discussed throughout this report, future land use in the Highlands region is guided by the Land Use Capability Zones, which direct development away from environmentally sensitive and agricultural lands. However, the RMP also establishes a framework for future land use which involves the following:

- 1) The use of redevelopment in underutilized areas, brownfields and grayfields;
- 2) A smart growth approach to resource planning and management, which promotes land use patterns with a sense of community and place, multi-modal and alternative modes of transportation, sustainable economic development, and an equitable distribution of the costs and benefits of development;
- 3) The use of Low Impact Development, which is an Element of smart growth that uses a variety of landscape and design techniques to manage development activities to mitigate potential adverse impacts on the natural environment; and
- 4) Mechanisms to address the need for a full range of variety and choice in housing opportunities and access to community facilities, while protecting the character and natural resources of the region and acknowledging infrastructure limitations.

The RMP goals, policies and objectives relating to Redevelopment, Smart Growth, Housing and Community Facilities are as follows:

- To encourage Preservation Area redevelopment of sites with 70 percent or greater impervious surfaces or a brownfield in areas designated as Highlands Redevelopment Areas.
- To encourage redevelopment in the Conservation and Protection Zones and ECZ in the Planning Area of brownfields and grayfields and (and, in the ECZ, other previously developed areas) that have adequate water, wastewater, transportation capacity, and are appropriate for increased land use intensity or conversion to greenfields.
- To require identification of any development, redevelopment, and brownfield opportunities in the Land Use Plan Element of municipal master plans, as appropriate.
- To amend municipal development regulations and zoning to enable project implementation of local redevelopment initiatives that are identified under municipal master plans, consistent with RMP smart growth and Low Impact Development policies and objectives.
- To encourage new development in the ECZ in the form of “center-based” and mixed-use development, where desired by the municipality. Densities of five dwelling units per acre or more is encouraged.
- To incorporate programs for community and neighborhood design into municipal master plans and development regulations, including minimum requirements for the use of Low Impact Development and sustainable design practice to support affordable maintenance of housing, particularly affordable housing; regulations and guidelines advocating mixed-use development and redevelopment; regulations and guidelines that incorporate form-based zoning to support compact,

walkable communities; increased opportunities for pedestrian and bicycle networks; and regulations and guidelines advocating shared parking, driveways, and other infrastructure in order to limit paved surfaces.

- To require that municipalities develop an Economic Plan Element of the municipal master plan, which provides strategies for achieving sustainable and appropriate economic development and identifies any development, redevelopment, and brownfield opportunities.
- To adopt municipal Low Impact Development Best Management Practices where disturbance of Highlands resources is proposed to avoid or minimize the net loss of Highlands resources. The RMP provides site-specific techniques relating to site design, building orientation, landscaping, water conservation, stormwater management, and ground water recharge.
- To require the identification of existing and planned community facilities and encourage shared service opportunities as part of the local Community Facilities Plan Element.
- To require that municipalities implement both the resource protection requirements of the RMP and the NJ Supreme Court's doctrine that every municipality in a "growth area" has a constitutional obligation to provide a realistic opportunity for a fair share of its region's present and prospective needs for affordable housing.
- To require that municipalities update and adopt a Housing Element, Fair Share Plan, and implementing ordinance(s), which evaluate and provide for alternate mechanisms to address affordable housing obligations where RMP resource protection standards restrict the ability of planned but not built sites to be developed for affordable housing.

In order to assist municipalities with the implementation of these goals, policies and objectives, the Highlands Council will provide model Economic and Community Facilities Plan Elements. The Council will also provide a Smart Growth Manual and Community Development Design Guidebook, which can be used by municipalities to develop standards for mixed-use, infill, historic resources, green building, cluster and lot-averaging, jobs-housing balance, redevelopment, affordable housing, community facilities, and other smart growth issues. Lastly, the Council will develop technical guidance for Low Impact Development and other Best Management Practices.

Rockaway Township Plans and Regulations

The Township's 1999 and 2006 Master Plan Reexamination Reports state that there are no areas in the municipality that are presently contemplated for being designated as an 'area in need of redevelopment' pursuant to the Local Redevelopment and Housing Law (LRHL). Rockaway's master plan documents also do not discuss any plans for redevelopment as part of the long-range planning process. **As part of Plan Conformance, it is recommended that the Township continue to monitor and identify lands within the Township that are appropriate for redevelopment, in accordance with the goals, policies and objectives set forth in the RMP, and to encourage the redevelopment of these lands through Land Use Plan and development regulation amendments.**

A review of Rockaway's planning documents indicates that the Township has not adequately promoted the goal of smart growth within its planning program. The only zone district within the Township that permits mixed-use development is the OR-3 zone, which permits multi-family residential, office and commercial uses. This zone designation was part of the Township's 1996 certified Housing Plan, which contemplated a mix of 1,050 affordable and market rate dwellings and 95,000 square feet of commercial development. However, the Council on Affordable Housing has since determined that affordable housing would not be

appropriate on this site due to lack of water access and therefore the site has not been developed. Also, as previously discussed in this report, the Township's planning program does not incorporate other traditional smart growth strategies, including design standards for the promotion of compact, walkable communities, a pedestrian and bicycle circulation plan; context sensitive design recommendations for circulation, transportation management solutions that promote mass transit use; and sustainable design guidelines.

The only significant step that the Township has taken toward the promotion of smart growth is the adoption of its stormwater management regulations in 2006, which require, to the maximum extent practicable, that minimum standards to control erosion, infiltration, ground water recharge, and stormwater runoff be met by incorporating low impact development best management practices strategies into site design. Examples of such low impact development strategies include the minimization of impervious surfaces and land disturbance, protection of natural drainage features and vegetation, provision of low-maintenance landscaping and vegetated open-channel conveyance systems, and provision of other site design features to minimize the use or exposure of pollutants at the site.

Although this effort has moved the Township considerably toward consistency with the RMP, there is still much that the Township must do to ensure that its entire planning program is in line with the RMP's goals, policies and objectives relating to smart growth and low impact development. **To be consistent with the Master Plan, the Township will need to amend its Land Use Plan Element to incorporate the goals, policies, and objectives relating to smart growth and sustainable economic development, as contained in the RMP. Additionally, the Township's land use regulations must be amended to include standards for community and neighborhood design and low impact development best management practices. Lastly, the Township must also prepare an Economic Plan Element of the master plan, which provides strategies for achieving sustainable and appropriate economic development and identifies any opportunities for infill development and redevelopment.**

As indicated previously, the Housing Elements and Fair Share Plans prepared for Rockaway over the years have addressed the Township's fair share affordable housing obligation for COAH's second and third rounds. The Township received substantive certification of its second-round fair share plan on July 17, 1996. This plan addressed the Township's 1987 to 1999 cumulative obligation of 412 units of affordable housing. The Township then filed its third round housing plan in December 2005, however COAH's third round rules were subsequently determined, through litigation, to require modification. A new set of revised third round rules were adopted in 2008. Rockaway, due to its participation in Highlands Plan Conformance, was granted an extension to prepare a new Housing Element and Fair Share Plan. **The Township must prepare and adopt a new housing plan no later than December 8, 2009.**

The Township's most recent Community Facilities Plan Element was prepared in 1992. It provides an inventory of Rockaway's existing and proposed educational or cultural facilities, historic sites, libraries, firehouses, police stations, utilities, parks and recreation opportunities, and conservation areas. Given the length of time that has passed since the preparation of this document, it is likely that there are additional community facilities that need to be added to the Township's inventory and that current conditions in the municipality warrant revised recommendations for future facilities. **As such, the Township must prepare an updated Community Facilities Plan Element, which identifies existing and planned community facilities, and encourages shared service opportunities in accordance with the RMP's goals, policies and objectives.**

IV. STEPS TO BASIC PLAN CONFORMANCE

a. Basic versus Full Plan Conformance

The Highlands Council has created a two-step process for Plan Conformance. Under Full Plan Conformance, a municipality's planning program will reflect all Elements of the RMP, as well as the results of specific environmental and planning analyses at the local level. However, in an effort to assist Preservation Area municipalities in achieving mandatory conformance within the 9 to 15 month deadline, the Highlands Council will grant "Basic" Plan Conformance once the municipality has satisfactorily completed all immediate mandatory conformance requirements.

Basic Plan Conformance does not relieve a municipality from the obligation to achieve Full Plan Conformance, but minimizes the upfront requirements and commits the municipality to fulfillment of the remainder in accordance with a Council-approved Action Plan and Implementation Schedule. Basic Plan Conformance will entitle the petitioner to all of the rights and benefits of Full Plan Conformance, provided that the Implementation Plan and scheduling requirements included therein are rigorously adhered to.

The process of Basic Plan Conformance is also available to the Planning Area, but is not mandatory and has no statutory deadline. However, municipalities in the Planning Area must adhere to the same December 8, 2009 deadline for Basic Plan Conformance in order to be eligible to receive extensions and adjusted growth projections from the Council on Affordable Housing, as described previously in this report. The Township of Rockaway has already adopted a "Notice of Intent" indicating its intent to pursue Plan Conformance for both the Preservation and Planning Areas by the December 8, 2009 deadline.

b. Key Requirements for Basic Plan Conformance

The following section details each of the key requirements for Basic Plan Conformance, and evaluates the Township's planning program to determine the level of effort required to complete these key requirements:

1. Build-Out Analysis

The Township is required to prepare a Build-Out Analysis, on a parcel-by-parcel basis, of the entire municipality. The analysis will involve a two-step process using models provided by the Highlands Council, which will correspond with Highlands Plan Conformance Modules 1 and 2, respectively.

In Module 1, the Highlands Council will provide the Township with current information available regarding developable lands, preserved lands, and areas served with potable water and wastewater utilities, which will then be verified for accuracy by the Township. Rockaway Township has already completed this step; revisions were submitted to the Highlands Council on March 6, 2009. Once the Highlands Council reviews the municipally-revised data, it will provide an updated Municipal Build-Out Geodatabase and local build-out Land Use Capability Map series capacity conditions based on existing local conditions.

In Module 2, the Township will then use the Municipal Build-Out Geodatabase and local build-out Land Use Capability Map series capacity conditions to evaluate the extent to which the build-out

for developable lands under current municipal zoning will exceed available capacity for water availability, public water and wastewater utilities, and septic system yield. This information will then be used to perform a “limiting factor” analysis regarding the developable lands and associated constraints. Overall, the exercise will highlight any conflicts between current municipal zoning and the RMP, and help establish appropriate zoning densities.

2. Environmental Resource Inventory

The Township is required to supplement its existing environmental resource inventory (ERI) by adoption of Highlands Resource Area Maps, along with descriptions of Highlands Resource categories as defined in the RMP. Highlands Resource categories include the following, where applicable: Forest Resources, Open Waters and Riparian Areas, Steep Slopes, Critical Habitat, Carbonate Rock Topography, Lakes, Ponds and Reservoirs, Water Resources, Agricultural Resources, Historic and Cultural Resources, Scenic Resources, and Infrastructure. As part of Plan Conformance Module 4, the Highlands Council will provide the Township with a model Highlands ERI, along with tabular data, which can be used by Rockaway to supplement its existing ERI.

3. Master Plan

The Township is required to adopt a “Highlands Element” as a supplement to the municipal Master Plan. The Highlands Element is required to contain the following components: Policies, Goals, and Objectives; Land Use Plan; Housing Plan; Conservation Plan; Utility Services Plan; Circulation Plan; Open Space Plan; Agriculture Retention/Farmland Preservation Plan; Community Facilities Plan; Economic Plan; Historic Preservation Plan; Relationship of Master Plan to State/Regional/Local Plans; and an optional Development Transfer Plan.

As part of Plan Conformance Module 5, the Highlands Council will provide municipalities with a model Highlands Element for Basic Plan Conformance, which the Township may adopt as a supplement to its existing Master Plan. The Township may either retain the Highlands Element as a single document in the Master Plan, with the understanding that all portions of previously adopted plan components inconsistent therewith would be repealed, or the Township may individually amend each plan component to reflect the contents of the Highlands Element.

What follows is a more detailed discussion of the Basic Plan Conformance requirements for each individual component of the Highlands Element:

(a) Policies, Goals, and Objectives

The Township is required to adopt all broad-based, municipally-relevant Goals, Policies, and Objectives contained in the RMP, modified to apply at the local level. In all cases where the Goals, Policies, and Objectives are modified to apply to the local level, the resulting policies and objectives must be no less stringent than those of the RMP. Where the Goals, Policies, and Objectives in the RMP are discretionary, the Township may choose which to incorporate, if any.

(b) Land Use Plan

For the Land Use Plan component, the Township is required to adopt all applicable Highlands Land Use categories, including Areas, Zones, and Sub-Zones. The Township is also required to adopt the complete Land Use Capability Map (LUCM) series, which includes the Land Use Capability Zone Map, Land Use Capability Water Availability Map, Land Use Capability Public Community Water Systems Map, Land Use Capability Domestic Sewerage Facilities Map, and Land Use Capability Septic System Yield Map. Additionally, the Township must adopt, by reference, Highlands water and wastewater management provisions as the major criteria for assessing proposed density/intensity of development. The Township is also required to incorporate the basis for cluster development standards into the municipal Land Use Plan. Lastly, the Township is required to prepare an up-to-date developed land inventory map.

(c) Housing Plan

For the Housing Plan component, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Housing, modified to apply to the local level. Additionally, the Township must recognize and cross-reference to the existing housing plan, adopting a statement of commitment to: a) satisfying the municipality's constitutional obligation to provide for affordable housing; and b) doing so in accordance with the revised policies, goals and objectives.

As part of Highlands Plan Conformance Module 3, the Township will be required to prepare a new Housing Element and Fair Share Plan addressing its 3rd Round requirements. This plan must incorporate the results of the Build-Out Analysis prepared as part of Plan Conformance Modules 1 and 2 in the determination of housing and employment projections for the Township through 2018.

(d) Conservation Plan

For the Conservation Plan component, the Township is required to adopt Highlands Resource Area Maps, as applicable, as well as Highlands Resource categories as defined in the RMP. The Township is also required to adopt specific applicable RMP Goals, Policies, and Objectives, as they relate to each of the Highlands Resource categories, modified to apply at the local level. Additionally, the Township will need to recognize and provide cross-reference to any applicable municipal resource maps, data, studies, environmental inventories, etc., that supplement, enhance, or refine Highlands resource information. Lastly, the Township is required to incorporate the basis for requiring Low Impact Development and use of Best Management Practices throughout resource areas.

Since the Conservation Plan is intended to be based on the Highlands Environmental Resource Inventory (ERI), much of the required information set forth above can simply be duplicated from this previous effort.

(e) Utility Services Plan

For the Utility Services Plan, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Utilities, modified to apply to the local level. The Township is also required to recognize adherence to adopted Highlands water and wastewater technical guidance documents, and emphasize that existing water and sewer service will not be extended: a) in the Preservation Area, unless approved through a Highlands Preservation Area Approval (HPAA) pursuant to N.J.A.C. 7:38 or deemed exempt from the Highlands Act, or b) in the Protection and Conservation Zones, unless in conformance with the RMP requirements. Lastly, the Township is required to incorporate into the Utility Services Plan the basis for preparation and adoption of a water deficit management plan, wellhead protection plan, septic system management/maintenance plan, and stormwater management plan, to the extent that these do not exist or require amendment to gain consistency with the RMP.

(f) Circulation Plan

For the Circulation Plan, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Circulation, modified to apply to the local level. In addition, the Township must ensure coordination with the Land Use Plan and incorporation of smart growth principles.

(g) Open Space Plan

For the Open Space Plan, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Recreation and Open Space, modified to apply to the local level. In addition, the Township must cross-reference to any existing Open Space Plan. Lastly, the Township is required to adopt an up-to-date, mapped Recreation and Open Space Inventory. The identification of these properties has already been done as part of Rockaway Township's Highlands Plan Conformance Module 1; they will simply need to be incorporated as part of the overall plan.

(h) Agriculture Retention/Farmland Preservation Plan (if applicable)

An Agriculture Retention/Farmland Preservation Plan Element is required to be adopted where applicable. In such cases, the municipality is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Agricultural Resources, modified to apply to the local level. In addition, the municipality must cross-reference to any existing Farmland Preservation Plan, incorporate a commitment to the Right to Farm Act, and, if applicable and desired, incorporate a commitment to the protection and promotion of farm labor housing. Lastly, the municipality must also adopt an up-to-date, mapped inventory of preserved farmland, unless an existing inventory map remains current.

As discussed in the previous chapter of this report, the Township needs to determine whether an Agriculture Retention/Farmland Preservation Plan Element would be appropriate for Rockaway. It does not appear that such an Element would be required for Rockaway's Plan Conformance, given that no areas of the Township are designated as an Agricultural Resource Area or Agricultural Priority Area in the RMP. However, the Township may elect to prepare a Farmland Preservation Plan, given that it does have one preserved farm property as well as

several non-preserved farms within its borders. Efforts to preserve additional farmland in the Township will require the creation of this plan element.

(i) Community Facilities Plan

For the Community Facilities Plan, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Community Facilities, modified to apply to the local level. In addition, the Township must incorporate energy efficiency goals and consideration of shared services.

(j) Economic Plan

For the Economic Plan, the Township is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Sustainable Economic Development, modified to apply to the local level. In addition, the Township must provide for coordination with Highlands Council eco-, agri- and heritage tourism programs, where applicable.

(k) Historic Preservation Plan (if applicable)

A Historic Preservation Plan Element is required to be adopted where applicable. In such cases, the municipality is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Historic, Cultural, Archeological, and Scenic Resources, modified to apply to the local level. In addition, the municipality must include listing and discussion of any historic, cultural, archaeological, and scenic resources listed in Highlands Historic, Cultural, Archaeological, and Scenic Resources Inventories.

As discussed in the previous chapter of this report, a review of the RMP indicates that a Historic Preservation Plan Element is indeed required for Rockaway Township, given that it contains a number of properties listed on the Highlands Historic, Cultural, Archaeological, and Scenic Resources Inventories.

(l) Relationship of Master Plan to Other Plans, Including RMP

The Township is also required to provide a policy statement indicating that proposed development and/or redevelopment in the municipality, as set forth in the municipal Master Plan, is consistent with the RMP.

(m) Development Transfer Plan (optional)

At the Township's discretion, it may also prepare and adopt a Development Transfer Plan Element. Creation of a Development Transfer Plan Element would be the first step towards voluntary participation in the Highlands TDR Program, which is intended to preserve sensitive resources by permitting the transfer of development rights from areas identified for preservation (Sending Zones) to areas more appropriate for increased growth (Receiving Zones).

As previously discussed in this report, the RMP identifies a number of areas in Rockaway as Potential Areas for Voluntary TDR Receiving Zones, which are further categorized into Greenfield Opportunities and Redevelopment and Infill Opportunities. The Township should, therefore, consider the potential benefits and drawbacks of Rockaway’s voluntary participation in the Highlands TDR Program. If the Township decides to pursue voluntary participation, the Development Transfer Plan Element would need to incorporate all applicable RMP Goals, Policies, and Objectives as they relate to Landowner Equity, modified to apply to the local level.

4. Land Use Ordinances/Development Regulations

The Township is required to adopt a “Highlands Regulations” section as a supplement to the municipal Zoning/Land Development Ordinances. The Highlands Regulations are required to include the following sections: Definitions; Zone Districts and District Regulations; Application Submission Checklists; Notice Requirements; Highlands Council Review; Resource Area and Supporting Regulations; and Application Procedures.

As part of Plan Conformance Module 6, the Highlands Council will provide municipalities with sample Highlands Regulations, which the Township may adjust as needed for municipal applicability. Alternatively, the Township may propose specific revisions to existing regulations to achieve conformance with the RMP.

What follows is a more detailed discussion of the Basic Plan Conformance requirements for each individual section of the Highlands Regulations:

(a) Definitions

The Township is required to adopt definitions of general terms specific to the RMP, including “Highlands Council”, “areas”, “zones” and “sub-zones”. The Highlands Council will provide the Township with these definitions so as to avoid interference with existing municipal zoning definitions. Where follow-up ordinances applicable only to non-exempt development require specific terms such as “impervious coverage”, Highlands definitions will be incorporated therein along with clear indication that they pertain only to the ordinance in question.

(b) Zone Districts and District Regulations

The Township is required to adopt a caveat applicable to existing municipal zone districts and district regulations, indicating that NJDEP Preservation Area Rules and Highlands RMP Provisions will apply with respect to non-exempt development. Also, it must be noted that water and/or wastewater treatment availability and limitations on utility extensions may affect lot size and lot coverage requirements.

(c) Application Submission Checklists

The Township is required to amend its application submission checklist ordinance to require that any application for development include the following items: 1) For applicants in the

Preservation Area claiming an exemption from the Highlands Act, a Highlands Applicability Determination from the NJDEP; 2) For applicants in the Planning Area claiming an exemption from the Highlands Act, a Highlands Planning Area Exemption Determination from the Highlands Council; 3) For non-exempt development applications in the Preservation Area, a Highlands Preservation Area Approval (HPAA) or HPAA with waiver from the NJDEP; 4) For all non-exempt development applications, a Highlands Consistency Determination from the Highlands Council indicating that the proposal is consistent with the RMP or can be revised to achieve consistency via specific changes outlined therein; and 5) For non-exempt development applications having received a Consistency Determination indicating that specific revisions are required to achieve consistency, a certification from the applicant's professional(s) affirming that the plans have been revised to specifically address the inconsistencies identified by the Highlands Council and that to the best of his/her knowledge, they have achieved consistency.

(d) Notice Requirements

The Township is required to amend its notice requirements to require the following: 1) that, for any non-exempt development applications, the applicant shall provide notice to the Highlands Council at least 10 days prior to the date on which the application is scheduled for consideration by the Planning or Zoning Board; 2) that such applications be deemed complete prior to scheduling, and that a copy of the complete application be sent to the Highlands Council along with such notice; and 3) that the applicant provide copies of any subsequent revisions to such applications to Highlands Council at the same time these are provided to the reviewing board.

(e) Highlands Council Review

The Township is required to include a requirement that, in the case of any non-exempt development applications, the reviewing board shall provide a certified copy of the fully-executed resolution memorializing its final decision in the matter to the Highlands Council within 10 days of its adoption.

(f) Resource Area and Supporting Regulations

The Township is required to adopt, at minimum, Highlands ordinance requirements regulating water and wastewater, Highlands resources, and all Highland Resource Areas located within the municipality. These will apply to all non-exempt development. Resource regulations will require that development applications include maps and plans identifying and delineating Highlands resources, and that application approvals be conditioned upon imposition of conservation easements to protect them, to the extent that the reviewing board's final decision does not approve their disturbance. Resource area regulations will ultimately cover the following, where applicable: steep slopes, forest areas, open waters and riparian areas, ground water recharge management, wellhead protection, stormwater management, Right to Farm, critical habitat, carbonate rock areas, agricultural resources, lake management, Low Impact Development, and historic, cultural, and scenic resources.

(g) Application Procedures

The Township is required to adopt procedural requirements applicable to resource area applications and review thereof. Also, the Township must prepare municipal application forms (as needed) and fee/escrow ordinance amendments (as appropriate), and determine and assign responsibility for review of application packages pertinent to these areas by the qualified individual(s).

5. RMP Updates

The Highlands Council recognizes that the various maps, data and technical information contained in the RMP was created at a regional scale and that new, updated or additional information may be available at the county or municipal level. Therefore, the RMP Updates Program was designed to allow counties and municipalities to submit factual revisions, corrections or updates to the RMP. For Basic Plan Conformance, the Township is required to prepare a list of proposed RMP Updates, along with the justification for each.

Examples of RMP Updates would be development or other lands use changes that have occurred since preparation of the LUCM Series, updates and corrections to Existing Areas Served for water and wastewater utilities, additional preserved lands, topographic mapping enabling a more precise delineation of steep slopes, modifications to Highlands resource boundaries, and updates regarding transportation facilities. As noted in the previous chapter of this report, the Township has already submitted several RMP Updates to the Highlands Council as part of its Plan Conformance Module 1 analysis. Proposed RMP Updates will be reviewed by the Highlands Council for accuracy and used to determine whether changes to the LUCM Series are appropriate.

6. Map Adjustments

The Map Adjustment Program was designed to allow for the exchange of additional planning information between the Highlands Council and counties/municipalities in order to ensure sound regional planning in support of the RMP and the Highlands Act. More specifically, a Map Adjustment is a Council-approved adjustment of the Land Use Capability Zone Map designations and shall only be undertaken after other means, such as RMP Updates and Highlands Act waivers and exemptions, have proven inadequate to address the underlying planning issue. For Basic Plan Conformance, the Township is required to submit requests for Map Adjustments, if applicable, along with the justification for each.

An example of a Map Adjustment might include modification of a Conservation Zone immediately adjacent to an Existing Community Zone (ECZ), where utilities and water availability could support extension of the ECZ to accommodate a fully conforming TDR Receiving Zone.

7. Municipal Self-Assessment and Implementation Schedule

At the time the Township submits its Petition for Basic Plan Conformance, it is required to include a Municipal Self-Assessment (MSA) Report. The MSA Report must list and discuss all changes to the Township's planning program that will remain necessary after Basic Plan Conformance in order to achieve Full Plan Conformance. The MSA Report must also include a proposed

Implementation Schedule, which indicates the timeframe for anticipated completion of each outstanding item leading to Full Plan Conformance.

As part of Plan Conformance Module 7, the Highlands Council will provide municipalities with a sample resolution (required for the Preservation Area) and a sample ordinance (required for the Planning Area) for municipal adoption, which, when accompanied by the rest of the aforementioned key requirements, will constitute a complete Petition to the Highlands Council for Plan Conformance.

V. ANTICIPATED COSTS & PROJECT TIMEFRAMES

As outlined in the previous chapter of this report, the Township of Rockaway has until December 8, 2009 to complete the steps necessary for Basic Plan Conformance and submit its Petition to the Highlands Council. The following table details each of the key requirements for Basic Plan Conformance and the estimated deadline and cost associated with each. The table also identifies the base amount of grant funding available from the Highlands Council for each requirement.

**Estimated Timeframes and Costs for Basic Plan Conformance
Township of Rockaway**

Requirement	Estimated Deadline*	Estimated Cost	Highlands Base Grant Amount
Conduct first step of Highlands Build-Out Analysis (Module 1) and submit to Highlands Council for review	March 6, 2009 (completed)	\$15,000	\$15,000
Conduct second step of Highlands Build-Out Analysis (Module 2) and submit to Highlands Council for review	June, 2009	\$10,000	\$10,000
Prepare draft Housing Element and Fair Share Plan (Module 3) and submit to Highlands Council for review	December, 2009	\$12,000	\$7,500
Prepare draft Environmental Resource Inventory (Module 4) and submit to Highlands Council for review	June 30, 2009	\$2,000	\$2,000
Prepare draft Highlands Master Plan Element (Module 5) and submit to Highlands Council for review	October, 2009	\$5,000	\$2,500
Prepare draft Highlands Development Regulations (Module 6) and submit to Highlands Council for review	November, 2009	\$5,000	\$5,000
Adopt Housing Element and Fair Share Plan	November, 2009	\$1,000	--
Prepare Municipal Self-Assessment (MUA) and Implementation Schedule (Module 7) and submit with draft plans, ordinances, RMP Updates, Map Adjustments, and Petition for Plan Conformance to Highlands Council	December 8, 2009	\$8,000	\$8,000
Submit Petition for Substantive Certification to COAH	December 8, 2009	\$1,000	--

* Except where **bold**, which indicates mandatory deadline set by the Highlands Council.

APPENDICES

APPENDIX A-1 : MAPS

Land Use Capability Zone Map
Potential Voluntary TDR Receiving Zones Map
Forest Resource Area Map
Forest Cover Integrity Map
Highlands Open Waters and Riparian Areas Map
Riparian Integrity by HUC14 Map
Steep Slopes Protection Areas Map
Critical Wildlife Habitat Map
Significant Natural Areas and Vernal Pools Map
Preserved Lands Map
Conservation Priority Area Map
Carbonate Rock Area Map
Lake Management Area Map
Net Water Availability by HUC14 Map
Land Use Capability Water Availability Map
Prime Ground Water Recharge Areas Map
Impaired Waters Overall Assessment by HUC14 Map
Wellhead Protection Areas Map
Land Use Capability Public Community Water Systems Map
Land Use Capability Domestic Sewerage Facilities Map
Land Use Capability Septic System Yield Map
Median Nitrate Concentration by HUC14 Map
Historic Preservation Map
Roadway Network Map
Transit Network Map

APPENDIX A-2:
ROCKAWAY TOWNSHIP INITIAL ASSESSMENT GRANT REPORT ADDENDUM

Instructions: Complete chart below, indicating for each subject area, whether current municipal planning documents include language concerning the applicable topic (insert “yes,” “no,” or “N/A,” for not applicable), whether or not existing language covers and includes all RMP provisions (insert “yes,” “no,” or “N/A,” for not applicable), and what actions are needed for Plan Conformance (i.e., “revise applicable ordinance to include RMP provisions,” “develop new ordinance to address topic,” “supplement ERI, Master Plan and Ordinances to include topic and RMP provisions,” or “none”).

	EXISTING ERI/NRI		EXISTING MASTER PLAN		EXISTING LAND USE ORDINANCES		Action(s) Required
	Include Topic?	Address RMP?	Include Topic?	Address RMP?	Include Topic?	Address RMP?	
Forest Resources	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Highlands Open Waters & Riparian Areas	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Steep Slopes	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Critical Habitat	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Carbonate Rock	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic and incorporate RMP provisions.
Lake Management	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic and incorporate RMP provisions.
Water Resources Availability	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Prime Groundwater Recharge	Yes	No	Yes	No	Yes	No	Revise ERI, MP and LUO to incorporate RMP provisions.
Water Quality	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic

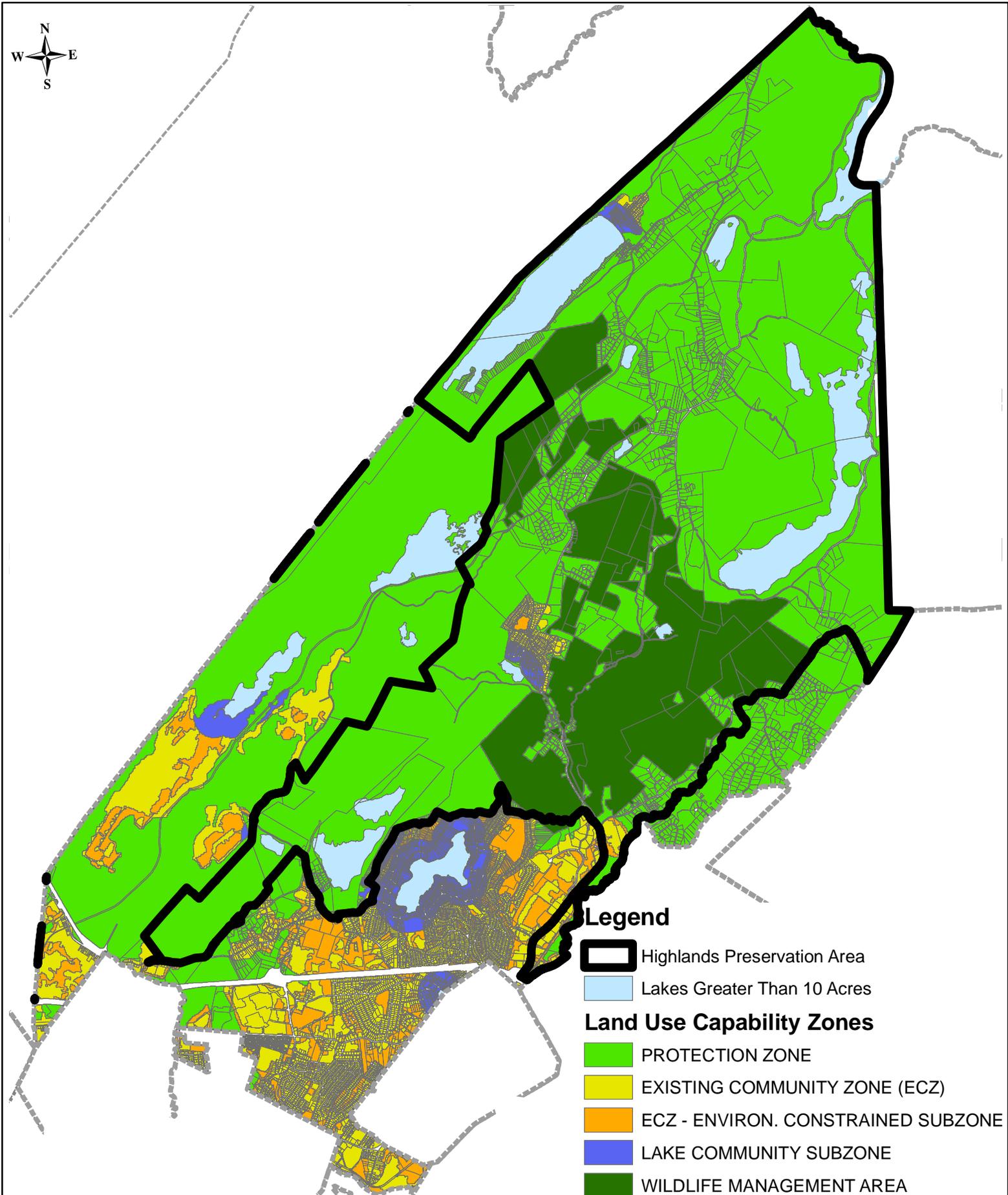
	EXISTING ERI/NRI		EXISTING MASTER PLAN		EXISTING LAND USE ORDINANCES		Action(s) Required
	Include Topic?	Address RMP?	Include Topic?	Address RMP?	Include Topic?	Address RMP?	
							and incorporate RMP provisions.
Wellhead Protection	No	No	No	No	Yes	Yes	Review model LUO to ensure consistency with RMP provisions. Supplement ERI and MP to include topic and incorporate RMP provisions.
Stormwater Management	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic and incorporate RMP provisions.
Water/Wastewater Utilities	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Septic Densities	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Low Impact Development	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Transportation	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Land Pres/Stewardship	Yes	Yes	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions.
Agricultural Resources	N/A	N/A	N/A	N/A	N/A	N/A	None (but Township should consider optional preparation of Farmland Preservation Plan).
Cluster Development	No	No	Yes	Yes	Yes	Yes	Review model MP and LUO documents to ensure consistency.
Community Facilities	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Sustainable Economic Development	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.
Historic, Cultural, Archaeological Resources	No	No	Yes	No	Yes	No	Revise MP and LUO to incorporate RMP provisions. Supplement ERI to include topic.

APPENDIX A-3: HIGHLANDS ACT EXEMPTIONS

The activities listed below are exempt from meeting the requirements of the Highlands Act, Regional Master Plan (RMP), and any NJDEP or municipal regulations adopted to be in conformance with the RMP:

1. The construction of a single-family dwelling, for an individual's own use or the use of an immediate family member, on a lot owned by the individual on August 10, 2004 or on a lot for which the individual has on or before May 17, 2004 entered into a binding contract of sale to purchase that lot;
2. The construction of a single-family dwelling on a lot in existence on August 10, 2004, provided that the construction does not result in the ultimate disturbance of more than one acre of land or a cumulative increase in impervious surface by one-quarter acre or more;
3. A major Highlands development that received on or before March 29, 2004:
 - a. one of the following approvals pursuant to the "Municipal Land Use Law,":
 - i. Preliminary or final site plan approval;
 - ii. Final municipal building or construction permit;
 - iii. Minor subdivision approval where no subsequent site plan approval is required; or
 - iv. Preliminary or Final subdivision approval where no subsequent site plan approval is required; and
 - b. At least one of the following DEP permits, if applicable to the proposed major Highlands development:
 - . A permit or certification pursuant to the "Water Supply Management Act";
 - i. A water extension permit or other approval or authorization pursuant to the "Safe Drinking Water Act";
 - ii. A certification or other approval or authorization issued pursuant to the "The Realty Improvement Sewerage and Facilities Act (1954)";
 - iii. A treatment works approval pursuant to the "Water Pollution Control Act,"); or
 - c. One of the following DEP permits, if applicable to the proposed major Highlands development, and if the proposed major Highlands development does not require one of the permits listed above:
 - . A permit or other approval or authorization issued pursuant to the "Freshwater Wetlands Protection Act";
 - i. A permit or other approval or authorization issued pursuant to the "Flood Hazard Area Control Act

10. The construction of transportation safety projects and bicycle and pedestrian facilities by a State entity or local government unit, provided that the activity does not result in the construction of any new through-capacity travel lanes;
11. The routine maintenance and operations, rehabilitation, preservation, reconstruction, repair, or upgrade of public utility lines, rights of way, or systems, by a public utility, provided that the activity is consistent with the goals and purposes of the Highlands Act;
12. The reactivation of rail lines and rail beds existing on August 10, 2004;
13. The construction of a public infrastructure project approved by public referendum prior to January 1, 2005 or a capital project approved by public referendum prior to January 1, 2005;
14. The mining, quarrying, or production of ready mix concrete, bituminous concrete, or Class B recycling materials occurring or which are permitted to occur on any mine, mine site, or construction materials facility existing on June 7, 2004;
15. The remediation of any contaminated site pursuant to N.J.S.A. 58:10B-1 et seq.;
16. Any lands of a federal military installation existing on August 10, 2004 that lie within the Highlands Region; and
17. A major Highlands development located within an area designated as Planning Area 1 (Metropolitan), or Planning Area 2 (Suburban), as designated pursuant to the State Planning Act, N.J.S.A. 52:18A-196 et seq. as of March 29, 2004, that on or before March 29, 2004 has been the subject of a settlement agreement and stipulation of dismissal issued by the Superior Court, or a builder's remedy issued by the Superior Court, to satisfy the constitutional requirement to provide for the fulfillment of the fair share obligation of the municipality in which the development is located. This exemption shall expire if construction beyond site preparation does not commence within three years after receiving all final approvals required pursuant to the "Municipal Land Use Law," N.J.S.A. 52:18A-196 et seq.



Legend

-  Highlands Preservation Area
-  Lakes Greater Than 10 Acres
- Land Use Capability Zones**
-  PROTECTION ZONE
-  EXISTING COMMUNITY ZONE (ECZ)
-  ECZ - ENVIRON. CONSTRAINED SUBZONE
-  LAKE COMMUNITY SUBZONE
-  WILDLIFE MANAGEMENT AREA

Dwg. Title
Land Use Capability Zone Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

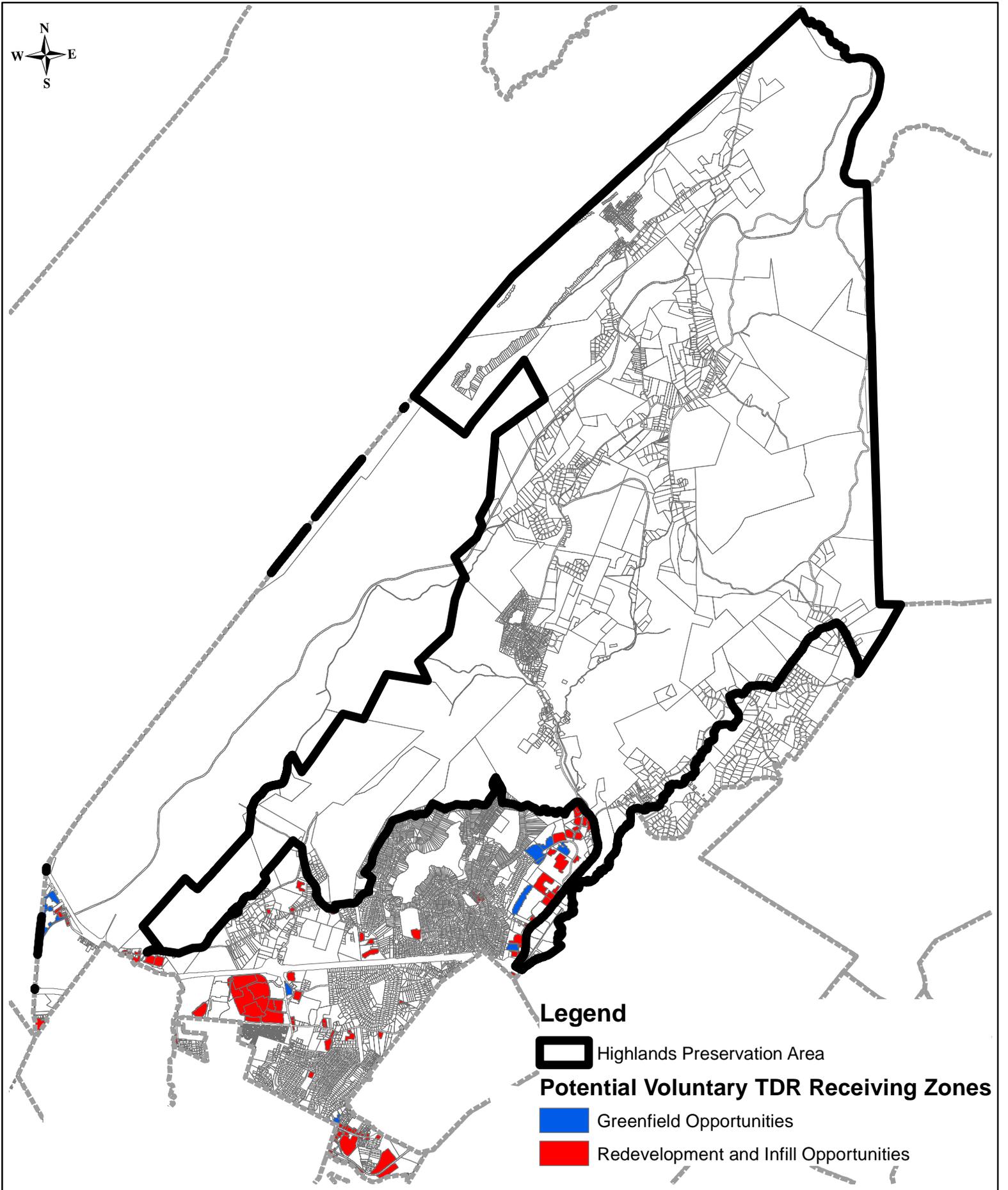
Dwg. Scale
N.T.S.

Sheet No.
1 of 25

Drawing No.
2085.24LUCM1

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
- Potential Voluntary TDR Receiving Zones**
-  Greenfield Opportunities
-  Redevelopment and Infill Opportunities

Dwg. Title
Potential Voluntary TDR Receiving Zones Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

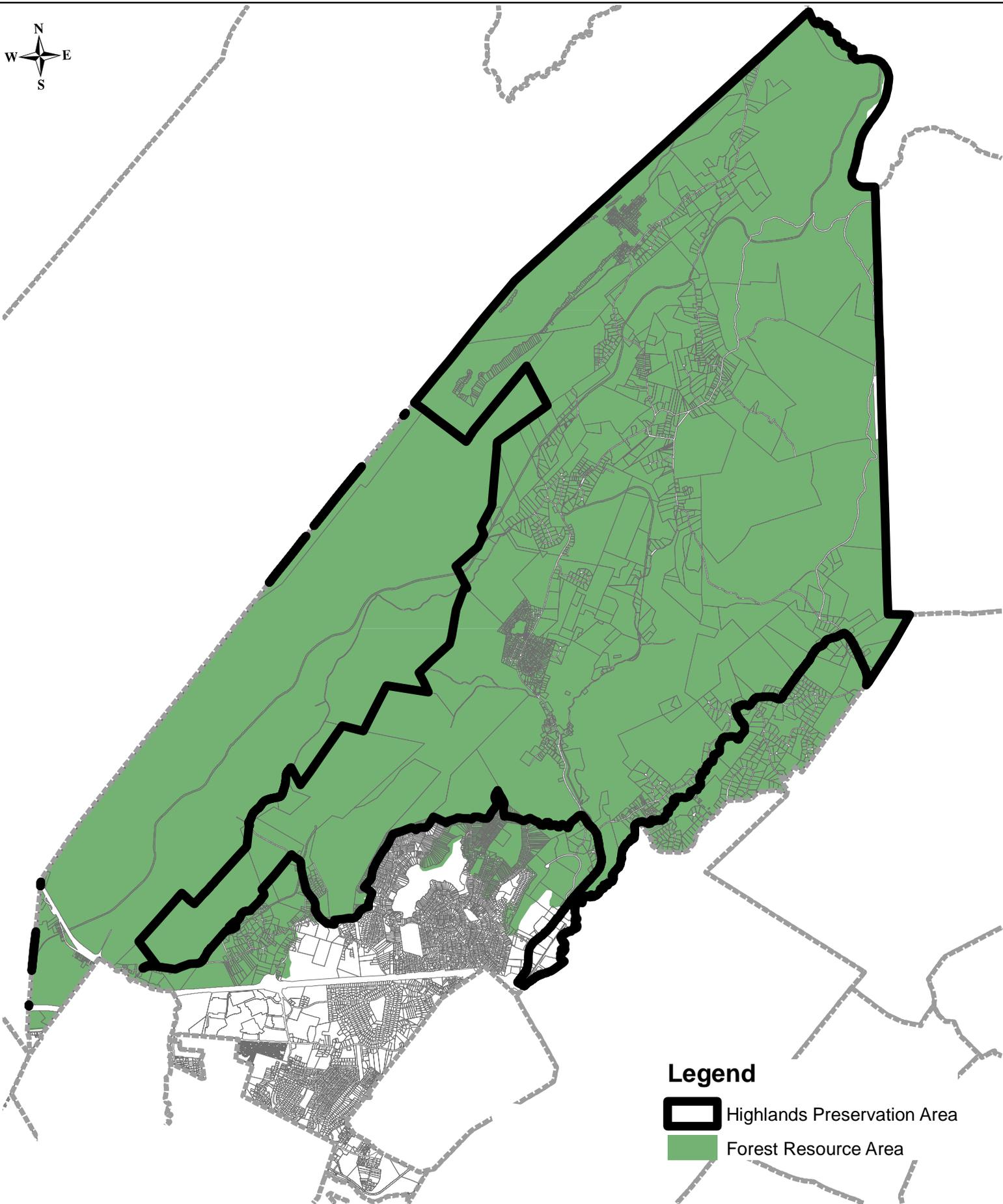
 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
2 of 25

Drawing No.
2085.24PVRZ2



Legend

-  Highlands Preservation Area
-  Forest Resource Area

Dwg. Title

Forest Resource Area Map

Project No.

2085.24

Dwg. Date

04/13/09

Drawn By

MA/RW



BURGIS ASSOCIATES, INC.
 PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
 25 WESTWOOD AVENUE
 WESTWOOD, N.J. 07675
 201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
 Assessment Report

TOWNSHIP OF ROCKAWAY
 MORRIS COUNTY, NEW JERSEY

Dwg. Scale

N.T.S.

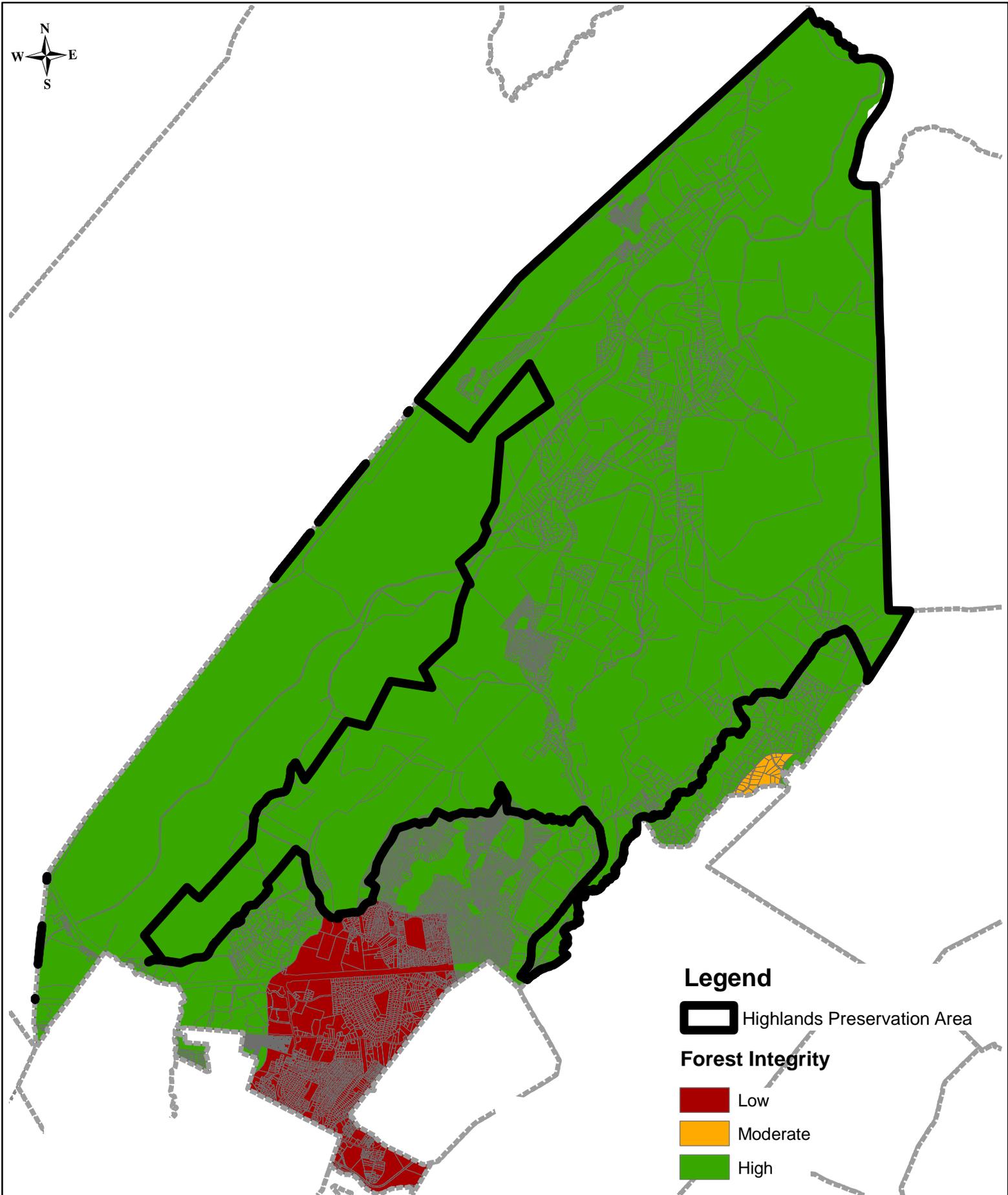
Sheet No.

3 of 25

Drawing No.

2085.24FRA3

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

 Highlands Preservation Area

Forest Integrity

 Low

 Moderate

 High

Dwg. Title

Forest Cover Integrity Map

Project No.

2085.24

Dwg. Date

04/13/09

Drawn By

MA/RW



BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
Assessment Report

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale

N.T.S.

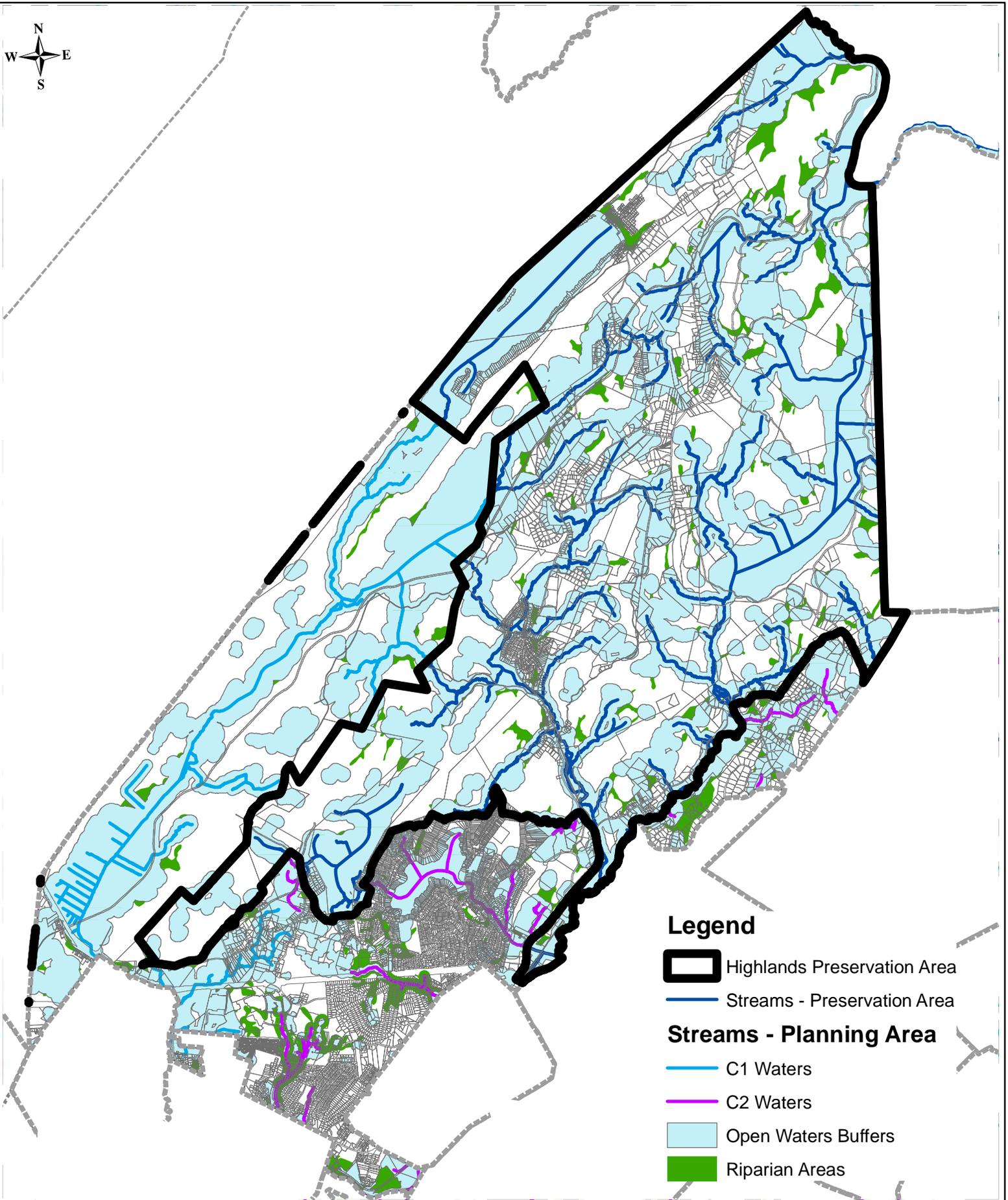
Sheet No.

4 of 25

Drawing No.

2085.24FCI4

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Streams - Preservation Area
- Streams - Planning Area**
-  C1 Waters
-  C2 Waters
-  Open Waters Buffers
-  Riparian Areas

Dwg. Title
Highlands Open Waters and Riparian Areas Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

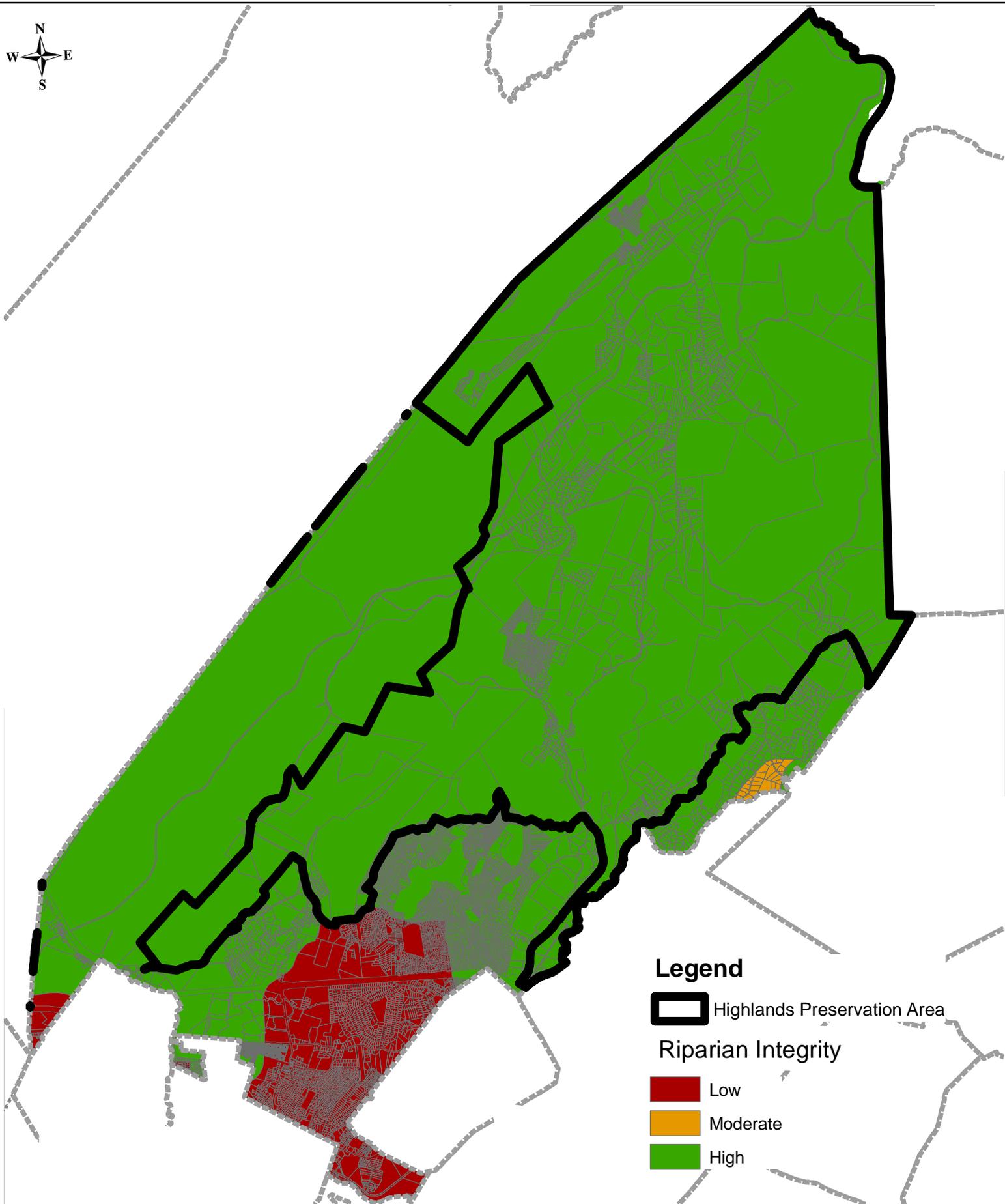
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
5 of 25

Drawing No.
2085.24HOPW5

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

 Highlands Preservation Area

Riparian Integrity

 Low

 Moderate

 High

Dwg. Title

Riparian Integrity by HUC 14 Map

Project No.

2085.24

Dwg. Date

04/13/09

Drawn By

MA/RW



BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
Assessment Report

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale

N.T.S.

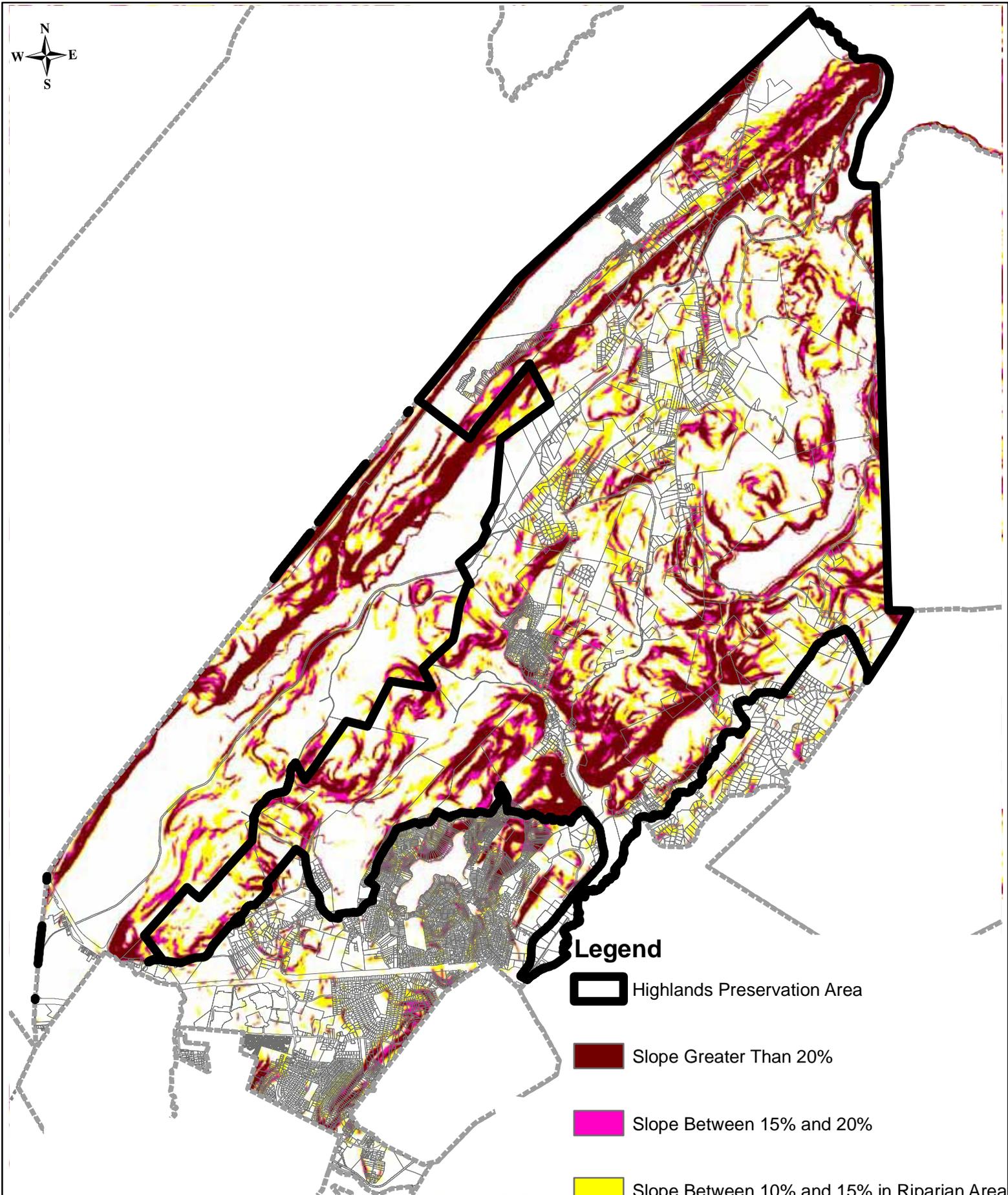
Sheet No.

6 of 25

Drawing No.

2085.24RIHUC24

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Slope Greater Than 20%
-  Slope Between 15% and 20%
-  Slope Between 10% and 15% in Riparian Area

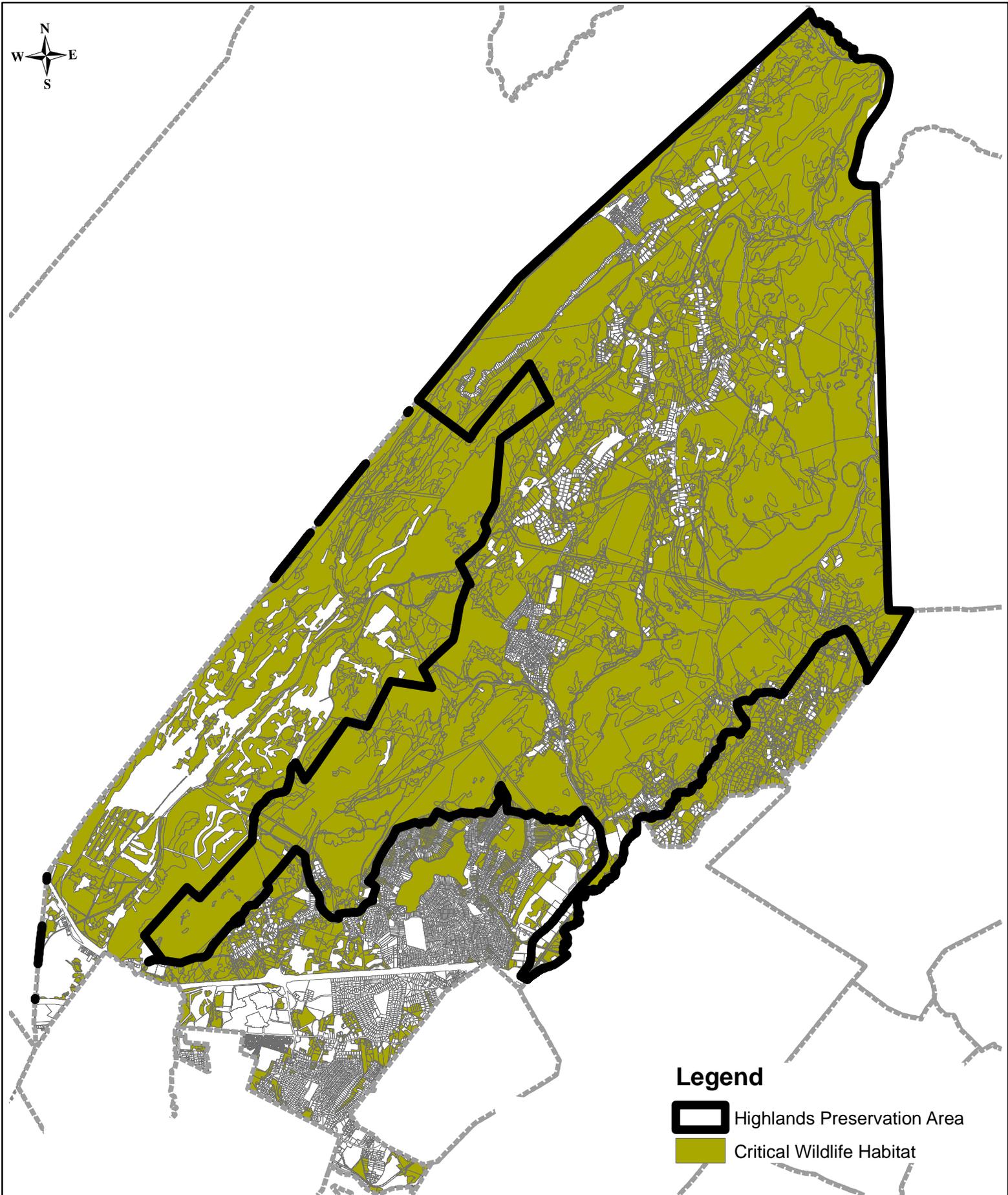
Dwg. Title	Steep Slopes Protection Areas Map	Project No.	2085.24	Dwg. Date	04/13/09	Drawn By	MA/RW
------------	-----------------------------------	-------------	---------	-----------	----------	----------	-------

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial Assessment Report

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale	N.T.S.	Sheet No.	7 of 25	Drawing No.	2085.24STEEP7
2003 COPYRIGHT BA- NOT TO BE REPRODUCED					



Legend

-  Highlands Preservation Area
-  Critical Wildlife Habitat

Dwg. Title
Critical Wildlife Habitat Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
 PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
 25 WESTWOOD AVENUE
 WESTWOOD, N.J. 07675
 201-666-1811 FAX: 201-666-2599

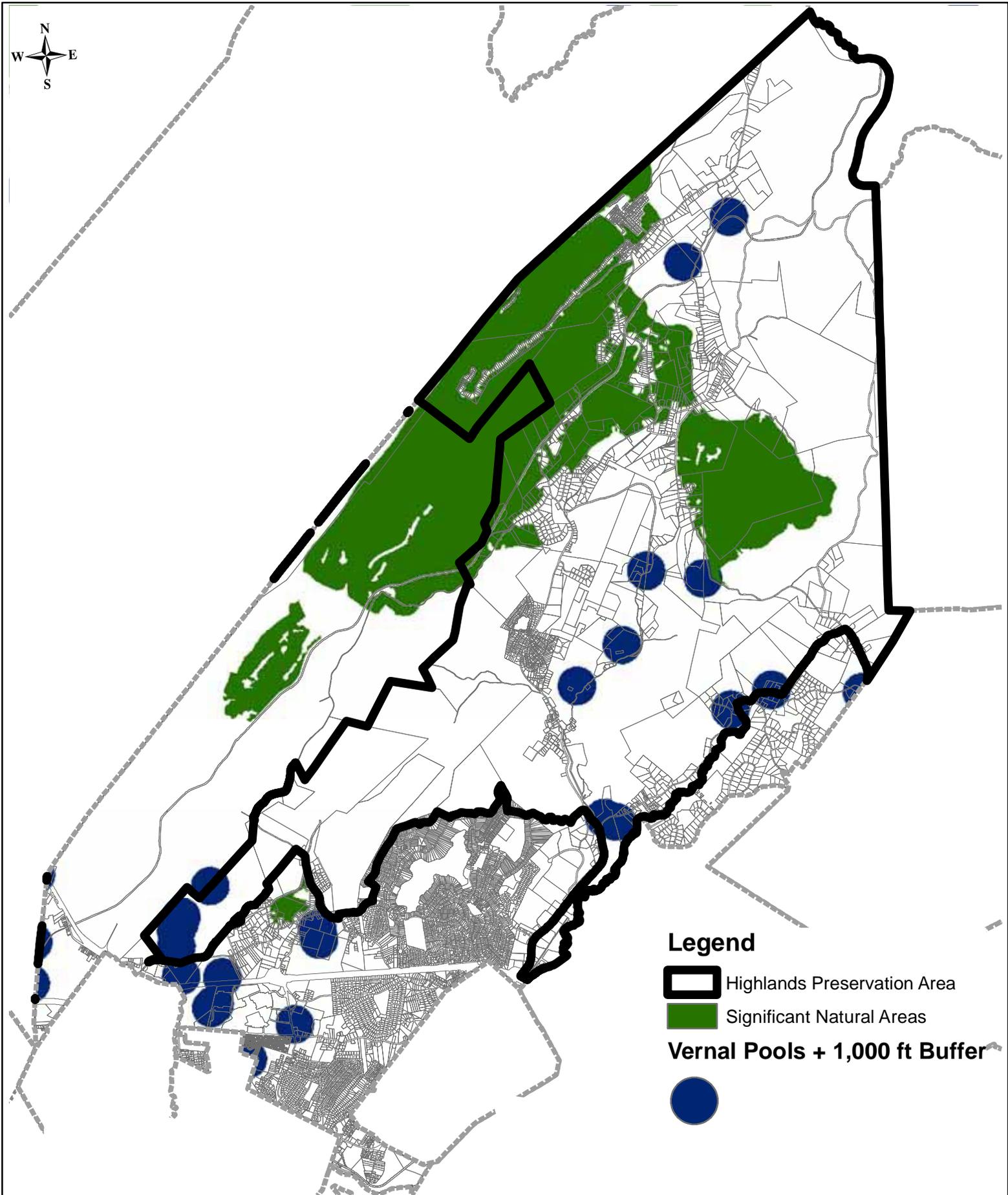
Project Title
Highlands Initial
Assessment Report

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
8 of 25

Drawing No.
2085.24CWH8



Legend

 Highlands Preservation Area

 Significant Natural Areas

Vernal Pools + 1,000 ft Buffer



Dwg. Title
Significant Natural Areas and Vernal Pools Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

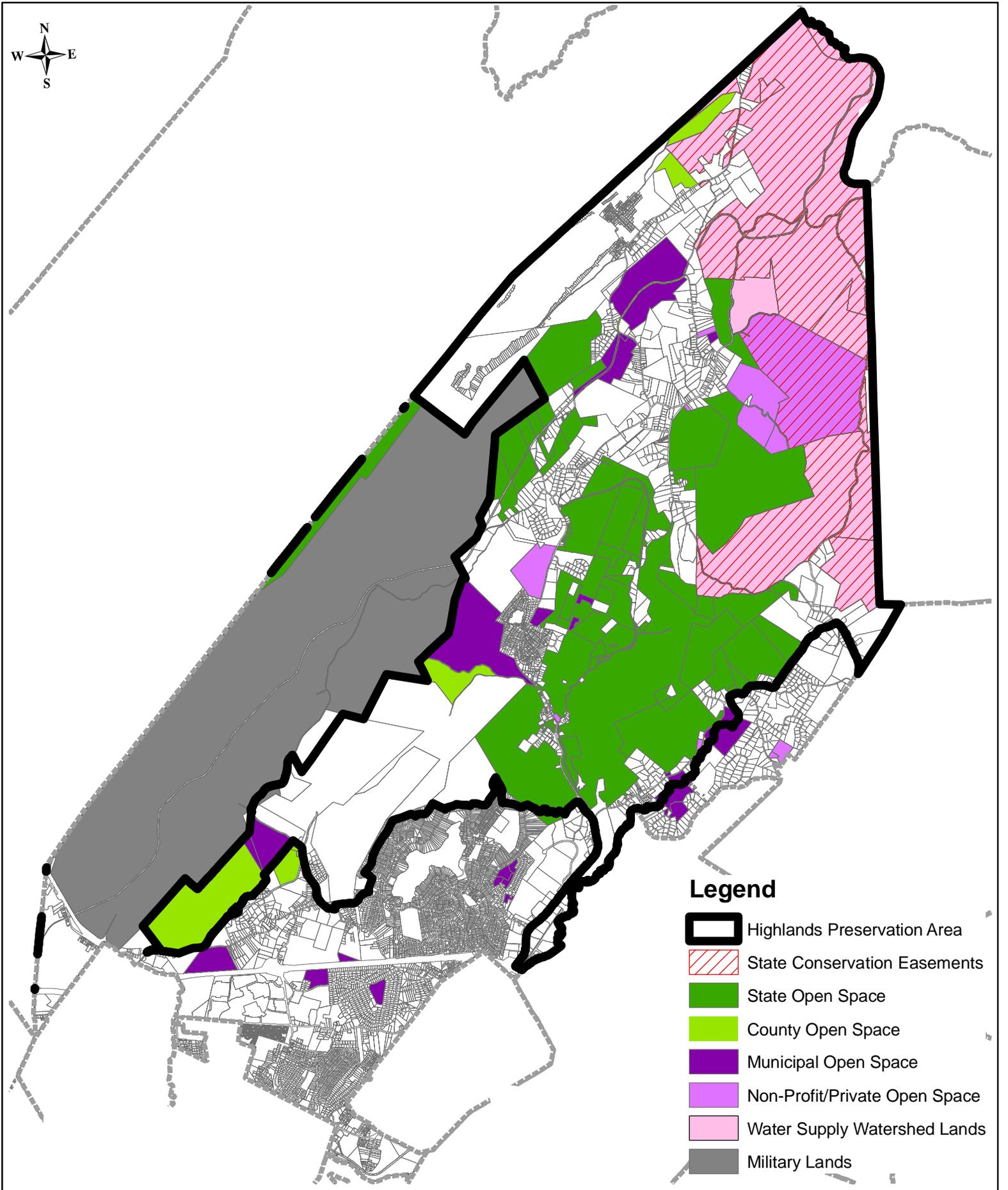
Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
9 of 25

Drawing No.
2085.24SNAVP9

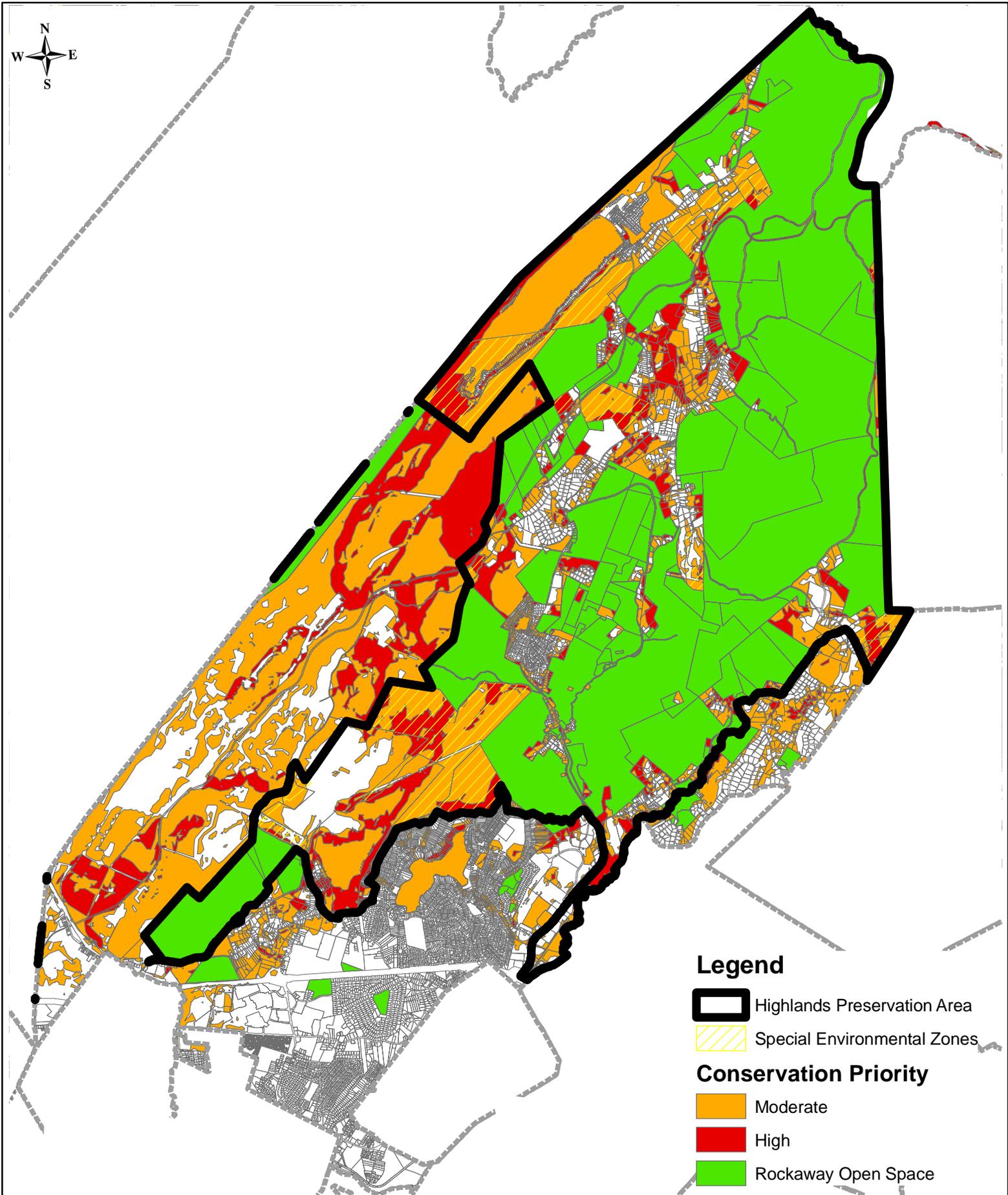
2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  State Conservation Easements
-  State Open Space
-  County Open Space
-  Municipal Open Space
-  Non-Profit/Private Open Space
-  Water Supply Watershed Lands
-  Military Lands

Dwg. Title <p style="text-align: center;">Preserved Lands Map</p>	Project No. <p style="text-align: center;">2085.24</p>	Dwg. Date <p style="text-align: center;">04/13/09</p>	Drawn By <p style="text-align: center;">MA/RW</p>
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <p style="text-align: center;">Highlands Initial Assessment Report</p>	Dwg. Scale <p style="text-align: center;">N.T.S.</p>	Sheet No. <p style="text-align: center;">10 of 25</p> Drawing No. <p style="text-align: center;">2085.24PLM10</p>



Legend

Highlands Preservation Area

Special Environmental Zones

Conservation Priority

Moderate

High

Rockaway Open Space

Dwg. Title
Conservation Priority Area Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

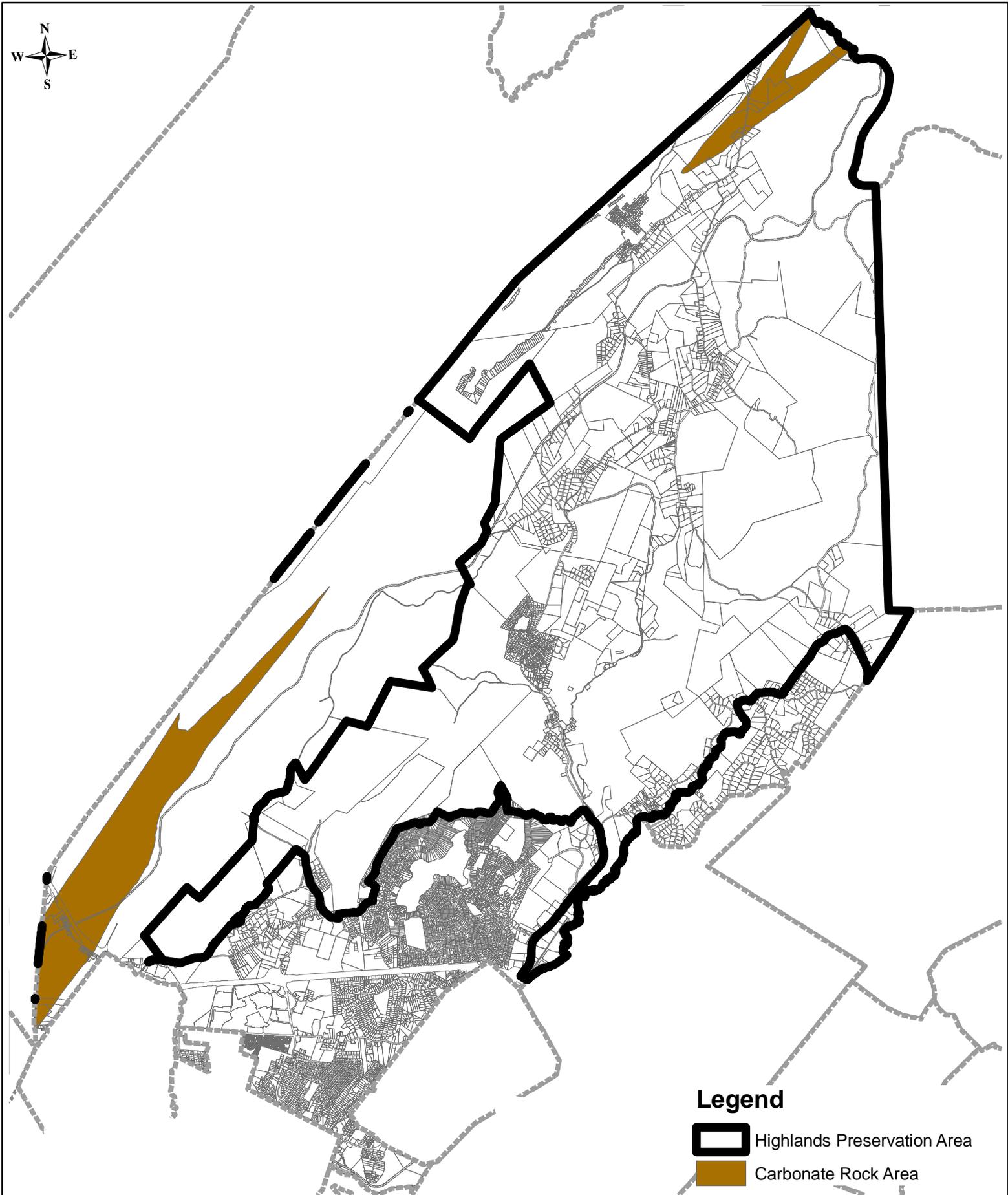
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
11 of 25

Drawing No.
2085.24PCONS11

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Carbonate Rock Area

Dwg. Title
Carbonate Rock Area Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW



BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
Assessment Report

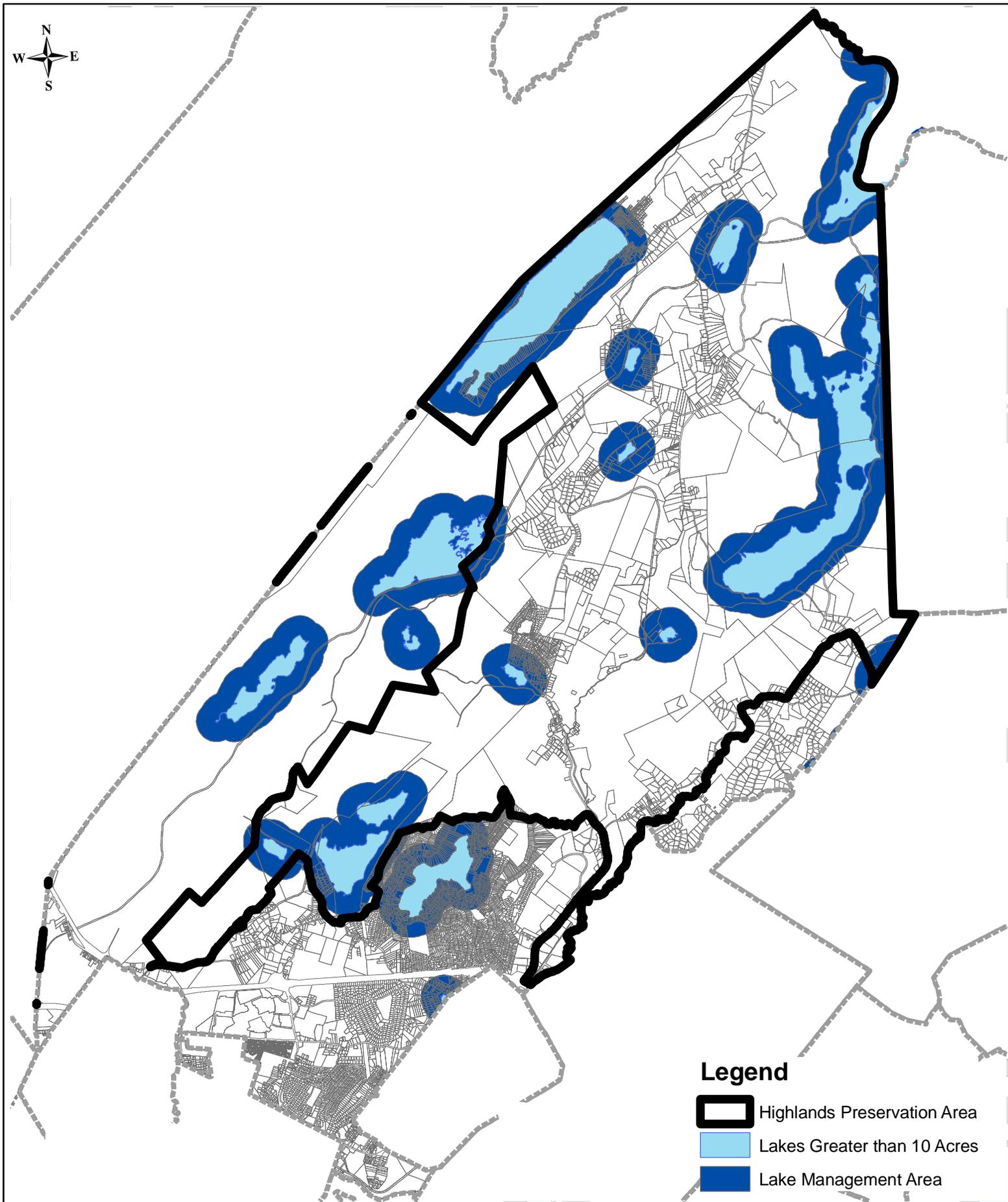
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
12 of 25

Drawing No.
2085.24CARB12

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Lakes Greater than 10 Acres
-  Lake Management Area

Dwg. Title
Lake Management Area Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

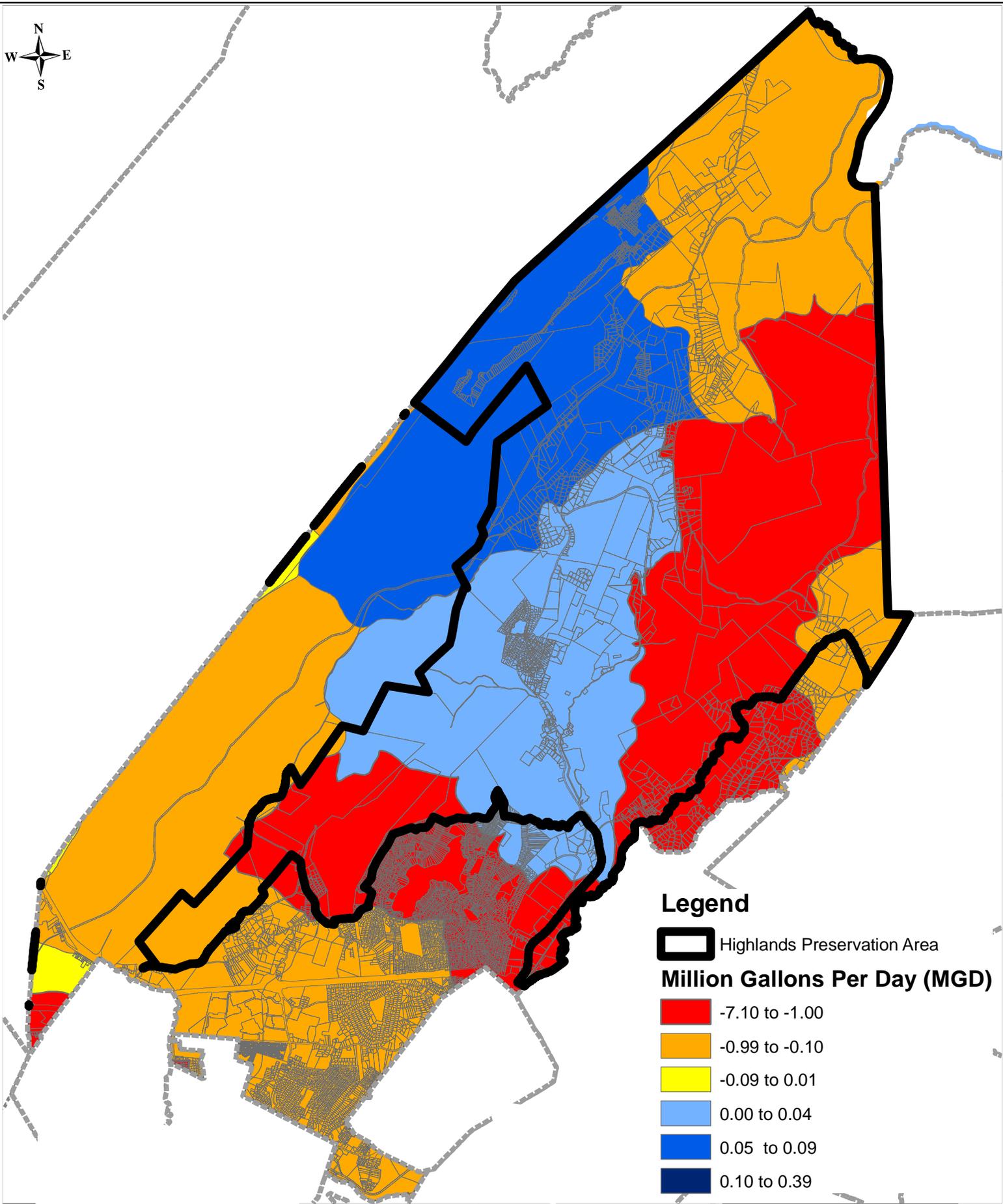
Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
13 of 25

Drawing No.
2085.24LAKE13

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
- Million Gallons Per Day (MGD)**
-  -7.10 to -1.00
-  -0.99 to -0.10
-  -0.09 to 0.01
-  0.00 to 0.04
-  0.05 to 0.09
-  0.10 to 0.39

Dwg. Title
Net Water Availability by HUC 14 Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

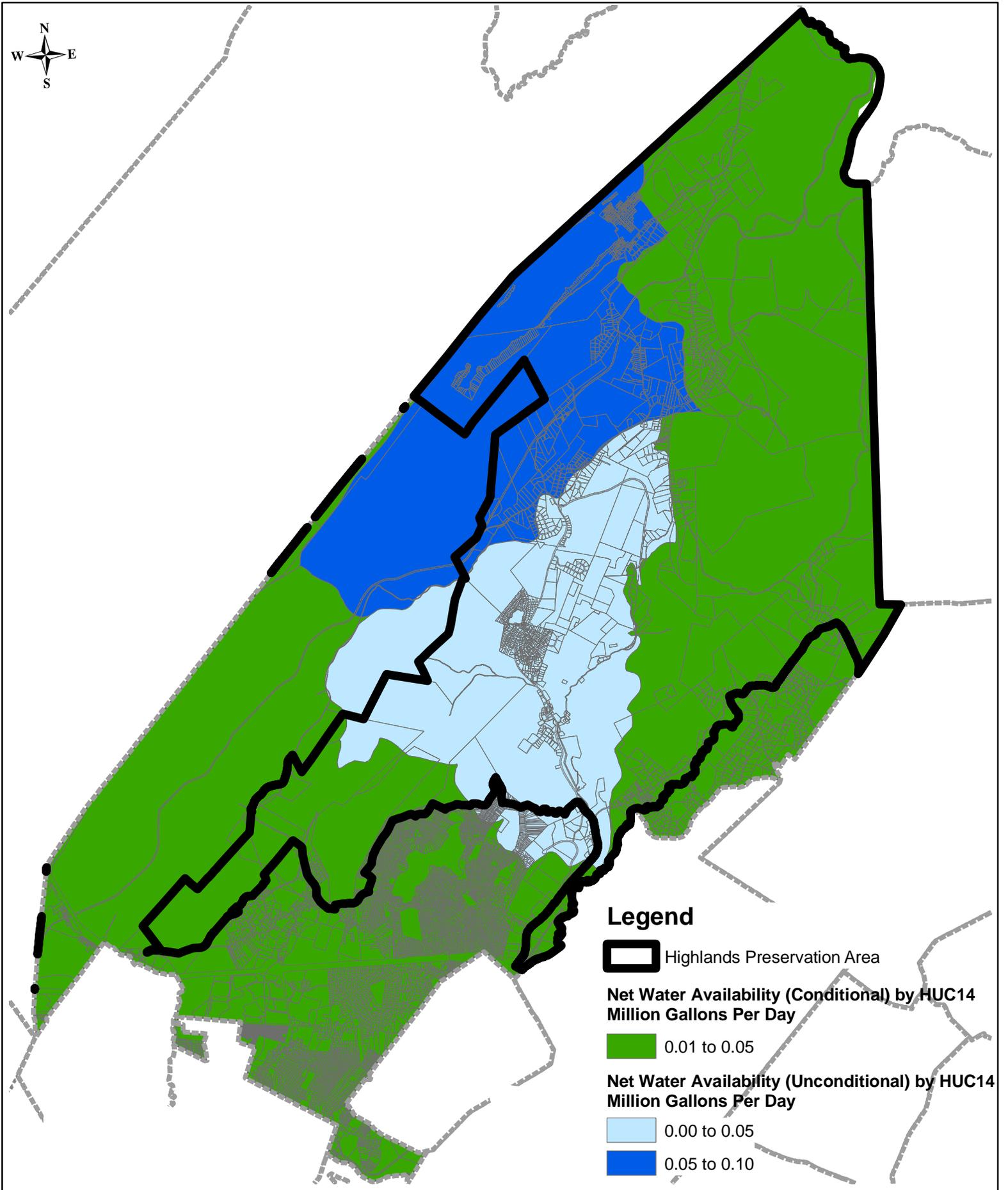
Dwg. Scale
N.T.S.

Sheet No.
14 of 25

Drawing No.
2085.24NETHUC14

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

Highlands Preservation Area

**Net Water Availability (Conditional) by HUC14
Million Gallons Per Day**

0.01 to 0.05

**Net Water Availability (Unconditional) by HUC14
Million Gallons Per Day**

0.00 to 0.05

0.05 to 0.10

Dwg. Title
Land Use Capability Water Availability Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

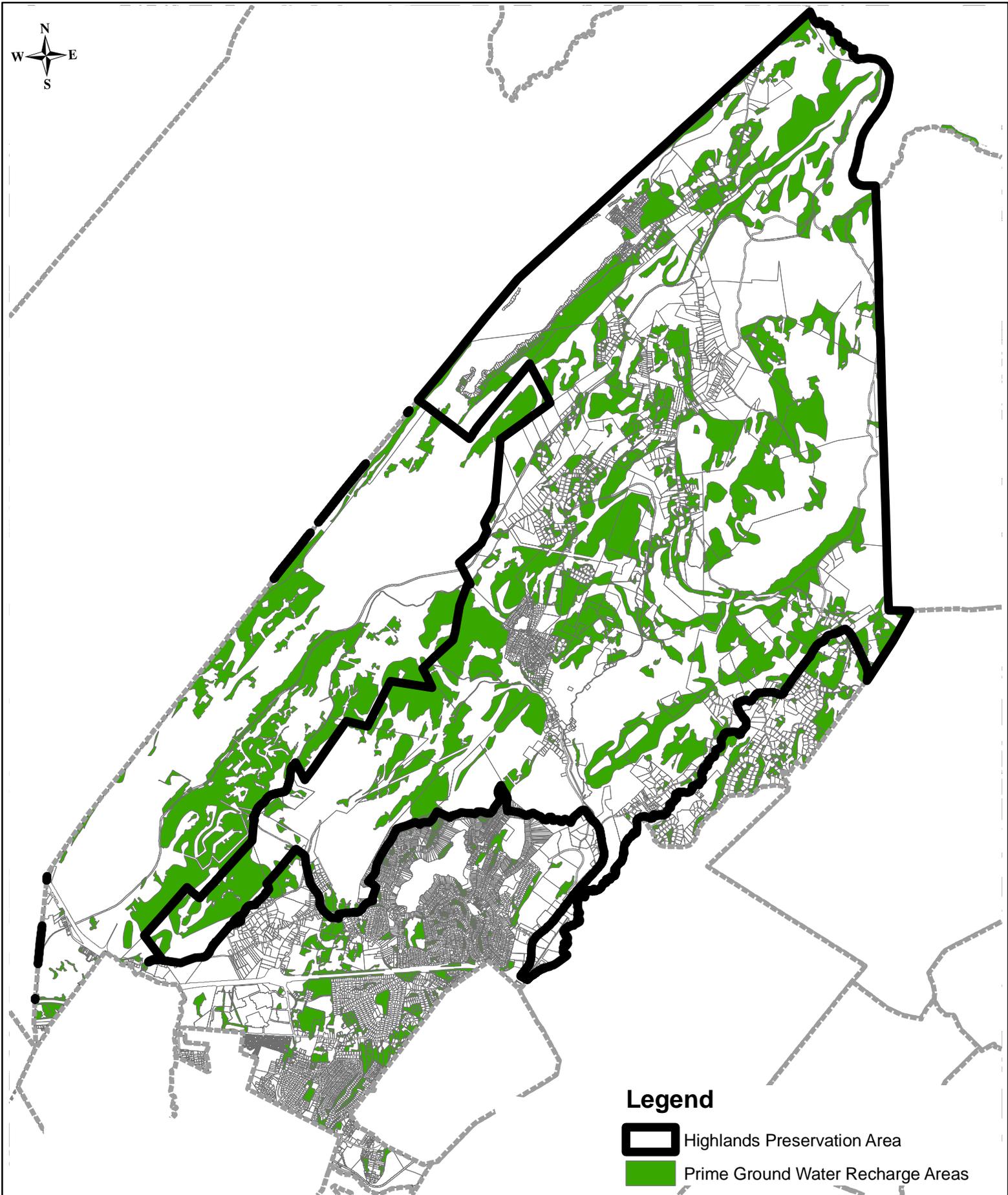
Dwg. Scale
N.T.S.

Sheet No.
15 of 25

Drawing No.
2085.24LUCWA15

TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Prime Ground Water Recharge Areas

Dwg. Title
Prime Ground Water Recharge Areas Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW



BURGIS ASSOCIATES, INC.
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
Assessment Report

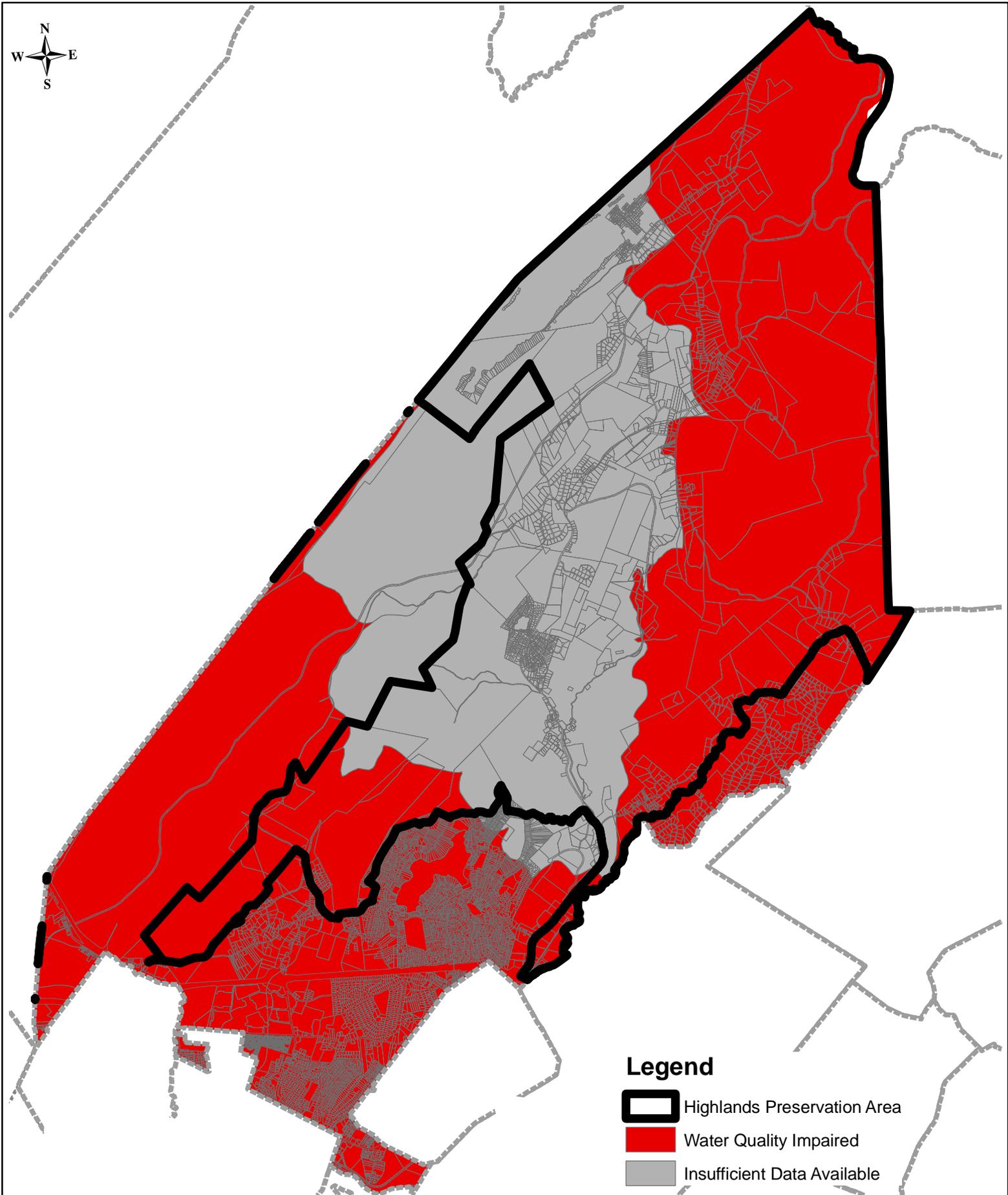
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
16 of 25

Drawing No.
2085.24PGWR16

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
-  Water Quality Impaired
-  Insufficient Data Available

Dwg. Title
Impaired Waters Overall Assessment by HUC 14 Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

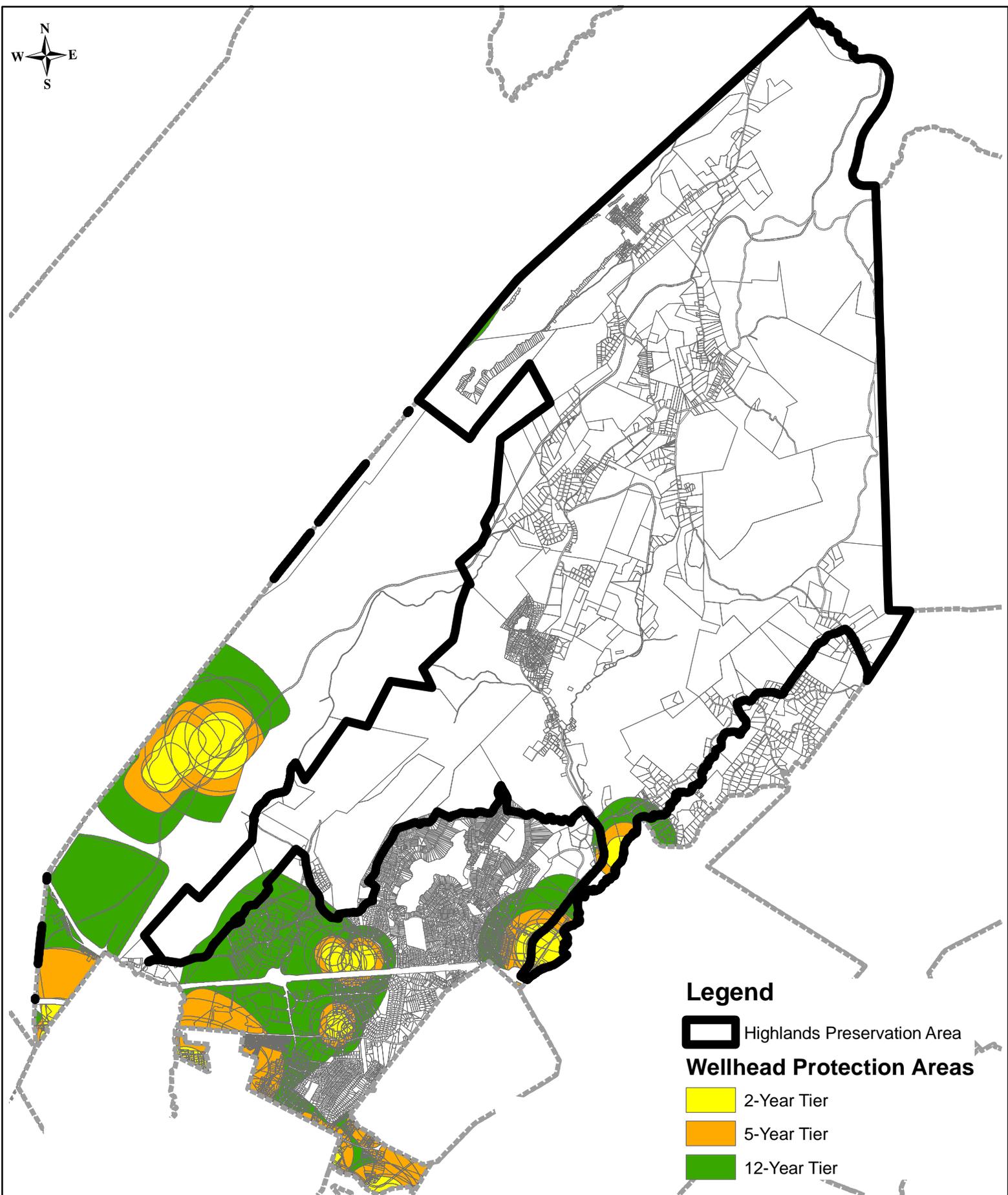
Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
17 of 25

Drawing No.
2085.24IMPWA17

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

-  Highlands Preservation Area
- Wellhead Protection Areas**
-  2-Year Tier
-  5-Year Tier
-  12-Year Tier

Dwg. Title
Wellhead Protection Areas Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

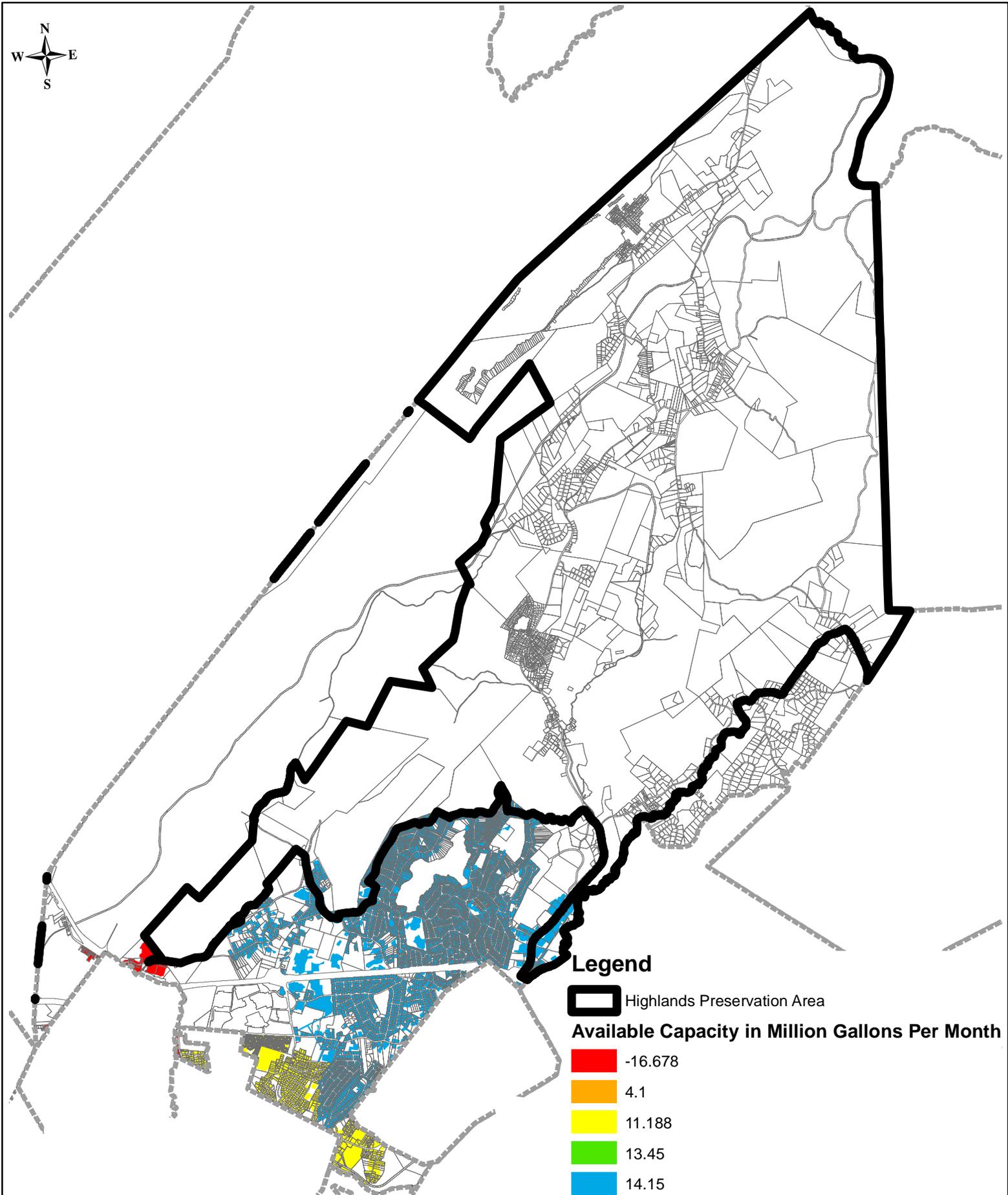
 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
18 of 25

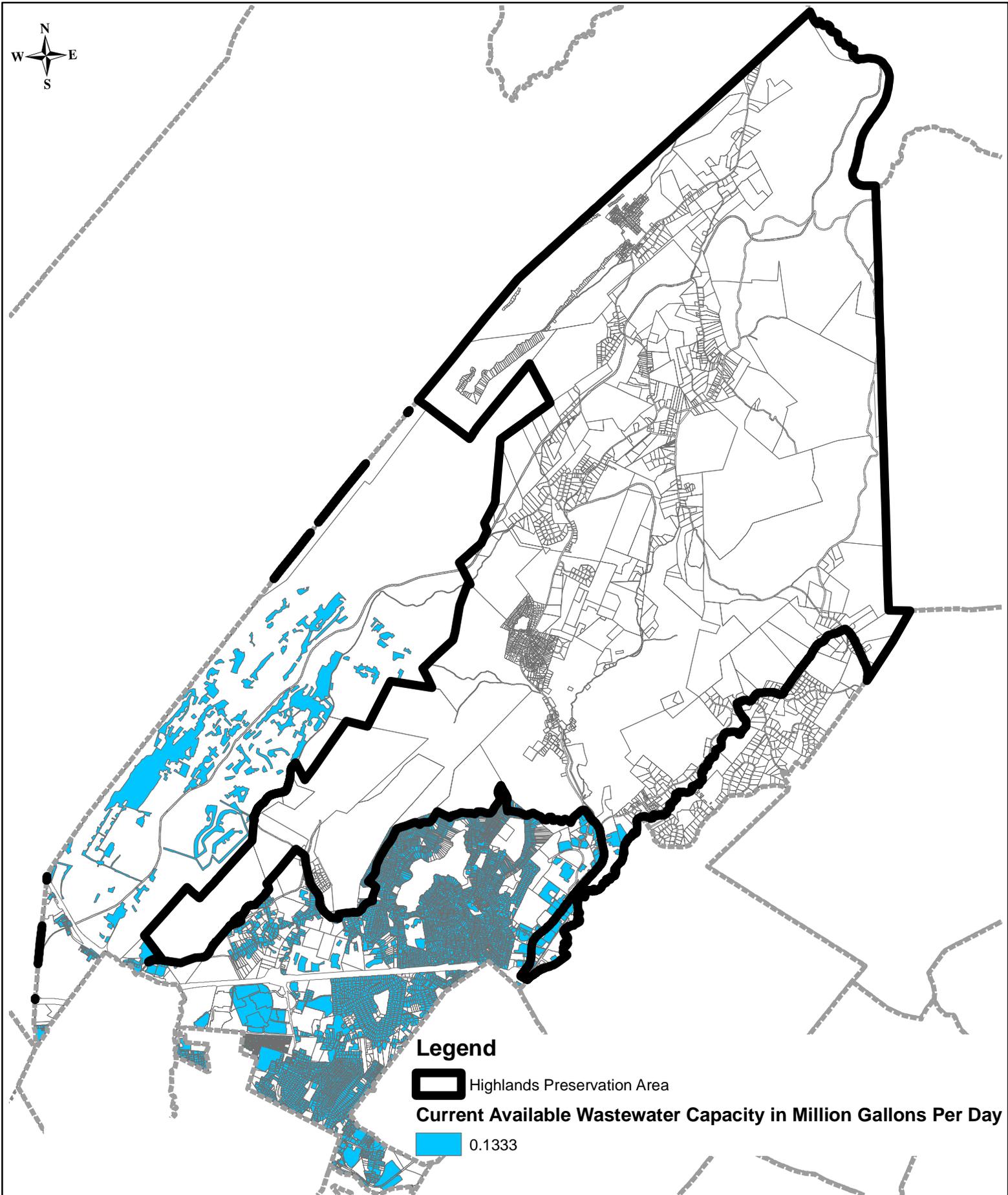
Drawing No.
2085.24WHPA18



Legend

-  Highlands Preservation Area
- Available Capacity in Million Gallons Per Month**
-  -16.678
-  4.1
-  11.188
-  13.45
-  14.15

Dwg. Title Land Use Capability Public Community Water Systems Map		Project No. 2085.24	Dwg. Date 04/13/09	Drawn By MA/RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title Highlands Initial Assessment Report	Dwg. Scale N.T.S.	Sheet No. 19 of 25	Drawing No. 2085.24LUCPC19
TOWNSHIP OF ROCKAWAY MORRIS COUNTY, NEW JERSEY				
2003 COPYRIGHT BA- NOT TO BE REPRODUCED				



Legend



Highlands Preservation Area

Current Available Wastewater Capacity in Million Gallons Per Day



0.1333

Dwg. Title
Land Use Capability Domestic Sewerage Facilities Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

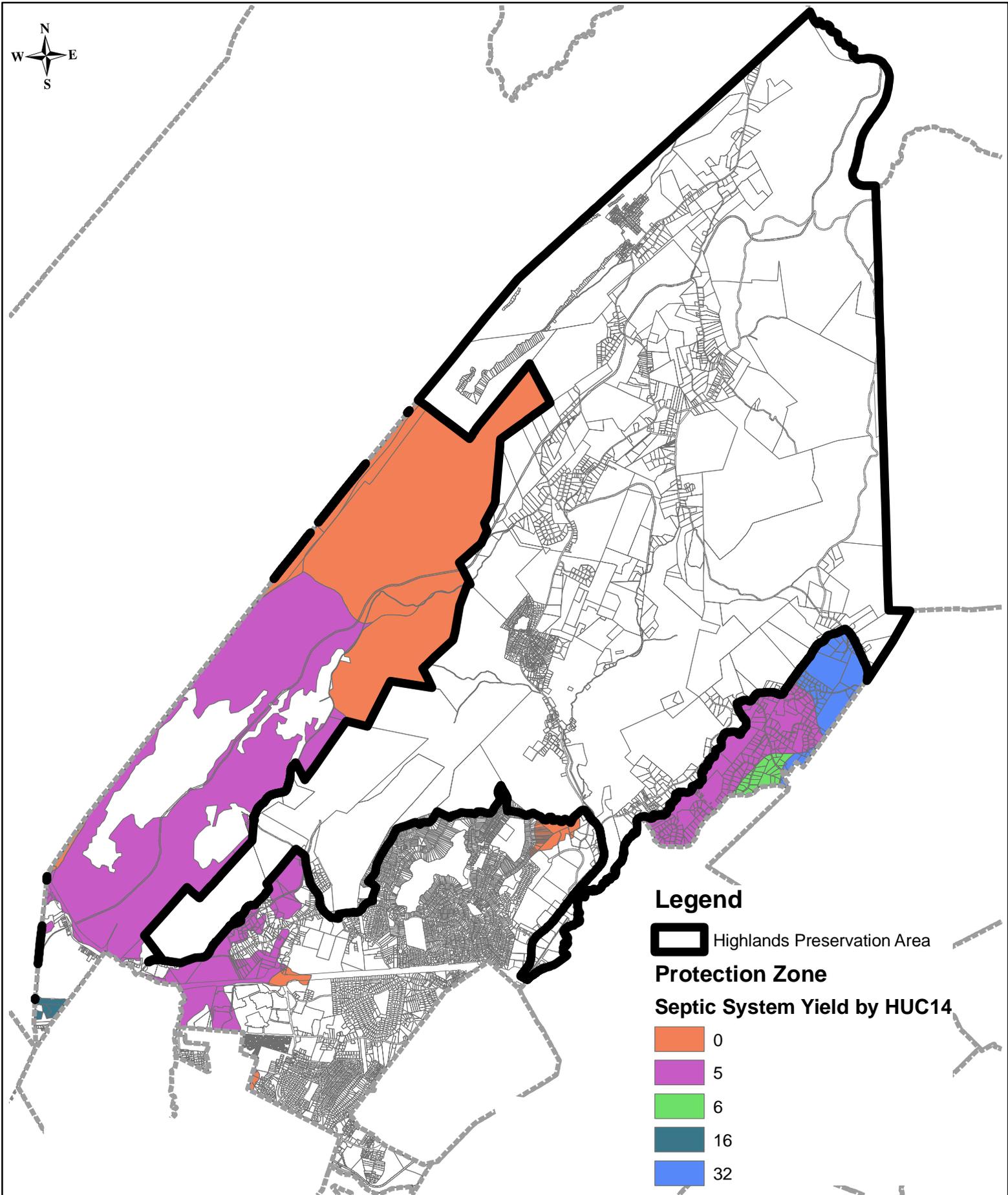
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
20 of 25

Drawing No.
2085.24LUCDS20

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

 Highlands Preservation Area

Protection Zone

Septic System Yield by HUC14

-  0
-  5
-  6
-  16
-  32

Dwg. Title
Land Use Capability Septic System Yield Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

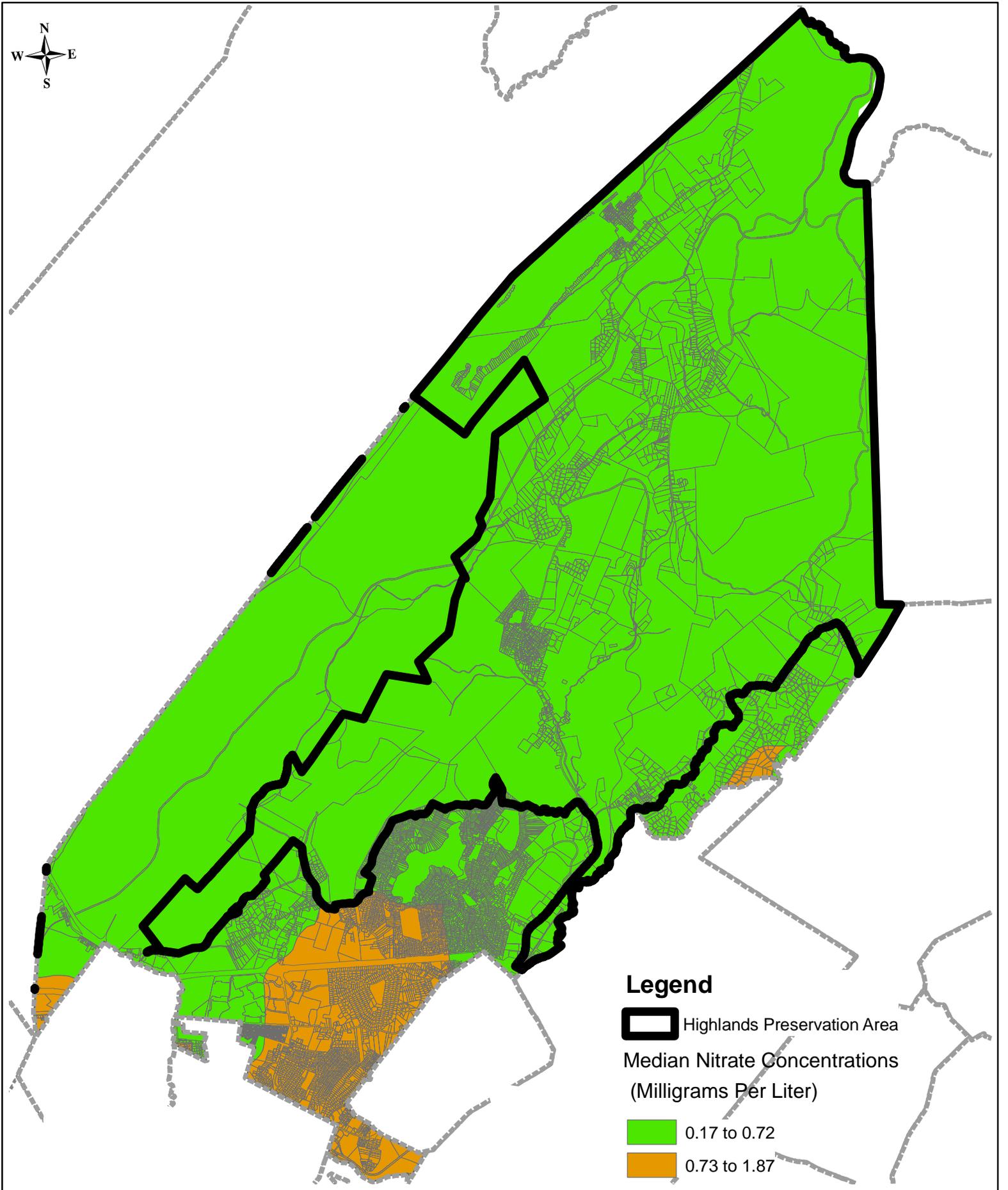
 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
21 of 25

Drawing No.
2085.24LUCSS21



Legend

-  Highlands Preservation Area
- Median Nitrate Concentrations (Milligrams Per Liter)
-  0.17 to 0.72
-  0.73 to 1.87

Dwg. Title
Median Nitrate Concentration by HUC14 Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

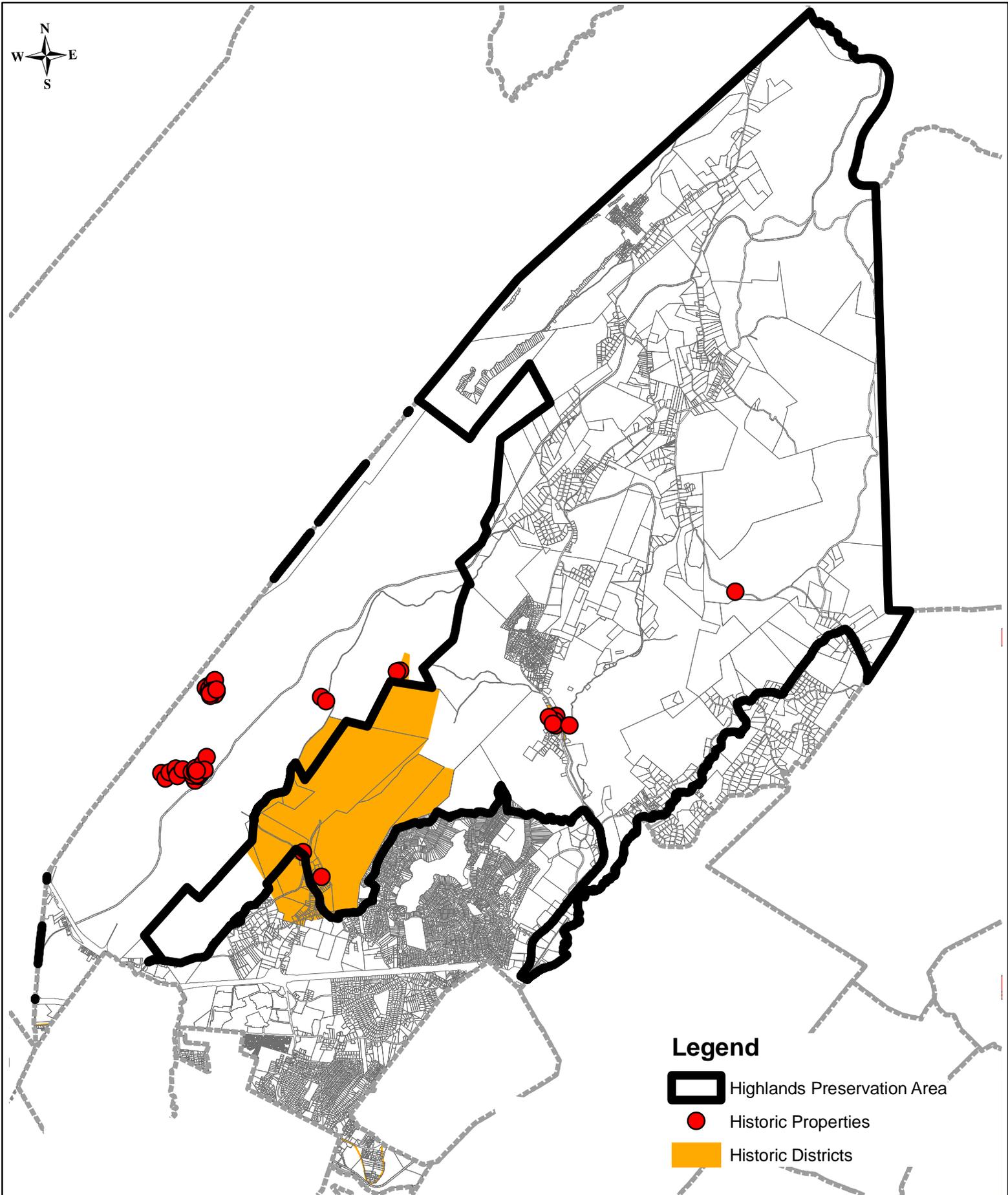
 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
22 of 25

Drawing No.
2085.24NITR22



Legend

-  Highlands Preservation Area
-  Historic Properties
-  Historic Districts

Dwg. Title
Historic Preservation Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

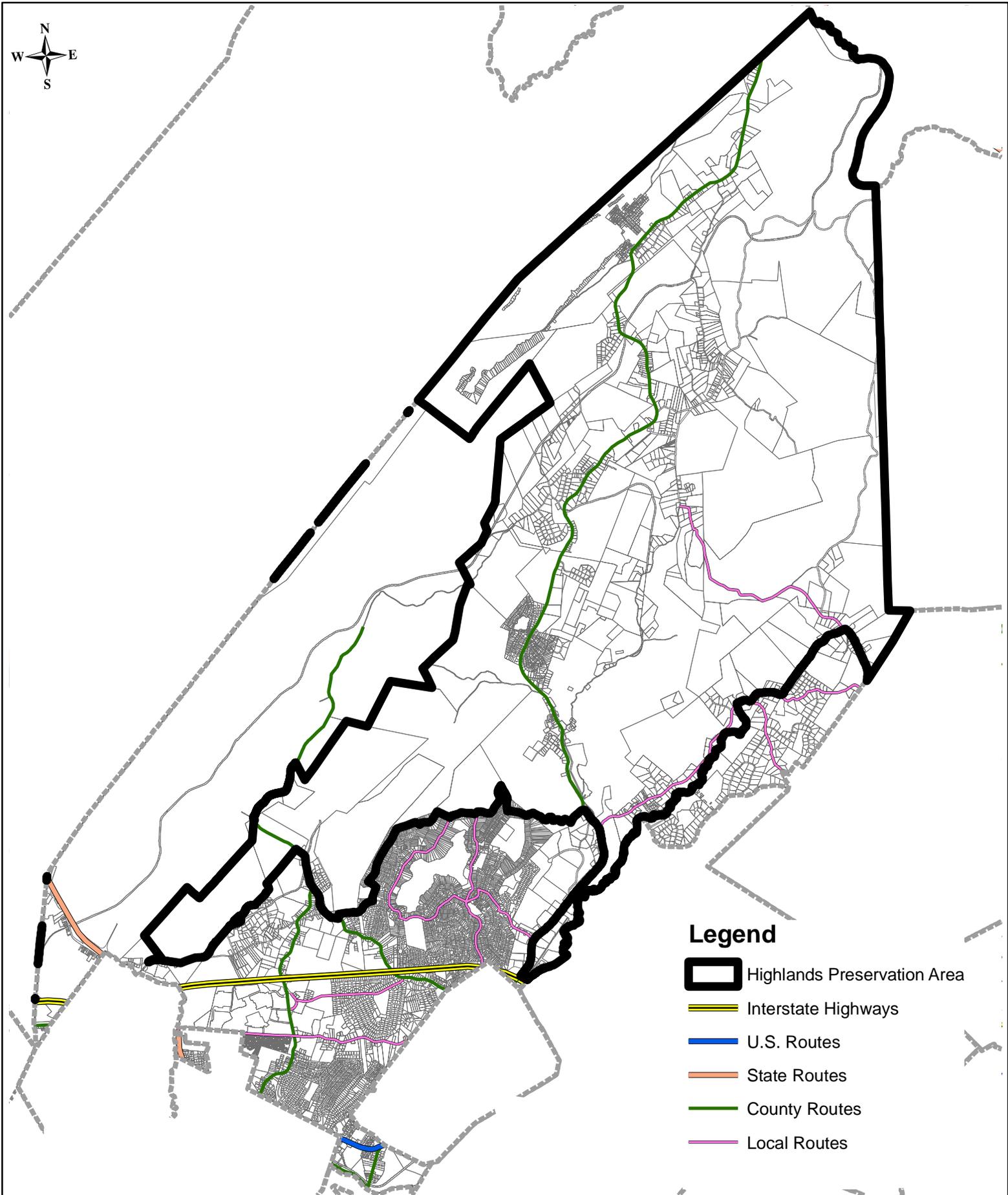
 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

Dwg. Scale
N.T.S.

Sheet No.
23 of 25

Drawing No.
2085.24HIST23



Legend

-  Highlands Preservation Area
-  Interstate Highways
-  U.S. Routes
-  State Routes
-  County Routes
-  Local Routes

Dwg. Title
Roadway Network Map

Project No.
2085.24

Dwg. Date
04/13/09

Drawn By
MA/RW

 **BURGIS ASSOCIATES, INC.**
PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
25 WESTWOOD AVENUE
WESTWOOD, N.J. 07675
201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial
Assessment Report

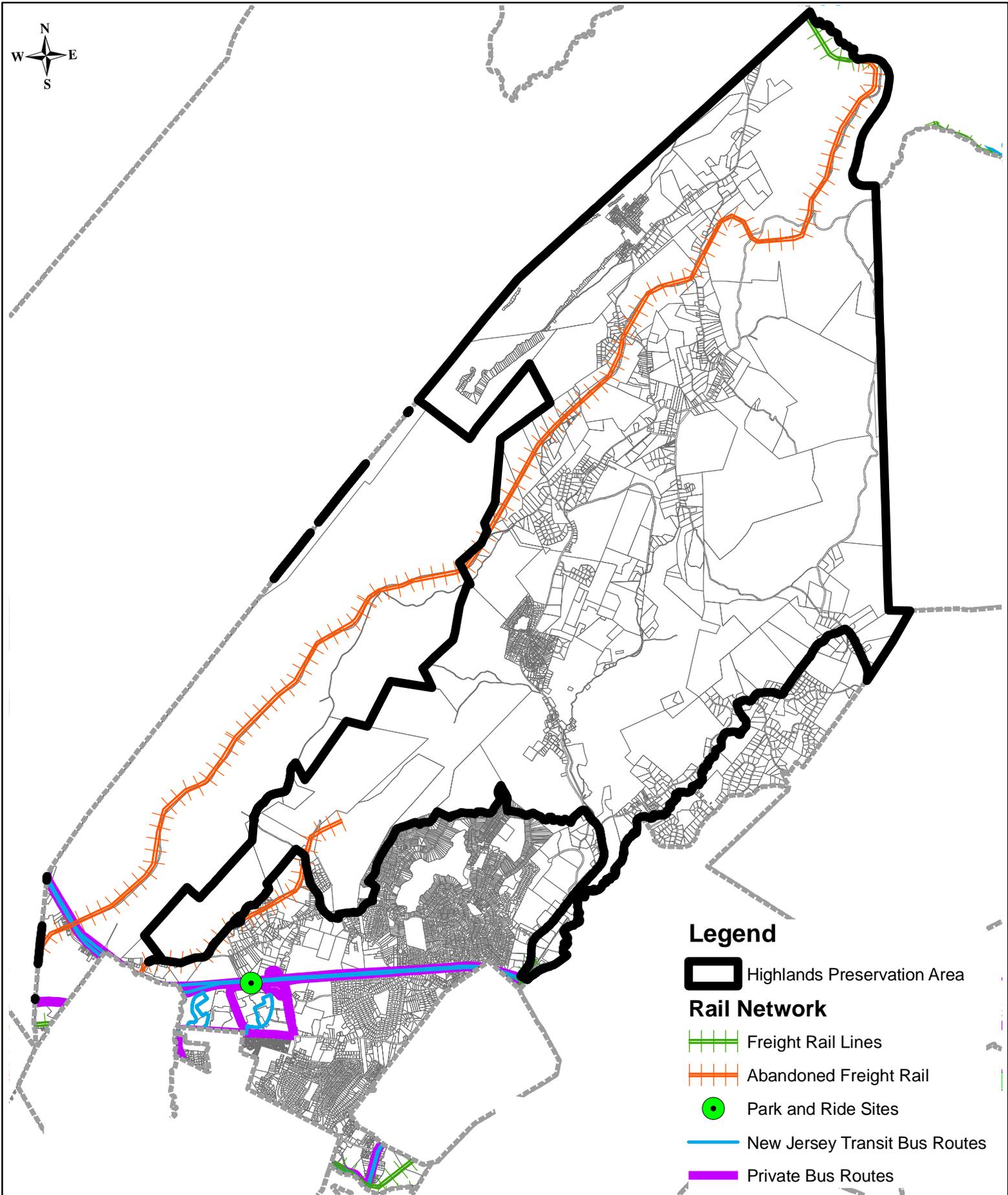
TOWNSHIP OF ROCKAWAY
MORRIS COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
24 of 25

Drawing No.
2085.24ROAD24

2003 COPYRIGHT BA- NOT TO BE REPRODUCED



Legend

Highlands Preservation Area

Rail Network

Freight Rail Lines

Abandoned Freight Rail

Park and Ride Sites

New Jersey Transit Bus Routes

Private Bus Routes

Dwg. Title

Transit Network Map

Project No.

2085.24

Dwg. Date

04/13/09

Drawn By

MA/RW



BURGIS ASSOCIATES, INC.
 PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
 25 WESTWOOD AVENUE
 WESTWOOD, N.J. 07675
 201-666-1811 FAX: 201-666-2599

Project Title

Highlands Initial
 Assessment Report

TOWNSHIP OF ROCKAWAY
 MORRIS COUNTY, NEW JERSEY

Dwg. Scale

N.T.S.

Sheet No.

25 of 25

Drawing No.

2085.24TRANS25

2003 COPYRIGHT BA- NOT TO BE REPRODUCED