

New Jersey Highlands and Mahwah Township Initial Assessment Grant Report

Township of Mahwah,
Bergen County, New Jersey

Prepared For:

Township of Mahwah Planning Board and Township Council
BA#: 2225.02

May 14, 2009

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BERGEN COUNTY, NEW JERSEY**

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**TOWNSHIP OF MAHWAH PLANNING BOARD AND TOWNSHIP
COUNCIL**

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TABLE OF CONTENTS

I.	INTRODUCTION.....	6
II.	OVERVIEW OF HIGHLANDS REGIONAL MASTER PLAN	8
III.	SUMMARY OF TOWNSHIP OF MAHWAH’S PLANNING REPORTS & LAND USE REGULATIONS ...	11
IV.	CONFORMANCE ASSESSMENT.....	17
	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 & Private Septic Systems	
	l. Agricultural Resources	
	m. Historic, Cultural, & Archaeological Resources	
	n. Scenic Resources	
	o. Transportation Safety & Mobility	
	p. Redevelopment, Smart Growth, Housing & Community Facilities	
V.	STEPS TO BASIC PLAN CONFORMANCE.....	53
	a. Basic vs. Full Plan Conformance	
	b. Key Requirements for Basic Plan Conformance	
VI.	ANTICIPATED COSTS & PROJECT TIMEFRAMES.....	61
	A-1: Maps	
	A-2: Initial Assessment Report Addendum	
	A-3: Highlands Act Exemptions	

I. Introduction

As part of the municipal process towards Plan Conformance, this initial assessment has been prepared to provide the Township of Mahwah with an analysis of its anticipated level of effort to bring its planning program into conformance with the Regional Master Plan (RMP). The Township has been awarded an Initial Assessment Grant which allows the municipality to conduct an initial review of the policies and requirements contained in the RMP, evaluate the extent to which the local planning program must be amended to achieve “Basic” and/or Full Plan Conformance, and determine whether corrections are needed to bring the RMP up-to-date with local data.

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:

- 1993 Environmental Resource Inventory for the Township of Mahwah
- 1995, 2001, & 2007 Periodic Master Plan Reexamination Report for the Township of Mahwah
- 1995 Route 17 Corridor Study for the Township of Mahwah
- 1998 Historic Preservation Plan Element for the Township of Mahwah
- 2000 Municipal Open Space and Recreation Plan for the Township of Mahwah
- 2005 Interim Municipal Stormwater Management Plan for the Township of Mahwah
- 2008 Highlands Regional Master Plan
- Highlands Council ‘Basic Plan Conformance for Municipalities, Key Requirements’
- Highlands Council ‘Plan Conformance Guidelines’
- Highlands Council ‘Initial Assessment Grant Program’
- Digital spatial data available for download from the Highlands Council website, as well as updated data transmitted to the Township.

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 the majority of Mahwah'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 Natural Resources Inventory (NRI);
- 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 Plan(s), Water Use and Conservation Management Plan, 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 Highlands Regional Master Plan

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 Mahwah has land in both the Preservation and Planning Areas. Whereas 7,082 acres in the northwestern portion of the township is within the Planning Area, the remainder of the township, comprising 9,687 acres, is located within the Preservation 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.

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 and endorsed by Governor Corzine on September 5, 2008, with the issuance of Executive Order 114 to further protect the Highlands Region. The RMP provides an outlook on the Region's capacity to provide appropriate economic growth while still sustaining the area's valuable natural and cultural resources. It further establishes capacity limitations, related to both natural systems and the built environment, for municipalities and counties located within this region to use as a tool for directing future development.

The Regional Master Plan offers municipalities and counties a set of guidelines and frameworks to ensure that the Highlands' significant natural and cultural resources are maintained and enhanced. While the majority of land use decisions are typically made with only local considerations, the RMP provides municipalities and counties the opportunity to look at planning and policy issues in a broader, more regional context.

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. Those relevant to Mahwah include the Protection Zone, Existing Community Zone, Existing Community Zone – Environmentally Constrained Sub-Zone, and Lake Community Sub-Zone. These overlay zones and Sub-Zones are described in the table below:

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

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	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.

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. Therefore, the Township of Mahwah will have to conform to the RMP for the Preservation Area portion of the municipality and can volunteer to conform to the RMP for the Planning Area portion of the municipality. The Township must submit an affordable housing plan to the Council on Affordable Housing no later than December 8, 2009, regardless if the Township chooses to conform its planning and development practices in the Planning Area to the RMP or not.

III. Summary of Township of Mahwah's Planning Reports & Land Use Regulations

a. Township of Mahwah Master Plan Documents

Mahwah Township's most recent comprehensive master plan document was adopted in 1989. Since that time, numerous reports and documents have been adopted including an Open Space and Recreation Plan Element (2000), a Historic Preservation Plan Element (1998), a Housing Element and Fair Share Plan (1995) and a Route 17 Corridor Study (1995). The Township has also adopted several periodic reexamination reports in 1995, 2001, and most recently in 2007. In its 2007 Reexamination Report, the Township acknowledged that an extended period of time had passed since the preparation of the last comprehensive plan. In addition, since the preparation of the most recent comprehensive plan there have been numerous significant changes at the state, regional, and local levels. As a result of this finding, the Township is preparing a new comprehensive master plan.

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

- Preserving the environment through the protection and preservation of various environmental resources including wetland areas, stream and wetland corridors; the quality and purity of streams, rivers, lakes, ponds and aquifer recharge areas; protection of steep sloping lands, major ridgelines and the preservation of significant treed areas and vegetative cover.
- Providing a variety of housing opportunities for various income levels including low and moderate income housing, middle income housing, and senior citizen housing.
- Assisting the rehabilitation of areas in need of improvement and upgrading including utilization of State and Federal assistance programs, where applicable, as well as private efforts.
- Promoting historic conservation, preservation, and adaptive reuse where appropriate in conjunction with the Township's Historic Commission.
- Improving the quantity, quality, and availability of parks and open space including active and passive recreational facilities, neighborhood parks and environmentally sensitive areas.
- Promoting adequate community services for all portions of Mahwah.
- Encouraging and supporting agricultural preservation.
- Improving and upgrading traffic circulation and safety throughout the Township.
- Maintaining and enhancing the quality of established neighborhoods in Mahwah.
- Providing public water and sewer facilities in all growth areas of Mahwah but to not provide sewer facilities in any non-growth areas.
- Upgrading the surface water quality of all rivers and streams entering the Township and preserving water quality within the Township.

The 1989 Land Use Element established fourteen (14) residential classifications, five (5) commercial classifications, and five (5) office-industrial classifications. Minimum lot sizes recommended for the residential districts cover a broad spectrum, from a high of 200,000 square feet (which comprises the majority of residentially zoned districts in the Preservation Area in Mahwah) to a low of 5,000 square feet lots (which corresponds to the Township's more developed eastern portions). The Land Use Plan recognized a need for greater detail and differentiation between the various residential areas located in the Township. Accordingly, the various classifications are based on land use densities, affordability, and alternative forms of development. Additionally, the Land Use Plan Element recognized that a substantial amount of environmental resources exist throughout the Township, specifically the Ramapo Mountains area along with a majority of public parklands. The C-200 Conservation zone district was created to place additional zoning and development control measures to protect the various environmental resources present in these areas. The Land Use Element also created a Public Open Space zone to provide continued protection and preservation for the Township's open space, parkland and recreational sites.

The Route 17 Corridor Study, adopted as a Master Plan amendment, identified that a significant amount of land along this thoroughfare was vacant or underdeveloped. The primary purpose of this study was to identify what modifications or changes in the Township's land use plan were needed to capture the development potential of these tracts. The study found that of the zone districts in the Corridor area, those zoned primarily for industrial purposes were no longer viable for the corridor. The plan recommended the Township consider rezoning selected areas along both sides of Route 17. Also recommended were revisions to the bulk and use regulations for several commercial zones located along the highway corridor, including a provision to allow for village centers in the industrial-park zone. The Study also discussed, in detail, the anticipated impacts of two proposed mixed-use commercial developments located in the Study area. It should be noted that while the Route 17 Corridor Study was adopted by the Township's Planning Board, the proposed zoning modifications have yet to be enacted.

The Natural and Cultural Resources Plan Element recommends the adoption of municipal ordinances to protect the Township's natural and cultural resources including steep slopes, ridgelines, wetlands and stream corridors, scenic corridors, flood hazard areas, historic areas, and trailways. The Township has taken an active role in adopting zoning and development control measures to protect these features. Using the 100-year flood boundary line, the Land Use Plan Element designated flood hazard areas as an overly zone to protect and enhance stream corridors and to reduce damage caused by storm events. The master plan also includes provisions to protect existing trailways by consulting with the New York-New Jersey Trail Conference, should any proposed development involve property containing an indentified trail. Protecting and preserving valuable natural resources has been and continues to be a reoccurring theme in the Township's planning documents.

The Historic Preservation Plan Element, prepared in 1998, includes an inventory of historic buildings and sites which the Township has deemed worthy of preservation and protection. It also includes standards and criteria used to evaluate the historical or cultural significance of any site. The Plan identifies 89 historic sites and includes additional documentation concerning monuments and markers, archeological sites, roads and trails, bridges, lakes and walkways, and historic roadmarkers. Seven residential properties located in Mahwah Township are listed on the National Register of Historic Places and eight sites are listed on the New Jersey Register of Historic Places. As a result of the Historic Preservation Plan Element, the Township Council adopted an ordinance designating fourteen historic sites that were listed on either Register or both, consistent with N.J.S.A. 40:55D-28b (10).

The Open Space and Recreation Plan Element provides an inventory of the Township's system of parks and preserved open spaces. In addition, it identified the recreational needs of the Township and how to best address those needs. The Plan found that the majority of the open space and recreation facilities located in the Township are owned and maintained by other agencies, including the County and State governments and various educational institutions. Bergen County owns a substantial amount of open space within the Township, with over 4,800 acres of County owned open space. The State of New Jersey also has significant open space holdings, with over 2,100 acres of State owned open space. The Open Space and Recreation Plan Element further stressed that while the Township has an abundance of undeveloped open space, it lacked adequate active recreation facilities. Therefore, one of the main objectives of the Plan is to pursue the development of active recreation facilities on Township owned land and provide recreational facilities in underserved areas. The Plan also identifies sites that have the potential for additional recreational development.

The Community Facilities Plan Element provides information on Mahwah's various community facilities and provides long-range recommendations, where applicable. The 1989 Report recommended that some additional school construction would be necessary in the future; however the plan recommended that no action be considered. Additionally, it recommended that the Board of Education along with the Planning Board monitor enrollment and construction rates on a year-to-year basis to reassess that finding.

The Community Facilities Plan Element did identify the need for a more centralized municipal facility to provide for a more comprehensive and adequate administrative space. As a result, a new municipal building was completed in 2003. In addition, the plan recommended that an additional fire-engine facility be developed at the intersection of Mac Arthur Boulevard and Glasmere Road to serve the Ridge Road-Darlington Avenue portion of Mahwah. Similarly, the Plan recommended an additional ambulance unit to provide service to this same portion of town as well. The 1989 Report also found that no major changes were needed for the police department building, as it currently fulfilled the needs of the community.

Although a separate element of a master plan, the Community Facilities Plan Element also contains data relating to existing and proposed utility systems, as they directly impact density of development and the resultant need for municipal services and facilities. The Plan identifies the township's existing water and sewer service areas and also provides recommendations on improving and extending these service areas. Specifically, the plan recommends that infrastructure should not be extended to the Ramapo Mountain Conservation Area. The plan further states that a petition had been filed to declare the Ramapo Valley Aquifer as a sole source aquifer under the Clean Waters Act. The Township's primary water supply sources had a total storage volume of 5.3 million gallons, which operate from six storage facilities. As such, the Plan anticipated that the Township should consider developing a surface water supply facility to provide an alternative water source and to possibly utilize Silver Lake for this purpose.

With regard to sanitary sewers, the Plan notes that Mahwah has three wastewater treatment plants in addition to being a member of the Northwest Bergen County Utilities Authority. These facilities provide sewer service to only certain portions of the Township and the Plan notes that sanitary sewers are prohibited in lands located in the C-200 zone district. All domestic waste, apart from the three wastewater treatment plants, is discharged to the NBCUA Wastewater Treatment Plant, located in the Borough of Waldwick. At the time the 1989 Master Plan was prepared, the NBCUA did not limit the amount of waste that the Township could discharge into its facilities however, it noted that due to future growth projections, expansions and adjustments would be needed. Given that the Master Plan was completed in 1989, present sewer and water service conditions have since changed considerably and are further discussed in subsequent sections.

The Traffic and Circulation Plan Element provided recommendations on a variety of transportation-related issues. The Traffic and Circulation Plan Element proposed a number of improvements to the Township's

bridges, railroads, highways, and traffic lights. Since the adoption of the 1989 Master Plan, the Township has made a number of intersection improvements, road widenings to accommodate turning lanes, and roadway repaving to help improve vehicular and pedestrian safety. Additionally, through development review, the approving authorities have worked to ensure that development applications incorporate appropriate traffic circulation and safety elements that enhance vehicular and pedestrian safety.

The Housing Element and Fair Share Plan addressed Mahwah's second round COAH obligation and afforded the Township substantive certification until July 1, 2004. The Township was then awarded an extended period of protection until December 20, 2005. COAH adopted new rules in November 2004 for the implementation of their third round methodology; however these rules were subsequently determined, through litigation, to require modification. A new set of revised third round rules were adopted in 2008. Mahwah, due to its participation in the Highlands Plan Conformance, was granted an extension to prepare a new Housing Element and Fair Share Plan. The Township must prepare, adopt, and submit a new housing plan no later than December 8, 2009.

b. Interim Municipal Stormwater Management Plan for the Township of Mahwah

The Municipal Stormwater Management Plan, prepared in 2005, details various strategies to address stormwater-related impacts. In addition, the Plan also provides specific stormwater management measures and mitigation strategies to minimize the impacts that stormwater runoff has on water quality and quantity and groundwater recharge.

Notably, the Plan also discusses the quality of various waterbodies located in the Township. Two major streams, the Ramapo River and the Ramsey Brook, and their tributaries are considered to be impaired waterways. Waterbodies are said to be impaired when the instream fecal coliform concentrations exceed the State's criteria. These impaired waterways are required to meet a Total Maximum Daily Load (TMDL) threshold, developed by the State. This allowable load is then allocated to the various sources of the pollutant, such as stormwater and wastewater discharge as well as stormwater runoff from agricultural and residential areas. The Township has also exhibited water quantity problems including flooding and stream bank erosion, particularly the Cragmere section which suffers from undersized drainage and detention systems.

The plan recommends adopting design and performance standards for stormwater management as presented in N.J.A.C 7:8-5. The management plan also recommended that the Township modify its zoning ordinance and Master Plan to reflect stormwater management and mitigation practices that utilize low-impact development techniques. It further provides plans for proposed developments, as detailed in the 2005 Management Plan.

c. Mahwah Township Natural Resource Inventory (NRI)

The Mahwah Township Environmental Commission prepared a Natural Resource Inventory, in 1993, to insure that the Township had the most current environmental data available. The NRI provides an analysis and survey of the Township's soils, geology, rare and endangered species, floodplains, wetlands, steep slopes, vegetation, and land development impacts. Each of these resources is described in text and accompanied by tables, figures, references, and maps. Interestingly, the analysis on the Township's geology revealed that the bedrock to the west of the Ramapo River, the Highlands physiographic province, contained considerable amounts of water due to the joint crack and fault fissures prevalent in the rock. Additionally, iron mines located in this area contained large volumes of water which suggest that deep wells in this province would be more likely to develop larger volumes of water, were they located near fault zones.

The NRI, using data from the Natural Heritage Database, concluded that five species of rare and endangered vertebrate animals may occur in Mahwah. These include the Cooper's hawk, Grasshopper sparrow, Wood turtle,

Timber rattlesnake, and Barred owl. In addition to those vertebrate species, there were five invertebrate species listed for the Township. Those included four species of insects and a freshwater mussel species, the Yellow lampmussel. There were also six species of rare and endangered vascular plants documented for Mahwah Township. Provided as part of the appendix, is a complete copy of the Township's database inquiry, compiled by the Natural Heritage Program which included several maps showing the documented locations of rare and endangered species. The maps indicated that the documented rare and endangered species were mainly located in the western half of the Township, with a smaller documented section in the northeastern portion of the Township.

Floodplain areas are also described in the NRI, which has noted that floodplain areas in the Township constitute a minor, although important, component of land cover. The majority of flood prone areas are associated with the Ramapo River and its tributaries, which due to its size, contain the widest floodplains. The inventory also found that the Township had several areas of wetlands, with the majority found to be associated with surface waterbodies. These wetland habitats consisted mostly of freshwater marshes, bogs, swamps, and bottomland forests. In addition, the inventory found wetlands associated with freshwater rivers and their tributaries as well as those associated with lakes, reservoirs, and deep ponds. The distribution and size of the Township's wetlands have been mapped in the inventory's Land Use/Land Cover Map.

The discussion on steep slopes includes information regarding construction and development limitations that steep and gentle slopes present, with steeper sloped topography creating difficult construction problems related to septic systems and erosion problems. It further discusses the terrain in Mahwah Township, which it describes as "gently rolling east of the Ramapo River and gentle to steep slopes west of the Ramapo River on the Ramapo Mountains."

Comparatively, the Township's geology, soils, and vegetation are varied and diverse. Due to the varied geologic aspect of the Township, the resultant soil types have in turn, contributed to the various collections of plant communities. The NRI provided a list of the numerous vegetation types categorized by the following: Maple-Ash-Popular Succession, Raised Bog and Meadow or Field, Coniferous Dominant, Floodplain, and Oak-Maple Climax. The Land Use/Land Cover Map also shows the distribution of the varied landcover types.

At the time the NRI was completed, the extension of Interstate 287 had recently finished and its construction, the NRI affirmed, had a significant impact on Mahwah's natural and cultural resources. The Township's lost some of its terrestrial habitat, including upland wooded areas in and around Campgaw Reservation, Darlington County Park, and Ramapo College. Additionally, the construction affected approximately three acres of freshwater wetlands near Meyers Lake and eight acres in the Ramapo River floodplain. Darlington Brook also experienced adverse impacts which included sediment and channelization problems that resulted from the construction of the interstate highway. The Township's cultural resources also experienced adverse impacts, including the removal of the William Stires House, a historic site located on Route 202. The NRI further pointed out that a dramatic increase in population growth was expected due to the increased access to and from Mahwah.

Relatedly, the NRI examined the impact that townhouse and condominium developments had on the Township's natural environment. The NRI found that the majority of these developments were located in the eastern and central portions of the Township, with several located close to Airmont Avenue to the east and Ridge Road to the center, falling within the Township's Planning Area. The NRI also found that because the developments were not focused in one location, their impacts were spread out rather than localized, with the exception of local impacts on vegetation and water quality. The impact analysis also examined the expected population increase, especially amongst school-aged children and the daily vehicle trips that such developments

would generate. Thirteen total existing and proposed developments, including the expected number of units, were mapped. All thirteen locations are within the Planning Area.

d. Mahwah Township Land Use Regulations

As noted in the above discussion on Mahwah’s Land Use Element, the Township has a wide range of residential, commercial/industrial, and open space zone districts. A majority of the Township’s lands within the Preservation Area are zoned for either Public Open Space or very low residential development (C-200, R-80, and R-40). However, there is a small section of land in the Preservation Area zoned R-5 Single Family however this classification is limited to an existing affordable housing townhouse development. The following table provides an overview of Mahwah’s bulk and area regulations for residential zone districts:

Zone	Min. Lot Size (SF)	Min. Lot Width (ft)	Min. Lot Depth (ft)	Min. Front Yard (ft)	Min. Rear Yard (ft)	Min Side Yard (ft) (one/both)	Max. Imp. Coverage (%)
C-200	200,000	300	400	75	75	50/100	15
R-80	80,000	200	300	60	50	40/80	20
R-40	40,000	150	175	40	40	30/60	30
R-20	20,000	100	150	35	35	20/40	40
R-15	15,000	90	125	30	30	10/25	40
R-10	10,000	75	100	30	30	10/25	40
R-5	5,000	50	100	25	25	6/18	40
R-11							
One Family	5,000	50	100	25	25	6/18	40
Two-Family	11,000	80	100	25	25	10/25	50
GA-200							
One-Family	10,000	75	100	30	30	10/25	40
Garden Apt.	200,000	300	400	50	75	30/60	70
PRD-4							
One-Family	20,000	100	150	35	35	20/40	40
PRD Uses	3,000	30	--	25	25	**	70
PRD-6							
One-Family	20,000	100	150	35	35	20/40	40
PRD Uses	2,500	25	--	25	25	**	70
RM-6							
One-Family	20,000	100	150	35	35	20/40	40
Mobile Home	400,000	400	500	^	^	^	50

**None required, but where provided, a minimum of twenty (20') feet, except where abutting a street, a minimum of twenty-five (25') feet.

^ All mobile homes shall be separated from each other and other buildings by at least thirty (30) feet and shall be set back a min. of seventy-five feet from all external lot lines.

IV. Conformance Assessment

The Regional Master Plan is divided into ten elements, which represent the major policy areas covered in the document and correspond with the goals set forth above. The following section addresses the significant natural resources of the Highlands Region and the protection strategies that the Township of Mahwah will need to enact to achieve plan conformance. Each of these categories is described in more detail below, along with a discussion of RMP requirements and their anticipated impacts on the Township of Mahwah. It is noted that where a change to the Township's existing planning program appears to be required for Plan Conformance, such a change is ***bold and italicized***.

a. Forested Areas.

Goals, Policies, & Objectives

Protecting the integrity of the 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 the ecological process. Lands within the Forest Resource Area were included because they express one or more of the following integrity 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 is the integrity of the forested sub-watersheds that provide important water quality benefits. The following indicators were used to evaluate forest cover integrity at the subwatershed level: the size of the forest patch; the total percentage of the area covered in forest; the area and percent of a forest patch that is greater than 300 feet from a forest edge; and the shortest edge-to-edge distance between distinct patches within a 1,000 foot search area.

The Forest Cover Integrity Map assigns an integrity level to every sub-watershed in the township, including high, moderate and low. A high integrity subwatershed is one that delineates a subwatershed that is predominately forested, including a high proportion of forest cover consisting of high core area, large patch size and a low distance to the nearest patch. Moderate integrity forests include those subwatersheds with 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 forests include subwatersheds 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 policies and objectives relating to Forest Resources. The following will impact Mahwah's planning program:

- 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 when 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 implement resource management programs that provide guidance on sustainable forest management, restoration, improved ecological health, carbon sequestration, and stewardship practices on public and private lands in the Forest Resource Areas within the Protection Zone and the Conservation Zone in the Planning Area.
- To implement programs which encourage the application of agro-forestry practices and techniques within cultivated farmland located within both the Agricultural Resource Area and Forest Resource Area.
- To address the protection of Forest Resource Areas and High Integrity Forest Subwatersheds in municipal master plans and development regulations, including the adoption of municipal tree protection and tree clearing ordinances.

In order to assist local municipalities with these goals, policies, and objectives, the Council will provide model documents that can be adopted or used to supplement the existing municipal 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.

RMP Analysis

The attached *Forest Resource Area* map delineates those areas within Mahwah where forested areas exhibit the least fragmentation and are the most vital for the maintenance of the ecological process. As shown, the entire western portion of the Township has been classified as a *Forest Resource Area*, with Interstate 287 acting as a rough border between the remaining areas of the Township. In effect, the entire Preservation Area within the Township falls in the forest resource area. A majority of this area is open space, publicly-owned by the State, County, or the Township, with small pockets owned by non-profit/private agencies, and private landowners. Additionally, the C-200 Conservation, R-80, R-40, and R-5 zone districts are also located within the forest resource area. The area in the eastern portion of the Township has various, smaller segments of identified forests, outside the forest resource area. These segmented forests, outside the forest resource area, are located in the Planning Area.

The Land Use Capability Map shows that some areas of the *Existing Community Zone* and *Lake Community* subzone are located within the forest resource area. However, the majority of the area is located in the *Protection Zone* and the *Conservation Zone*.

The Forest Cover Integrity Map assigns an integrity level to every sub-watershed in the township, including high, moderate and low. As shown, the entire western portion of the municipality is classified as having a high integrity value, whereas the northeastern and easternmost portions of the municipality have been identified as having a low integrity value. A small section, in the southern portion of the municipality, near the border with Franklin Lakes, has been identified as a subwatershed with a medium integrity value.

Mahwah Township Plans & Regulations

The Township's Open Space and Recreation Plan (OSRP) documents the Township's forested areas, provided in both text and mapped form. However, as this plan was adopted before the Regional Master Plan, it does not identify forest resources in the same way, instead discussing its forested areas in relation to the Township's system of parks and open space facilities. Furthermore, the 1993 Natural Resource Inventory (NRI) does not include a discussion of the Township's forested areas; rather, it includes specific information on the environmentally sensitive features located in those forested areas and includes an inventory of the Township's vegetative cover. ***As such, the Township's documents must be revised to reflect the locations and descriptions of Forest Resource Areas and Forest Cover Integrity, as contained in the RMP.***

Mahwah's 2007 Reexamination Report, its Open Space and Recreation Element, and its land use regulations have identified that the preservation of its wooded areas are of particular importance and should be preserved to the greatest extent possible. The 2007 Periodic Reexamination Report notes that the Township has acquired over 1,500 acres of land by the county in the area west of Route 202 and adopted several environmentally-based land use controls, including a tree preservation ordinance. The Township's Master Plan documents do not contain any additional language regarding forested areas or the protection thereof. Therefore, in order to achieve consistency with the RMP, the Township will need to revise its master plan in a number of ways. ***First, it must prepare a Conservation Plan Element, which incorporates the relevant, goals, policies, and objectives contained in the RMP. Also, 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.***

Mahwah Township's land use regulations acknowledge forested areas to a certain extent. Section 22-6.5 stipulates that a landscaping plan must be submitted with each site plan application, identifying existing and proposed trees, shrubs, plant material, ground cover, and other natural features. It further recommends saving existing large trees. Moreover, Section 28-3.7, Mahwah's Tree Preservation ordinance, requires that developers or property owners shall leave as many trees and as much undisturbed natural grade or topography as practicable. It further requires that an applicant submit an application map, showing existing trees to be removed and those to remain, over eight inches in caliper, prior to the cutting or removal of any trees in lots with an area greater than 20,000 square feet. Any revegetation or restoration proposals are also required to be shown as part of a development application. To prevent further fragmentation and tree clearing the Township should take a proactive role in monitoring and regulating forestry activities. ***Therefore, the Township shall monitor and review the sustainability of its forest resources by adopting a more stringent tree-preservation ordinance that would include low impact development standards to prevent further fragmentation of forest habitats, provide incentives for invasive species control and management of white-tailed deer populations, and establish criteria and indicators to assess long term sustainability.***

The Township's most stringent land use designation, the C-200 Conservation Zone, is designed to assure that the natural assets of the community, such as the wooded areas of the Township, are not disturbed. While much of the Forest Resource Area is located in the C-200 Conservation Zone or the POS-Public Open Space zoning districts, there are several areas that are not. Those include the R-80, R-40, and R-5 residential zones. To retain the existing character of the landscape in the C-200 Conservation Zone, tree removal and clearance is limited to twenty percent of individual building lots while any damage to roots, bark, trunks, or limbs of trees, is to be completely prevented, except where such vegetation must be removed and replaced to allow the intended use. Moreover, no development within the C-200 Zone is permitted to be served by a public sanitary sewer system or

depend upon connection to the Northwest Bergen County Sewer Authority or any similar sewer system. An application for development in the C-200 Zone is also required to submit an Environmental Impact Statement (EIS) which must include an inventory of all present environmental conditions and an impact assessment of the proposed development on those conditions. The EIS must also include steps taken to minimize adverse environmental impacts, including the preservation of trees, both at the site and in the surrounding areas, and any alternatives to all or part of the project.

While required in the C-200 Zone, an Environmental Impact Statement is not required in other land use zones. However, the Township's Environmental Commission is given authority in determining which applications require an EIS. In addition, the Township's land use regulations contain no further restrictions on the amount of tree clearing that may occur outside of the C-200 Conservation Zone, nor do the land use regulations limit human development in the manner prescribed by the RMP with relation to the Land Use Capability Zones. ***Therefore, the Township's land use regulations, specifically for those zones located in the Forest Resource Area, will need to be revised to incorporate the Land Use Capability Zone designations, each of the applicable RMP goals, policies and objectives set forth above, low impact best management practices, and more stringent tree protection and clearing ordinances.***

b. Open Waters and Riparian Areas

Goals, Policies, & Objectives

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 in the Highlands Open Waters and Riparian Areas Map, respectively.

As watershed's are increasingly becoming the most accepted and appropriate geographic unit for managing water resources, the RMP examined and evaluated the ecological function and water protection ability of each riparian area at the subwatershed level. Several different ecological indicators were selected to evaluate and assign an integrity level to each of the subwatersheds in the Highlands Region. High Integrity Riparian Areas have a low incidence of impervious cover, agricultural uses, and/or road crossings, high quality habitats for water/wetland species and are predominantly covered with natural vegetation. Moderate Integrity Riparian Areas have a higher proportion of impervious coverage, agricultural uses, and/or road crossings and a reduced proportion of natural vegetation that includes high quality habitats for water/wetland dependent species. Low Integrity Riparian Areas have a high prevalence of impervious coverage, agricultural uses, and/or road crossings and minimal natural vegetation, including high quality habitat for water/wetland dependent species. Each subwatershed and their respective values are presented in the Riparian Integrity by HUC14 Map.

A high priority of the RMP 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 that would impact Mahwah's planning program 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.

RMP Analysis

The accompanying Highlands Open Waters Map and Riparian Areas Map delineate the location of these resources within Mahwah Township. As shown, Highlands Open Waters and their associated buffer areas are located throughout the Township. The majority of those open water features are located in the Preservation Area however there are several Open Waters areas located throughout the Planning Area. The Riparian Areas Map shows that these areas roughly correspond with the locations of the Highlands Open Waters and buffers. Of note, a sizable contiguous riparian area is located in the central portion of the Township that parallels the greater part of the Preservation/Planning Area interface.

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 southern and western portions of the Township (the Ramapo River (Crystal Lake to Bear Swamp, above Fyke to 74 d 11m 00s, and Bear Swamp thru Fyke), Crystal Lake/Pond Brook, and Wanaque Reservoir Subwatersheds) were given a High Integrity Riparian Area value; the northern and most western portions (Meadow Brook/High Mountain Brook and the Ramapo River (above 74 d 11m 00s) Subwatersheds) were classified as having a Moderate Integrity

Riparian Value; and the remaining portions of the Township (Ho-ho-kus Brook, Saddle River, and Masonicus Brook Subwatersheds) were classified as having a Low Integrity Riparian Value.

Mahwah Township Plans and Regulations

The Township's Natural Resources Inventory provides a general overview of Mahwah's wetlands and other surface water features. As the NRI was prepared in 1992, well before the adoption of the Surface Water Quality Standards (SWQS) and Surface Water Classifications, the document does not identify key water bodies as they are identified in the RMP. Furthermore, the NRI does not address riparian areas or the 300-foot protection area buffers required for Highlands Open Waters, as set forth in the RMP. ***Therefore, the Township's NRI 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.***

Both the 2005 Stormwater Management Plan Element and the 2007 Reexamination Report discuss the Township's water features as well as its sewer and water facilities. The 2005 Stormwater Management Plan provides extensive mapping and narrative of the Township's water features, including Category One waterbodies, subwatersheds, floodplains, groundwater recharge areas, and water quality and quantity. The Plan also provides the Township with recommended low-impact design and performance standards, model stormwater control ordinances that would incorporate 300 foot buffers around C-1 waterways, and implementation strategies to identify and reduce various pollutant sources. While the Plan provides some recommendations that are set forth in the RMP, it does not include all of the policies and objectives laid out in the RMP. ***Therefore, in order to achieve consistency, the Township must revise the Master Plan and Stormwater Management Plan to include a Stream Corridor Protection/Restoration Plan, containing the relevant RMP goals, policies, and objectives; adopt the Land Use Capability Zones into the Land Use Plan Element as the majority of the RMP's goals, policies, and objectives rely on these designations; and include the technical standards provided by the Highlands Council for assessing, evaluating, and restoring riparian areas and streams in its Stormwater Management Plan.***

As previously discussed in this report, the Township's land use ordinances contain specific provisions with regard to its water systems. The Township's flood hazard area regulations contain methods and provisions to control the alteration of natural flood plains, stream channels, and natural protective barriers. The regulations also established and identified special flood hazard areas in the Township using documentation from the Flood Insurance Rate Map for Bergen County and from a scientific and engineering report entitled, "Flood Insurance Study, Bergen County." These regulations require a review for all development permits to determine if the proposed development is located in the floodway. It also establishes maintenance and alteration procedures for the Township's watercourses. Additionally, the regulations establish standards for development in all special flood hazard areas that limit increases in water surface elevation, prohibit encroachments, including fill, substantial improvements, and other development in designated floodways, and sets forth conditions for variance relief.

The Township's stormwater management regulations also discuss flood control, groundwater recharge, and pollutant reduction techniques. The regulations suggest utilizing nonstructural or low impact techniques before relying on structural best management practices. Some of these nonstructural strategies include those that minimize impervious surfaces; protect areas that provide water quality benefits or areas that are susceptible to erosion and sediment loss; maximize the protection of natural drainage features and vegetation; provide low maintenance landscaping that encourages retention and planting of native vegetation; and minimize the use of pesticides and fertilizers. Additionally, the regulations establish measures to protect all waters designated Category One that are consistent with the Surface Water Quality Standards. The stormwater management regulations establish a 300-foot protection buffer around such waterbodies, wherein disturbance can only occur

where previous disturbance or development has occurred. However, none of the Township's regulations explicitly address the RMP requirements for open waters and riparian areas, namely the creation of a 300-foot buffer along *all* open waters and limitations of development based on land use Capability Zones.

The regulations also discuss that a stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan or by a municipality through an adapted municipal stormwater management plan. Also established in the stormwater management regulations is a required environmental site analysis which is to include, in written and graphic form, a description of soil conditions, slopes, wetlands, waterways, and vegetation on the site and any impact that proposed development will have, including any necessary mitigation efforts. While the Township's regulations suggest low-impact development techniques or plans, they are not required nor do they contain the specific technical standards as set forth in the RMP. ***Therefore, the Township's land use regulations will have to be revised as follows: require low-development best management practices for all development; create and adopt a 300-foot buffer along all Highlands Open Waters; require that all applicants identify and map Highlands Open Waters, 300-foot buffers, and Riparian Areas; and limit development in accordance with each of the applicable RMP goals, policies, and objectives as set forth above.***

c. Steep Slopes

Goal, Policies, & Objectives

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 the Riparian Area.

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 that would affect Mahwah Township's planning program 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.

RMP Analysis

As shown on the accompanying Steep Slope Protection Areas Map, the majority of the Township's steep slopes are located in the Preservation Area with the most severely constrained slopes located in the Ramapo Mountain region. Although there are also a number of steep slope areas in the Planning Area of the Township, they are considerably more isolated. However a portion of the Planning Area, bordering along the southeastern side of the Preservation Area, has been identified as having slope greater than 20 percent. It should be noted that this map only identifies slopes by degree of 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.

Mahwah Township Plans and Regulations

The Township's NRI includes text and maps relating to steep slope areas in Mahwah, dividing slopes into three categories: less than 5 percent; 5- 15 percent; and greater than 15 percent. The NRI also categorizes slope based on different classes. Slightly limited slopes include those areas with a slope in the 3-5 percent range; moderately limited slopes include the 5-15 percent group; and severely limited slopes include those areas with a slope greater than 15 percent. While the NRI further defines slope, the classification is dissimilar to the categories included on the Steep Slope Protection Areas Map. ***Therefore, the NRI will need to be revised to include definitions and mapping of steep slopes which reflect the categories provided in the Steep Slope Protection Areas Map (slope greater than 20%; slope between 15%-20%; slope between 10%-15% within Riparian Areas) and contained in the RMP.*** Also, although the NRI contains written and mapped data pertaining to depth to bedrock, drainage capabilities, slope, susceptibility to erosion, and soil suitability classes, it does not identify Severely, Moderately, or Limited Constrained Slopes based on these factors. ***Therefore the NRI must also be revised to reflect the slope constraint classes as defined in the RMP.***

The 1989 Master Plan provides extensive discussions on the Township's critical slope areas including both ridgelines and steep slopes. The Master Plan categorizes slopes in the same manner as the NRI, however only those areas with a slope greater than 15 percent are mapped. It also provides an analysis of the Township's soil conditions that includes slope percentage and identifies the limitation class of each soil category. An analysis was conducted on the Ramapo Mountain region and it was found that approximately 83 percent of all steep sloping lands are situated in that region. Additionally, the Master Plan recommended that greater protection be given to steep sloping land and suggested that the Township develop a steep slope ordinance to protect such lands. The 2007 Reexamination Report noted that the Township had developed a steep slope ordinance based on the recommendation in the 1989 Master Plan. ***As such, the Township's master plan documents must be revised to include a Conservation Plan Element, which includes the relevant goals, policies, and objectives contained in the RMP as well as a revised steep slope map that includes the information provided in the accompanying Steep Slopes Protection Areas Map.***

As previously discussed in the report, the Township's land use regulations contain specific regulations for steep slopes. These regulations limit disturbance to 35 percent on slopes 10-14.99 percent where it is within 100 feet of

a wetlands transition area or wetlands; to 15 percent on slopes 15-19.99 percent; to 10 percent on slopes 20-24.99 percent; and no disturbance is allowed on slopes greater than 25 percent. Additionally the regulation requires that a variance must be sought if the percentage of proposed disturbance is greater than permitted. Further, the regulation permits some disturbance in residential areas for certain accessory structures but limits the disturbance area to 2,000 square feet or less and only with slopes less than 15 percent. In addition to the slope protection ordinance, the C-200 Conservation Zone also provides various measures to protect slopes. These regulations prohibit any damage to existing vegetation or natural ground cover unless sound engineering, design, construction, or other forms of ground stabilization are provided. In addition, the applicant must show that erosion, siltation, or other soil displacement has been prevented through sound engineering, design, and construction practices. However, these regulations are not completely consistent with the RMP's requirements for how to identify and protect steep slopes, in that they do not consider depth-to-bedrock, erosion susceptibility, forested areas, or soil capability class. ***Therefore, the Township will need to revise its land use regulations 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 and require low impact development best management practices related to steep slope areas.***

d. Critical Habitats

Goals, Policies, & Objectives

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, Significant Natural Areas, and Certified Vernal Pools Maps, respectively.

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 in a 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.

RMP Analysis

The accompanying Critical Wildlife Habitat Map and Significant Natural Areas and Vernal Pools Map identify the locations of these natural resources within Mahwah Township. As shown on the Critical Wildlife Habitat Map, critical habitat areas occupy almost the entire Preservation Area, with the exception of a few parcels. The critical habitat areas located in the Planning Area essentially correspond with the locations of the Highlands Open Waters. The Significant Natural Areas and Vernal Pools Map shows that there are three significant natural areas and one vernal pool, all located in the Preservation Area. However, there is a portion of a significant natural area that extends slightly into the Planning Area. One of the identified significant natural areas is preserved open space while the remaining two are almost entirely preserved open space, with small portions continuing into the adjacent R-40 and C-200 residential zones. The vernal pool, identified on the map, is located on both preserved open space and in the C-200 Conservation zone.

Mahwah Township Plans and Regulations

The Township's NRI provides an extensive inventory, in both text and map form, of the endangered species, high value habitats, and unique natural areas within Mahwah. Using data gathered from the Natural Heritage Database, the Township compiled comprehensive information on rare plants, animals, and natural communities. The Natural Heritage Program also provided maps that delineated general areas where the Township's rare plants, animals, and natural communities have been precisely located or located within 1.5 miles. These maps are generally consistent with those areas identified in the RMP however they are not as site specific. In addition the NRI does not define and differentiate between critical habitat and significant natural areas nor does it identify or address vernal pools. ***Therefore, the NRI will need to be revised to reflect the locations and descriptions of Critical Wildlife Habitat, Significant Natural Areas, and Vernal Pools, as contained in the RMP.***

Mahwah's 1989 Master Plan contains language that suggests that if any development is proposed where a threatened or endangered species has been located, every effort should be made to protect the species according to state guidelines, however the plan does not contain language or information on vernal pools. The recent 2007 Reexamination Report also does not contain any language on critical habitat areas, significant natural areas or vernal pools. ***In order to achieve consistency the Township will need to revise its master plan. First, it must prepare and adopt a Conservation Plan Element that incorporates the relevant goals, policies, and objectives contained in the RMP. In addition, 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 only address critical habitats to a limited extent. The site plan review regulations at Section 22-5.3 stipulate that should an application require an Environmental Impact Statement, an

inventory and assessment of existing environmental conditions on the site and surrounding region including wildlife, aquatic organisms, ecology, and vegetation amongst other things, should be provided. The Township's stormwater regulations also include a provision at Section 29-4, stipulating that stormwater measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the NJDEP's Landscape Project or Natural Heritage Database, particularly the swamp pink plant species and/or the bog turtle. ***To be consistent with the RMP, 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

Goals, Policies, & Objectives

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 that effect the Township 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 areas are identified spatially on the Special Environmental Zone 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.

RMP Analysis

As shown in the accompanying Preserved Lands Map, Mahwah has numerous parcels preserved from future development. A majority of the preserved lands identified by the Council in the Preservation Area are publicly-owned by the State, County, or Township, with various parcels owned by non-profit/private agencies, and private landowners. In addition, there are also municipally-owned preserved open-space lands, preserved farmland, and County-owned land located throughout the Planning Area. As part of Plan Conformance Module 1 (Current Municipal Conditions & Build-Out Analysis), the Township is currently reviewing, along with the Highlands Staff, the accuracy of the data contained in this module, and it appears that changes may be necessary; however as this has been a continuing effort, the submitted data has not yet been approved by the Council and therefore its accuracy is still uncertain. . 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 Maps. In the accompanying Conservation Priority Area Map, the Highlands Council has designated a number of areas, in both the Planning and Preservation Areas, as having moderate conservation priority or high conservation priority. The majority of areas with a high conservation priority are located in the Preservation Area, particularly those lands zoned for low-density residential. The map also designates seven parcels in the Preservation Area as a Special Environmental Zone, one of which was recently purchased by the County in 2008. The remaining parcels are privately owned and the majority of these parcels have limited access and are remotely situated. ***The Township, with the assistance of the Highlands Council, should consider acquiring these parcels through various land preservation techniques and methods, as set forth in the RMP.*** An Agricultural Priority Area Map was not included in this report because the Highlands Council did not designate any land in Mahwah Township as a priority for agricultural preservation.

Mahwah Township Plans and Regulations

The Township's NRI does not address preserved lands in Mahwah, however master plan documents contain extensive inventories of parks and preserved open space in the Township. ***Therefore, the Township must update and revise its inventory of existing and proposed preserved lands, in both text and mapping form, for inclusion into the NRI.***

Existing and proposed preservation areas are addressed in the 2000 Municipal Open Space and Recreation Plan Element, the 1989 Master Plan, and the 1995, 2001, & 2007 Reexamination Reports. While the 2000 Municipal Open Space and Recreation Plan Element is extensive, its main focus is on obtaining lands for active recreational facilities and purposes and for the most part, addresses only those lands owned by the Township. The 1989 Master Plan provides more in-depth information on all preserved lands within the Township. The plan particularly specifies that additional lands within the Ramapo Mountain Conservation area should be acquired as this area includes distinctive environmentally sensitive lands and water resources. It further supports the concept of a contiguous parkland system regardless of the form of ownership and recommends that wherever possible, the Governing Body should set aside lands for recreational purposes. In order to bring the Township's master plan documents into conformance with the RMP, several things need to be done. ***First, the Township must update and revise its inventory of existing and proposed preserved lands, for inclusion into the NRI and***

the Open Space Element and to ensure that it is up-to-date and consistent with the RMP maps. If necessary, the Township should submit additional RMP Updates to the Highlands Council. Additionally, the Township must amend its Open Space Plan Element to incorporate the relevant goals, policies, and objectives contained in the RMP, as well as to include land stewardship strategies, which are presently lacking in the Township's master plan documents. 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 next chapter of this report.

The Township's land use regulations permit clustering in the PRD-4 and PRD-6 residential zones and require that each Planned Residential Development contain, at a minimum, 20 percent of its total land area in planned residential open space. It further dictates that if the designated open space area is to be retained by private interests, than an easement must be filed or the applicant must specify any reversionary interests in a deed or other similar document to confirm the intended use and function of the area, thereby preserving the open space set-aside in perpetuity. The purpose of the open space must be for any of the following uses: undeveloped open spaces; public or private recreation facilities; schools, libraries and other similar municipal uses; water or sewer improvements; or any similar dedication allowed by the zoning ordinance. The Township's land use regulations also include provisions regarding the maintenance and dedication of public open space for recreational or conservational uses. Section 22-10 indicates that where an open space program is proposed, the Township requires a developer to establish an organization for the ownership and maintenance of any open space, should the land not be dedicated to the Township or any other governmental agency. It further provides that both the established organization and open space shall remain indefinitely, regardless of sale or other similar transaction, unless another similar organization is created and maintains the original open space. ***To be consistent with the RMP, the Township must amend its land use regulations to incorporate the pertinent RMP goals, policies, and objectives set forth above, 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

Goals, Policies, & Objectives

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 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.
- 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.

Mahwah Township Plans and Regulations

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, collectively referred to as the Carbonate Rock Area. According to this mapping, Mahwah Township does not contain any Carbonate Rock Areas. Through Plan Conformance, the Township should verify this finding. If Carbonate Rock Areas are, in fact, located within the municipality, the Township should pursue an RMP Update and conform with the RMP's goals, policies, objectives and programs for carbonate rock (karst) topography.

g. Lake Management

Goals, Policies, & Objectives

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 that effect the Township 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.

RMP Analysis

The accompanying Lake Management Area Map identifies the locations of lakes greater than 10 acres in size and associated Lake Management Areas within the municipality. As shown, there are six waterbodies greater than 10 acres in the Township, which include Dator's Pond, Darlington Lake, McMillan Reservoir, Bear Swamp Lake, and Scarlet Oak Pond, each with a respective Lake Management Area. In addition, there is a Lake Management Area in the Township that is associated with Potake Pond, located in neighboring Ringwood Borough. All of Mahwah's lakes and Lake Management Areas, except for Darlington Lake, are located in the Preservation Area. Furthermore, Darlington Lake, Dator's Pond, and the outlying regions of Scarlet Oak Pond's Lake Management Areas are also located within a Lake Community Sub-Zone. It should be noted that several of the lakes and Lake Management Areas, identified in the respective map, are located on County or State- owned lands.

Mahwah Township Plans and Regulations

The Township's NRI does not explicitly discuss the Township's waterbodies, as included in the Lake Management Area Map, with the exception of Bear Swamp Lake. However, the NRI only discusses Bear Swamp Lake in relation to the Township's various wetland types. Additionally, the NRI discusses the location of flood prone areas, and includes those areas along the Ramapo River and its tributaries yet does not specifically identify any other waterbodies. ***Therefore, the NRI will need to be revised to reflect the locations and descriptions of the Lake Management Areas, as contained in the RMP.***

The Township's master plan documents address lakes and their surrounding areas to some extent, with greater detail paid to those associated with more active recreational purposes. The 1989 Master Plan supports the concept of preserving and enhancing recreation and open space within the Township's border, especially the areas adjoining and within the Ramapo Mountain Conservation area, where three of the identified lakes and Lake Management Areas are located. The 1989 Plan also discusses establishing stream buffers to protect trout producing water, which includes several of the identified lakes. Both the 1989 Master Plan and the 2007 Reexamination Report include preserving and obtaining active recreational facilities, including Darlington Lake as a primary objective.

The Stormwater Management Plan Element contains an inventory, in both map and text form, of the Township's waterbodies. It should be noted that four of the lakes identified in the RMP were not included, as the Management Plan only included major waterbodies. Additionally, it includes general goals and recommendations for the minimization of pollutants in stormwater and wastewater runoff from various sources. ***In order to achieve consistency with the RMP, the Township must first prepare a Conservation Plan Element, which incorporates the relevant goals, policies, and objectives contained in the RMP and set forth above. The Township will also need to develop and adopt lake restoration plans for each of the Township's developed lakes that have been identified as impaired waterways. These may be included in the Conservation Plan Element.***

The Township's land use regulations do not explicitly address lake management practices however the Township's regulations discuss best management practices for flood hazard areas and stormwater control. As noted above regarding Mahwah's Stormwater Management Plan, the stormwater management regulations contain standards for the minimization of pollutant sources, either over land or through groundwater, however these standards do not contain the specific requirements contained in the RMP. However if any of the lakes or Lake Management Areas are located in the flood plain zone or flood hazard area than those lakes must abide by the respective zoning regulations, as discussed in the aforementioned subsection b, *Highlands Open Waters and Riparian Area*. As stated previously, the majority of the lakes and Lake Management Areas, with the exception of Darlington Lake and its respective Lake Management Area, are located in the Public Open Space zone and the C-200 Conservation zone, wherein development is severely, if not completely limited. In addition, the Conservation Zone district has particular pollution control regulations that require adequate proof be given to the Township's Planning Board, Engineer, and Environmental Commission if surface or groundwater located in that zone has been polluted or degraded in any way. ***As such, The Township will have to modify land use regulations with regard to Darlington Lake and the immediately surrounding area to ensure compliance with the relevant goals, policies, and objectives of the RMP. Furthermore, the Township must amend its land use regulations to include the lake management tiers as a possible overlay zone and 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 include the applicable performance and development standards set forth in the RMP's goals, policies and objectives.

h. Water Resources Availability

Goals, Policies, & Objectives

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. Groundwater availability was determined using stream flow information, with thresholds based upon the predominant Land Use Capability Zone for each HUC14 subwatershed. This is shown in the Net Water Availability by HUC14 Map. Where Net Water Availability is positive, it is assumed there is water available beyond the existing demand. Where net water availability is negative, the subwatershed is deemed a Current Deficit Area, meaning existing uses are 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 map represents upper capacity thresholds based on current demands of water resources in the Highlands region.

The RMP goals, policies and objectives relating to Water Resources Availability that effect Mahwah Township's planning program 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 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 a

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 area wide 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.

RMP Analysis

As shown in the accompanying Net Water Availability by HUC14 Map, only the southeastern portion of the Township (Ho-Ho-Kus Brook, north of Godwin Ave subwatershed) is considered to have positive net water availability. The remaining portions of Mahwah Township have negative net water availability and are therefore considered Current Deficient Areas. Three subwatersheds have the most severe deficit (-7.10 to -1.00 MGD); one subwatershed is located almost entirely within the Preservation Area, while two are split between both the Preservation and Planning Areas.

The accompanying Land Use Capability Water Availability Map displays net water available if conditional availability were granted in the Township's Current Deficit Area. The Map shows that nine of the ten Current Deficit Area subwatersheds are assigned a conditional net water availability of 0.00 to 0.01 MGD, with the remaining Current Deficit Area, the Wanaque Reservoir subwatershed (located in the northwestern portion of the Township), having a conditional net water availability of 0.01 to 0.05 MGD.

Mahwah Township Plans and Regulations

The Township's NRI discusses groundwater availability in great detail in the geology/bedrock section. The NRI identifies that the amount and availability of groundwater is determined by the character of the bedrock geology and the present physiographic provinces. It further discusses the presence of groundwater in iron mines located in the Highlands region and maintains that mines which cut important fault fissures encounter large volumes of water. The NRI further discusses the difficulties of drilling wells in the Township and concludes that it is exceedingly becoming more difficult to find an adequate supply of water; however some portions of the region that consist of glacial deposits, produce flowing wells of high volume and are favorable for the accumulation of large supplies of water under considerable pressure. However, the NRI does not address, in either text or mapped form, the availability of water resources in the Township, as required for Plan Conformance. ***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.***

The Township's 1989 master plan addresses the Township's water resource availability as it relates to the water distribution system. It further discusses the Township's maximum monthly allowable withdrawal rate, demand, peak demand periods, and production capacity. The plan also recommends that consideration be given in the future to develop a surface water supply facility to provide the Township with an alternative water source and that consideration be given to Silver Lake. Additionally, the Plan noted that a petition to the Environmental Protection Agency was pending to establish the Ramapo Valley Aquifer as a Sole Source Aquifer, which has since been granted. While the master plan documents contain valuable information regarding the Township's water supply system, they do not address water resources availability as 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 contained in the RMP. As such, the Land Use Element will need to be revised to assign density/intensity of development standards in accordance with the pertinent goals, policies, and objectives in the RMP. Perhaps most importantly, the Township will need to develop Water Use and Conservation Management Plans for all subwatersheds that will set properties 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). These plans may be incorporated with the Conservation Plan Element.***

The Township's land use regulations address water resources availability in that those development applications required to submit an Environmental Impact Statement (EIS) are required to evaluate and provide an assessment of the impacts that the proposed development will have on the Township's water supply and is to specifically include water table levels and percolation test results. Although these represent important actions taken within the Township's planning program, 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 subwatersheds, including the criteria for prioritizing and assigning conditional water availability based on Land Use Capability Zones, as set forth in the RMP. 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

Goals, Policies, & Objectives

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.

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.

RMP Analysis

The associated Prime Ground Water Recharge Areas Map displays the areas within Mahwah Township that have the highest recharge rates, based on soil, precipitation, land cover and other factors. As depicted, the areas defined as Prime Groundwater Recharge Areas in Mahwah, according to the RMP, generally correspond with the undeveloped, preserved open space portions of the Township as well as other relatively less developed areas. The map also shows that Prime Ground Water Recharge Areas are located in the more heavily developed areas of the Township particularly in the northeast and southeast portions of the Township.

Mahwah Township Plans and Regulations

As noted above in the water resources availability, the Township's NRI addresses groundwater with respect to the various types of bedrock in the Township. However, the NRI does not address the prime ground water recharge areas, as required for Plan Conformance. ***Therefore the Township will have to review and revise the accuracy of the RMP data as it relates to Prime Ground Water Recharge Areas, and amend the NRI to incorporate the data shown in both text and mapped form.***

The Township's 1989 Master Plan also does not go into great detail regarding the Township's Prime Ground Water Recharge Areas. As stated earlier, the Township recommends that water service not be extended into the Ramapo Mountain Conservation area and has filed a petition with the EPA to classify the Ramapo Valley Aquifer as a sole source aquifer, which has since been approved. ***Therefore, the Township will have to develop and prepare a Conservation Plan Element, which incorporates the relevant goals, policies, and objectives contained in the RMP to protect the Prime Ground Water Recharge Areas.***

The Stormwater Management Plan Element and stormwater management regulations address groundwater recharge areas in the Township. However, since they were prepared prior to the adopting of the RMP, they are not consistent with the specific goals, policies, and objectives contained in the RMP. The Stormwater Management Plan does not define Prime Ground Water Recharge Areas, as defined in the RMP, however the Plan does provide a mitigation plan for applicants who have been granted a variance or exemption from stormwater management design and performance standards. It lists general projects that can be used to address the mitigation requirement including retrofitting an existing Township- owned property to provide for additional 300,000 cubic feet of average annual ground water recharge or replacing an existing deteriorated impervious

parking lot on a Township-owned property. Additionally, it recommends that the existing driveway and access way ordinance be amended to allow the use of pervious paving materials to promote groundwater recharge and to retain water runoff to facilitate groundwater recharge by amending the Township's existing soil erosion and sediment control section. The Stormwater Management Element also includes a map of the ground water recharge areas in the Township which is similar to the RMP; however the map identifies ground water recharge areas from 0.00 – 21.17 inches per year. ***Therefore, 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 Element that incorporates the relevant goals, policies, and objective contained in the RMP. The Township must also 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.***

The Township's land use regulations require that the site and its stormwater management measures maintain 100 percent of the average annual pre-constructions groundwater recharge volume for the site or demonstrated that the increase of stormwater runoff volume from pre to post-construction for the 2-year storm is infiltrated. However, the ordinance stipulates that development in the "urban redevelopment area" is exempt from these requirements. Additionally, stormwater from areas of high pollutant loading are not to be recharged. ***Therefore, the Township will need to amend its land use regulations to protect Prime Ground Water Recharge Areas as identified in the respective map by establishing permissible uses, standards, and site design guidelines that limit development in Prime Ground Water Recharge Areas as contained in the RMP.***

j. Water Quality

Goals, Policies, & Objectives

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 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 TDML avoid increased pollutant loadings for the parameter or parameters for which a TDML is required; and the requirement that WQMPs, WMPs, or amendments demonstrated that the proposed service area will not directly or indirectly support development that would be in violation of an adopted TDML.
- 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.

RMP Analysis

As shown in the accompanying Impaired Waters Overall Assessment by HUC14 Map, the majority of the outlying subwatersheds are deemed to have impaired water quality. The accompanying Wellhead Protection Areas Map displays the locations of the Township's public water supply wells and the associated two-year, five-year, and twelve-year protection tiers. As indicated on the map, the Township contains or lies within a number of wellhead protection areas. Three of these are located in the Preservation Area while the remaining are located in the Planning Area. The Map also shows that there are portions of wellhead protection areas from nearby municipalities that extend into the Township.

Mahwah Township Plans and Regulations

Mahwah's NRI addresses water impairment in relation to the impacts associated with the construction of Route 287. Additionally, water quality is addressed with regard to steep slope protection, floodplain hazards, and the protection of wetlands; however the discussion is very limited. Furthermore, as it does not include discussion on wellhead protection areas, environmentally contaminated sites, or the overall water quality of its water bodies, the NRI is not consistent with the RMP. ***In order to achieve Plan Conformance, the Township will need to review and verify the accuracy of the data contained in the RMP as it relates to Surface Water Quality, Ground Water Quality, and Wellhead Protection Areas, and amend the NRI to incorporate this data in both text and map form.***

The Stormwater Management Plan contains similar goals, policies, and objectives as those stated in the RMP however the Stormwater Management Plan's goals are more general in nature. The Plan contains a map showing the wellhead protection areas and the associated two-year, five-year, and twelve-year protection tiers. It also includes the location of well head protection areas that are located in adjoining municipalities but whose protection areas are within the Township. The information provided in this map appears to correspond with the data in the RMP. The Plan also includes background information, goals, and design and performance recommendations for the protection of wellhead protection areas and to minimize the infiltration of pollutants into aquifers. Additionally, the Plan identifies that TMDLs have been established for the Ramapo River and Ramsey Brook and that the Township should investigate the source of the fecal coliform. Water quality problems related to flooding and stream bank erosion are also discussed in the Plan with the Cragmere section of town identified as an area with significant problems. While the Plan includes information and recommendations regarding water quality in the Township, there are not definitive policies and regulations. ***Therefore, the Township will need to provide an improved guide for water quality protection in the future by incorporating relevant TMDLs, additional water quality protection measures, well head protection, and nitrate standards as contained in the RMP. In addition, the Township will have to prepare a Conservation Element, which incorporates the relevant goals, policies, and objectives, contained in the RMP.***

The Township's land use regulations contain provisions regarding stormwater management requirements however they do not provide regulations regarding wellhead protection areas. The stormwater management regulations are similar to the RMP's goals, policies, and objectives in that they provide mitigation strategies and low impact best management practices and recommend that they be utilized to the greatest practical extent, though such strategies and practices are not required. Stormwater management measures are required to meet the erosion control, groundwater recharge, stormwater runoff quality and quantity standards as outlined at Chapter 29, Section 4 of Mahwah's land use regulations. In addition, the regulations do not allow polluted stormwater to be recharged. ***As such, the Township will need to revise its stormwater management regulations once the Highlands Council releases its model stormwater management regulations and supplement its existing regulations with the additional standards set forth in the model. The Township will also have to adopt a wellhead protection ordinance that prohibits certain uses, require hydrogeologic studies for new development and redevelopment in those areas, and require low impact development best management practices into its wellhead protection ordinance.***

The Township's land use regulations do not contain provisions relating to TMDLs and therefore are not consistent with the relevant goals, policies, and objectives contained in the RMP. The Township's regulations however do contain provisions regarding total suspended solids (TSS) reduction methods, which are required if an additional ¼ acre of impervious surface is being proposed on a development site. These management measures are designed to reduce the post-construction nutrient load of the anticipated load from the developed

site in stormwater runoff generated from the water quality design storm. There are currently no restrictions on land uses that would increase pollutant loadings to waters from which TMDLS have been adopted by the NJDEP, unless that waterway has been classified as FW1 nor are there requirements that those streams identified as impaired but lacking a TMDL avoid increased pollutant loadings. ***Therefore the Township will need to amend its land use regulations by incorporating water quality protection measures related to TMDLs, as set forth in the RMP.***

k. Public Water/Wastewater Utilities and Private Septic Systems

Goals, Policies, & Objectives

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 HPAWA waiver.
- To prohibit the creation of 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 1/2 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 and community on-site 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.

- To approve clustered development served by public water supply within the Protection Zone, the Conservation Zone, and the Environmentally-Constrained Sub-zones of the Planning Area only if the following conditions are met: development impacts are consistent with the RMP, including provision for mandatory clustering in ARAs; extension of existing public water system will occur only where the cluster development is within or adjacent to an Existing Area Served with available capacity; creation of a new public water system will occur only where such development is not within or adjacent to an Existing Area Served with available capacity; the development preserves at least 80% of the cluster project area in perpetuity for environmental protection or agricultural purposes and that the developed proportion occupies no more than 10% of the cluster project area if served by a public or community on-site wastewater system; and where the preserved land supports continued agricultural viability, requires best management practice, including development and implementation of a Farm Conservation Plan that address the protection of water and soil resources prepared by an appropriate agency and approved by the Bergen County Soil Conservation District.

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.

RMP Analysis

Both the Land Use Capability Public Community Water Systems Map and the Land Use Capability Domestic Sewerage Facilities Map show the areas within Mahwah that are currently served by potable water utilities and sewer utilizes, respectively. As shown, almost the entire Planning Area is serviced by both sewer and water facilities, while the Preservation Area has almost entirely no sewer or water service. It is noted that the Township was required, through Module 1 (Current Municipal Conditions & Build-Out Analysis), to determine the accuracy of the data contained in this module and it appears that modifications are needed; however as this has been a continuing effort with the Highlands Staff, the submitted data has not yet been approved by the Council and therefore its accuracy is still uncertain. Corrected data was submitted to the 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 modify and inform the Highlands Council of any additional areas being actively served by the water and sewer service providers.***

The Land Use Capability Septic System Yield Map identifies septic system yields by HUC14 subwatershed. The results are based on the median nitrate concentration analysis illustrated in the attached Median Nitrate Concentration by HUC14 Map. The Land Use Capability Septic System Yield Map shows that small portions

alongside Rout 287 and near the western border of the Preservation Area and Planning Area have a septic system yield of zero (0).

Mahwah Township Plans and Regulations

Mahwah contracts with the Northwest Bergen County Utilities Authority (NWBCUA) for the majority of its sewer collection and treatment, as discussed in earlier sections of this report. Therefore, Mahwah is also subject to the NWBCUA Wastewater Management Plan (WMP). Based on discussions with the NWBCUA, an updated WMP had been prepared and submitted to the New Jersey Department of Environmental Protection (NJDEP) in 2006. Since that time, the NWBCUA has been working with the NJDEP to revise its WMP to comply 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 has been resubmitted to the NJDEP and is currently awaiting approval. The Township is also served by private sewer systems and those are therefore not included in the NWBCUA's Wastewater Management Plan. ***Therefore the Township will need to prepare its own, updated 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 prepare a Utilities Plan Element, which incorporates the RMP goals, policies, and objectives relating to water and wastewater. Mahwah must also prepare land use regulations specifying where new or expanded 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.***

Mahwah currently prohibits sewer or water service extensions in the C-200 Conservation Zone, however the remaining zoning classifications have no such restrictions. Therefore the Township will need to make major changes to its regulations regarding density and intensity of development in relation to sewer or water service. 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 a site. However, the majority of Mahwah's existing serviced areas are located in the R-5, R-10, R-15, R-20, and R-40 zoning districts. With the exception of the R-40 zone, the remaining zones allow higher density development than prescribed in the RMP.

The RMP also requires non-residential development, served by public water and wastewater systems, to be designed to target a floor area ratio (FAR) of .84 for the developed part of the site. The Township's land use regulations require a floor area ratio of .40 for the OP-200 Office Park Zone, though all other non-residential zones do not have a floor area ratio requirement. Therefore the Township will have to adopt, at a minimum, the FAR supplied in the RMP. The Township's land use regulations also do not include the conditions for clustered developments as set forth in the RMP and will therefore have to adopt and implement those provisions. Additionally, the RMP requires that median nitrate concentrations in ground water be used as a basis for establishing septic system densities in the Planning Area, and that such septic system densities vary by Land Use Capability Zone; the Township's zoning regulations and planning program do not reflect this requirement. ***In order to achieve consistency with the RMP, the Township must amend its Land Use Plan Element and land use regulations to incorporate revised standards for density and intensity of development in zoning districts based on utility capacity and maximum septic system yields as well as the conditions of approval for clustered development, as set forth in the RMP. The Township will also have to revise its land use regulations to prohibit any expansion or creation of public water and sewer systems in those zones, located in the Preservation Area where that prohibition does not already exist. Additionally, the Township will need to adopt into its regulations the required use of recycled or re-used water wherever possible including for aesthetic and non-potable purposes.***

1. Agricultural Resources

Goals, Policies, & Objectives

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.

RMP Analysis

According to the Agricultural Resource Area Map in the RMP, Mahwah does not contain any such areas and therefore the map is not included in this report. It should be noted that the Township does not expect to find any Agricultural Resource Areas located within 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 Mahwah's farmland reveals that there are, in fact, no Agricultural Resources Areas, no planning program amendments would be required for Plan Conformance. ***However, it is recommended that the Township consider whether an optional Agricultural Retention/Farmland Preservation Plan Element would be appropriate.*** The Township may elect to prepare such a plan in order to acknowledge the existing preserved farms in the Township. If such a plan is prepared, it could be incorporated into the Land Preservation and Land Stewardship Plan Element.

m. Historic, Cultural, and Archaeological Resources

Goals, Policies, & Objectives

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.

RMP Analysis

The accompanying Historic Preservation Map identifies the locations of Mahwah's historic, cultural, and archaeological 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, there are several designated properties as well as two historic districts located in the Township. The majority of these properties are located in the Planning Area, particularly in the Cragmere section of the Township, which has the highest concentration of identified historic properties and has also been identified as a historic district. The remaining historic district is located in between Routes 202 and 287 and is further bounded by Darlington Avenue.

Mahwah Township Plans and Regulations

Mahwah's 1998 Historical Preservation Element includes an extensive inventory of historical, cultural, and archaeological resources. This inventory includes all sites of local significance, whereas the RMP Historic Preservation Map only contains specific properties acknowledged by the SHPO; this has not surprisingly created some discrepancies between the data. As long as the Historic Preservation Plan Element contains, at a minimum, all of the districts and properties listed on the RMP Map, then the Historic Preservation Plan will not have to be revised. For example, the Township's Historic Preservation Element does not specifically identify the two historic districts, but identifies the historic properties in them. ***Therefore, the Township must review its historic, cultural, and archeological resources inventory to ensure that it is up-to-date and, if necessary, prepare amendments to the Historic Preservation Plan Element. The Township's Historic Preservation Plan Element must also be amended to incorporate the relevant, goals, policies, and objectives contained in the RMP, as set forth above.***

The Township's land use regulations are quite thorough as they relate to historic preservation. The zoning ordinance establishes several goals and objectives that are similar to those included in the RMP. Chapter 21-6 establishes and gives authority to the Township's Historic Commission and also requires the Commission to advise the Planning Board or Board of Adjustment on any development applications pursuant to N.J.S.A 40:55D-110. Chapter 24-18.3 sets forth the criteria for historic designation and includes design guidelines to determine the compatibility of a building or structure with the buildings and places which they are visually related to. These include such measures as height, proportion of openings, the relationship of materials, texture, and color, roof shape, scale of building, rhythm of entrance and porch projections, rhythm of solids to voids on front façade, and the proportion of the building's front façade. These standards are to be used by the Commission for development applications in which an historic structure, property, or building is involved, including removal and demolitions. The Township's land use regulations are generally compatible with the goals, policies, and objectives outlined in the RMP therefore the Township will only have to slightly modify its existing regulations. ***In order to achieve Plan Conformance the Township's land use regulations will have to adopt provisions that establish minimum standards for the protection and enhancement of its historic, cultural, and archeological resources as the guidelines contained in its current land use regulations are utilized only for the Commission to consider when reviewing development applications.***

n. Scenic Resources

Goals, Policies, & Objectives

The scenic resources of the Highlands region preserve the look and character of the area and ensure that its natural beauty will remain for future generations. While scenic resources have not previously been cataloged to the same degree as historical, archaeological, and cultural resources, The Highlands Council has performed a baseline Scenic Resource Inventory as a foundation. Initially, the Council has identified 131 scenic resource areas, including national historic landmarks, publicly-owned parks, forests, and recreation areas. This baseline inventory is to be used in collaboration with agencies and local governments for further analysis.

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

- To identify and maintain an inventory of locally and regionally significant scenic resources.
- To require all applications for site plan or subdivision review to include and identify any scenic resources listed on the Scenic Resource Inventory which may be affected by the proposed development and, where the municipality has adopted scenic resource preservation regulations, comply with minimum standards for the preservation of the affected resources.
- To prepare and include a Historic, Cultural, and Scenic Resource Protection Element in municipal master plans and development regulations and update the Historical, Cultural, and Scenic Inventory through local development reviews.
- To include and adopt minimum standards for the protection and enhancement of scenic resources listed in the Highlands Scenic Resources Inventory in its development regulations.

In order to assist municipalities with the implementation of these goals, policies, and objectives, the Highlands Council will develop strategies to protect the Region's scenic resources, including model ordinances for a Ridgeline Protection Ordinance and a scenic resources protection ordinance as well as other technical guidance in support of Plan Conformance activities.

RMP Analysis

Using the Historic, Cultural, Scenic, and Archeological Technical Report, the Township has five scenic resources that are also cross-listed on the Highlands Council Recreational Inventory. Two of the scenic resources include the state-owned Ringwood State Park, mostly located in Ringwood Borough, and the Ramapo Mountain State Forest. The remaining three resources are county-owned Campgaw Mountain Reservation, Darlington County Park, and the Ramapo Mountain Reservation. Also included in the Technical Report is an inventory of abandoned mines, of which, two are located in Mahwah.

Mahwah Township Plans & Regulations

Neither the Township's NRI, nor its Historic Preservation Element, address scenic resources in Mahwah, however the 2005 Open Space and Recreation Plan includes an inventory of the aforementioned scenic resources. Because this inventory includes all open space and recreational facilities, whereas the RMP includes only those publicly-owned, there are some discrepancies between the data. ***Therefore the Township will have to review its open space inventory to ensure that it includes those resources identified by the Council and, if necessary, make amendments to both the Open Space and Recreation Plan and the Historic Preservation Element. Additionally, if the Township finds a resource not listed on the Highlands Scenic***

and Recreational Inventory, the Township can nominate a resource for evaluation by the Highlands Council. The Township must also prepare and adopt a Scenic Resource Management Plan, incorporating the relevant goals, policies, and objectives in RMP and include protection strategies for the Township's scenic features, including scenic lake management.

The Township's land use regulations do not include specific measures regarding scenic resources. However, if a development application requires submission of an environmental impact statement (EIS) a mapped inventory of all parks, recreational sites, wildlife refuges, and historic sites that will be impacted by the proposed development is required. Any detrimental impacts and steps taken to minimize those impacts are to be assessed and listed in the EIS. In addition, the scenic resources included in the Highlands Scenic Inventory are either State or County-owned and are zoned Public Open Space (POS) or C-200 Conservation Zone. While the C-200 Conservation Zone district does not explicitly prohibit development, it severely limits development. ***Therefore, in order to be consistent with the RMP, the Township may want to consider rezoning those resources in the C-200 Conservation Zone. Additionally, the Township will have to review and adopt the Highlands Council model scenic resource protection ordinance and ridgeline protection ordinance, upon release, to ensure compliance with the RMP.***

o. Transportation

Goals, Policies, & Objectives.

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.

RMP Analysis

In the accompanying Roadway Network and Transit Network Maps the major roadways and public transportation opportunities within Mahwah Township are illustrated. As shown, in the Roadway Network Map, Mahwah's major roadways include Interstate Route 287, U.S. Route 202, and New Jersey State Highway 17. Interstate Route 287 divides the Township, running in the North to South direction and intersects both U.S. Route 202 and New Jersey State Highway 17. U.S. Route 202 traverses the Township in a North to South direction, beginning in the southwestern portion of the Township and continues on in the northeastern portion entering into the State of New York. New Jersey State Highway 17 is located in the northeastern portion of the Township and continues west into the State of New York.

As shown on the Transit Network Map, the Township has one railroad station and one park and ride area. The Mahwah Train Station is served by the New Jersey Transit Main/Bergen Line, which operates from Port Jervis, New York to Hoboken. Also shown are the numerous private bus routes that provide service to Mahwah along U.S. Route 202, New Jersey State Highway 17, and other local thoroughfares.

Mahwah Township Plans and Regulations

The Township's most recent Traffic & Circulation Element was prepared in 1989 and includes an inventory of the Township's roadways, public transportation options, and recommendations for roadway extensions and improvements to the Township's bridges, railroad underpass, and traffic light signals. The Element also discusses the effect that the increase growth has had on the Mahwah's roadways. As the Traffic & Circulation Element was prepared well before the RMP, its goals, policies, and objectives do not incorporate many of the specific design-related goals, policies, and objectives contained in the RMP. However it does recommend improving safety, circulation, and protecting residential neighborhoods from the adverse affects of traffic and noise. Additionally, as the Township has changed significantly since the preparation of the 1989 Master Plan, many of the goals, policies, and objectives in the Traffic & Circulation Element are outdated. Included in the Township's NRI and as a separate section in the 1989 Master Plan, is a discussion on the effects that the completion of Interstate Route 287 has had on the Township. These include increases in the population, strains on various infrastructure systems, and environmental impacts and discussed in the previous chapter.

The 1995 Route 17 Corridor Study includes some of the goals, policies, and objectives contained in the RMP, however they are also not as specific. The Corridor Study encourages mixed use, center-oriented design concepts to lessen the traffic impact, as well as creating a unique physical environment that includes environmentally-sensitive design approaches. The Corridor Study also discusses the effects that new land use, residents, and employment opportunities would have on Route 17 and the immediately surrounding areas. While the Route 17 Corridor Study and Traffic & Circulation Element discuss some of the goals, policies, and objectives included in the RMP, the documents are several years old and do not include a majority of the policies and objectives contained in the RMP. However, the Route 17 Corridor Study contains similar policies and recommendations as those contained in the RMP. ***Therefore, in order to be consistent with the RMP, the Township will need to prepare an up-to-date Traffic & Circulation Element, which coordinates with changes to development density/intensity in the Land Use Plan Element, and addresses all of the goals, policies and objectives related to Transportation in the RMP. The Township should also continue to monitor and assess the effects that could result from road improvements and extensions.***

p. Redevelopment, Smart Growth, Housing and Community Facilities

Goals, Policies, & Objectives

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.

Mahwah Township Plans and Regulations

Redevelopment: With regard to redevelopment, the Township’s 2007 Periodic Reexamination Report states that there are no plans to designate any “areas in need of redevelopment” pursuant to the Local Redevelopment and Housing Law (LRHL). However, Highlands Redevelopment is not limited to projects that are designated as areas in need of redevelopment under the LRHL.

As discussed in the 1995 Route 17 Corridor Study, an analysis of the Route 17 corridor was prepared wherein a majority of the segments of the corridor were found to be either vacant and undeveloped or underutilized. The Study further recommended that several of the existing land use categories be modified in order to better utilize those parcels. However, the Township has not adopted the Study’s recommended zoning changes and the Land

Use Plan Element and several of these sites are still typified by a negative aesthetic image, poor circulation, and a lack of landscaping. It should be noted that a majority of the sites identified as 'Redevelopment and Infill Opportunities' in the accompanying Potential TDR Receiving Zones Map are the same as those parcels indicated in the Route 17 Corridor Study. Several of these sites not located along Route 17 are located on Franklin Turnpike which is currently the subject of detailed study that will become part of the master plan, now being prepared.

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.

Smart Growth: The Township has made significant progress in the last few years towards meeting the RMP's goals, policies and objectives related to smart growth and low impact development. In the Existing Community Zone of the Planning Area, the RMP encourages community and neighborhood-based design that incorporates and utilizes Smart Growth techniques. Such measures include, varied housing options, mixed-uses, redevelopment, adaptive re-use of historic sites and structures and in-fill development. The RMP states that new development in the Existing Community Zone should be 'center-based,' meaning that development should be compact, walkable, and include a variety of uses. As stated previously, the Route 17 Corridor Study and subsequent Reexamination Reports promote and encourage the use of such design measures and low impact development to limit disturbance of the Township's environmentally sensitive resources.

The Township also made progress with the adoption of its stormwater management regulations in 2005 and last revised in 2006, which requires, 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 these efforts have moved the Township toward consistency with the RMP, there is still much that the Township must do to ensure that its entire planning program is compatible with the RMP's goals, policies and objectives relating to smart growth and low impact development. ***For example, as part of the Land Use Plan amendment process, the Township will need to analyze the ECZ portions of the municipality to determine if there are any additional areas suitable for compact, mixed-use development and, if so, prepare master plans and development regulations encouraging their development in accordance with "center-based" design standards. Also, the Township must amend its master plan and development regulations to incorporate additional Low Impact Development and sustainable design standards, such as green architecture, reuse of existing structures, indigenous landscaping, gray water reuse, solar energy use, and LEED (Leadership in Energy and Environmental Design) certification. The Township should consult the Highlands Council's Smart Growth Manual and Community Development Design Guidebook in both of these efforts. Lastly, the Township must 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.***

Housing and Community Facilities: With regard to housing, the Township has a long history of providing for low- and moderate-income housing in accordance with the Council on Affordable Housing (COAH) regulations. As discussed in the previous chapter of this report, the Township's most recent Housing Element and Fair Share

Plan was prepared in 1995 and addressed Mahwah's second round COAH obligation. The Plan identified several different low-to-moderate developments that satisfied the Township's pre-credited need of 368 units. The Township provided a mix of rental units, senior housing, and low-and- moderate income units, as required by court order.

COAH adopted new rules in November 2004 for the implementation of their third round methodology; however these rules were subsequently determined, through litigation, to require modification. A new set of revised third round rules were adopted in 2008. Mahwah, 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 1989 in conjunction with the Master Plan. It provides an inventory of Mahwah's existing community facilities, parks and open space and recommendations for long-range improvements and preservation. The 1989 Report recommended that the Planning Board work together with the Board of Education to monitor school enrollment and class sizes on a yearly basis to determine if any additional schools were needed. It also recommended expanding its fire and ambulance corp to better serve the needs of the community. Data regarding recent additions to the Township's inventory of community facilities is currently being compiled for the Township's new master plan. ***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 document. As noted previously in this report, the Township of Mahwah 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. 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 create or supplement an existing Environmental or Natural Resources Inventory (ERI/NRI) 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.

Although Mahwah Township already has a NRI that is quite extensive, it was prepared prior to the Highlands Act and therefore does not have the range and depth required by the Highlands RMP. As part of Plan Conformance Module 4, the Highlands Council will provide municipalities with a model Highlands ERI, along with tabular data, which can be used by Mahwah to supplement its existing NRI.

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; Sustainable Economic Development; 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, or amend an existing map, if applicable.

(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. In addition, special studies prepared on behalf of the Township over the years, can be used to supplement, where necessary, the data and provisions contained in the RMP.

(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, unless an existing inventory remains current. The identification of these properties has already been done as part of Mahwah Township's Highlands Plan Conformance Module 1; they will simply need to be incorporated as part of the overall inventory.

(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.

The Township needs to determine whether an Agriculture Retention/Farmland Preservation Plan element would be appropriate for Mahwah. It does not appear that such an element would be required for Mahwah'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. Although the identification of these properties will be included as part of the ERI updates, 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) Sustainable Economic Development Plan

For the Sustainable Economic Development 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, Archeological, and Scenic Resources Inventories.

A review of the RMP indicates that a Historic Preservation Plan element is indeed required for Mahwah Township, given that it contains a number of properties listed on the Highlands Historic, Cultural, Archeological, 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). The RMP identifies a number of areas in Mahwah 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 Mahwah'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, 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. 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 section of this report, the Township of Mahwah 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.

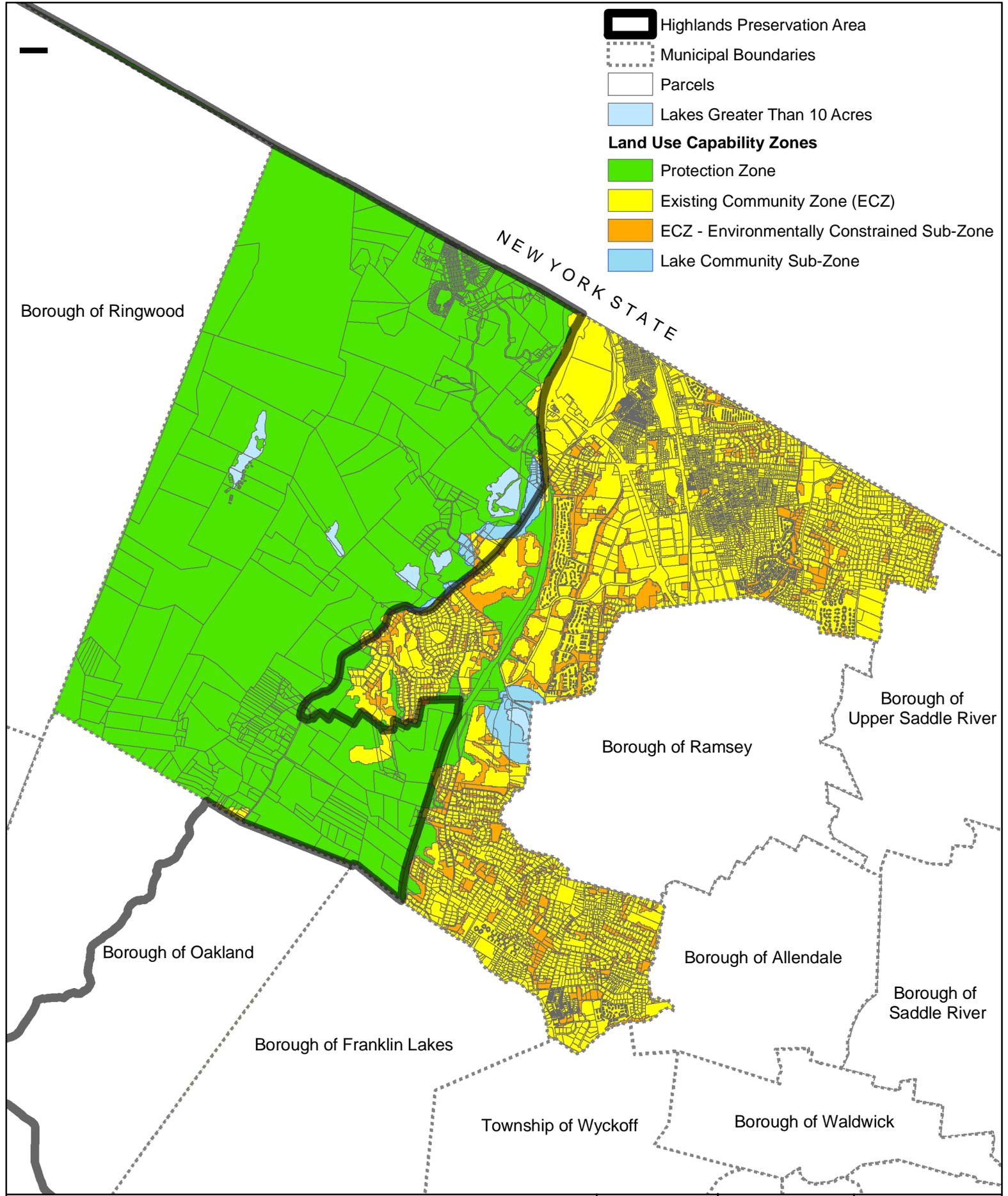
**Estimated Timeframes and Costs for Basic Plan Conformance
Township of Mahwah**

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)	\$ <u>15,000</u>	\$15,000
Conduct second step of Highlands Build-Out Analysis (Module 2) and submit to Highlands Council for review	May, 2009	\$ <u>10,000</u>	\$10,000
Prepare draft Housing Element and Fair Share Plan (Module 3) and submit to Highlands Council for review	August, 2009	\$ <u>10,000</u>	\$7,500
Prepare draft Environmental Resource Inventory (Module 4) and submit to Highlands Council for review	June 30, 2009	\$ <u>2,000</u>	\$2,000
Prepare draft Highlands Master Plan Element (Module 5) and submit to Highlands Council for review	October, 2009	\$ <u>5,000</u>	\$2,500
Prepare draft Highlands Development Regulations (Module 6) and submit to Highlands Council for review	November, 2009	\$ <u>5,000</u>	\$5,000
Adopt Housing Element and Fair Share Plan	November, 2009	\$ <u>1,000</u>	--
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	\$ <u>8,000</u>	\$8,000
Submit Petition for Substantive Certification to COAH	December 8, 2009	\$ <u>1,000</u>	--

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

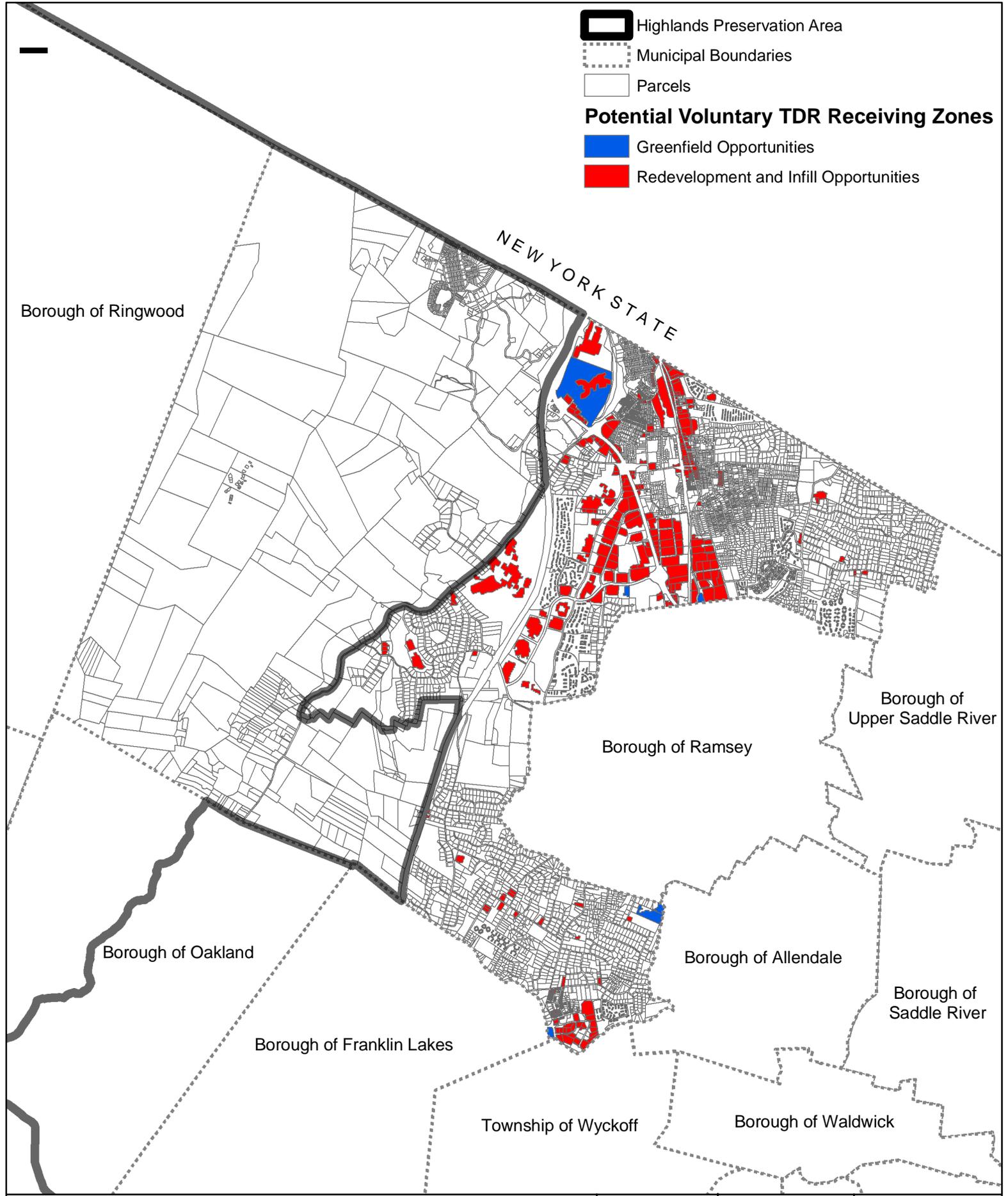
APPENDIX A-1: MAPS

Land Use Capability Zone Map
Potential Voluntary TDR Receiving Zones Map
Forest Resource Area Map
Forest Cover Integrity Map
Highlands Open Waters Map
Riparian Areas Map
Riparian Integrity by HUC14 Map
Steep Slope Protection Areas Map
Critical Wildlife Habitat Map
Significant Natural Areas and Vernal Pools Map
Preserved Lands Map
Conservation Priority 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

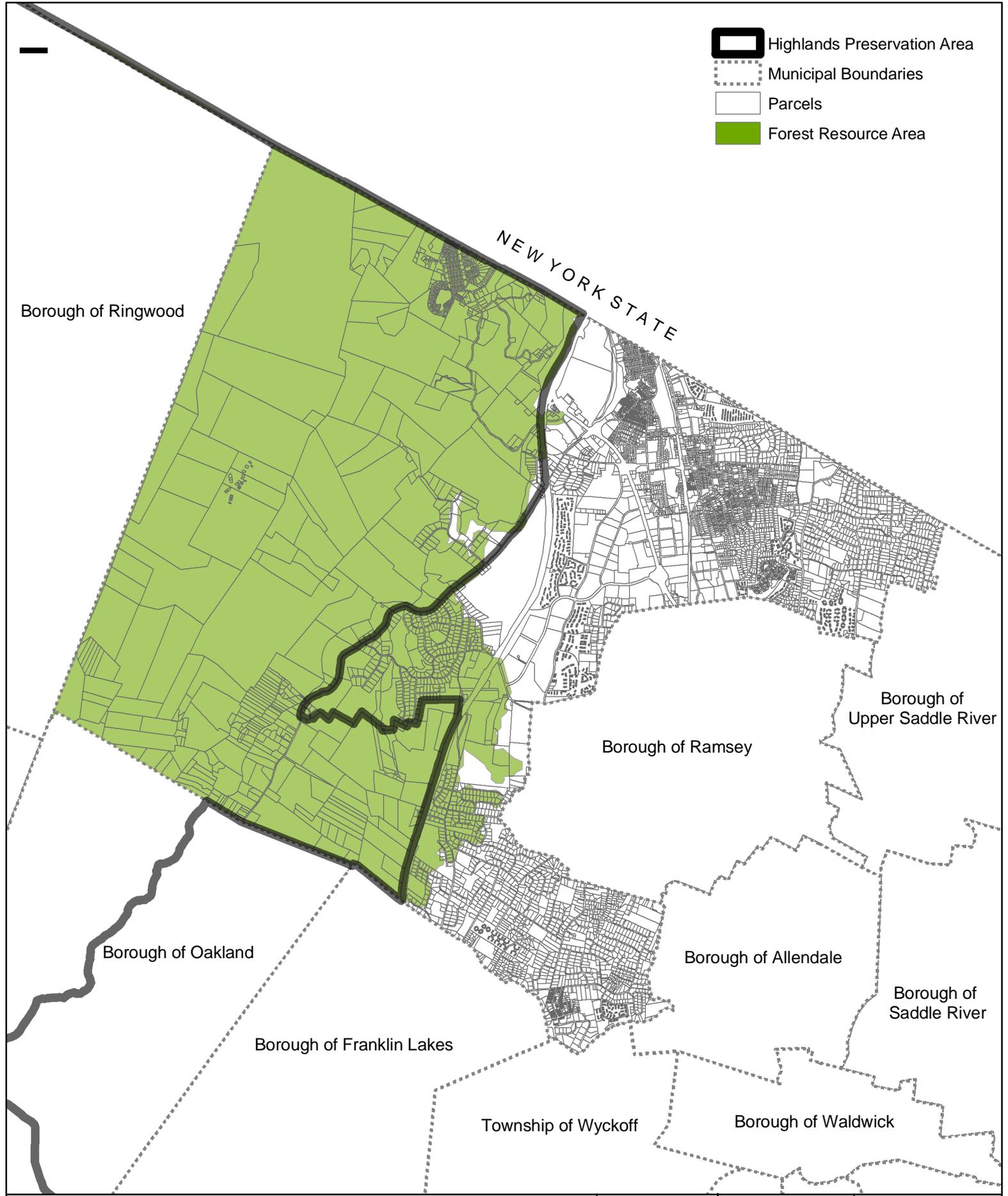


Dwg. Title Land Use Capability Zone Map		Project No. 2225.02	Dwg. Date 4/21/09	Drawn By RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title Highlands Initial Assessment Report		Dwg. Scale N.T.S.	Sheet No. 1 of 1
	TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY		Drawing No. LUCM1	
2009 COPYRIGHT BA- NOT TO BE REPRODUCED				

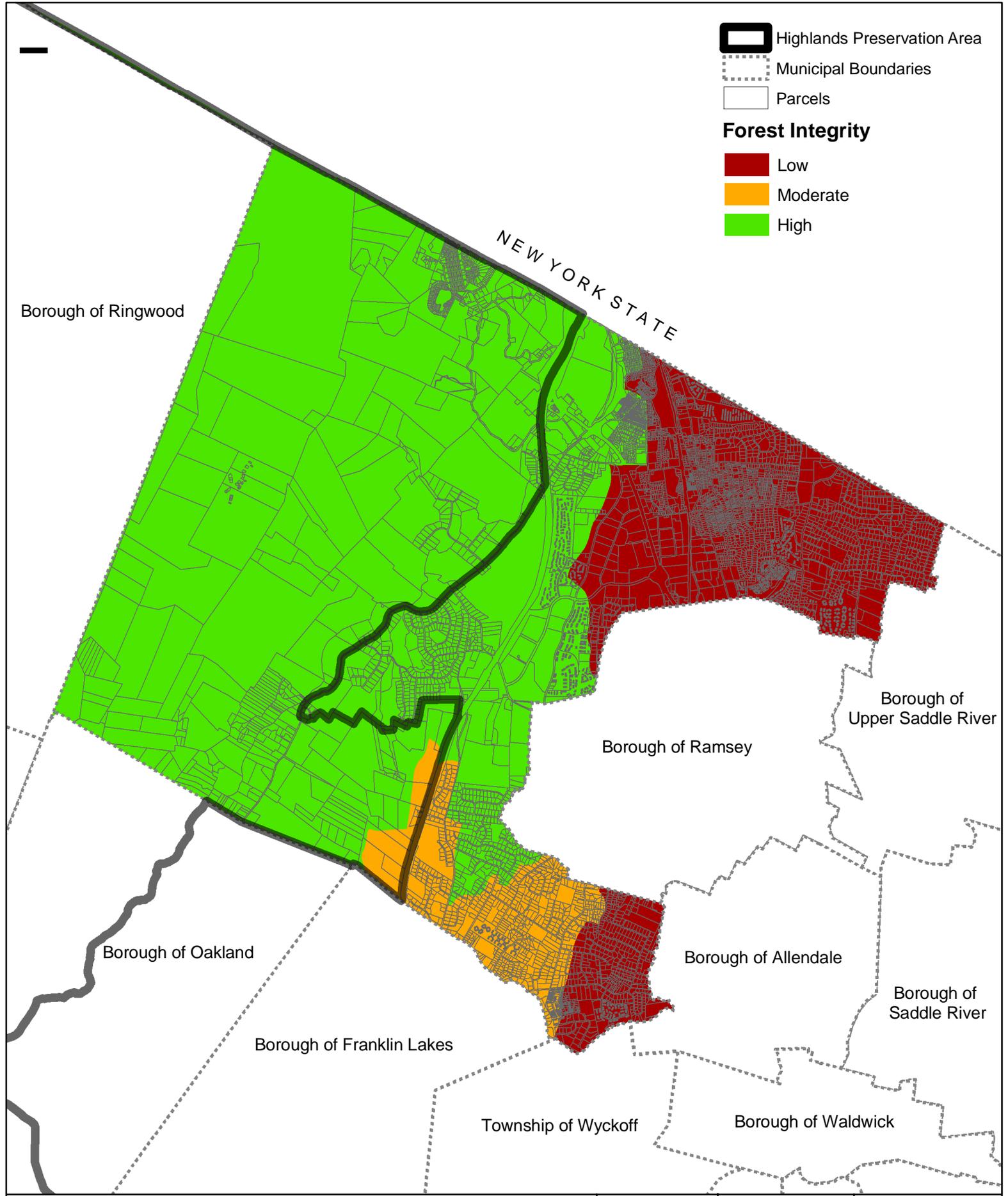
-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
- Potential Voluntary TDR Receiving Zones**
-  Greenfield Opportunities
-  Redevelopment and Infill Opportunities



Dwg. Title Potential Voluntary TDR Receiving Zones Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale N.T.S. Sheet No. 1 of 1	Drawing No. TDR



Dwg. Title Forest Resource Area Map		Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 1
	TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY		Drawing No. FRA	
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Highlands Preservation Area
 [Thick black outline] Highlands Preservation Area
 [Dotted line] Municipal Boundaries
 [Thin grey line] Parcels

Forest Integrity
 [Red box] Low
 [Orange box] Moderate
 [Green box] High

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Franklin Lakes

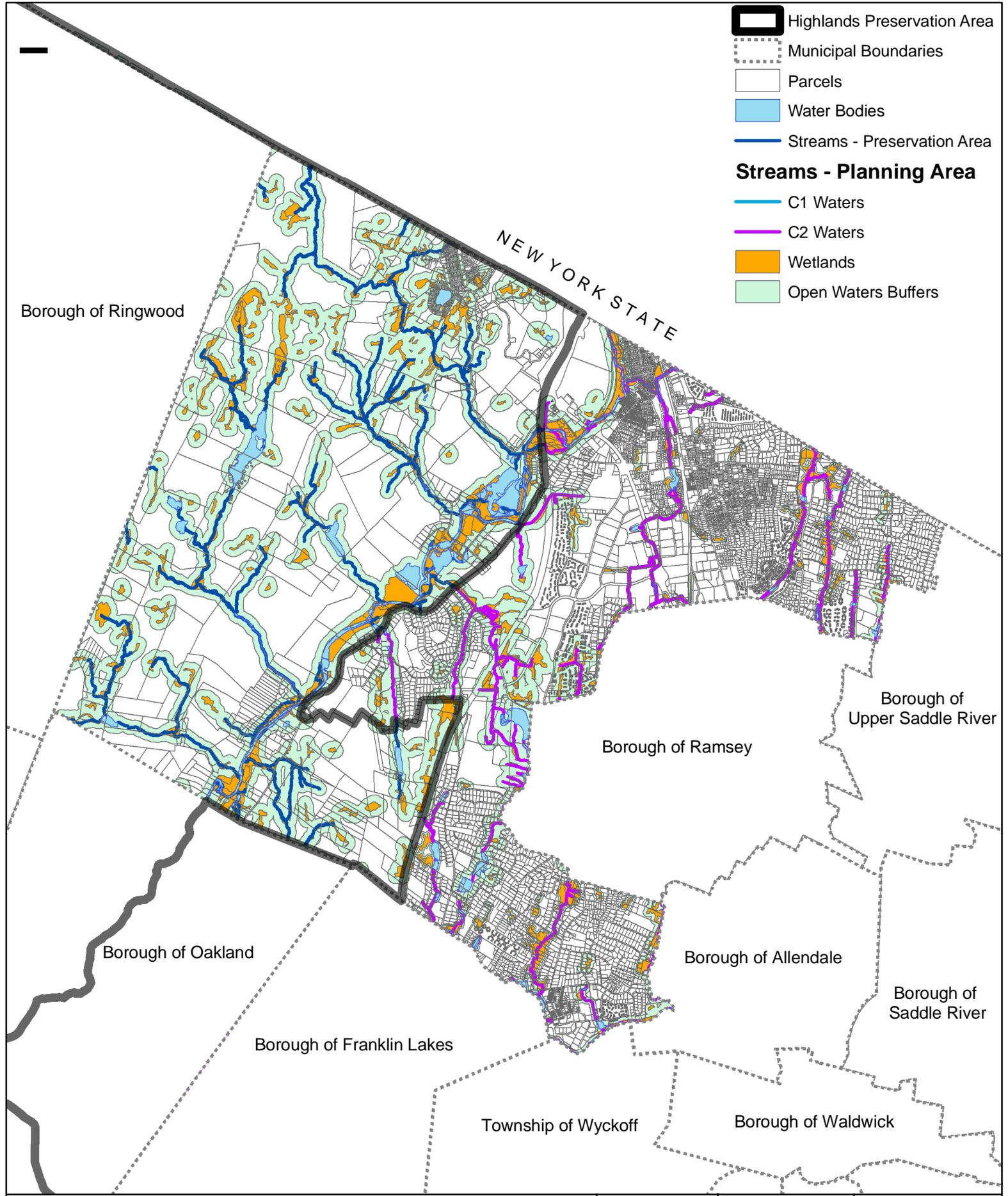
Township of Wyckoff

Borough of Allendale

Borough of Saddle River

Borough of Waldwick

Dwg. Title Forest Cover Integrity Map		Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 1
	TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY		Drawing No. FCI	
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- Highlands Preservation Area
- Municipal Boundaries
- Parcels
- Water Bodies
- Streams - Preservation Area
- Streams - Planning Area**
- C1 Waters
- C2 Waters
- Wetlands
- Open Waters Buffers

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Allendale

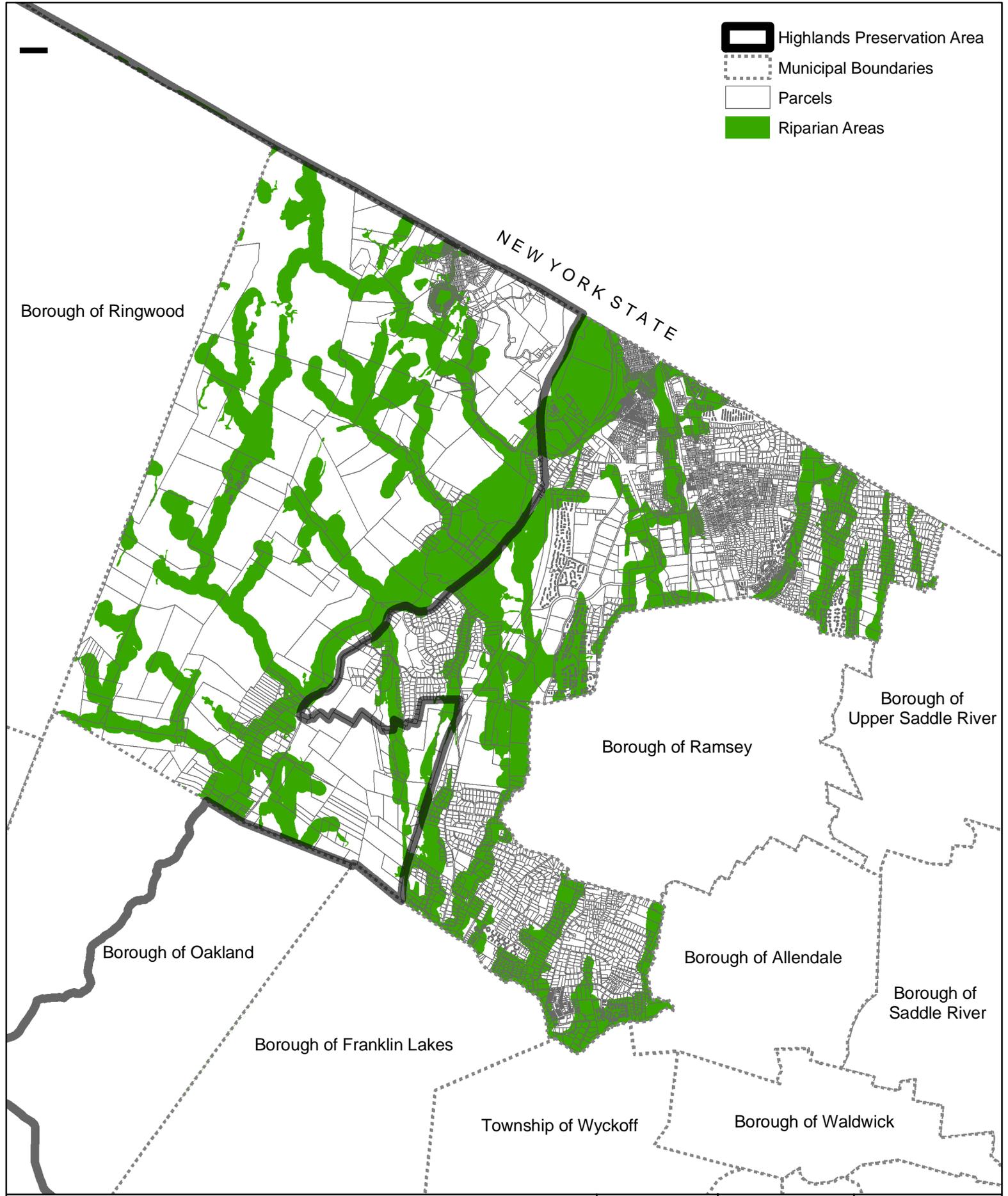
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title Highlands Open Waters Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale N.T.S.	Sheet No. 1 of 1
Drawing No. HOW		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	



-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Riparian Areas

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Allendale

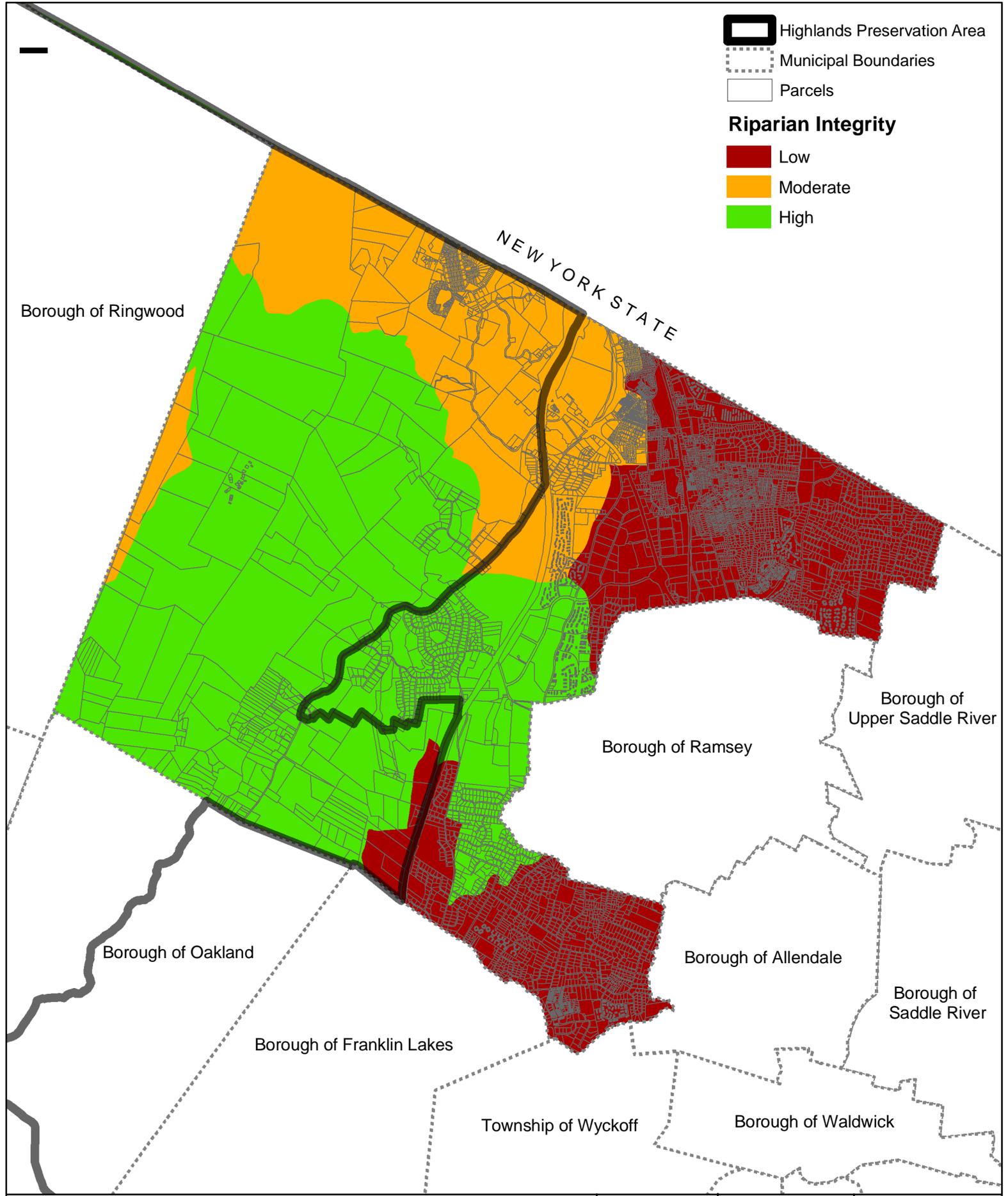
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

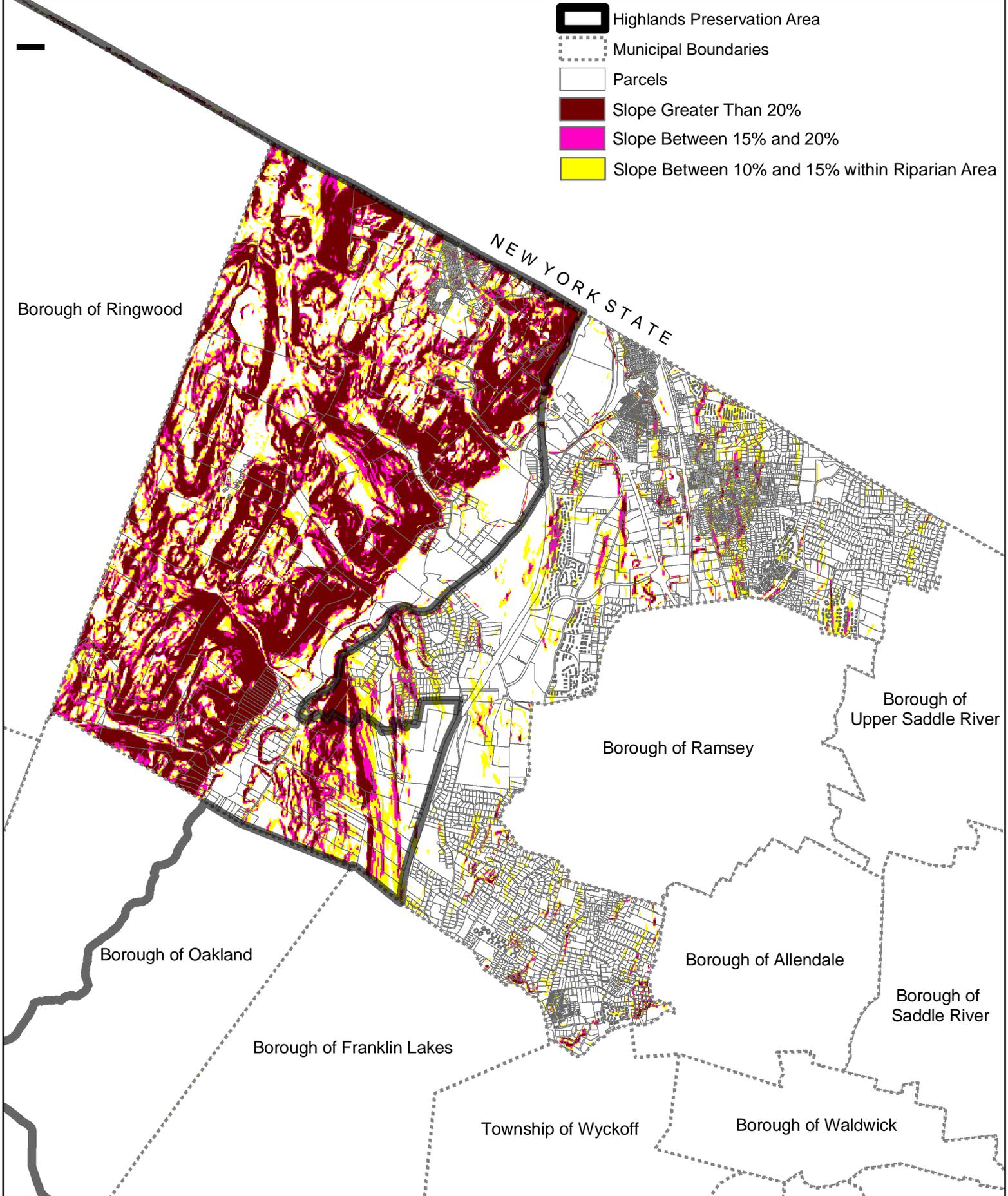
Borough of Waldwick

Dwg. Title <p style="text-align: center;">Riparian Areas Map</p>	Project No. <p style="text-align: center;">2225.02</p>	Dwg. Date <p style="text-align: center;">4/21/09</p>	Drawn By <p style="text-align: center;">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> TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale <p style="text-align: center;">N.T.S.</p>	Sheet No. <p style="text-align: center;">1 of 1</p>
2009 COPYRIGHT BA- NOT TO BE REPRODUCED			



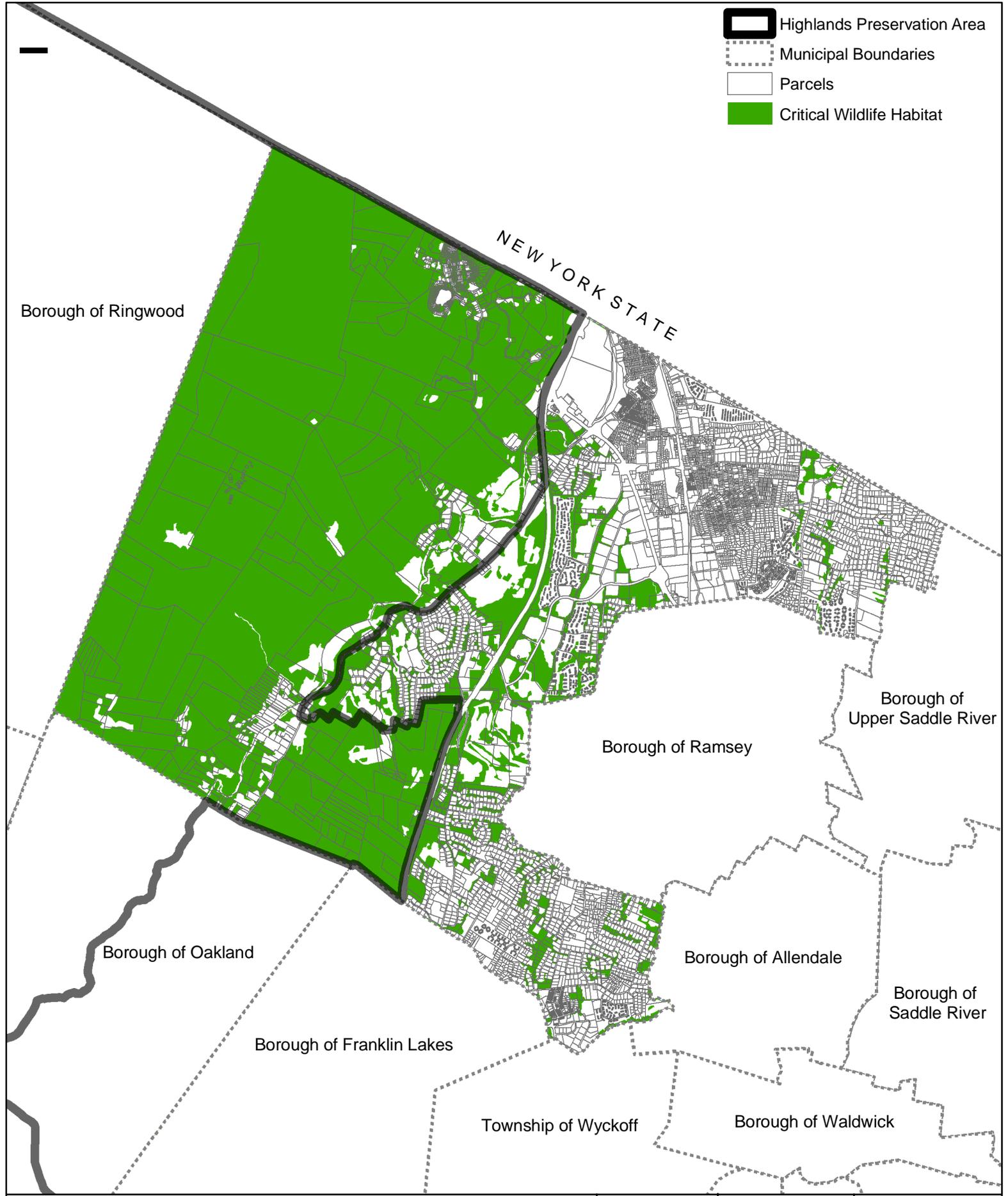
Dwg. Title Riparian Integrity by HUC14 Map		Project No. 2225.02	Dwg. Date 4/21/09	Drawn By RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title Highlands Initial Assessment Report		Dwg. Scale N.T.S.	Sheet No. 1 of 1
	TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY		Drawing No. RI	
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-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Slope Greater Than 20%
-  Slope Between 15% and 20%
-  Slope Between 10% and 15% within Riparian Area

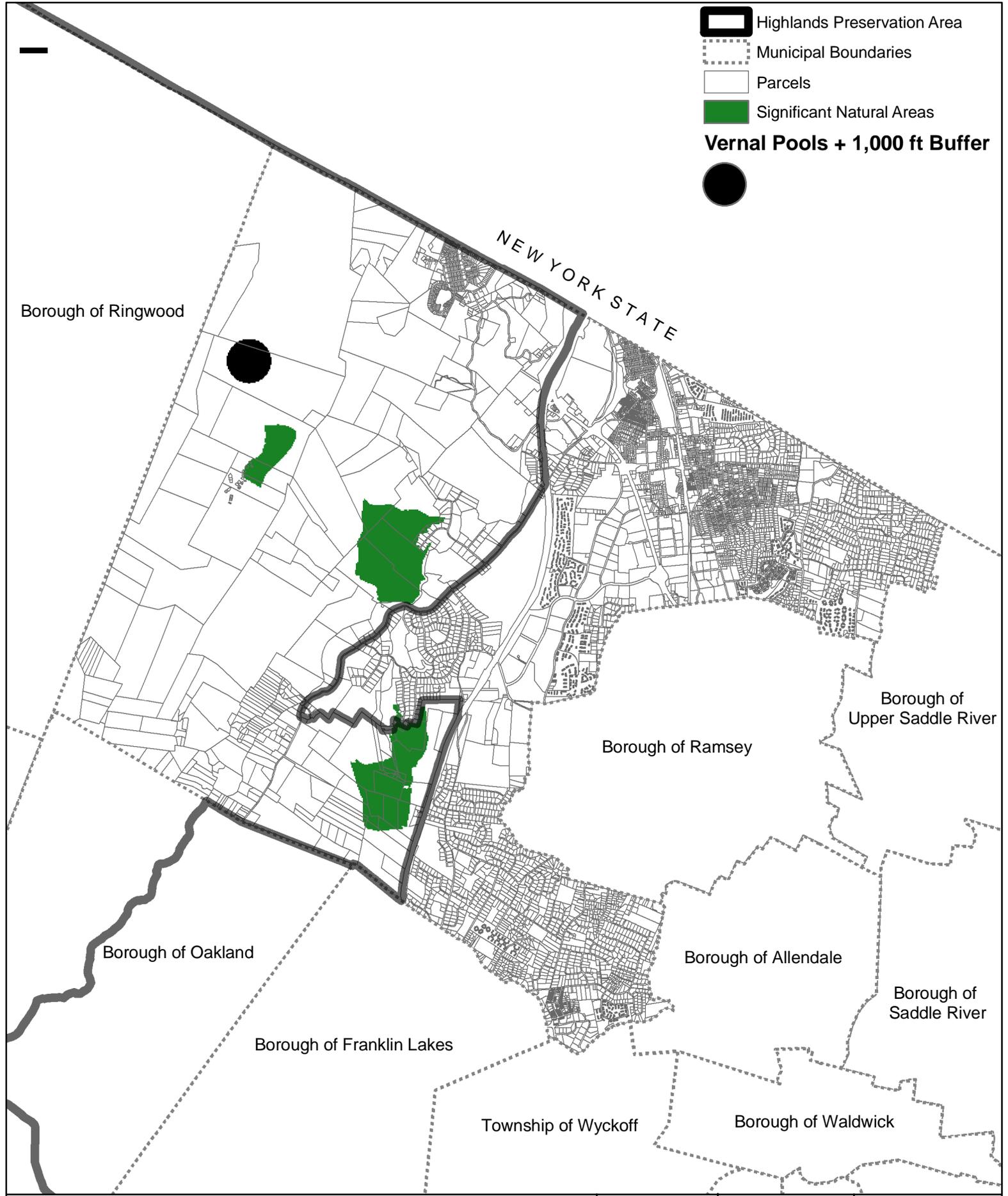


Dwg. Title <h2 style="text-align: center;">Step Slopes Protection Areas Map</h2>	Project No. <p style="text-align: center;">2225.02</p>	Dwg. Date <p style="text-align: center;">4/21/09</p>	Drawn By <p style="text-align: center;">RW</p>
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <h3 style="text-align: center;">Highlands Initial Assessment Report</h3> <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale <p style="text-align: center;">N.T.S.</p>	Sheet No. <p style="text-align: center;">1 of 1</p>
		Drawing No. <p style="text-align: center;">STEEP</p>	
2009 COPYRIGHT BA- NOT TO BE REPRODUCED			

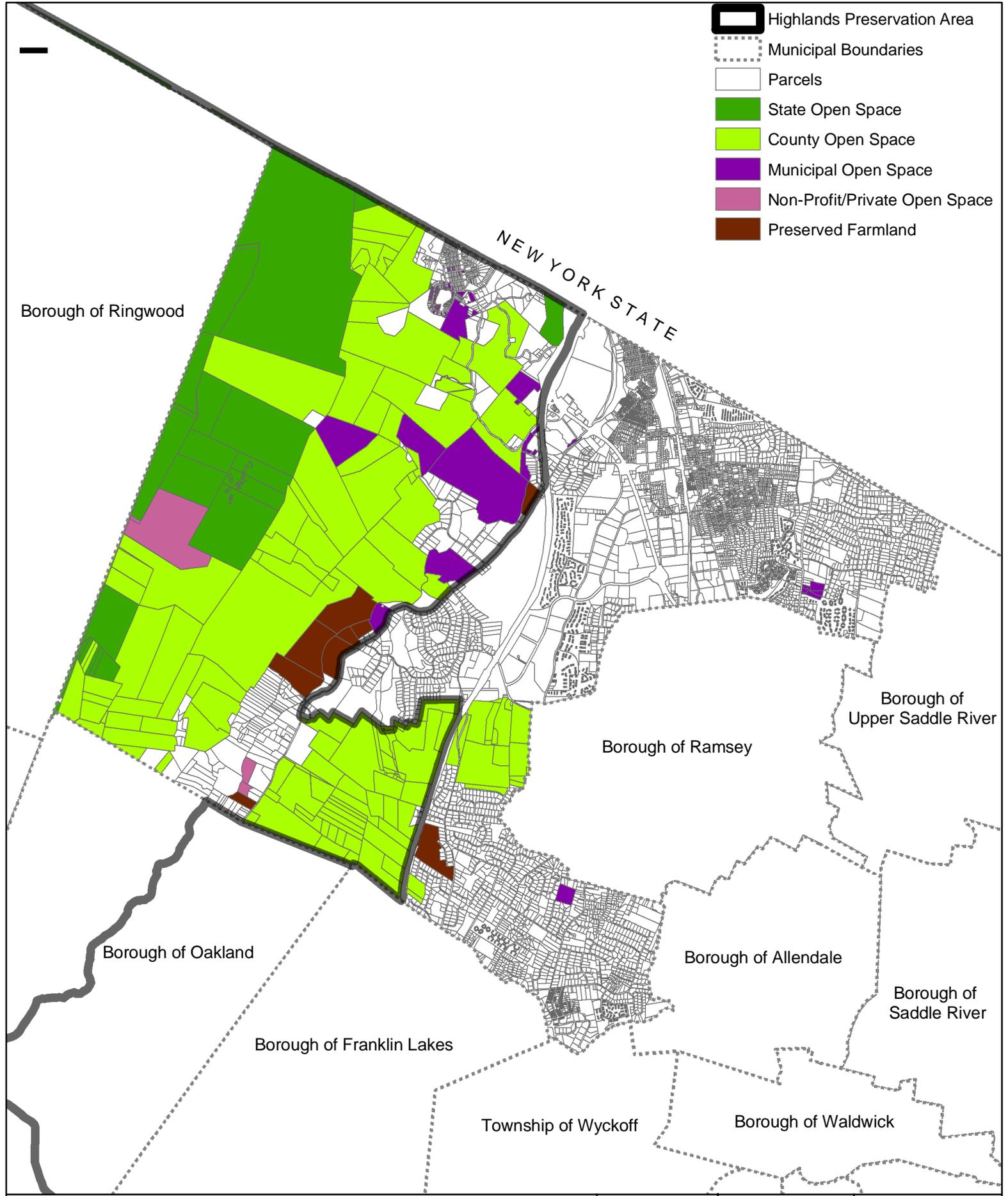
-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Critical Wildlife Habitat



Dwg. Title <h3 style="text-align: center;">Critical Wildlife Habitat Map</h3>	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <h3 style="text-align: center;">Highlands Initial Assessment Report</h3> <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale N.T.S.	Sheet No. 1 of 1 Drawing No. CWH
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Dwg. Title Significant Natural Areas and Vernal Pools Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 75 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title Highlands Initial Assessment Report TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale N.T.S. Sheet No. 1 of 1	Drawing No. SNAVPP 2009 COPYRIGHT BA- NOT TO BE REPRODUCED



-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  State Open Space
-  County Open Space
-  Municipal Open Space
-  Non-Profit/Private Open Space
-  Preserved Farmland

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Allendale

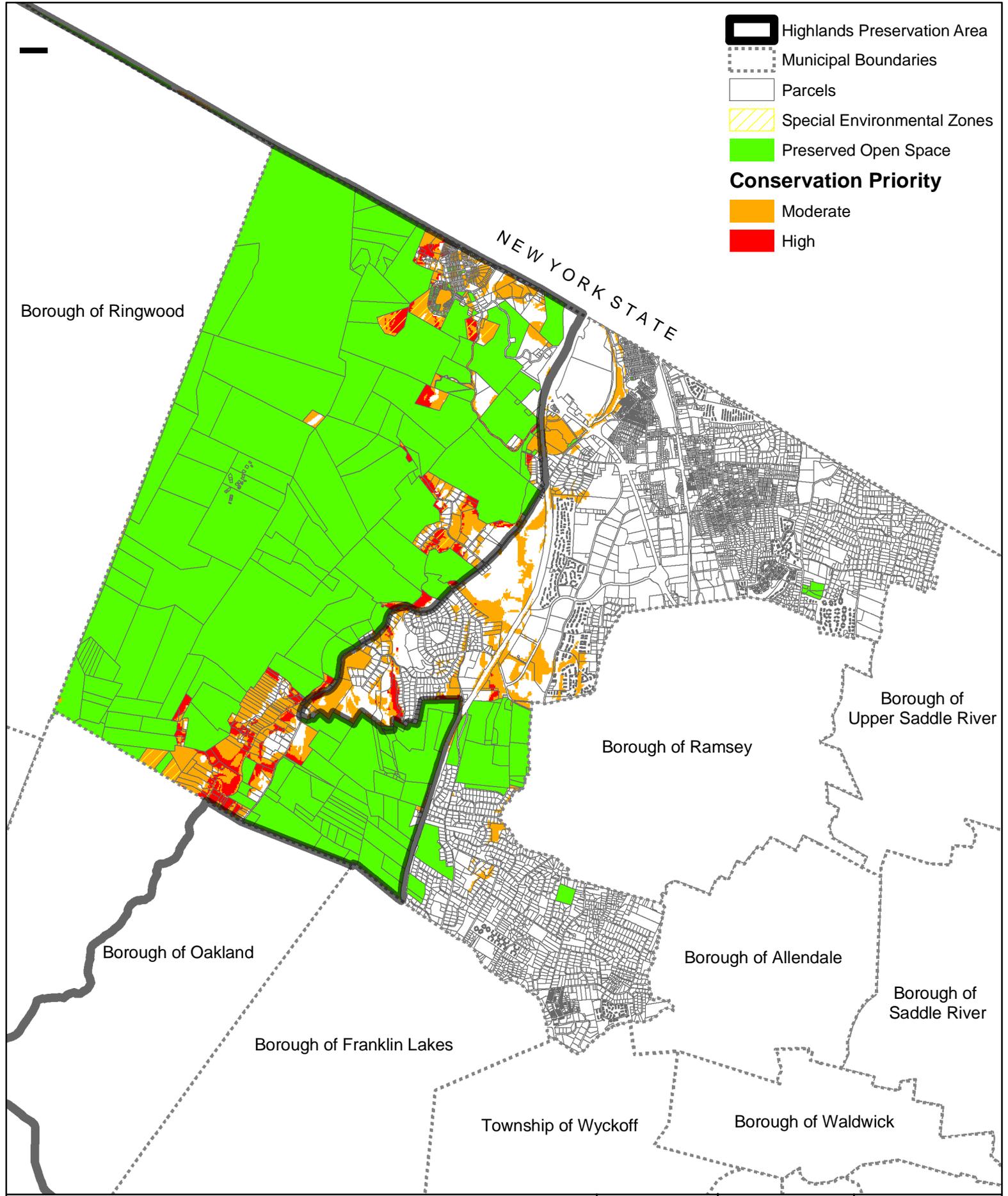
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title <p style="text-align: center;">Preserved Lands Map</p>	Project No. <p style="text-align: center;">2225.02</p>	Dwg. Date <p style="text-align: center;">4/21/09</p>	Drawn By <p style="text-align: center;">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> TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale <p style="text-align: center;">N.T.S.</p>	Sheet No. <p style="text-align: center;">1 of 1</p>
Drawing No. <p style="text-align: center;">PL</p>		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	



-  Highlands Preservation Area
 -  Municipal Boundaries
 -  Parcels
 -  Special Environmental Zones
 -  Preserved Open Space
- Conservation Priority**
-  Moderate
 -  High

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Allendale

Borough of Saddle River

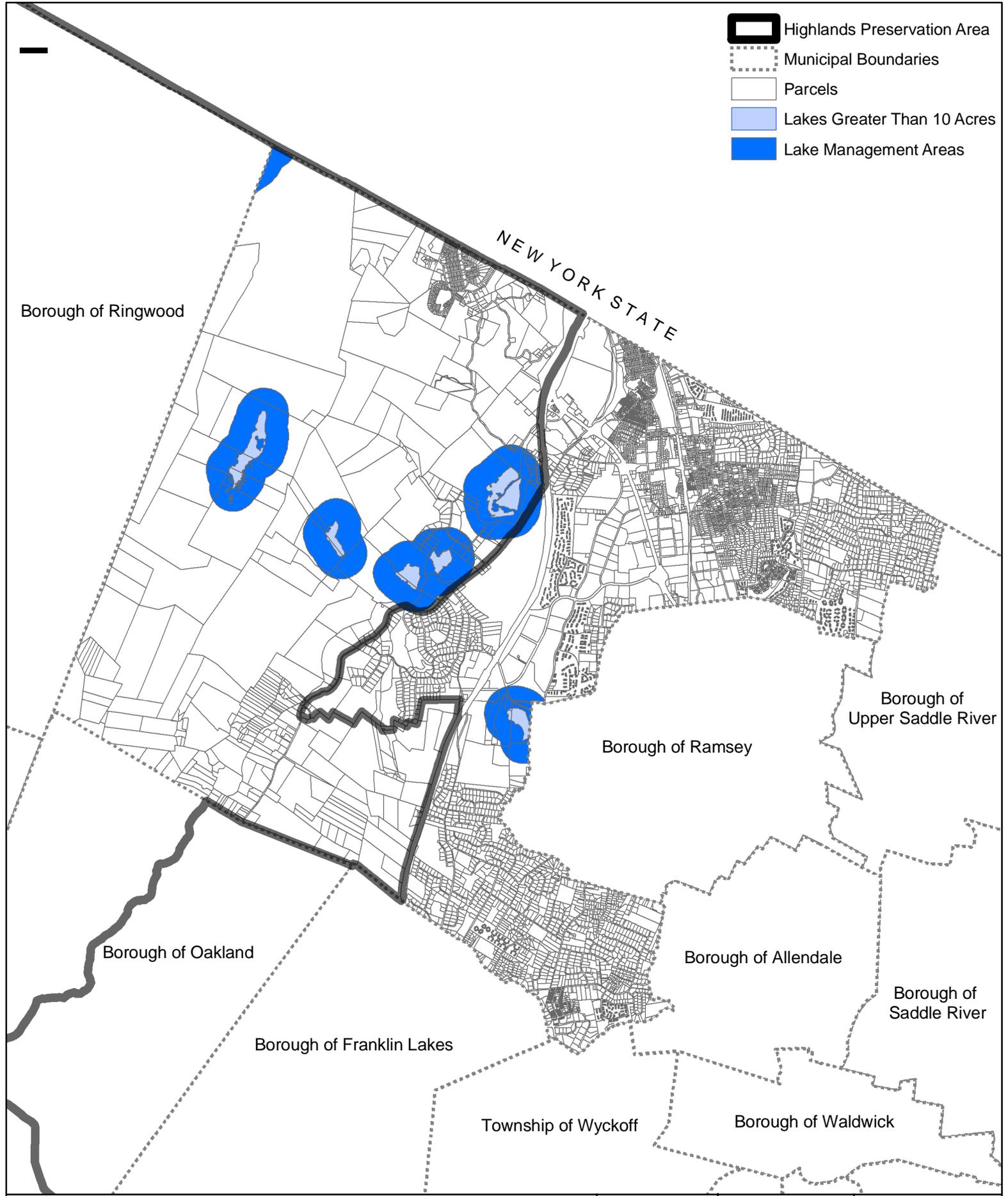
Borough of Franklin Lakes

Township of Wyckoff

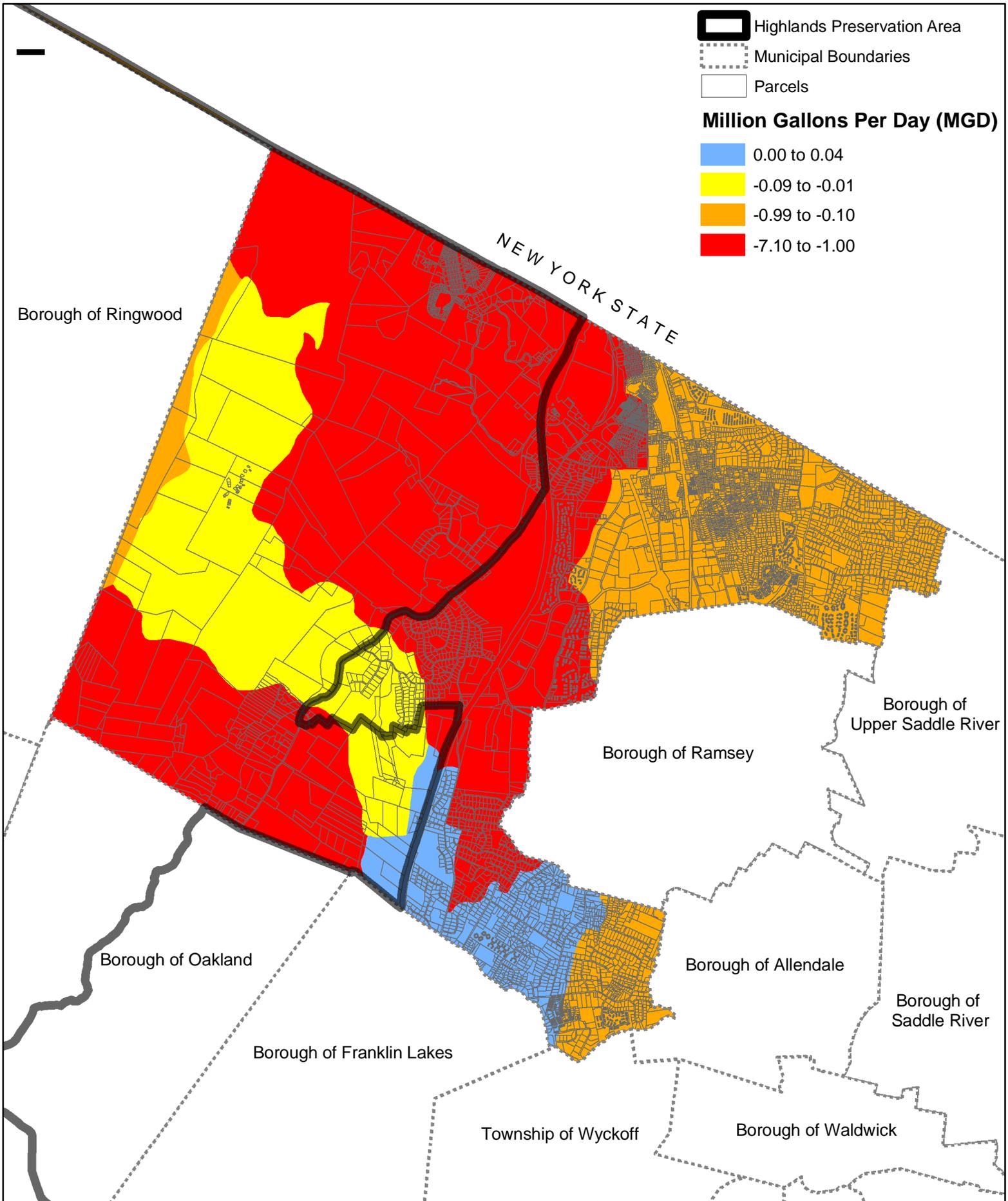
Borough of Waldwick

Dwg. Title Conservation Priority Area Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 1 of 1
Drawing No. CPA		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	

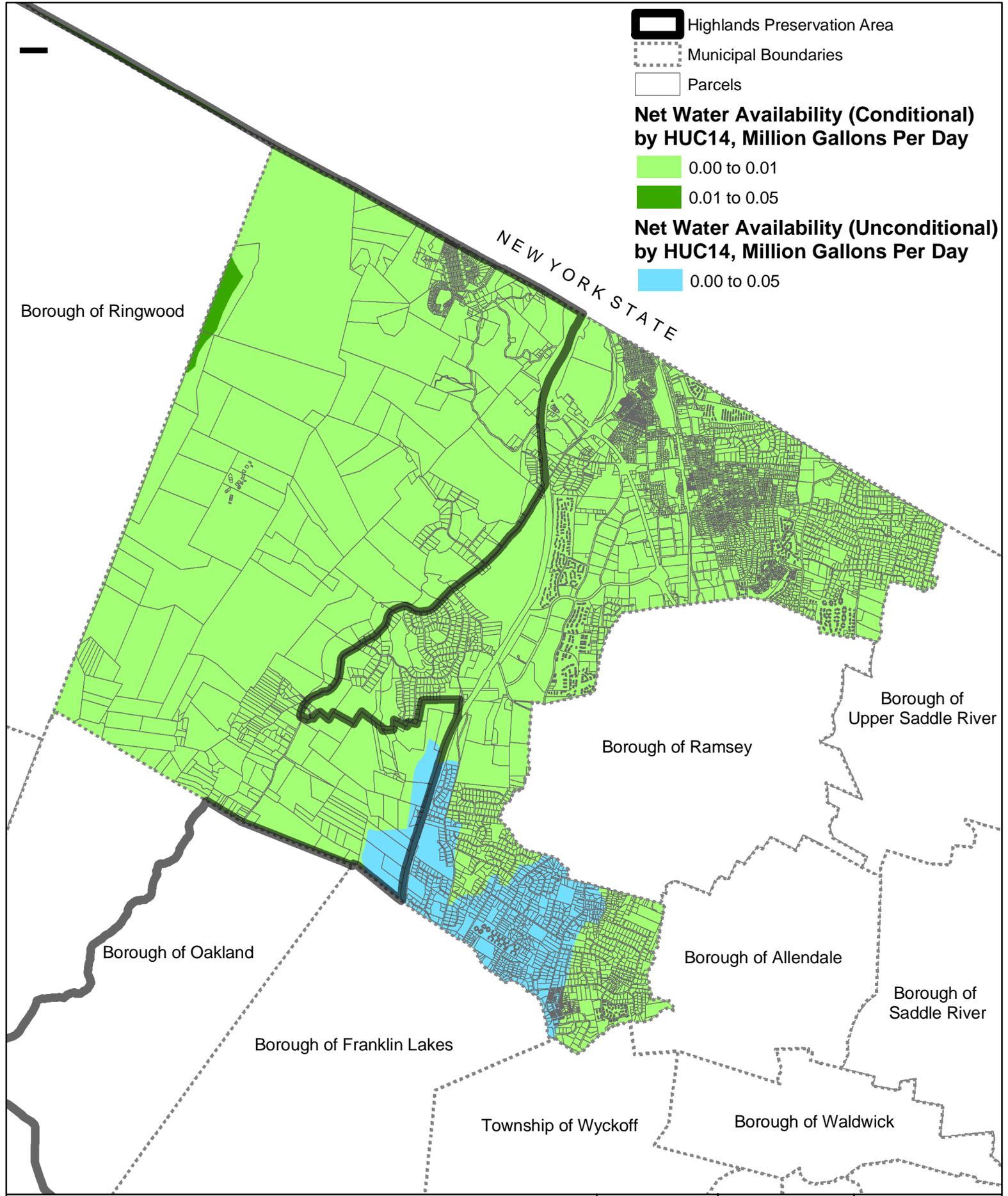
-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Lakes Greater Than 10 Acres
-  Lake Management Areas



<p>Dwg. Title</p> <p style="text-align: center;">Lake Management Area Map</p>	<p>Project No.</p> <p style="text-align: center;">2225.02</p>	<p>Dwg. Date</p> <p style="text-align: center;">4/21/09</p>	<p>Drawn By</p> <p style="text-align: center;">RW</p>
 <p>BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599</p>	<p>Project Title</p> <p style="text-align: center;">Highlands Initial Assessment Report</p> <p><small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small></p>	<p>Dwg. Scale</p> <p style="text-align: center;">N.T.S.</p>	<p>Sheet No.</p> <p style="text-align: center;">1 of 1</p> <p>Drawing No.</p> <p style="text-align: center;">LMA</p>
<p>2009 COPYRIGHT BA- NOT TO BE REPRODUCED</p>			



Dwg. Title Net Water Availability by HUC14 Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 1 of 1
Drawing No. NWA			
2009 COPYRIGHT BA- NOT TO BE REPRODUCED			



Highlands Preservation Area

Municipal Boundaries

Parcels

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

0.00 to 0.01

0.01 to 0.05

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

0.00 to 0.05

Borough of Ringwood

NEW YORK STATE

Borough of Upper Saddle River

Borough of Ramsey

Borough of Oakland

Borough of Allendale

Borough of Saddle River

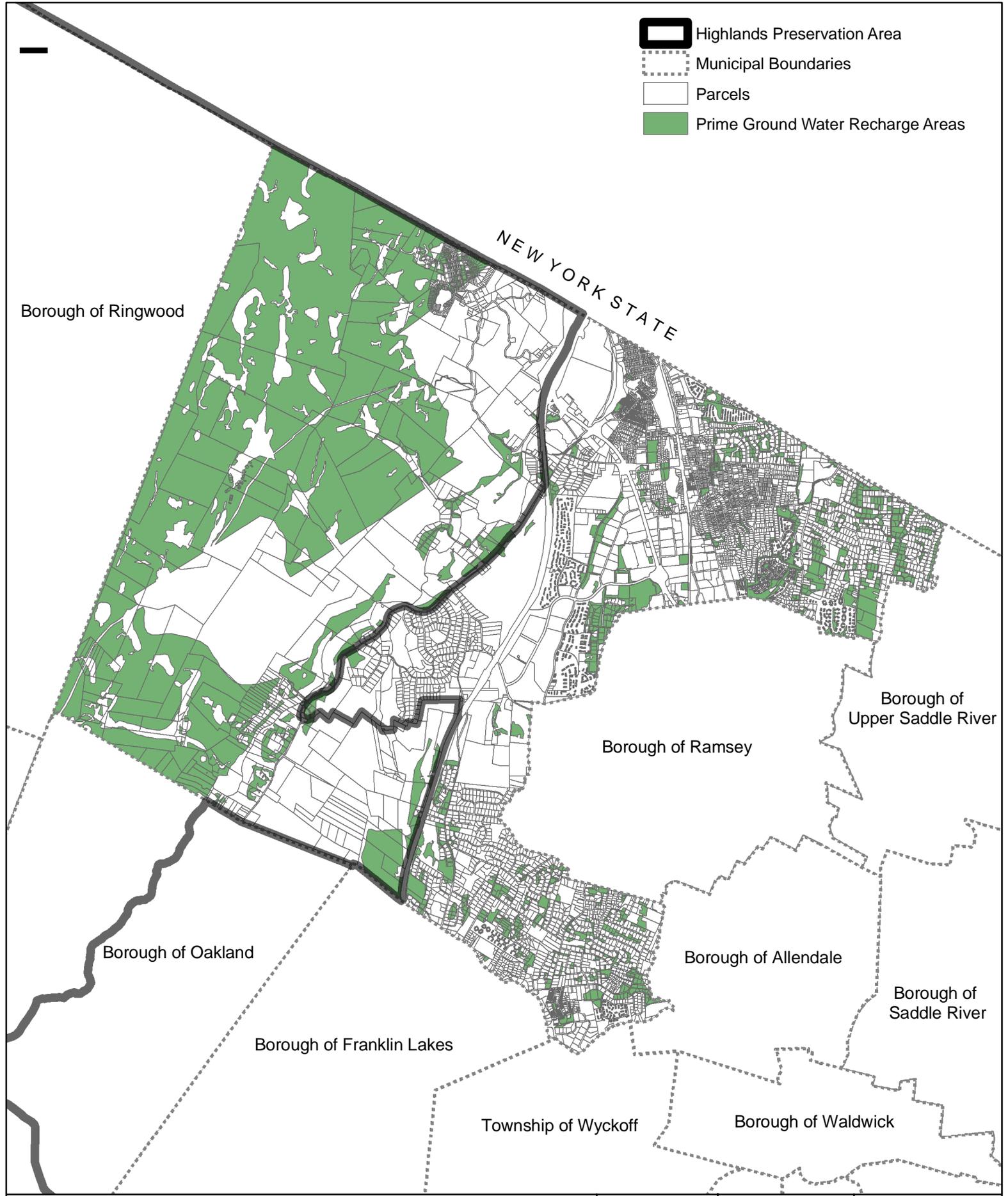
Borough of Franklin Lakes

Township of Wyckoff

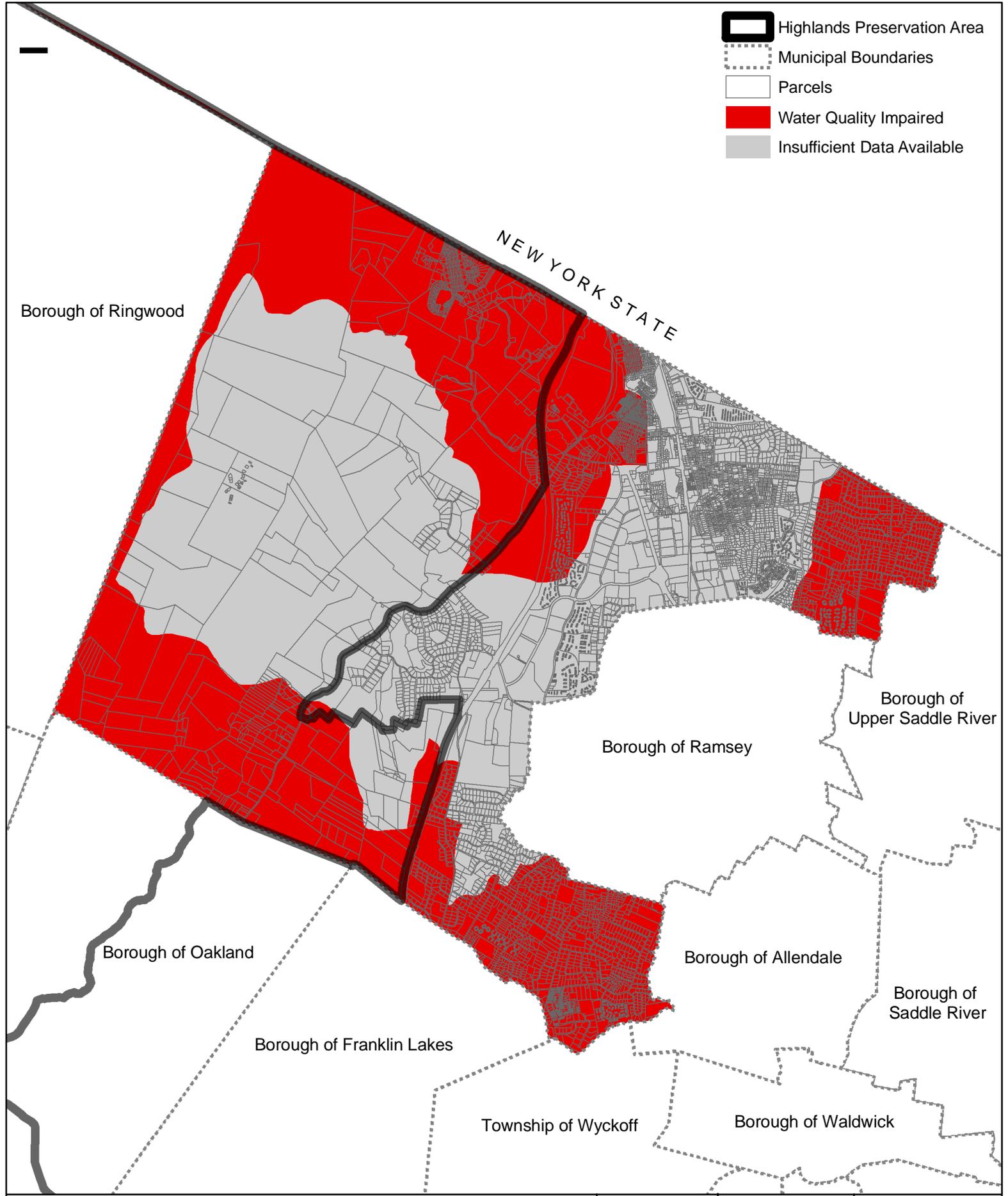
Borough of Waldwick

Dwg. Title Land Use Capability Water Availability Map		Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 1
	TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY		Drawing No. LUCM2	
2009 COPYRIGHT BA- NOT TO BE REPRODUCED				

-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Prime Ground Water Recharge Areas



Dwg. Title Prime Ground Water Recharge Areas Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale N.T.S.	Sheet No. 1 of 1 Drawing No. PGWR <small>2009 COPYRIGHT BA- NOT TO BE REPRODUCED</small>



Dwg. Title
Impaired Waters Overall Assessment by HUC14 Map

Project No.
 2225.02

Dwg. Date
 4/21/09

Drawn By
 RW

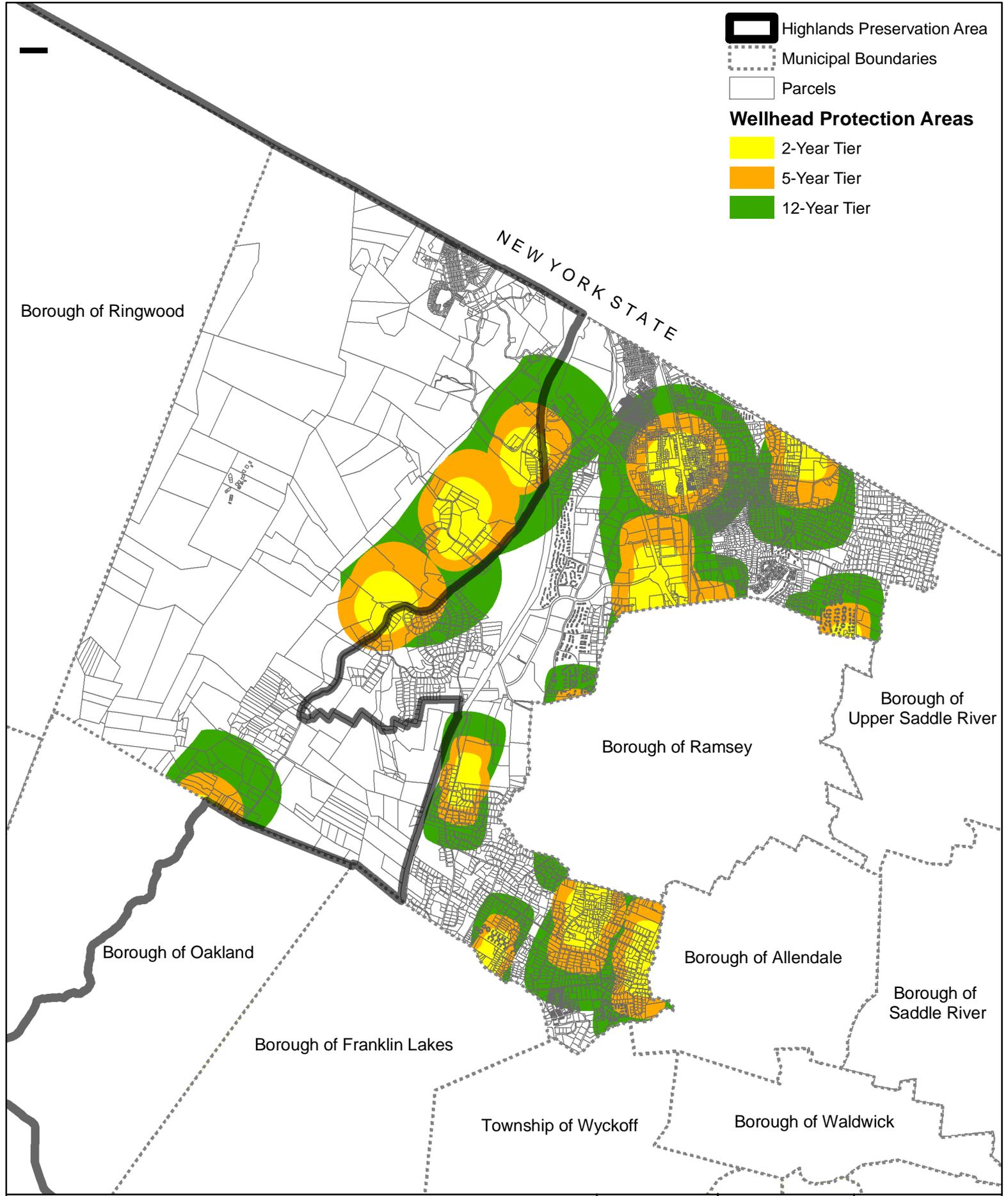
BURGIS ASSOCIATES, INC.
 PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS
 25 WESTWOOD AVENUE
 WESTWOOD, N.J. 07675
 201-666-1811 FAX: 201-666-2599

Project Title
Highlands Initial Assessment Report
 TOWNSHIP OF MAHWAH
 BERGEN COUNTY, NEW JERSEY

Dwg. Scale
 N.T.S.

Sheet No.
 1 of 1

Drawing No.
 IMP



Dwg. Title Wellhead Protection Areas Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale N.T.S. Sheet No. 1 of 1	Drawing No. WHPA 2009 COPYRIGHT BA- NOT TO BE REPRODUCED

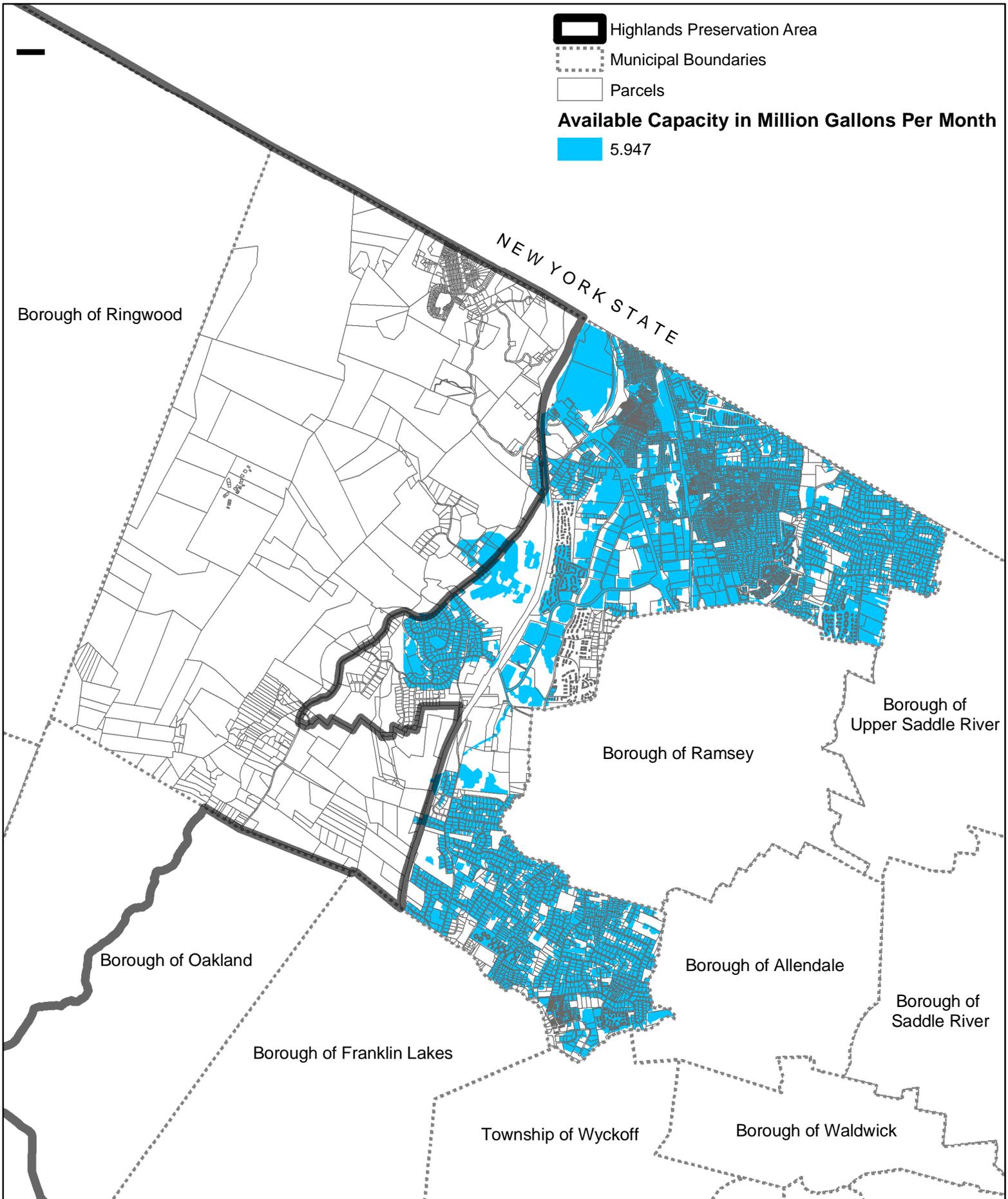
 Highlands Preservation Area

 Municipal Boundaries

 Parcels

Available Capacity in Million Gallons Per Month

 5.947



Dwg. Title
Land Use Capability Public Community Water Systems Map

Project No.
2225.02

Dwg. Date
4/21/09

Drawn By
RW

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

Project Title
Highlands Initial Assessment Report
TOWNSHIP OF MAHWAH
BERGEN COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
1 of 1

Drawing No.
LUCM3

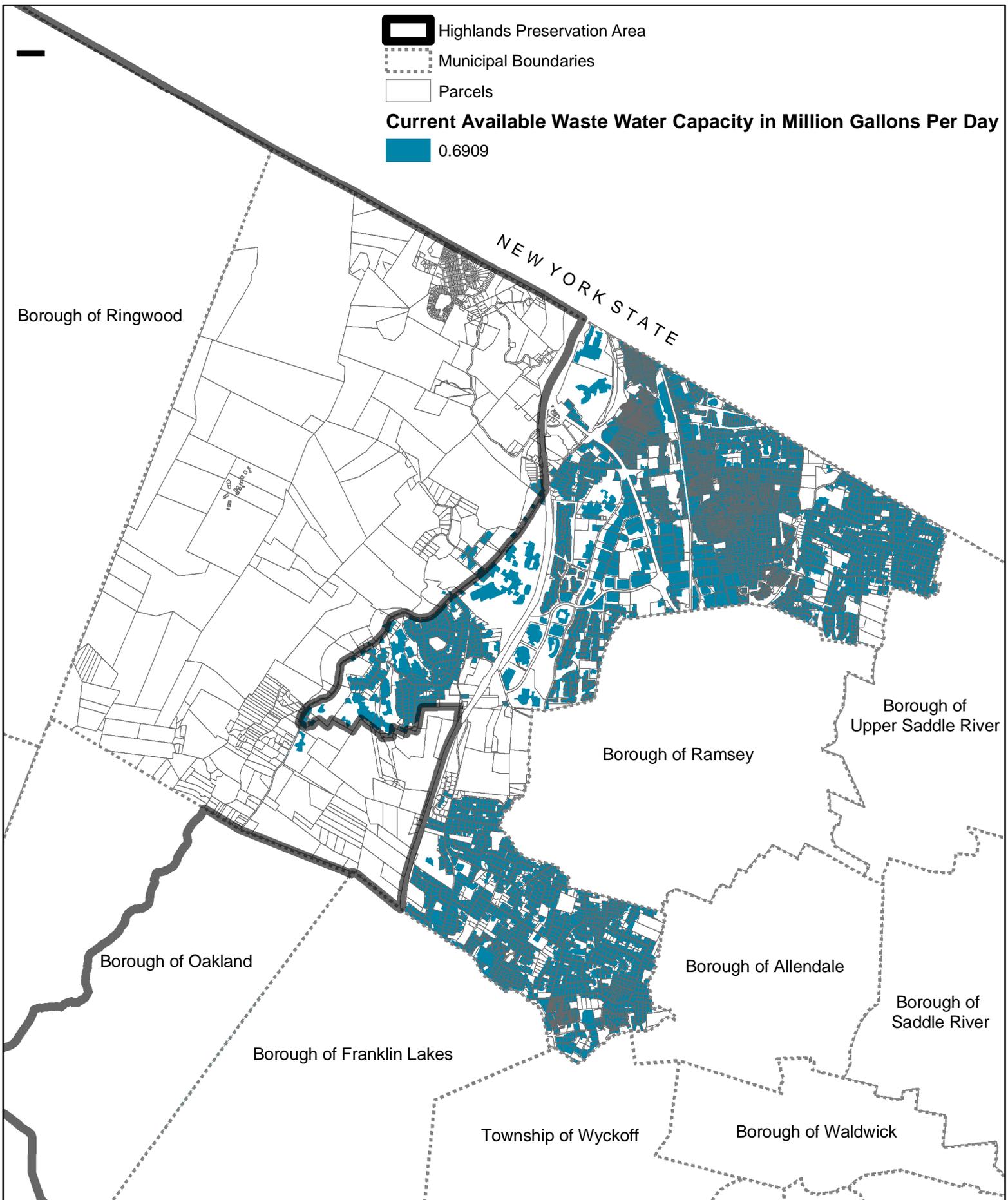
 Highlands Preservation Area

 Municipal Boundaries

 Parcels

Current Available Waste Water Capacity in Million Gallons Per Day

 0.6909



Dwg. Title
Land Use Capability Domestic Sewerage Facilities Map

Project No.
2225.02

Dwg. Date
4/21/09

Drawn By
RW

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

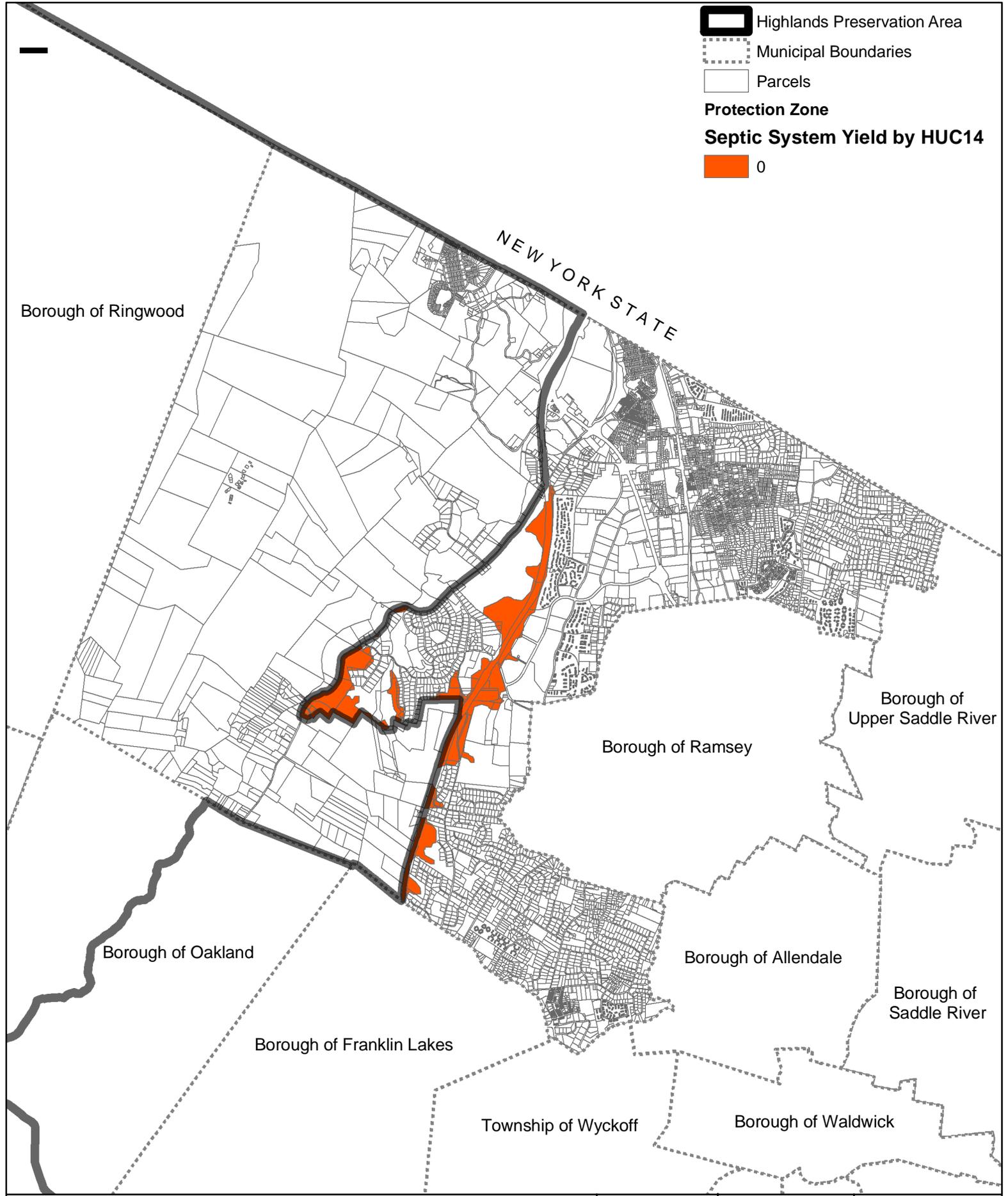
Project Title
Highlands Initial Assessment Report
TOWNSHIP OF MAHWAH
BERGEN COUNTY, NEW JERSEY

Dwg. Scale
N.T.S.

Sheet No.
1 of 1

Drawing No.
LUCM4

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 Highlands Preservation Area
 Municipal Boundaries
 Parcels
Protection Zone
Septic System Yield by HUC14
 0

Borough of Ringwood

NEW YORK STATE

Borough of Upper Saddle River

Borough of Ramsey

Borough of Oakland

Borough of Allendale

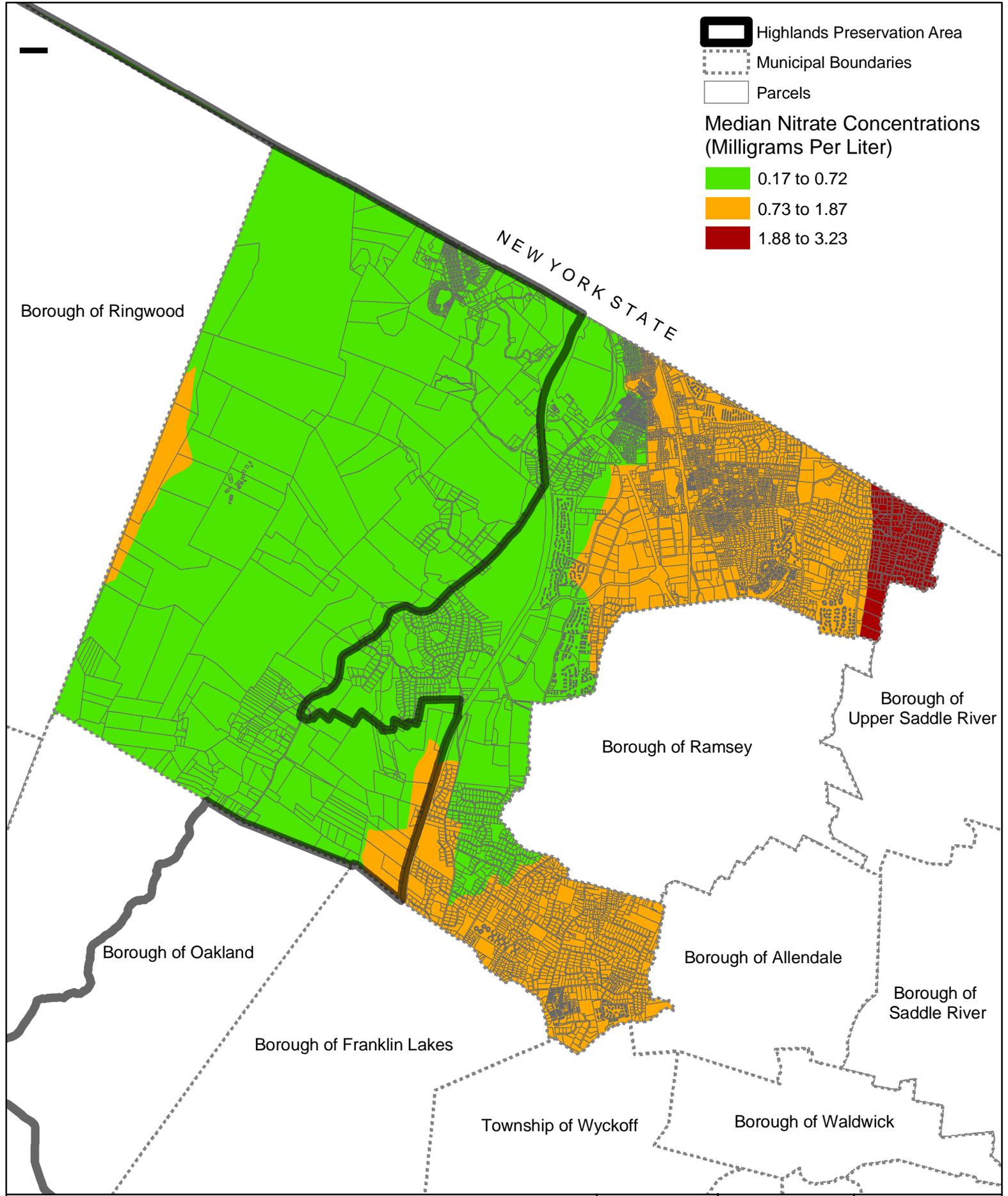
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title Land Use Capability Septic System Yield Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Sheet No. 1 of 1	Drawing No. LUCM5
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 Highlands Preservation Area
 Municipal Boundaries
 Parcels
Median Nitrate Concentrations (Milligrams Per Liter)
 0.17 to 0.72
 0.73 to 1.87
 1.88 to 3.23

Borough of Ringwood

NEW YORK STATE

Borough of Ramsey

Borough of Upper Saddle River

Borough of Oakland

Borough of Allendale

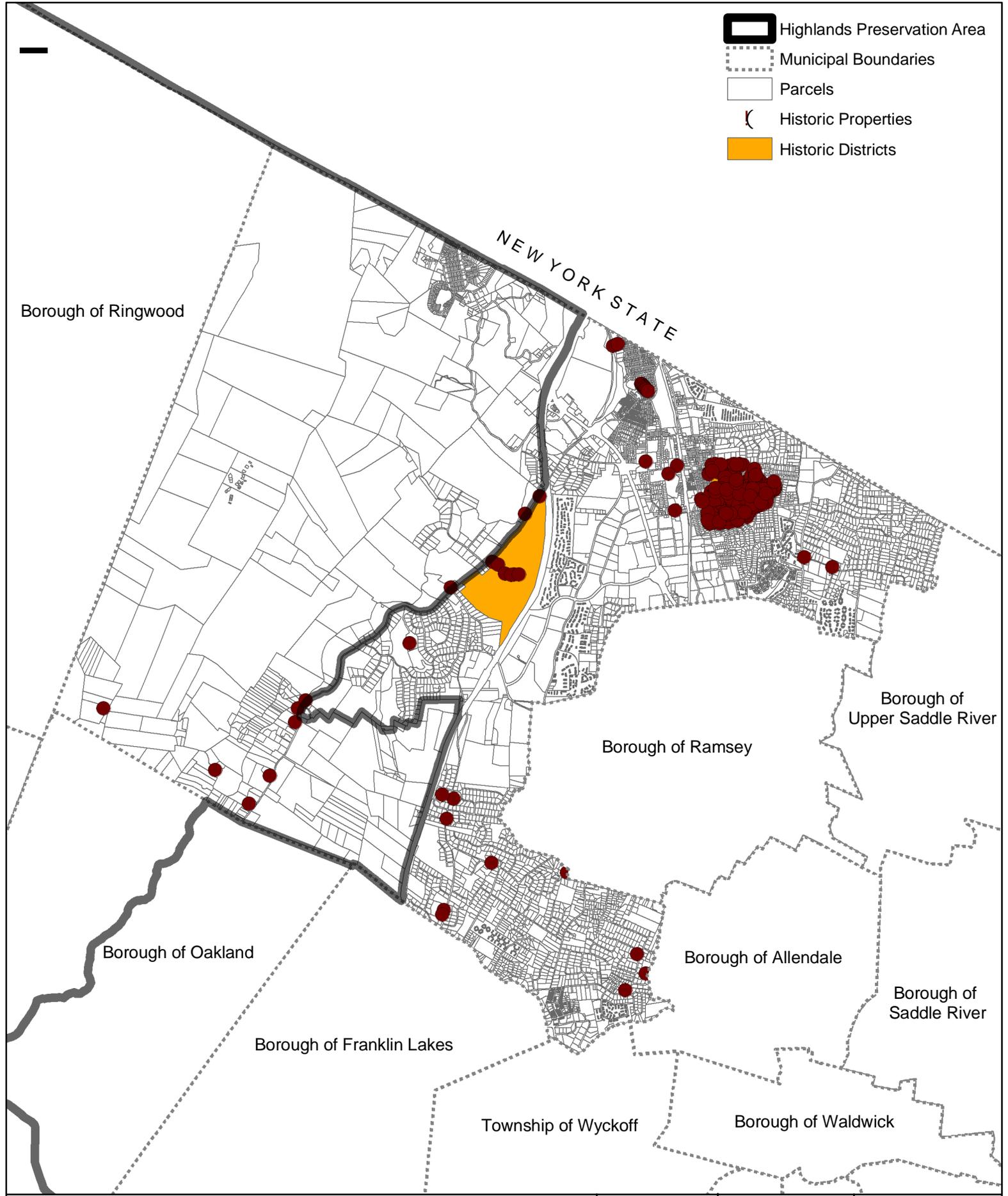
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title Median Nitrate Concentration by HUC14 Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Dwg. Scale N.T.S.	Sheet No. 1 of 1
Drawing No. MNC		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	



-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Historic Properties
-  Historic Districts

Borough of Ringwood

NEW YORK STATE

Borough of Upper Saddle River

Borough of Ramsey

Borough of Oakland

Borough of Allendale

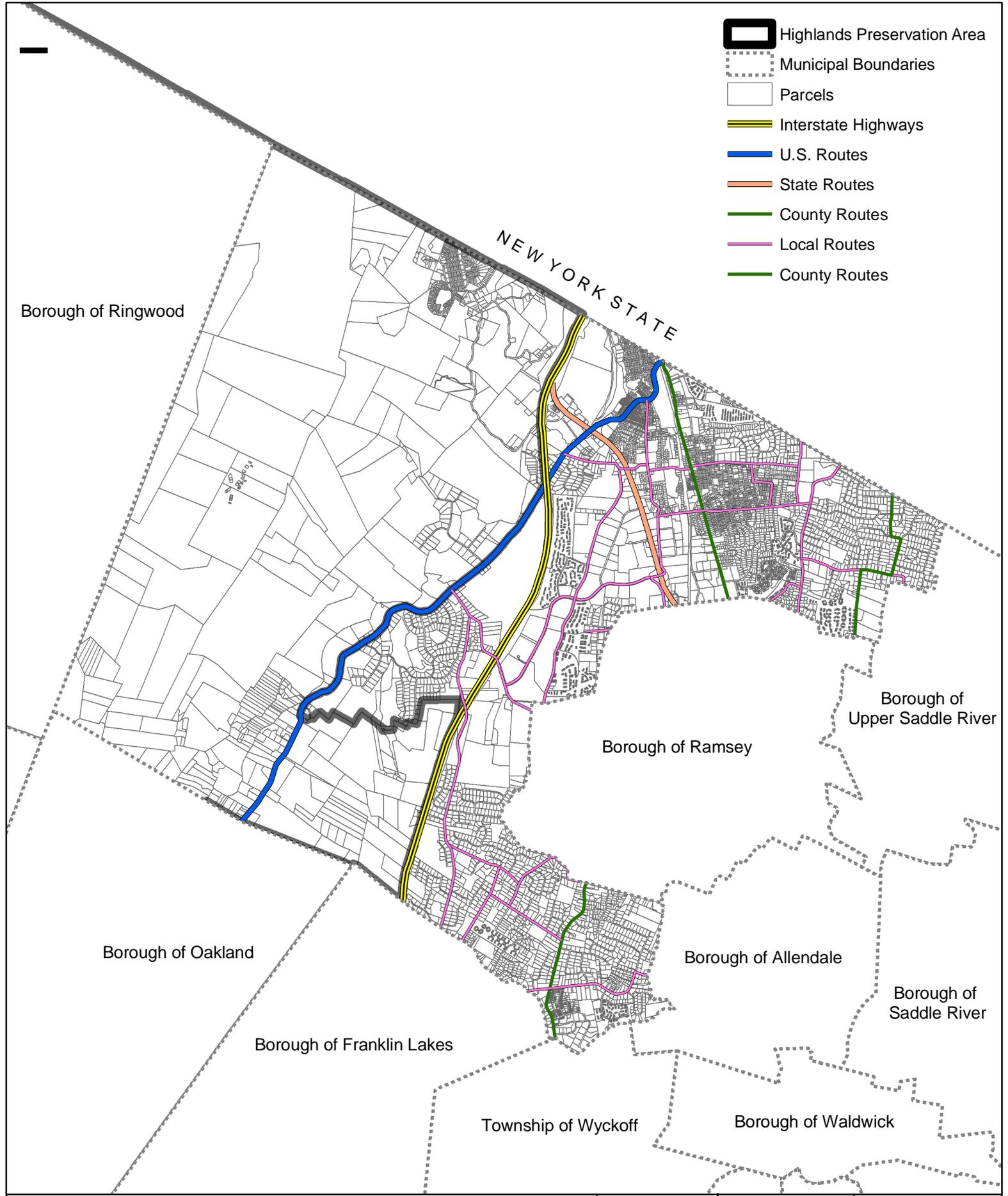
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title	Historic Preservation Map	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By 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 MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 1 of 1	Drawing No. HI ST
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-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
-  Interstate Highways
-  U.S. Routes
-  State Routes
-  County Routes
-  Local Routes
-  County Routes

Borough of Ringwood

NEW YORK STATE

Borough of Upper Saddle River

Borough of Ramsey

Borough of Oakland

Borough of Allendale

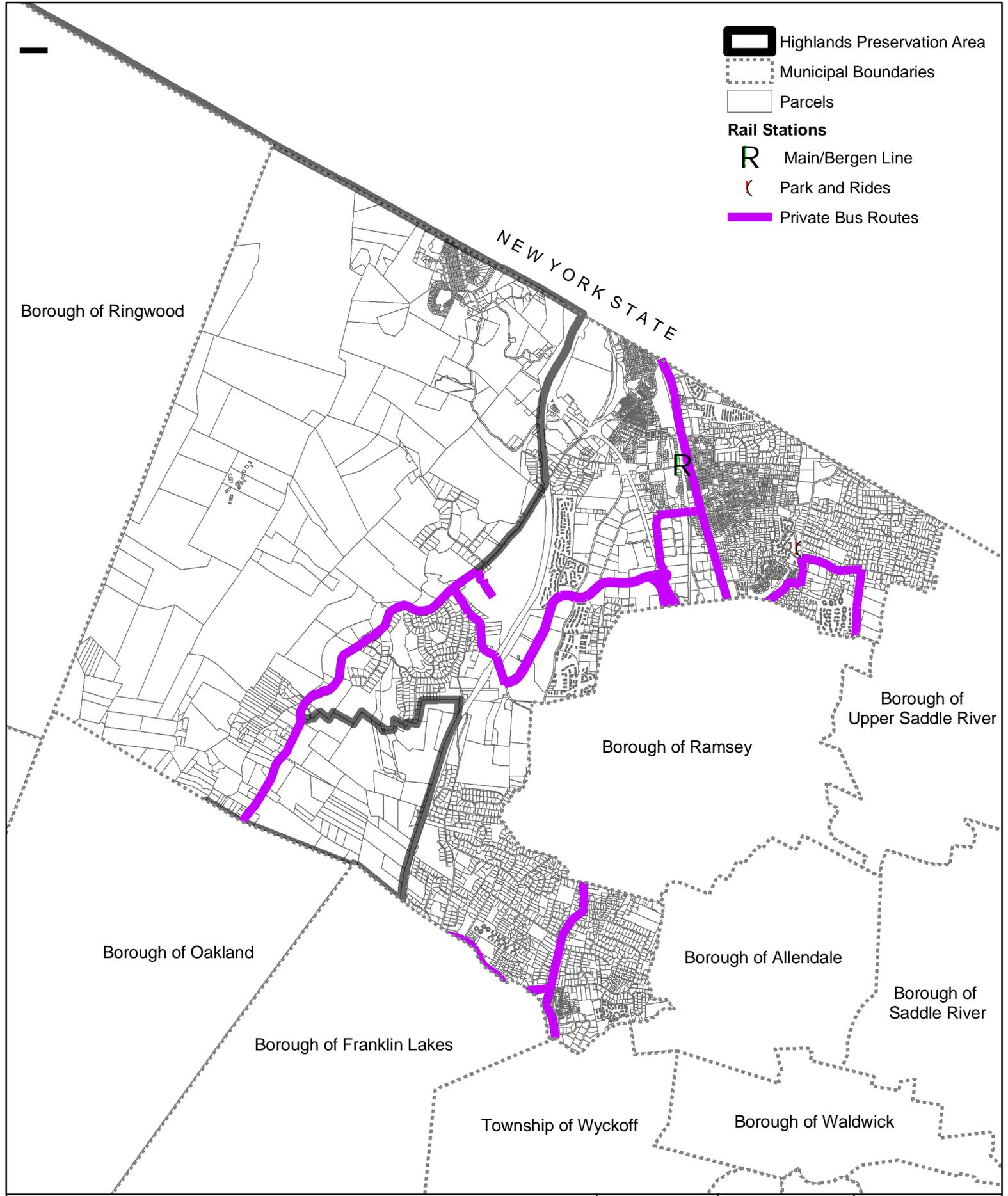
Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title <h2 style="text-align: center;">Roadway Network Map</h2>	Project No. 2225.02	Dwg. Date 4/21/09	Drawn By RW
 BURGIS ASSOCIATES, INC. PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <h3 style="text-align: center;">Highlands Initial Assessment Report</h3> <small>TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY</small>	Sheet No. 1 of 1	Drawing No. ROAD
Dwg. Scale N.T.S.		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	



-  Highlands Preservation Area
-  Municipal Boundaries
-  Parcels
- Rail Stations**
-  Main/Bergen Line
-  Park and Rides
-  Private Bus Routes

Borough of Ringwood

NEW YORK STATE

R

Borough of Upper Saddle River

Borough of Ramsey

Borough of Oakland

Borough of Allendale

Borough of Saddle River

Borough of Franklin Lakes

Township of Wyckoff

Borough of Waldwick

Dwg. Title <p style="text-align: center;">Transit Network Map</p>	Project No. <p style="text-align: center;">2225.02</p>	Dwg. Date <p style="text-align: center;">4/21/09</p>	Drawn By <p style="text-align: center;">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> TOWNSHIP OF MAHWAH BERGEN COUNTY, NEW JERSEY	Dwg. Scale <p style="text-align: center;">N.T.S.</p>	Sheet No. <p style="text-align: center;">1 of 1</p>
Drawing No. <p style="text-align: center;">TRANS</p>		2009 COPYRIGHT BA- NOT TO BE REPRODUCED	

APPENDIX A-2:
MAHWAH 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
	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	
Forest Resources	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Major revisions necessary
Highlands Open Waters & Riparian Areas	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to incorporate RMP provisions and include topic; Major revisions necessary.
Steep Slopes	Yes	No	Yes	No	Yes	No	Revise NRI, MP, and LUO to incorporate RMP provisions; Minor revisions necessary.
Critical Habitat	Yes	No	Yes	No	No	No	Revise NRI and MP and supplement LUO to incorporate RMP provisions and include topic; Major revisions necessary.
Carbonate Rock	N/A	N/A	N/A	N/A	N/A	N/A	Does not apply; no revisions necessary
Lake Management	No	No	Yes	No	No	No	Supplement NRI and LUO and revise MP to include topic and incorporate RMP provisions; Major revisions necessary.
Water Resources Availability	Yes	No	Yes	No	Yes	No	Revise NRI, MP, and LUO to include topic and incorporate RMP provisions; Major changes necessary
Prime Groundwater Recharge	Yes	No	No	No	Yes	No	Revise NRI and LUO and supplement MP to include topic and incorporate RMP provisions;

	EXISTING ERI/NRI		EXISTING MASTER PLAN		EXISTING LAND USE ORDINANCES		Action(s) Required
	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	
							Major changes necessary.
Water Quality	Yes	No	Yes	No	Yes	No	Revise NRI, MP, and LUO to include topic and incorporate RMP provisions; Major changes necessary
Wellhead Protection	No	No	No	No	No	No	Supplement NRI, MP, AND LUO to include topic and incorporate RMP provisions; Major changes necessary
Stormwater Management	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Major changes necessary.
Water/Wastewater Utilities	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Major changes necessary.
Septic Densities	No	No	Yes	No	No	No	Supplement NRI and LUO and revise MP to include topic and incorporate RMP provisions; Major changes necessary
Low Impact Development	No	No	Yes	No	Yes	No	Revise MP and LUO and supplement NRI to include topic and include topic and incorporate RMP provisions; Moderate changes necessary
Transportation	Yes	No	Yes	No	No	No	Revise NRI and MP and supplement LUO to include topic and incorporate RMP provisions; Moderate changes necessary
Land Pres/Stewardship	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Minor changes necessary
Agricultural Resources	N/A	N/A	N/A	N/A	N/A	N/A	Does not apply; No changes necessary
Cluster Development	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions;

	EXISTING ERI/NRI		EXISTING MASTER PLAN		EXISTING LAND USE ORDINANCES		Action(s) Required
	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	Includes Topic?	Addresses RMP?	
							Moderate changes necessary
Community Facilities	No	No	Yes	No	No	No	Supplement NRI and LUO and revise Mp to include topic and incorporate RMP provisions; Major changes necessary
Sustainable Economic Development	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Major changes necessary
Historic, Cultural, Archaeological , and Scenic Resources	No	No	Yes	No	Yes	No	Supplement NRI and revise MP and LUO to include topic and incorporate RMP provisions; Moderate changes necessary

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
 - d. The exemption provided in c. above applies only to the land area and the scope of the major Highlands development addressed by the qualifying

approvals applicable to the project and described in a-c. above and shall expire:

- . If any of those qualifying approvals expire;
 - i. If construction beyond site preparation does not commence within three years after August 10, 2004; or
 - ii. If construction ceases for a cumulative total of one year after August 10, 2007.
4. Reconstruction of any building or structure for any reason within 125 percent of the footprint of the lawfully existing impervious surfaces on the site, provided that the reconstruction or redevelopment does not increase the lawfully existing impervious surface by one-quarter acre or more. This exemption shall not apply to the reconstruction of any agricultural or horticultural building or structure for a non-agricultural or non-horticultural use;
 5. Any improvement to a legally existing single-family dwelling in existence on August 10, 2004, including but not limited to an addition, garage, shed, driveway, porch, deck, patio, swimming pool, or septic system as long as the improvement maintains the use as a single-family dwelling as defined by code or ordinance in the municipality in which the dwelling is located and does not permit the use of the structure as a multiple unit dwelling;
 6. Any improvement, for non-residential purposes, to a place of worship owned by a nonprofit entity, society or association, or association organized primarily for religious purposes, or a public or private school, or a hospital, in existence August 10, 2004, including but not limited to new structures, an addition to an existing building or structure, a site improvement, or a sanitary facility;
 7. An activity conducted in accordance with an approved woodland management plan issued pursuant to the Farmland Assessment Act, N.J.S.A.54:4-23.3 or for public lands, the normal harvesting of forest products in accordance with a forest management plan approved by the State Forester;
 8. The construction or extension of trails with non-impervious surfaces (use definition of "impervious" in the act to establish the meaning of non-impervious) on publicly owned lands or on privately owned lands where a conservation or recreational use easement has been established and filed with the deed for the lots on which the easement exists;
 9. The routine maintenance and operations, rehabilitation, preservation, reconstruction, or repair of transportation or infrastructure systems by a State entity or local government unit, provided that the activity is consistent with the goals and purposes of the Highlands Act and does not result in the construction of any new through-capacity travel lanes;
 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.