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## HIGHLANDS INITIAL ASSESSMENT REPORT

### BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY



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## **HIGHLANDS INITIAL ASSESSMENT REPORT** **BOROUGH OF RIVERDALE** **MORRIS COUNTY, NEW JERSEY**

### **PREPARED FOR:**

**BOROUGH OF RIVERDALE PLANNING BOARD AND  
BOROUGH COUNCIL**

BA # 2209.02

The original document was appropriately signed and sealed on July 31, 2009 in accordance with Chapter 41 of the State Board of Professional Planners.

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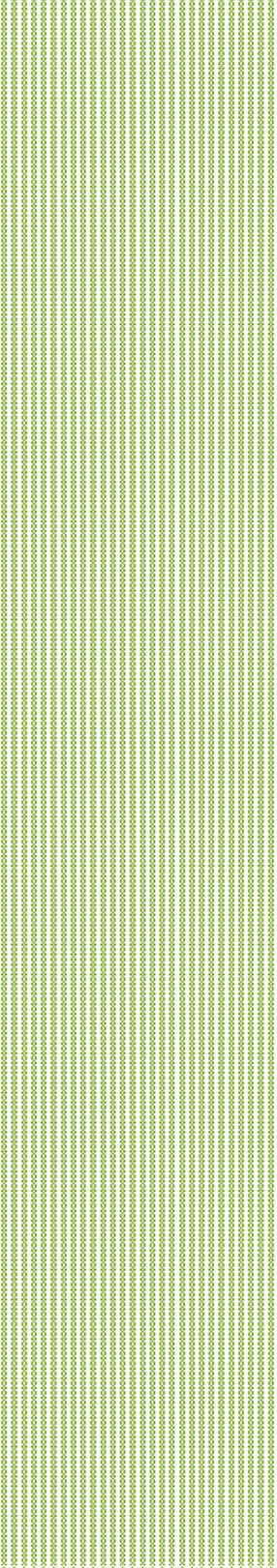
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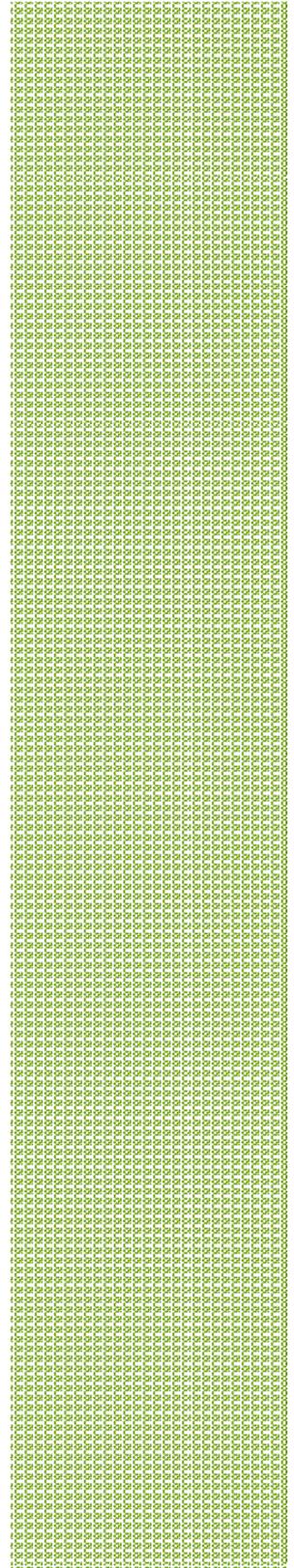
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## 1. INTRODUCTION

On July 17, 2008, the Highlands Council adopted the **Highlands Regional Master Plan (RMP)**. This plan is a requirement of the 2004 New Jersey Legislature enacted Highlands Water Protection Act to protect the water and other critical natural resources.

The New Jersey Highlands region is comprised of an area of 859,358 acres located in the northwest part of the state. It is spread over 88 municipalities in New Jersey. The Highlands region is divided into the Highlands Preservation Area and the Highlands Planning Area. **Riverdale is completely located within the Planning Area.**

The RMP provides a regional outlook and guidance for counties and local municipalities in this region.

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

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

- ✓ 2008 Comprehensive Master Plan including the Community Facilities Plan, the Green Element, the Historic Element,

the Utilities Element and the Housing Element.

- ✓ 1997 Master Plan Reexamination
- ✓ 1991 Master Plan Revision.
- ✓ Borough of Riverdale Land Use Code
- ✓ 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.

It is important to note that the purpose of this report is to provide a broad overview of the goals and objectives contained in the RMP and the broad outline of Borough's consistency therewith. This report does not provide a detailed description and specific changes required that will ultimately need to be made to the Borough's planning programs. Clearly, at the time that the Borough's planning documents are amended to conform to the RMP, it will have to address all relevant items. However, that detail is not necessary for the purposes of this report.

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

- Update the Natural Resource Inventory (NRI).
- Updated Master Plan, inclusive of revised goals, policies and objectives,

and the creation of or amendments to the 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 Borough 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 treatment regulations, application procedures and submission checklists and notice requirements. Amended or new stormwater management regulations are also required.
- 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.

The Highlands Council has created a two-step process for Plan Conformance. The first step "Basic" Plan Conformance, wherein the Borough 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 Borough is required to complete a Municipal Self-Assessment and Im-

plementation Schedule, which details the remaining steps and expected timeframe to achieve "Full" Plan Conformance. Under Full Plan Conformance, the Borough's planning program will reflect all elements of the RMP, and will entail all the changes detailed above.

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

## 2. OVERVIEW OF THE HIGHLANDS DOCUMENTS

### 2.1 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 Borough of Riverdale is located completely within the Planning Area (1,319 acres).

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).

## **2.2 Highlands Regional Master Plan (RMP)**

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

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

reflects historical development practices in individual communities balanced by the preservation of core environmentally sensitive lands.

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

The three primary overlay zones include the Protection Zone, Conservation Zone, and Existing Community Zone. The four Sub-Zones include the Wildlife Management Sub-Zone, Conservation Zone – Environmentally Constrained Zone, Existing Community Zone – Environmentally Constrained Sub-Zone, and Lake Community Sub-Zone. Those relevant to Riverdale include the Protection Zone, Existing Community Zone and Existing Community Zone – Environmentally Constrained Sub-Zone. These overlay zones and Sub-Zones are described in the table provided in the next page.

**Land Use Capability Zones in Riverdale Borough- Total Acres in Planning Area**

LUCM Zones	LUCM Zones
Protection Zone	384 acres
Existing Community Zone	895 acres
Existing Community- Environmentally Constrained Sub-zone	40 acres
Total	<b>1,319 acres</b>

**Land Use Capability Zones Description for Zones located in Borough of Riverdale**

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 infra-structure 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.

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

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

Conformance with the RMP is mandatory for municipalities wholly or partially located in the Preservation Area, whereas it is voluntary for those municipalities in the Planning Area. For the Preservation Area, mu-

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

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

- Council on Affordable Housing (COAH) Relief. On September 5, 2008, Governor Corzine officially endorsed the RMP and called for a balance between the constitutional obligation to provide affordable housing and the protection of critical natural resources in the Highlands region. Subsequently, the Highlands Council and the Council on Affordable Housing (COAH) entered into a joint Memorandum of Understanding to implement the provisions of E.O. 114. Among these provisions is that COAH will grant an extension for submitting housing elements and fair share plans from December 31, 2008 to December 8, 2009 for those municipalities participating in Plan Conformance. Also, Plan Conformance will entitle municipalities to an adjusted growth projection, which will most likely reduce their affordable housing obligation.
- Planning Grants and Technical Assistance. The Highlands Council will make grant funds and other financial and technical assistance available to municipalities at all stages of Plan Conformance. Examples of grant funding include Initial Assessment Grants, Plan Analysis and Conformance Grants, and

Grants, Plan Analysis and Conformance Grants, and Voluntary Receiving Zone Feasibility Grants for assessing the potential for participation in a TDR Program. Examples of technical assistance include numerous model planning documents and land use regulations for use by municipalities.

- Tax Stabilization Funds. Funds may be authorized through the Highlands Property Tax Stabilization Board, which is in, but not of, the New Jersey Department of Treasury, to stabilize municipal budgets due to implications stemming from RMP implementation, including a decline in property values that is directly related to the Highlands Act.
- Strong Presumption of Validity, Extraordinary Deference, and Burden of Proof. For municipalities in conformance with the RMP, a strong presumption of validity shall apply to master plans, land use ordinances, and local decisions. If a conforming municipality is challenged in court, the actions it has taken to conform to the RMP shall be given extraordinary deference and the burden of proof shall be on the plaintiff to prove that the municipality acted in an arbitrary, capricious, or unreasonable manner.
- Legal Representation. The Highlands Council shall, where appropriate in accordance with the Highlands Act, provide legal representation to any requesting municipality that conforms with the RMP in any cause of action filed against the municipality.
- Equivalency of State Plan Endorsement. For any municipality in conformance with the RMP, the local plan for that municipality will be considered equivalent to having been endorsed by the State Planning Commission. This means

that in addition to State monetary benefits available to the municipality, a housing plan element and fair share plan previously approved by COAH will continue to be recognized as valid by COAH.

### 3. OVERVIEW OF BOROUGH OF RIVERDALE'S LAND USE DOCUMENTS

#### 3.1 Riverdale's Comprehensive Plan

Riverdale's most recent comprehensive master plan document was adopted in 2008. This document contains a Land Use Plan Element, Circulation Element, Utilities Element, Community Facilities Element, Green Element, Housing Element, Historic Element. In addition, the Borough has adopted a Stormwater Management Plan 2007.

The Borough of Riverdale's comprehensive master plan created goals and objectives for the various elements included in the plan, these are provided below:

#### Land Use

- Preserving the diverse character of Riverdale by encouraging a variety of compatible land uses.
- Preserving the Borough's traditional neighborhood found in its many well-established residential neighborhoods.
- Permitting development that protects environmentally sensitive areas and natural features.
- Promoting land use for the Borough which recognizes and enhances enjoyment of the community's natural resources, its high quality of living and its simple neighbor oriented way of life.
- Providing for sufficient flexibility in development regulations to permit variety of housing types and styles serving a broad range of income levels and age groups.
- Maintaining a high quality of community facilities and services that meet the

expectations of present and future Borough residents.

- Managing the density of housing development that is supported by the carrying capacity of the land, roads and utility infrastructure.
- Encouraging clustered forms of residential development and planned unit development which can minimize environmental disturbance and preserve open space particularly in heavily wooded and steep slope areas.
- Maintaining a balance between residential and non-residential uses to ensure a stable and sustainable local tax base and employment opportunities.
- Promoting creation of a centrally-located, mixed use and pedestrian friendly "community or new town center" in the Riverdale quarry area once quarry operations cease that will provide possible residential, retail, recreation, entertainment and business opportunities.
- Designing non-residential development that is compatible with existing nearby residential development.
- Discouraging strip-style and typical franchise style commercial development along major roadway corridors through the use of explicit site planning and design guidelines and standards including the use of common driveways, common rear yard parking areas, unified sign plans and other site design improvements techniques.

The Land Use Plan Element proposes 13 land use categories, including the following:

- Residential
- Mixed use

- Multiple use
- Commercial
- Light Industrial
- Church & Charitable property
- Public property
- Public school property
- Other school property
- Other exempt
- Open space
- Railroad Class I

Eleven of these categories indicate the general built out land use pattern of the Borough. The two new categories introduced for the land use plan refer to the future land use for two specific areas, the mixed use and the multiple use category. The mixed use zone was specifically created for the downtown along the Paterson Hamburg Turnpike, east of the Interstate 287. The mixed use land use category was created for permitting variety of uses in such a way so as to create an identity for the Borough's traditional "main street" that is unique from surrounding communities.

The second new category proposed includes the multiple land use category. This category is specifically created for the for the Riverdale Quarry area. This area is designed to create a multiple use planned development.

The master plan identifies that residential use is the single largest land use within the Borough. It identifies that the residential area east of I-287 is the older, developed residential area while the new residential developments are to occur west of the I-287 along the north western and south central portions of the Borough. The south central portion is identified as part of protection zone as per the land use capability zone in the RMP. The protection zone include lands within the Highlands Region which contain the highest quality resource value lands, which are essential to maintaining and enhancing water quality and

quantity and preserving ecological function. Additionally, unlike the eastern portions of Riverdale where housing was developed in the relatively flat areas new housing in the western portions of the Borough is being developed on much steeper, more wooded terrain. In response to development pressure, the Borough in 2005 adopted Steep Slope ordinance to deal with issues related to the future development in such environmentally sensitive areas.

The second largest land use in the community is the industrial property followed by the commercial use. A large portion of the industrial land in the community is occupied by the Riverdale Quarry. The quarry is a focus of interest in the Borough because it covers approximately one half mile, a significant portion of about one eighth of the entire land mass of the Borough. The quarry is proposed as a multiple land use for future growth in the Borough. The master plan indicates that current industrial zones are located within close proximity to existing wellheads and thus may pose a potential threat to the community's drinking water. The master plan recommends phasing out of heavy industrial districts and phasing in of light industrial districts and business parks that would capitalize on industrial market trends while reducing the potential for contamination of Riverdale's wellheads.

The master plan recommends that public lands should be maintained around sensitive environmental areas such as the municipal wellheads and other sensitive areas. The master plan recommends the parcels that are severely constrained with steep slopes should be developed in a very limited fashion in order to preserve its steep slope and rural woodland characteristics.

As part of the comprehensive master plan,

a community design handbook was created to provide development guidelines and standards that must be consulted in order to create desirable visual characteristics for different types of projects and developments within the Borough. The following were the noted goals:

#### Community Design

- Encouraging creative site planning and development strategies to produce visual harmony and a compatible community identity including preservation of sensitive environmental features such as wooded hillsides and the Pequannock Riverfront.
- Promoting a sense of Borough identity and unity by developing focal centers such as development of the quarry area into a mixed use "town" and village center based on Smart Growth and New Urbanism design principles.
- Establishing illustrative building, signage, landscape and streetscape design standards and guidelines to ensure the development of a desirable physical environment in the Borough.
- Preserving the indigenous natural features of the Borough such as its rolling wooded hillsides and tree-lined roadways.
- Discouraging development on ridgelines and steeply sloped areas by keeping rooflines below the ridgeline to preserve distant views as well as maintaining significant areas of vegetation along ridges and steep slopes.

The community design handbook was created to provide a basic guideline for future development within the Borough based on the community's vision. The handbook provides design guidelines for mixed use dis-

tricts, building facades, pedestrian and vehicular orientation and other such building and site design details.

#### Housing

The Housing Elements and Fair Share Plans prepared for Riverdale over the years have addressed the Borough's fair share affordable housing obligation for COAH's first, second and third rounds. The Borough received substantive certification of its first round on May 1, 1991 for the period of 1987 to 1993. On November 3, 1999 the Borough received its substantive certification for the second round. COAH adopted new rules in November 2004 for the implementation of their third round methodology, but these rules were subsequently determined, through litigation, to require modification. A new set of revised Third Round rules were adopted in 2008. Riverdale, due to its participation in Highlands Plan Conformance, was granted an extension to prepare a new Housing Element and Fair Share Plan. The Borough must prepare and adopt a new housing plan no later than December 8, 2009.

However, for the Housing element in the Comprehensive Master Plan, the Borough has adopted the following goals:

- Continuing to meet the Borough's obligation to provide for its fair share of low and moderate income housing needs through zoning and other land use management regulations.
- Encouraging the continued use of housing rehabilitation program.
- Establishing and monitoring the Borough's growth share projections to ensure that the Borough's housing obligations are met at different projected time intervals.

- Maintaining and encouraging diverse, attractive and affordable housing choices and opportunities that can be utilized by all residents and that promote neighborhood stability and property values.

### Circulation

The Circulation Plan Element provides, both in text and map form an overview of street classifications throughout the Borough. In addition, recommendation regarding improved intersection, pedestrian linkages and increase in other forms of transport such as busses and rail is recommended. The following are the noted goals of the Circulation Element:

- Working towards the establishment of traffic demand thresholds generated by new development and rehabilitation, especially new large-scale residential and non-residential development that does not exceed the existing and planned capacities of the Borough's existing road network and circulation systems.
- Coordinating future road improvements with State and County transportation agencies in conjunction with new development and redevelopment.
- Providing pedestrian circulation facilities including sidewalks, bikeways and the Borough's trail system serving as connections between community facilities, commercial areas, residential neighborhoods, employment sites regional destinations and other pedestrian circulation networks.
- Promoting development of a Borough Trail Plan, especially along the Pequannock riverfront, to encourage greater pedestrian mobility and activity and community health.

- Encouraging the availability and accessible use of public transportation (buses, passenger rail service) with local and the elderly.

### Utilities

The Utilities Element identifies those areas of the Borough that are presently served by municipal water and/or sanitary sewer systems, and those areas that are proposed to be served by such systems in the future. The plan indicates that currently the entire Borough is not adequately serviced by water and sewer infrastructure.

Large portions of the western part of the Borough are serviced by municipal sewers particularly in the recently developed residential areas west of Mathews Ave and within the commercial and residential areas north of State Route 23. Pequannock River Basin Regional Sewerage Authority (PRBRSA) interceptor are located along the entire length of the Newark-Pompton Turnpike in the Borough and along a portion of the Paterson-Hamburg Turnpike from the Newark-Pompton Turnpike to a point where it crosses the Pequannock River. The Borough in order to the extend municipal sewer service area throughout the Borough established a Sewer Master Plan based on the Sewerage Flow Study, dated December 21, 2004. The study identified three groups or areas for which planned improvements are to be made.

The Riverdale Water Department is the community water system consisting of one groundwater production well and one purchased groundwater source. The Borough's water is not derived from any surface water features. The Borough also purchases water from Passaic Valley Water Commission. The plan notes that the existing water supply system requires maintenance and repair in the coming years. In

addition, the existing wellhead is located in area developed with houses that are not serviced by sewers but instead rely on septic system for treatment. The wellhead is also located near a rail yard which is used by railroad for freight storage. A threat to aquifer is noted if the freight cars were to leak into the ground.

The plan recommends, to investigate and identify the location where repairs and maintenance may be required to the water and sewer system, to calculate the future needs and to protect the wellhead locations. Following are the goals of the utilities element:

- Protecting the Borough's critical water supply (presently, there is one municipal public community supply wellhead near Riverview Terrace and two public non-community water supply wellheads in the southwest section of the Borough near Route 23) for future needs, in accordance with the principles and requirements of Federal and State Laws.
- Promoting the extension of sewers into developed areas serviced by individual septic tanks, especially in areas where septic tanks are located in close proximity to existing wellheads.
- Ensuring that adequate water capacity and water supply measure exists throughout the Borough for fire protection and fire suppression needs.
- Encouraging programs that will aid in aid in conservation and other measures to increase the potable water supply for future needs.
- Limiting future sanitary sewer service to those areas identified in the utility element.
- Implementing the recommendations

established within the Borough's Stormwater Management Plan (SWMP).

- Working with utility companies and providers as well as private developers to place existing wires underground, wherever practical in order to improve the visual aesthetics of the community. This is particularly important along the Hamburg Turnpike in the Community Redevelopment District.

#### Community Facilities

The Community facilities element provides inventory of various municipal departments including, municipal building, police department, municipal court, the department of public works, fire department, emergency medical services, library and school. The plan recommends expansion and new location of some of these departments to accommodate future needs. The following are noted goals:

- Coordinating and prioritizing the construction and installation of improvements via a capital improvements program (CIP) to insure that community facilities and public infrastructure are available when and where needed by our citizens.
- Developing a river walk and trail master plan that identifies opportunities for public access, public recreational opportunities, and environmental stewardship along the Pequannock River.
- Developing a development scenario plan for the Riverdale Quarry area that identifies additional opportunities for new community facilities and public services such as the development of public square or public green that offers park and recreational amenities (ice skating rink, trails, venues for concerts and celebrations) and so on.

- Planning for and providing adequate coverage of emergency services to all residents and neighborhoods, particularly during daytime hours and continuing mutual aid contracts and agreements with neighboring municipalities for fire and emergency medical services.
- Continuing to provide adequate facilities for community groups and cultural activities.
- Planning for future expansion of municipal public works facilities.
- Encouraging efficiencies in the design of new residential developments that will minimized public service costs and infrastructure.
- Continuing to create linkages between existing recreation, public open space/recreation areas and greenway connections along natural corridors and public pathways, including stream corridors.
- Providing access and connections to regional trail networks within Morris County whenever and wherever possible.
- Developing non-motorized pathway systems between major residential areas, school, parks and public centers of activity.
- Preserving and protecting open spaces and other resources having important environmental and cultural significance.

#### Parks, Recreation and Open Space

The following goals are noted for Park and recreation element:

- Providing a full range of recreation facilities to meet the needs of all age groups with particular emphasis placed on recreation facilities that serve the needs of senior citizens, young children and the handicapped.
- Ensuring that sufficient public access is provided to our parks and recreation facilities.
- Developing recreation facilities as identified in the Parks, Recreation and Open Space element along the Pequannack River and within the potential revitalization areas within the boundaries of Borough owned land.
- Providing athletic fields and other recreational facilities that meet the ever-changing needs of Riverdale's residents.

#### Green Element

The comprehensive master plan includes a Green Element to the plan. This Element prioritizes the sustainable future development within the Borough. It is Borough's goal to encourage development of projects that promote green friendly design principles. Some of the principal goals of the element are as follows:

- Establish a LEED Certification action Plan.
- Promote Development of green municipalities and infrastructure.

#### Conservation

- Protecting environmentally sensitive areas such as stream corridors, steep slopes, floodplains, wetlands and wildlife habitats as passive open space resources through appropriate and consistently applied land use regulations.
- Prohibiting development in environmentally critical areas as much as prac-

licable.

- Providing a continuous network of open space areas and greenway corridors along streams, ridges and steep slopes, woodland habitats, scenic areas and critical environmental areas.
- Encouraging development which preserves natural amenities and does not aggravate drainage problems or adversely impact surface or groundwater quality or quantity, particularly in important potable water wellfields and drainage areas.
- Protecting high quality streams, waterways and wetlands through appropriate stormwater and wastewater best management practices, conservation easements and development setbacks.
- Encouraging cluster development and use of conservation easements to protect environmentally sensitive areas in order to retain open space areas and to reduce impacts to natural resources.
- Encouraging the preservation of existing vegetation, particularly significantly woodlands.
- Replacing plantings in areas of disturbance with native vegetation.
- Minimizing site disturbance by establishing limits of clearing and through the adoption of tree preservation techniques and standards.
- Reviewing and updating, as needed, the environmental management techniques that the Borough currently has in place to ensure that sensitive areas are protected.

#### Recycling

- Encouraging resource recovery and the continued recycling of reusable materials through public education
- Promoting increased conservation and reuse of materials as part of new development and redevelopment activity taking place in the community

#### Historic Preservation

The Borough has created an extensive study known as Glenburn Estate Preservation Plan study documenting the existing conditions and proposed preservation treatments. The Element indicates that the Borough should recognize and identify the important historic sites within the Borough

- Promoting the preservation and maintenance of the Borough's historic sites and districts.
- Maintaining and inventory of historic buildings, sites and landmarks to ensure that land use regulations protect these resources by allowing for preservation, adaptive reuse and conservation improvements.
- Continuing to educate residents about the history of Riverdale and its unique heritage.

#### **3.2 Riverdale's Stormwater Management Plan**

Finally, the Stormwater Management Plan Element documents the strategy for Riverdale to address stormwater-related impacts. The Plan sets forth a series of goals relating to stormwater management, including minimization of increases to stormwater runoff from new development, maintenance of groundwater recharge, prevention of an increase in nonpoint pollution, and protect public safety through the

proper design and operation of stormwater basins. To achieve these goals, the Plan outlines stormwater design and performance standards for new development, defined as projects that disturb one acre or more of land or include 1/4 acre or more of new impervious surface. Additionally, the Plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long term effectiveness of stormwater management facilities including safety standards for stormwater infrastructure to be implemented to protect public safety.

### **3.3 Riverdale's Land Use Regulations**

The Borough has a wide range of single family residential, attached multifamily residential, commercial/office and industrial zone districts. The details of each of the zone is provided in the table on the following page.

In addition, there are some districts within the Borough that permit mixed use including CRD (Community Redevelopment District), PO-1 (Professional Office), CB (Community Business) and HB (Highway Business District).

Cluster zoning is an optional approach permitted in the R-35 Residential zone. The zone requires a minimum of 40% of total lot area should be retained as undisturbed open space.

Riverdale's existing land use regulations also contain a number of additional provisions relating to environmental protection. Given below is a summary of each of these provisions:

- Flood Hazard Control: Establishes regulations that must be met for any prop-

erty that falls within a flood boundary as set forth on the FEMA Flood Insurance Rate Map.

- Steep Slopes: Establishes the definitions for the types and categories of the slope and set regulations for the type and extent of development permitted.
- Stormwater Management: Requires that all major development should meet the regulations as set forth for erosion control, groundwater recharge, stormwater runoff quantity. The standards are provided in order to minimize the impact of stormwater runoff on water quality and quantity in receiving water bodies and maintain groundwater recharge.
- Soil Erosion and Sedimentation Control: Requires that all developments protect stream, lakes and ponds from sedimentation damage and prepare a soil erosion and sedimentation control plan.

Borough of Riverdale Highlands Initial Assessment Report, July 2009

ZONE	Min. lot size (sq ft)	Min. Lot width (ft)	Max. Bldg cov. (%)	Max. Impervious cov (%)	Min. Floor Area (sq ft)	Max. Floor Area Ratio
R-40	40,000	150	10	-	1,400	-
R-25	25,000	125	10	-	1,300	-
R-15	15,000	100	20	-	1,200	-
R-7.5	7,500	75	20	-	900	-
R-35	35,000	150	-	-	1,400	-
CB	7,500	50	30	70	1,000 for comm 750 for du	-
HB	24,000	150	25	75	1,500 for ofc 750 for du	-
HB-1	5 ac.	200	25	75	-	0.30
I	40,000	150	50	90	1,000	-
I-1	1 ac.	150	50	90	1,000	-
I-3	3 ac.	250	50	90	1,000	-
IQ	3 ac.	250	50	90	1,000	-
PRD	10 ac.	300	20	45 Req. active open space: 10%	600 One bedrm 850 two bedrm	-
MF-1	35 ac.	-	35	50	750 sq ft	8.25 du/ac resi. dens
PO-1	15,000	100	15			-
PO-2	43,560	150	25	60		-
CRD	15,000	100	30	70		-
ARD	9 ac.	150	25	60	700 for one bed 900 for two bed	-

#### **4. CONSISTENCY REVIEW**

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

##### **4.1 Forested Areas**

###### **RMP Goals and Policies**

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

Also of importance to the Highlands region forests is the integrity of the forested subwatersheds that provide important water quality benefits. The Forest Cover Integrity Map assigns an integrity level to every subwatershed in the Highlands region, including high, moderate and low. A high integrity forest subwatershed is defined as one which is predominantly forested, including

a high proportion of forest cover consisting of high core area, large patch size, and a low distance to nearest patch. Moderate integrity forest subwatersheds are those that are predominantly forested, but do not exhibit a high proportion of forest cover, core area or patch size and an increase in distance to nearest patch. Low integrity forest subwatersheds are those that are predominantly non-forested or includes low values for proportion of forest cover and patch size, or a high distance to nearest patch.

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

- Implementation of regulations which limit permissible uses within Forest Resource Area to maintenance of pre-existing uses and restoration of impaired forest areas
- To prohibit in the Planning Area the expansion or creation of public water supply systems and public or community wastewater systems into forested areas of the Forest Resource Area where located in a Protection Zone, Conservation Zone or Environmentally - Constrained Sub Zone.
- To assign land within the Forest Resource Area a high priority for fee simple and easement acquisition.
- To prohibit forest clear cutting within the Forest Resource Area, except in accordance with a Forest Management Plan.
- To limit 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 Forests subwatersheds within the Existing Community Zone (ECZ) to the maximum extent practicable.
- To ensure that forest resources are pro-

tected on a site specific basis during local development review.

- To address the protection of Forest Resource Areas and High Integrity Forest Subwatersheds in municipal master plan and development regulations including the adoption of Community Forestry Plan Element of the master plan and municipal tree protection and clearing ordinances.

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

#### **RMP Analysis:**

The accompanying Forest Resource Area map delineates the forest resource areas within Riverdale Borough. As shown, the Forest Resource Area is located in the south eastern section of the Borough, with a small strip located along the northern edge of the Borough. The Forest Resource Area encompasses a total of 243 acres within the Borough.

Additionally, the accompanying Forest Cover Integrity Map assigns an integrity level to every subwatershed in the Borough, including high, moderate and low. As shown, the two sub watersheds located within the Borough are classified as High Integrity Forest.

#### **Riverdale Borough Plans and Land Use Regulations**

Borough of Riverdale contains a draft

Natural Resource Inventory (NRI) as an appendix in its 2008 Comprehensive Master Plan. Riverdale's NRI is a detailed account of all natural resources including various endangered species located within the Borough. The NRI indicates the forest areas, however the forest cover integrity is not shown. Since, the NRI was prepared before the Highlands RMP, **therefore, in order to achieve Plan Conformance, the Natural Resource Inventory must be amended to reflect the locations and descriptions of Forest Resource Areas and Forest Cover Integrity, as contained in RMP. In addition, the ERI should be adopted as a stand alone document.**

Further, the master plan contains a goal "permitting development that protects environmentally sensitive areas and natural features". In furtherance of this goal, the Borough recently adopted the steep slope ordinance to restrict development in constrained areas. Additionally, the NRI, proposes a Model Tree Ordinance, to be adopted which would restrict cutting and removal of trees of certain caliper. However, no formal action has been taken to adopt this proposed ordinance. **In order to achieve Plan Conformance, the Borough amend its master plan documents to include the following: First, the Borough must prepare a Conservation Plan Element, which incorporates the goals, policies and objectives in RMP. Second, because many of the RMP's goals, policies and objectives relay on Land Use Capability Zone designations, the Borough must adopt the Land Use Capability Zones into the Land Use Plan Element. Lastly, the Borough must 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.**

## **4.2 Open Waters and Riparian Areas**

### **RMP Goals and Policies**

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 presented together in the Highlands Open Waters Map and Riparian Areas.

The integrity of Riparian Areas may be defined by that area's ability to provide water protection and ecological function. High Integrity Riparian Areas exhibit predominantly natural vegetation, including high quality habitat for water/ wetland dependent species, and a generally low incidence of impervious area, agricultural uses, and/ or road crossings. Moderate Integrity Riparian Areas contain a higher incidence of impervious area, agricultural uses, and road crossings, and a reduced proportion of natural vegetation including high quality habitat for water/wetland dependent species. Low Integrity Riparian Areas contain a high proportion of impervious area, agricultural uses, and road crossings, and minimal natural vegetation, including high quality habitat for water/wetland dependent species. The Highlands Council assigned Riparian Area value class to each subwatershed in the region, which is presented in the Riparian Integrity by HUC14 map.

A high priority is for municipalities to develop and implement a Stream Corridor Protection/ Restoration Plan, which will be used as a basis for both development re-

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

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

- To establish a protection buffer of 300 feet from the edge of the discernable bank of streams, from the delineated LOI line for wetlands, or from a field delineated boundary for other Highlands Open Waters features. The protection buffer width may be modified for Category 2 streams in the Planning Area or in approved Redevelopment Areas.
- To require that all local development applications include the identification and mapping of Highlands Open Waters and Riparian Areas.
- 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 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 and Riparian Area Maps delineate the location of these resources within the Borough. As shown the Highlands Open Waters and their associated buffers are located throughout the Borough. The Riparian Areas Map shows that these areas roughly correspond with the location of the Highlands Open Waters and buffers.

The accompanying Watershed Value by HUC14 Map assigns a watershed value class to every watershed in Highlands including high, moderate and low. As shown, the two watersheds located within the Borough are classified as High Resource Value Watershed. A high resource value watershed contains predominantly forest lands and includes a significant por-

tion of the watershed that is high quality habitat. A high value watershed typically consists of limited pre-existing developed land within the watershed.

Additionally, the accompanying Riparian Integrity by HUC14 Map assigns a riparian area integrity level to every subwatershed in the Borough, including high moderate and low. As shown, the two watersheds located within the Borough are classified as Moderate Integrity Riparian Area.

### Riverdale Borough Plans and Land Use Regulations

The Borough's Natural Resource Inventory provides an extensive overview in both text and map form of Riverdale's wetlands, streams and other sources of surface and ground waters. However, because the inventory was prepared before the adoption of the RMP, the document does not identify or describe riparian areas or their integrity, nor does it show 300 feet protection area buffers for all Highlands Open Waters. **Therefore the Borough's environmental resource inventory (or Natural Resource Inventory) must be revised to reflect the locations and descriptions of the Highlands Open Waters and associated buffers, Riparian Areas and Riparian Integrity, as contained in RMP.**

The 2008 Utilities Element, the Borough's Natural Resource Inventory and the 2007 Municipal Stormwater Management Plan discuss the Borough's water features as well as sewer and water facilities. The 2007 Stormwater Management Plan provides extensive mapping and narrative of the Borough's water features, including Category One waterbodies, subwatersheds, floodplains, groundwater recharge areas, and water quality and quantity. The Plan also provides the Borough with recommended low-impact design and performance standards and a proposal for a spe-

cial water resource protection area that will incorporate a 300 foot buffer along category one waterway. No formal action has been taken to adopt either of these proposed ordinances. While the plans provide some recommendations that are set forth in the RMP, it does not include all of the policies and objectives laid out in the RMP. **In order to achieve consistency, the Borough must revise the Master Plan and Stormwater Management Plan to include Stream Corridor Protection/ Restoration Plan, containing 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.**

The Borough'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 Borough using documentation from the Flood Insurance Rate Map for Borough of Riverdale. 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 alterations procedures for the Riverdale's watercourses.

The Borough'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 Surface Water Quality Standards. The regulations establishes a 300 foot buffer along the category one stream known as the "special resource protection area". The regulation states that encroachment within the area shall be permitted only where previous disturbance has occurred. **However, none of the Borough'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 Borough'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 Borough's land use regulations will have to revised as follows: require low-development best management prac-**

**toes 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.**

### **4.3 Steep Slopes**

#### **RMP Goals and Policies**

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

The RMP goes on to define slopes as follows: Land 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 not highly susceptible to erosion, do not

have a shallow depth to bedrock and do not have a Soil Capability Class indicative of wet or stony soils are considered Limited Constrained Slopes.

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

- To require that applications for development include topographic information identifying the location of any Steep Slope Protection Areas.
- To require that applications for development involving parcels of land with slopes of 10 percent or greater include identification of forested lands, areas which are highly susceptible to erosion, depth to bedrock and Soil Suitability Classes.
- To prohibit land disturbance within areas which are considered Severely Constrained Slopes and Moderately Constrained Slopes, except for linear development that meets the requirements of the Highlands Water Protection and Planning Act Rules.
- To require the use of Low Impact Best Development Practices for any land disturbance or human development within areas which are Constrained or Limited Constrained Slopes or that involves an approved disturbance of a Severely Constrained or Moderately Constrained Slope.

#### **RMP Analysis**

As shown in the accompanying Steep Slope Protection Area Map, the majority of Borough's steep slope are located in the northwestern portion of the borough. The slopes are classified as a mix of limited, moderate and severely Constrained Slopes.

#### **Riverdale Borough Plans and Land Use Regulations**

Borough's Natural Resource Inventory identifies the changing topography of the Borough, however does not define the steep slope category. Therefore, the Borough's environmental resource inventory will need to be revised to provide definitions and mapping of steep slopes which reflects the different slope categories (greater than 20 percent, greater than 15 percent, and greater than 10 percent within riparian areas) contained in the RMP, as well as the different slope constraint classes ( Severe, Moderate, Limited) contained in the RMP.

The Borough has adopted a steep slope ordinance, Chapter 145 of the Borough Code. The ordinance defines slope less than 15% as non-critical, slopes between 15% - 25% as precautionary and slopes above 25% as prohibitive slopes. Additionally the ordinance permits the following:

- a) development and redevelopment in non-critical slope areas.
- b) A precautionary slope between 15% - 20% may have a maximum disturbance area of 50%
- c) A precautionary slope between 21% - 25% may have a maximum disturbance area of 25%.
- d) No disturbance is permitted in prohibitive slope.

Additionally, the regulation requires that a variance must be sought if the percentage of proposed disturbance is greater than that permitted. Further, the regulation permits disturbance of steep slope if its less than 1000 square feet. 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. **The Borough 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.**

#### 4.4 Critical Habitats

##### RMP Goals and Policies

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 develop-

- ment 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.

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 Area Map identifies the area in the Borough. It is located in the southwestern cor-

ner of the Borough. No Significant Natural Areas and Vernal Pools exist in the Borough.

### Riverdale Borough Plans and Land Use Regulations

The Natural Resource Inventory identifies the various wildlife species found in the Borough and their habitat areas. The NRI contains a list of species found in the Borough along with their endangered or threatened status. Additionally the map identifies the forest areas within the Borough that are wildlife habitats. **In order to achieve consistency, the Borough will need to revise and update its Natural Resource Inventory to be consistent with RMP. Additionally it must prepare and adopt a Conservation Plan Element that incorporates the relevant goals, policies, and objectives contained in the RMP. In addition, the Borough 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 Borough's land use regulations do not have any regulations addressing the critical habitat areas. **Therefore to be consistent with the RMP, the Borough must amend its land use regulations to incorporate minimum performance standards and a Critical Habitat Overlay District ordinance, as set forth in the Borough's Critical Habitat Conservation and Management Plan.**

### 4.5 Land Preservation and Stewardship

#### RMP Goals and Policies

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 High-

lands region. The Highlands Act contemplates preservation of additional open space and farmland resources in order to protect and enhance ecosystem function, protect drinking water resources, and provide for passive and recreational lands. These lands are identified on the Conservation Priority Area and Agricultural Priority Area Maps. In order to accomplish these purposes, the RMP includes strategies for land preservation and stewardship among preservation partners, and ensuring that sufficient financial, institutional, and innovative resources are available for land preservation and stewardship.

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

- To establish and fund local open space acquisition and stewardship programs or to expand existing open space and stewardship programs.
- To adopt and enforce development regulations for the Special Environmental Zone in the Preservation Area, where development shall not occur in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools including, but not limited to, fee simple acquisition, easement acquisition, TDR programs, and development regulations. These 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 stew-

ardship 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, Borough of Riverdale has a limited amount of land designated as Preserved Land. Per Highlands ERI this amounts to 8.37 acres of municipal preserved land.

As previously noted, areas prioritized by the Highlands Council for future preservation are shown on the Conservation Priority Area Map. **The Borough, 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 the Borough as a priority for agricultural preservation.

## Riverdale Borough Plans and Land Use Regulations

Riverdale's comprehensive Master Plan identifies the existing open space in the Borough. The Natural Resource Inventory identifies these parcels in text and mapping form. **The Borough should review the inventory to ensure it is up-to-date and, if necessary, submit additional RMP updates to the Highlands Council. In addition, the Borough should ensure that the ROSI (Recreation and Open Space Inventory) remains current.**

In addition, Borough's Master Plan identifies two parcels located in the southern portion of the Borough along each side of the Interstate 287 as potential open space lands. The parcels are recommended due to their existing steep slope environmental constraints. However, the plan also suggests that a portion of these parcels may be developed for future use. **The Borough should 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 Borough's master plan documents. As part of its review of land stewardship strategies, the Borough should consider participation in the voluntary Highlands TDR Program, which is further discussed in the next chapter of this report. To be consistent with the RMP, the Borough must amend its land use regulations to incorporate the pertinent RMP goals, policies, and objectives set forth above, including regulations requiring conservation easements on lands identified for preservation in the Master Plan.**

### 4.6 Carbonate Rock (Krastr) Topography

#### RMP Goals and Policies

The term karst describes a distinctive topography that indicates dissolution of un-

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

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

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

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

public health and safety, structures, and ground water quality are fully addressed and mitigated in the construction plans and subsequent approval process.

- 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.

#### **Riverdale Borough Plans and Land Use 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 the mapping, the Borough does not contain any Carbonate Rock Areas. Through Plan Conformance, the Borough should verify this finding. If Carbonate Rock Areas are located within the municipality, the Borough should pursue an RMP Update and conform to the RMP's goals, policies, objectives and programs for carbonate rock (karst) topography.

#### **4.7 Lake Management**

##### **RMP Goals and Policies**

Efforts to protect, restore and enhance the

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

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

- To establish unique standards (as compared to lakes within the Protection and Conservation Zones) for the Lake Community Sub-Zone within the ECZ within 1,000 feet of lakes, particularly with respect to the Shoreline Protection Tier, to prevent degradation of water quality, harm to lake ecosystems, and promote aesthetic values within the ECZ.
- To adopt and implement standards for application to public lakes in the Shoreland Protection Tier to address direct and proximate impacts upon the lake, such as shoreline modification and development, docks, piers, boathouses, dredging, vegetation removal, increased impervious cover, and pollutant discharges.
- To adopt and implement standards for application to public lakes in the Water

Quality Management Tier to prevent or minimize continuous pollutant sources that can contribute pollutants overland or through ground water to the lake from greater distances than the Shoreland Protection Tier.

- To adopt and implement standards for application to public lakes in the Scenic Resources Tier, including requirements for vegetative screening of buildings, building height limitations, and limits on tree and understory removal.
- To develop and adopt lake restoration plans for each of the municipality's developed lakes that has been identified as water quality impaired to restore, protect and, where possible, enhance lake water quality through management of pollutant sources in the Lake Watershed Tier. Total Maximum Daily Loads (TMDLs) adopted by the NJDEP to address known pollution problems may be used as lake restoration plans.
- To adopt standards for lake character and aesthetics for application to public lakes.
- To encourage increased public access to publicly owned lakes, within the lake's carrying capacity and while maintaining the lake character.
- To discourage or control teardowns that result in altered lake-community character, and the potential loss of historic and cultural values, and to encourage community-supported limitations in lot coverage and building height for new construction.
- To establish and implement performance and development standards for shoreline uses which achieve compatibility among shoreline activities and nearby neighborhoods.
- To utilize recreational sites as opportunities to educate the public regarding the ecological value of the lake environs.
- To explore appropriate means to provide public recreation at the shoreline

and on the water while ensuring retention of opportunities for passive recreation.

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

### **RMP Analysis**

The accompanying Lake Management Area Map shows that there are no lakes greater than 10 acres in size and associated Lake Management Areas within the municipality. Through Plan Conformance, the Borough should verify this finding.

### **4.8 Water Resources Availability**

#### **RMP Goals and Policies**

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, which 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 the Borough'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 one 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 two 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, both the watersheds have severe deficit (-7.10 to -1.00) net water availability.

### **Riverdale Borough Plans and Land Use Regulations**

The Borough will need to review and verify the accuracy of the RMP data as it relates to Water Resources Availability. The NRI and the Utilities element indicates that there is one public community well that supplies approximately 200,000 gallons of water everyday. Additionally, the Borough also purchases water from the Pascack Valley Water Commission (PVWC) which supplies upto 1,000,000 gallons of water per day.

**In order to achieve consistency with the**

**RMP, the Borough must prepare a Conservation Plan Element, which incorporates the relevant goals, policies, and objectives contained in the RMP. 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. The Borough 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 Borough's land use regulations do not address water resource availability, however the regulations do require development application to submit location and description of existing proposed water supply facilities. Therefore, **the Borough must amend its land use regulations in conformance with the Water Use and Conservation Management Plans required for all subwatersheds, including the criteria for prioritizing and assigning conditional water availability based on Land Use Capability Zones, as set forth in RMP. Also, the Borough must adopt low impact development best management practices relating to water resource 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.**

### **4.9 Prime Groundwater Recharge**

#### **RMP Goals and Policies**

The RMP focuses on a variety of measures to protect the replenishment of water re-

sources 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 implemen-

tation 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 Riverdale 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 the Borough, according to the RMP, generally correspond to the Riverdale Quarry area and the east side of I-287.

#### **Riverdale Borough Plans and Land Use Regulations**

The Borough's Natural Resource Inventory identifies in both map and text form, Riverdale's ground water recharge areas. These areas are ranked by inches of ground water recharge per year, which are based on New Jersey Geological Survey data. The Borough's 2007 Stormwater Management Plan also contains a map which presents this data. A review of both these documents indicates that although the areas shown as "prime" ground water

recharge areas on the RMP are shown in the Borough maps, they are not identified as "prime" in the way prescribed in the RMP. **Therefore, the Borough must amend its NRI to identify and define the "prime" ground water recharge areas, as set forth in the RMP.**

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

#### 4.10 Water Quality

##### RMP Goals and Policies

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

Surface Water Quality: The Highlands Council, working with the NJDEP, prepared a map that 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 pro-

grams 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 that 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 contami-

nated 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, both the existing watersheds within the Borough have been deemed as water quality impaired. The accompanying Wellhead

Protection Areas Map displays the locations of the Borough's public water supply well and the associated two-year, five-year, and twelve-year protection tiers. As indicated on the map, the wellhead protection areas lie mostly on the eastern side of I-287. The Map also shows that there are portions of wellhead protection areas from nearby municipalities that extend into the Borough.

### **Riverdale Borough Plans and Land Use Regulations**

The Borough's Natural Resource Inventory discusses the water quality in Riverdale. However, it notes that the water quality in Riverdale is "high" which is contradictory to the RMP findings of water quality being impaired. Therefore, **the Borough will need to review and verify the accuracy of the RMP data as it relates to Water Quality.**

The Natural Resource Inventory identifies the existing public community water well in the borough and proposes a wellhead protection ordinance for the protection of the well. Additionally, 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. The information provided in this map appears to correspond with the data in the RMP.

Additionally, the Plan identifies that the Pequannock River has shown elevated levels of fecal coliform, mercury and lead. This is a category one waterway. Additionally, the plan notes that NJDEP has established a TMDL to address temperature in Pequannock River. While the Plan includes information and recommendations regarding water quality in the Borough, there are not de-

finitive policies and regulations. **Therefore, the Borough 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 Borough will have to prepare a Conservation Element, which incorporates the relevant goals, policies, and objectives, contained in the RMP.**

The Borough's land use regulations do not contain any wellhead protection areas. **The Borough 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.**

### **4.11 Public Water/Wastewater Utilities and Private Septic Systems.**

#### **RMP Goals and Policies**

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 creation or extension of public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities within the Protection Zone, the Conservation Zone and the Environmentally Constrained Sub-Zones of the Planning Area, unless they are shown to be necessary to address threats to public health and safety from contaminated water supplies, cluster developments (subject to certain conditions), and development permitted through a Highlands Redevelopment Area or takings waiver.
- To allow for the creation or extension of public water supply systems or wastewater collection systems within the ECZ of the Planning Area to serve lands that are appropriate for designated TDR Receiving Zones, infill, redevelopment, to serve new areas for development that meet all other requirements of the requirements of the RMP, or to address the same provisions set forth above for the Protection Zone, the Conservation Zone and the Environmentally Constrained Sub-Zones.
- To require that new residential development served by public water supply systems and public wastewater collection and treatment systems be at a minimum density of ½ acre per dwelling unit for the developed part of the site (excluding wetlands, Highlands Open Waters buffers, and recreational space).
- To require that new non-residential development served by public water supply systems and public wastewater collection and treatment systems 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. 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 percent of the cluster project area in perpetuity for environmental protection or agricultural purposes and that the developed proportion occupies no more than 10 percent 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 practices.

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**

The accompanying Land Use Capability Public Community Water Systems Map and Land Use Capability Domestic Sewerage Facilities Map illustrate the areas within Riverdale Borough that are currently served by potable water utilities and sewer utilities respectively. It is noted that the Borough was required to verify the accuracy of this data during Plan Conformance Module 1 (Current Municipal Conditions & Build-Out Analysis). There were several number of discrepancies found between the RMP maps and the area served by potable water and

sewerage facilities. Corrected data was submitted to the Highlands as part of Module 1 which was accepted by the Highlands. **The Borough should continue to monitor and inform the Highlands Council of additional areas being actively served by water and sewer service providers.**

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

#### **Riverdale Borough Plans and Land Use Regulations**

Per Borough's Utilities Element and the Natural Resource Inventory, Borough's wastewater treatment is handled by the Pequannock River Basin Regional Sewage Authority (PRBRSA). Many residents in the Borough's eastern portion are served by septic. Per the Utilities Element, the Borough is considering a phased approach to extend the sewer services in many of the existing non-sewered neighborhoods. The RMP permits creation and expansion of wastewater collection systems in ECZ zones while prohibits the same in Protection zone. **The Borough should verify the proposed sewer expansion areas in relation to the land capability zones of the RMP.**

As discussed above, the Borough contracts the PRBRSA for its sewer collection and treatment. However, the PRBRSA does not have an approved Wastewater Management Plan (WMP) and NJDEP has delegated responsibility to Morris County to prepare and adopt a county wide WMP. Morris County has been working with NJDEP since mid-2008 towards preparation of

WMP that will be in conformance with the New Jersey Quality Planning Act (N.J.S.A.58:11A-1et seq.) and Water Quality Management Planning Rules (N.J.A.C. 7:15-3.4). This revised Wastewater Management Plan is expected to be completed by September 15, 2009.

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

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

The RMP requires that new residential development served by public water supply systems and public wastewater collection and treatment systems are required to be at a minimum density of 1/2 acre per dwelling unit and in case of non-residential are required to be a target floor area ratio

of 0.84. The Borough of Riverdale land use regulations do not have FAR regulation for non-residential zones. Therefore, the Borough will have to adopt the minimum FAR supplied in the RMP. Additionally, though most of the residential zones meet the minimum 1/2 acre per dwelling criterion, there are two zones R-7.5 and R-15 that do not meet the RMP requirement. Finally, the Borough would need to revise and discuss with the Highlands Council regarding expansion of sewer service areas in the existing neighborhoods. **As such, the Borough would be required to amend its Land Use Element and land use regulations to ensure they are consistent with RMP's provisions relating to density and intensity of development.**

#### **4.12 Agricultural Resources**

##### **RMP Goals and Policies**

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 Planning Area which involves new agricultural impervious cover to the total land area of a Farm Management Unit of greater than three percent but less than nine percent to develop and implement a Farm Conservation Plan.

- To require any agricultural or horticultural development in the Planning Area which involves new agricultural impervious cover to the total land area of a Farm Management Unit of nine 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, Riverdale does not contain any such areas and therefore the map is not included in this report. It should be noted that the Borough does not expect to find any Agricultural Resource Areas located within the Borough. ***Therefore, the Borough should verify that there are, in fact, no areas in the Borough that meet the RMP definition of Agricultural Resource Area. If such areas are found within the municipality, the Borough will need to pursue RMP Updates and revise its master plan and land use regulations in accordance with the RMP goals, policies, and objectives as set forth above.***

If the analysis of the Riverdale's Farmland reveals that there are, in fact, no Agricul-

tural Resources Areas, no planning program amendments would be required for Plan Conformance.

#### **4.13 Historic, Cultural and Archaeological Resources**

##### **RMP Goals and Policies**

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 that 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 Riverdale'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 four historic sites identified in the Borough.

##### **Riverdale Borough Plans and Land Use Regulations**

The Borough must review its historic, cultural, and archeological resources inventory to ensure that it is up-to-date.

The Borough's Historic Element identifies that fact that Morris County is creating an

updated inventory of historic sites. **The Borough based on the updated inventory revise and prepare its Historic Preservation and Plan Element, which should incorporate the relevant, goals, policies, and objectives contained in the RMP, as set forth above.**

In order to achieve Plan Conformance the Borough's must amend its land use regulations to incorporate the goals, policies and objectives related to Historic, Cultural, and Archeological Resources, as contained in the RMP, including the adoption of a local historic preservation ordinance and the establishment of a local advisory historic preservation body.

#### **4.14 Transportation**

##### **RMP Goals and Policies**

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 dem-

onstrates 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 the Borough are illustrated. As shown, in the Roadway Network Map, Riverdale's major roadways include Interstate Route 287, State Route 23 and County Routes; Newark –Pompton Turnpike and Paterson—Hamburg Turnpike. As shown on the Transit Network Map, the Borough has one park and ride area serving the bus routes. Additionally there is Freight service line located within the Borough. No passenger line exists within the Borough.

### **Riverdale Borough Plans and Land Use Regulations**

The Borough's most recent Circulation Element was prepared along with the Comprehensive Master Plan in 2008. It contains both in text and map form an overview of

street classifications throughout the Borough and recommendations for roadway improvements. Additionally the element contains description of the public transportation systems including the rail and the bus lines. A discussion on pedestrian circulation is also included in the element. The element notes that the current pedestrian circulation in the Borough occurs primarily along series of interconnected sidewalks in the older residential neighborhoods east of I-287. The element further discuss the Morris County proposed Trail systems and its relation to the Borough.

Since, the 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 interconnection between various residential neighborhoods, improving pedestrian circulation and expanding public transportation services. Therefore, in order to be consistent with the RMP, the **Borough will need to update its 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 Borough should also continue to monitor and assess the effects that could result from road improvements and extensions.**

### **4.15 Redevelopment, Smart Growth, Housing and Community Facilities**

#### **RMP Goals and Policies**

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 frame-

work for future land use that 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, a balance of employment and housing, 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 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 adopt municipal stormwater management Low Impact Development standards, including minimum requirements for site-specific hydrogeologic studies, limitations on impervious coverage, minimum requirements for systems employing a "design with nature" approach, and minimum requirements for use of grass channels, swales, infiltration basins, and green roofs.
- To adopt municipal Low Impact Development practices, including requirements for site-specific analysis of environmental features and constraints, limited site disturbance, clearing and grading to the minimum necessary to make reasonable use of the building envelope, and controls on soil erosion, sedimentation, and airborne dust.
- 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.
- 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 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 a Smart Growth Manual and Commu-

nity 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. In addition, the Highlands Council will develop technical guidance for Low Impact Development and other Best Management Practices.

### Riverdale Borough Plans and Land Use Regulations

*Redevelopment & Smart Growth:* With regard to redevelopment, the Borough's 2008 Comprehensive Master Plan identifies the nearly built out status of the Borough of Riverdale. In relation to this status, the plan identifies two main areas as designated redevelopment areas. The first one identified as "Downtown Development Scenario" includes Borough's downtown area along the Paterson-Hamburg Turnpike. The master plan states that "*The community identified this area as having the potential to be revitalized as a **mixed-use** commercial and retail district adjacent to the Turnpike and Pequannock River. A riverfront promenade with trails and more open space with public access and an enhanced "boulevard" style roadway and streetscape design for the Turnpike is envisioned*". The boundary of this area is located within the Community Redevelopment district which permit mixed use development with retail on first floor and residential on upper floors.

The second designated Redevelopment Area is identified as "Riverdale Quarry Development Scenario". This as the name suggest involves the reuse of the Riverdale Quarry as a possible **multiple use** development designed for use by both local residents and regional visitors. The reclamation of the Riverdale Quarry is consistent with

New Jersey State-led Smart Growth principles that encourage infill development in previously developed communities, including Brownfield sites and environmental reclamation areas. The proposed redevelopment suggests that this area could include uses such as a hotel and conference center, a public green, specialty retail, possible residential uses, athletic facilities, an amphitheater, and possibly a passenger railroad station. Per the zoning map, this area is currently identified as Industrial Quarry zone and could be rezoned as when the quarry is abandoned in future.

Another significant step that the Borough has taken toward the promotion of smart growth is the adoption of its stormwater management regulations in 2006 (revised 2007), which require, to the maximum extent practicable, that minimum standards to control erosion, infiltration, ground water recharge, and stormwater runoff be met by incorporation 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.

The Borough also made progress when it adopted the Green Element as part of its Comprehensive Master Plan in 2008. The Element promotes sustainable green practices for land development. The element recommends amendment of its land use ordinances with new requirements to obtain LEED (Leadership in Energy and Environmental Design) certification standards; consider LEED standards for all developable and redevelopable municipal buildings; incorporate additional Low Impact

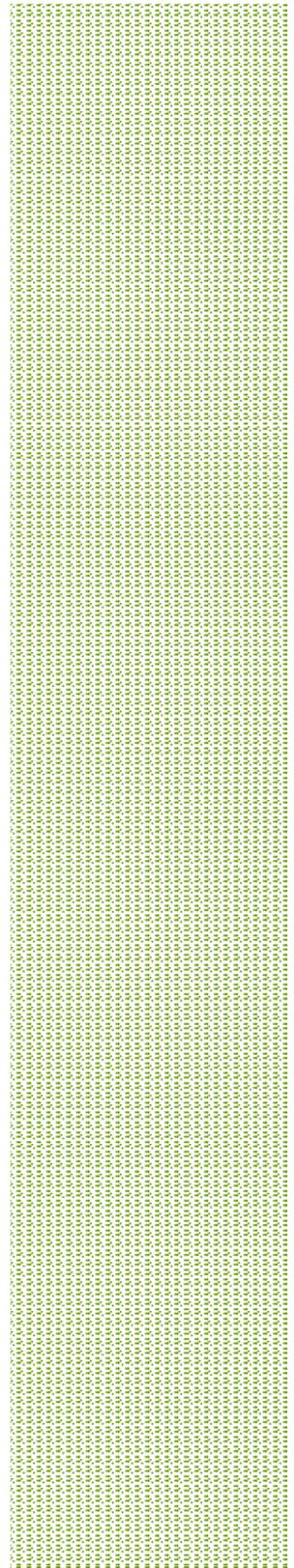
Development and sustainable design standards, such as green architecture, reuse of existing structures, indigenous landscaping, gray water reuse and solar energy use.

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

*Housing and Community Facilities:* As indicated previously, the Housing Elements and Fair Share Plans prepared for Riverdale over the years have addressed the Borough's fair share affordable housing obligation for COAH's first, second and third rounds. The Borough received substantive certification of its first round on May 1, 1991 for the period of 1987 to 1993. On November 3, 1999 the Borough received its substantive certification for the second round. COAH adopted new rules in November 2004 for the implementation of their third round methodology, but these rules were subsequently determined, through litigation, to require modification. A new set of revised Third Round rules were adopted in

2008. Riverdale, due to its participation in Highlands Plan Conformance, was granted an extension to prepare a new Housing Element and Fair Share Plan. **The Borough must prepare and adopt a new housing plan no later than December 8, 2009.**

*Community Facilities:* The Borough's most recent Community Facilities Plan Element was prepared in 2008 along with the Comprehensive Master Plan. It provides an inventory of Riverdale's existing educational facilities, libraries, firehouses, police stations, department of public works and municipal services. It recommends the need for expansion and relocation of some of these facilities. Given that this document was prepared before the RMP, the borough will need to update its 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.



## **5. STEPS TO BASIC PLAN CONFORMANCE**

### **5.1 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. 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 Borough of Riverdale has already adopted a "Notice of Intent" indicating its intent to pursue Plan Conformance Planning Areas by the December 8, 2009 deadline.

### **5.2 Key Requirements for Basic Plan Conformance.**

The following section details each of the key requirements for Basic Plan Conformance, and evaluates the Borough's planning program to determine the level of ef-

fort required to complete these key requirements:

#### 1. Build-Out Analysis

The Borough 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 has provided the Borough with current information available regarding developable lands, preserved lands, and areas served with potable water and wastewater utilities, which were verified for accuracy by the Borough. 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 Borough 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 Borough is required to supplement its 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.

## 3. Master Plan

The Borough 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 Borough may adopt as a supplement to its existing Master Plan. The Borough 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

Borough 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 Borough 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 Borough may choose which to incorporate, if any.

### (b) Land Use Plan

For the Land Use Plan component, the Borough is required to adopt all applicable Highlands Land Use categories, including Areas, Zones, and Sub-Zones. The Borough 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 Borough must adopt, by reference, Highlands water and wastewater management provisions as the major criteria for assessing proposed density/intensity of development. The Borough is also required to incorporate the basis for cluster development standards into the municipal

Land Use Plan. Lastly, the Borough 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 Borough 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 Borough 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 Borough will be required to prepare a new Housing Element and Fair Share Plan addressing its Third 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 Borough through 2018.

(d) Conservation Plan

For the Conservation Plan component, the Borough is required to adopt Highlands Resource Area Maps, as applicable, as well as Highlands Resource categories as defined in the RMP. The Borough 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 Borough 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 Borough is required to incorporate the basis for requiring Low Impact Development and use of Best Management Practices throughout resource areas.

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

(e) Utility Services Plan

For the Utility Services Plan, the Borough is required to adopt all applicable RMP Goals, Policies, and Objectives as they relate to Utilities, modified to apply to the local level. The Borough 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 Borough 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 Borough 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 Borough must ensure coordination with the Land Use Plan and incorporation of smart growth principles.

(g) Open Space Plan

For the Open Space Plan, the Borough 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 Borough must cross-reference to any existing Open Space Plan. Lastly, the Borough is required to adopt an up-to-date, mapped Recreation and Open Space Inventory, unless an existing inventory remains current.

(h) Community Facilities Plan

For the Community Facilities Plan, the Borough 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 Borough must incorporate energy efficiency goals and consideration of shared services.

(i) Sustainable Economic Development Plan

For the Sustainable Economic Development Plan, the Borough 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 Borough must provide for coordination with Highlands Council

eco-, agri- and heritage tourism programs, where applicable.

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

The Borough 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 Borough'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 Riverdale as Potential Areas for Voluntary TDR Receiving Zones, which are further categorized into Greenfield Opportunities and Redevelopment and Infill Opportunities.

The Borough should, therefore, consider the potential benefits and drawbacks of Riverdale's voluntary participation in the Highlands TDR Program. If the Borough 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 Borough 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 Borough may adjust as needed for municipal applicability. Alternatively, the Borough 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 Borough 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 Borough with these definitions 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 Borough 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. Water and/or wastewater treatment availability and limitations on utility extensions may affect lot size and lot coverage requirements.

(c) Application Submission Checklists

The Borough 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 Borough 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 Borough 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 Borough is required to adopt, a 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, storm-water 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 Borough is required to adopt procedural requirements applicable to resource area applications and review thereof. The Borough 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. 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 Borough 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 Borough 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 Borough 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 Borough'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 time-frame 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.

## 6. ANTICIPATED COSTS & PROJECT TIMEFRAMES

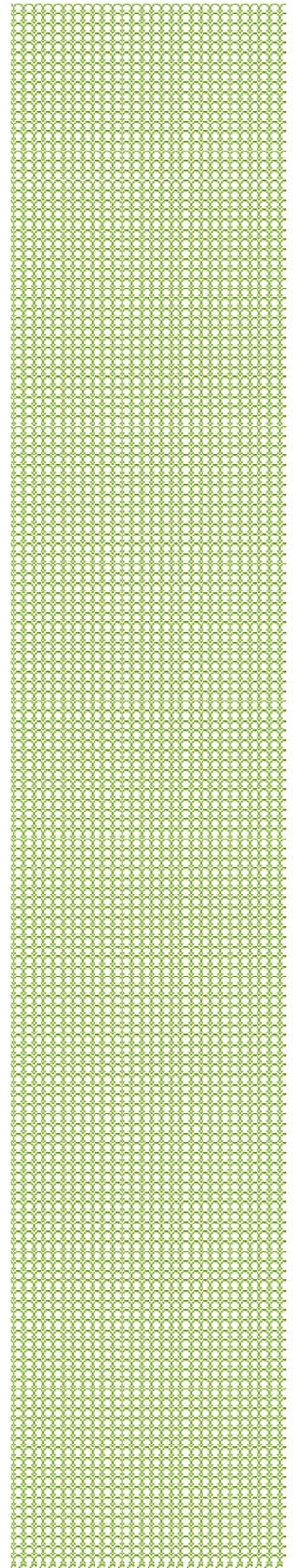
As outlined in the previous section of this report, the Borough of Riverdale has until December 8, 2009 to complete the steps necessary for Basic Plan Conformance and submit its Petition to the Highlands Council. The following table details each of the key requirements for Basic Plan Conformance and 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 Borough of Riverdale

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.	<b>February 24, 2009 (completed)</b>	\$15,000	\$15,000
Conduct second step of Highlands Build-Out Analysis (Module 2) and submit to Highlands Council for review.	<b>June 2, 2009 (completed)</b>	\$10,000	\$10,000
Prepare draft Housing Element and Fair Share (Module 3) and submit to Highlands Council for review.	December, 2009	\$7,500	\$7,500
Prepare draft Environmental Resource Inventory (Module 4) and submit to Highlands Council for review.	<b>June 30, 2009 (completed)</b>	\$2,000	\$2,000
Prepare draft Highlands Master Plan Element (Module 5) and submit to Highlands Council for review.	September, 2009	\$2,500	\$2,500
Prepare draft Highlands Development Regulations (Module 6) and submit to Highlands Council for review.	October, 2009	\$ 5,000	\$5,000
Adopt Housing Element and Fair Share Plan.	November, 2009	\$1,000	—
Prepare Municipal Self-Assessment (MUA) and Implementation Schedule (Module 7) and submit with draft plans, ordinances, RMP updates, Map Adjustments, and Petition for Plan Conformance to Highlands Council.	<b>December 8, 2009</b>	\$8,000	\$8,000
Submit Petition for Substantive Certification to COAH.	<b>December 8, 2009</b>	\$1,000	—

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

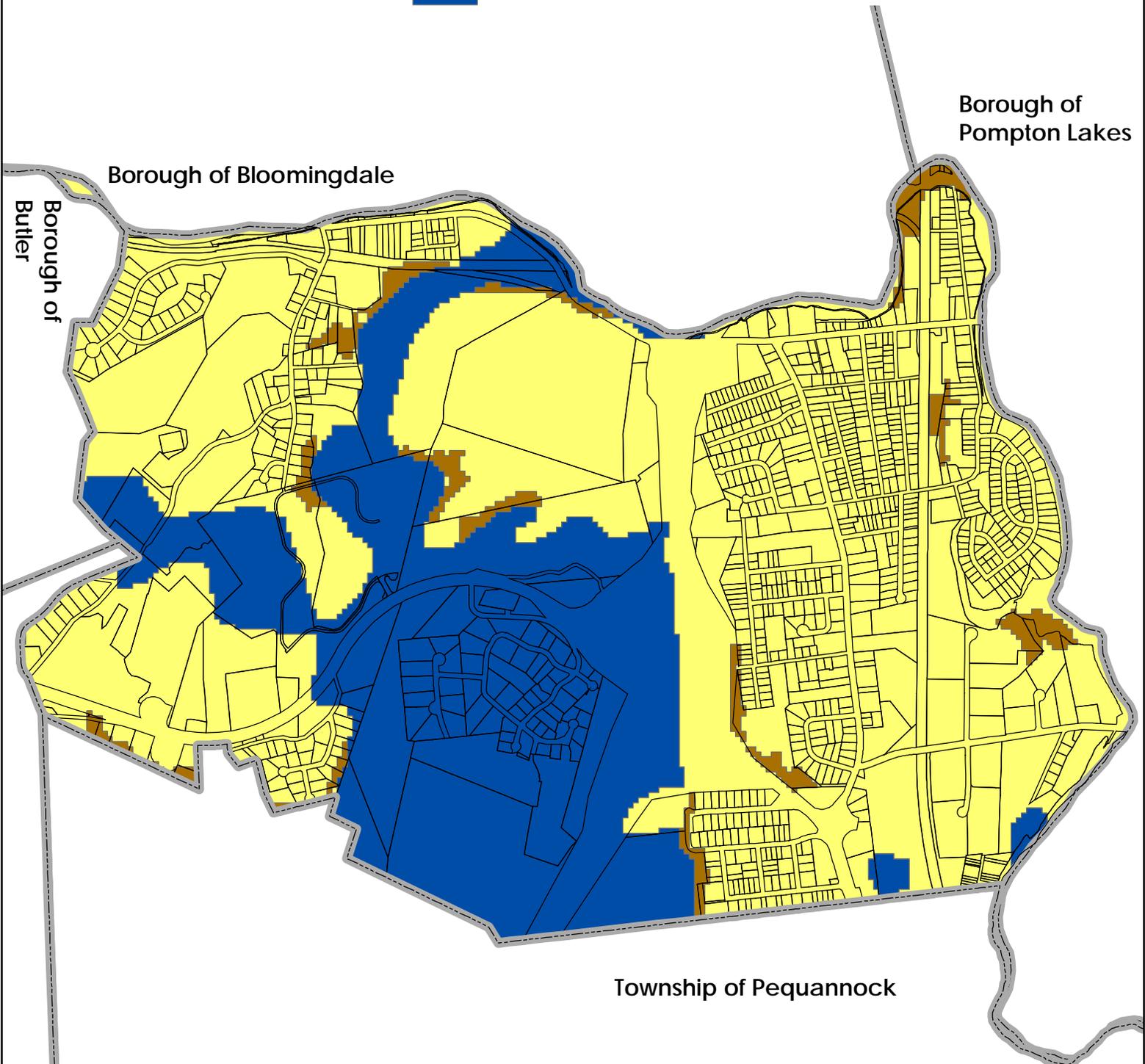
7. MAPS





### Land Use Capability Zone

- Existing Community Zone
- Existing Community Environmentally Constrained- Subzone
- Protection Zone

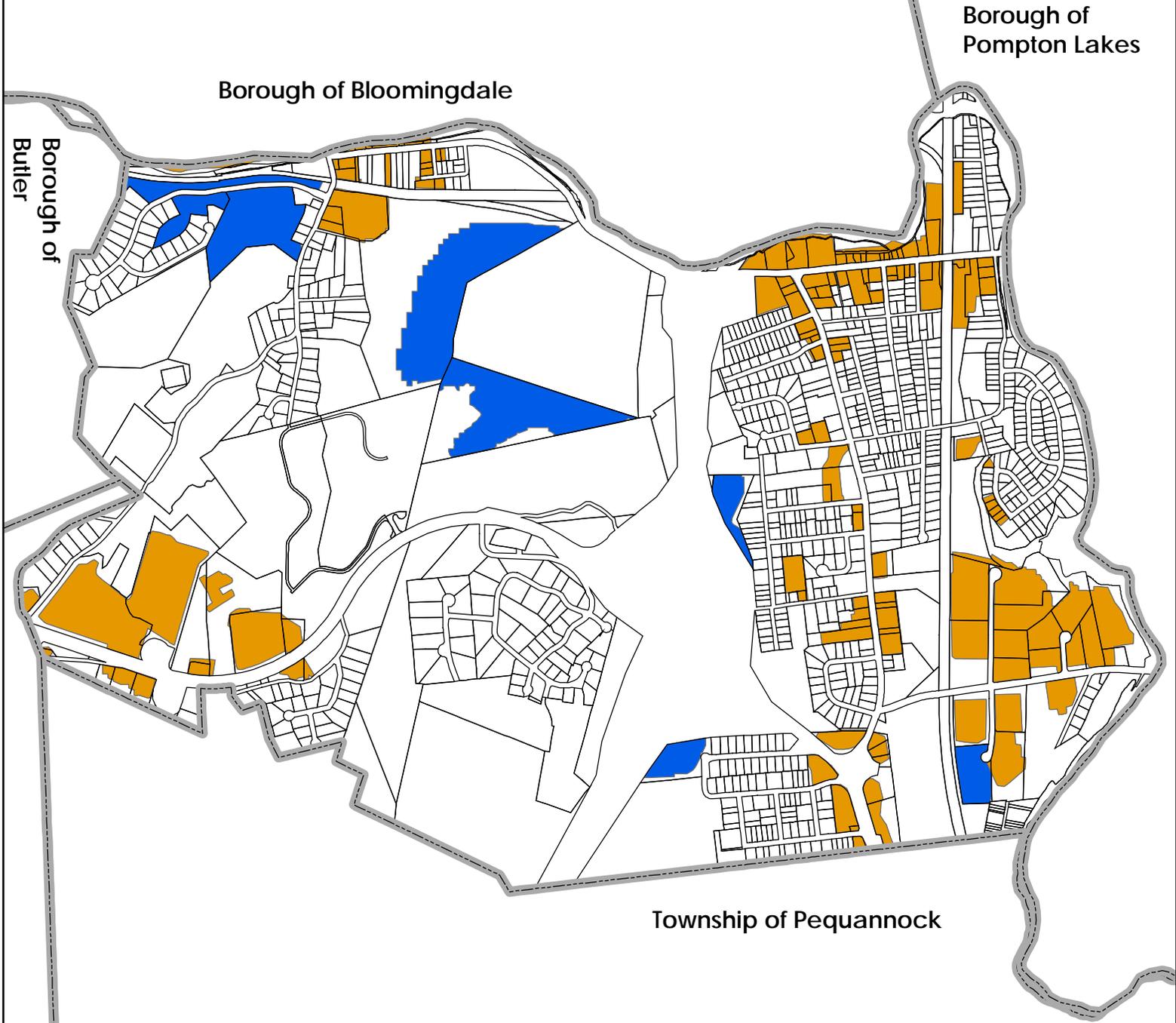


<p>Dwg. Title</p> <p style="text-align: center;"><b>Land Use Capability Zone Map</b></p>	<p>Project No.</p> <p style="text-align: center;">2209.02</p>	<p>Dwg. Date</p> <p style="text-align: center;">06/24/09</p>	<p>Drawn By</p> <p style="text-align: center;">MA</p>
<p><b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL 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;"><b>Highlands Initial Assessment Report</b></p> <p style="font-size: small;">BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY</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 25</p> <p>Drawing No.</p> <p style="text-align: center;">LMA</p>
<p>2009 COPYRIGHT BA- NOT TO BE REPRODUCED</p>			



# Legend

- Redevelopment and Infill Opportunities
- Greenfield Opportunities

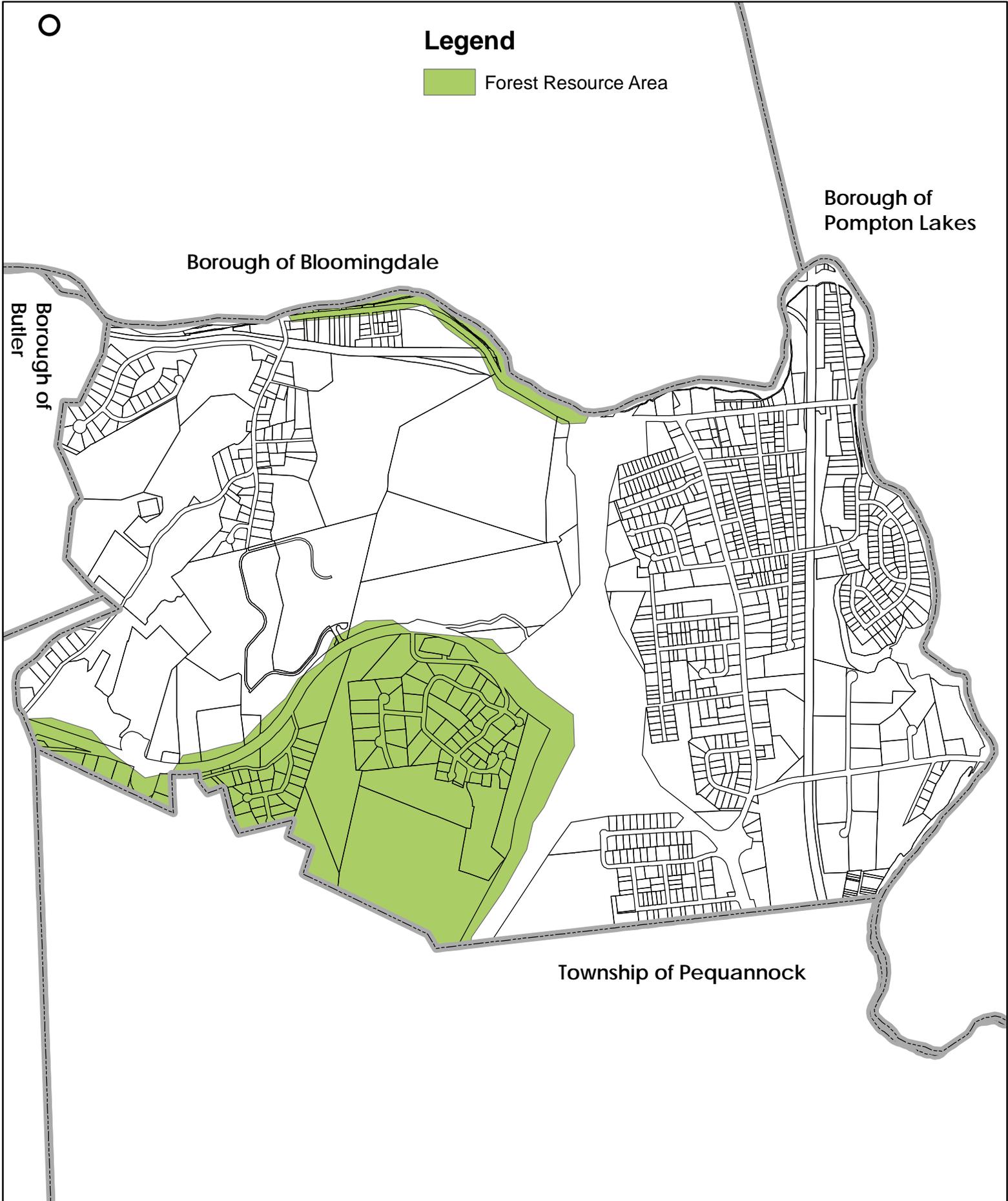


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<p><b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599</p>	<p>Project Title <b>Highlands Initial Assessment Report</b></p> <p><small>BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY</small></p>	<p>Dwg. Scale <b>N.T.S.</b></p>	<p>Sheet No. <b>2 of 25</b></p> <p>Drawing No. <b>LMA</b></p>
<p>2009 COPYRIGHT BA- NOT TO BE REPRODUCED</p>			



# Legend

 Forest Resource Area



Dwg. Title

Forest Resource Area

Project No.

2209.02

Dwg. Date

07/07/09

Drawn By

MA



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Sheet No.

3 of 25

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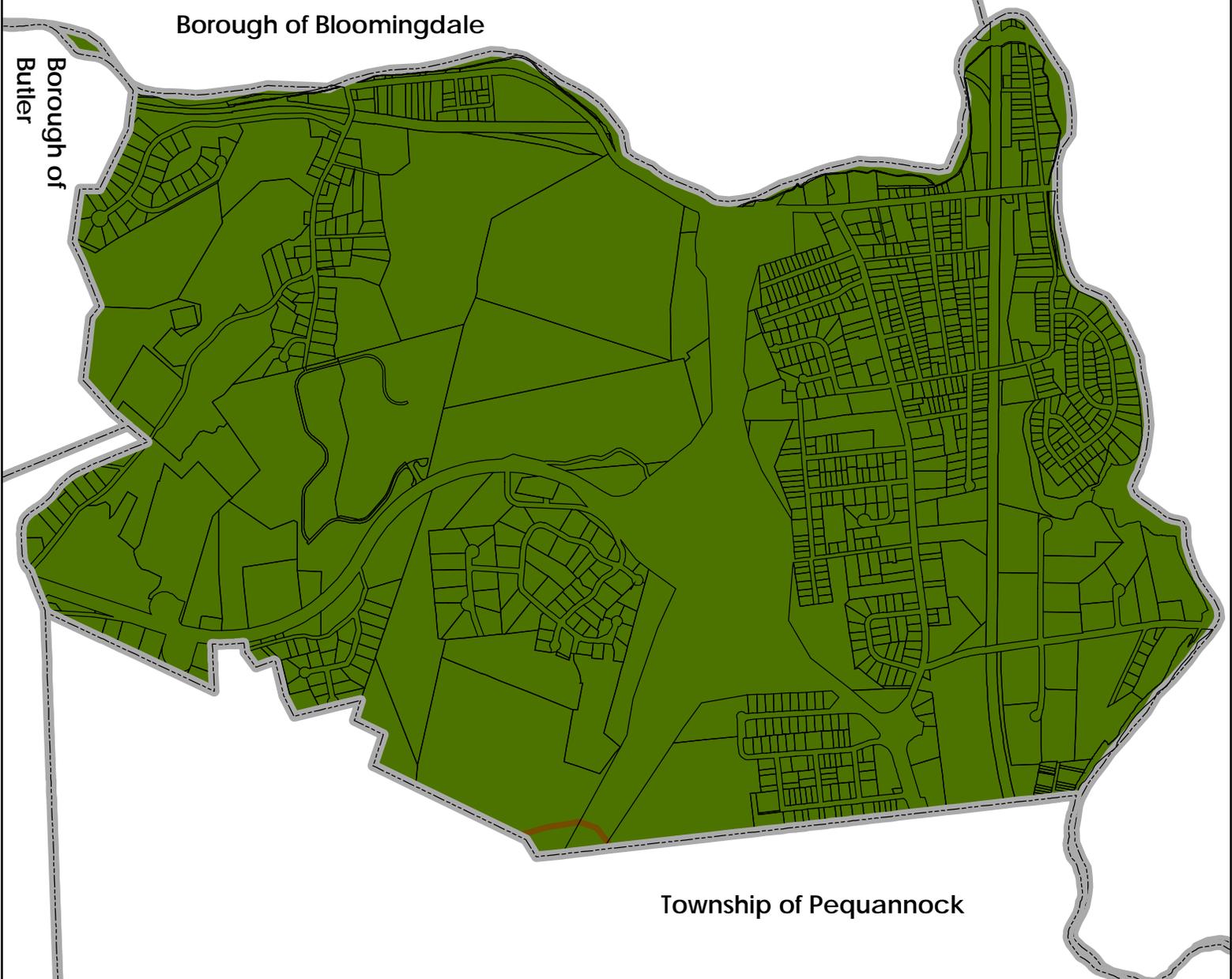
### Forest Integrity

 High

Borough of Bloomingdale

Borough of Pompton Lakes

Borough of  
Butler



Township of Pequannock

Dwg. Title

Forest Integrity Indicators by HUC14

Project No.

2209.02

Dwg. Date

06/17/09

Drawn By

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Dwg. Scale

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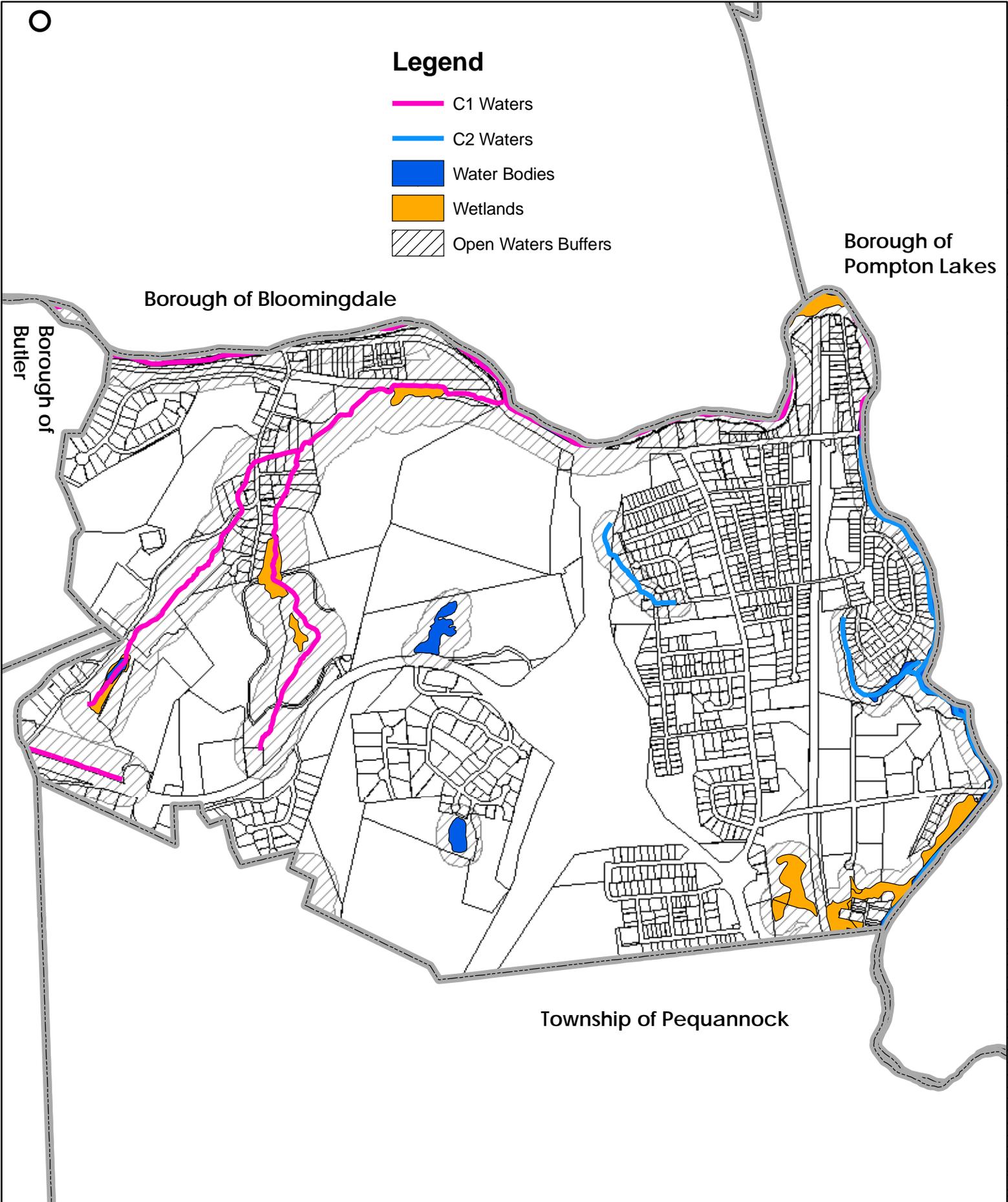
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### Legend

-  C1 Waters
-  C2 Waters
-  Water Bodies
-  Wetlands
-  Open Waters Buffers

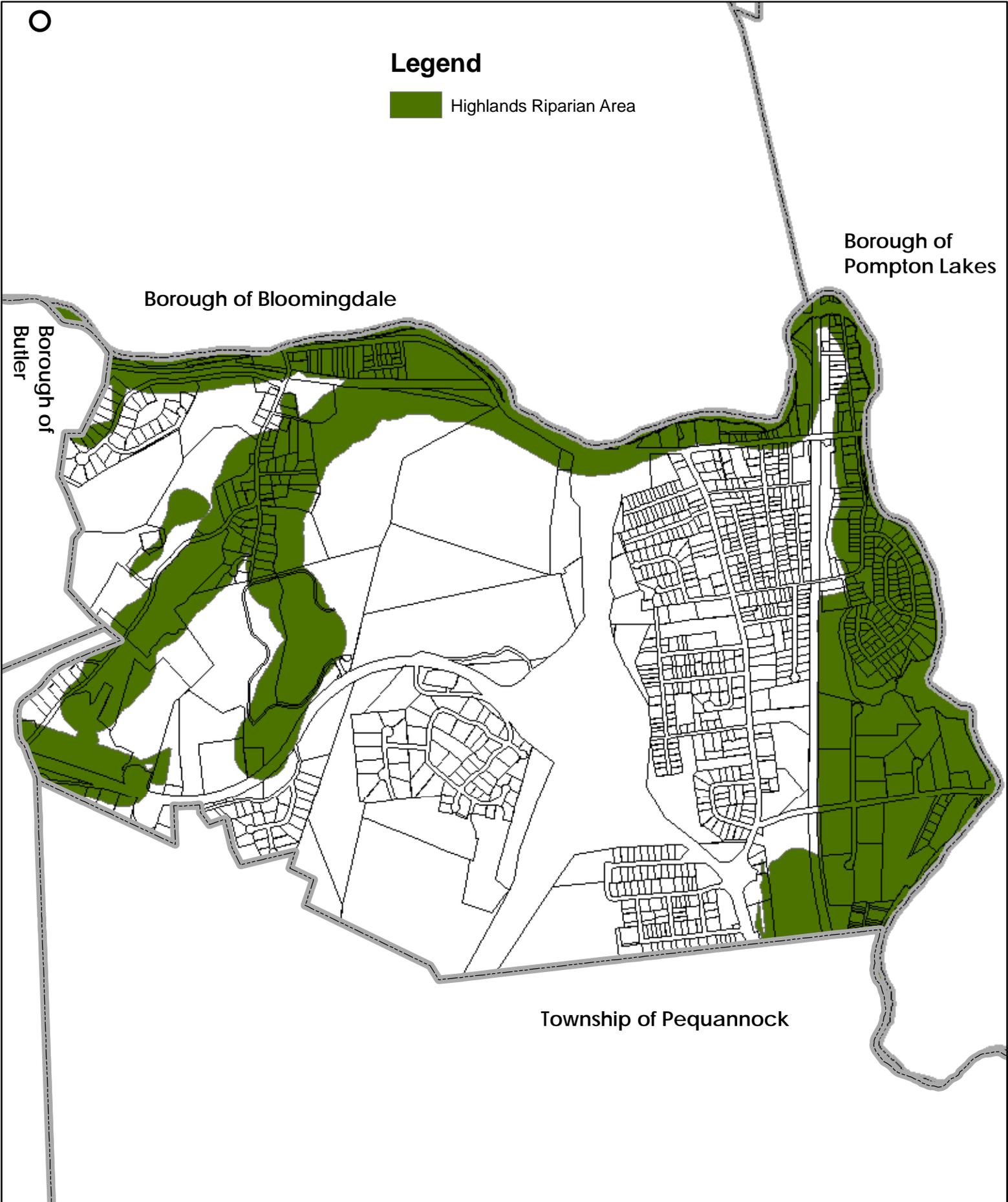


Dwg. Title <b>Highlands Open Waters</b>	Project No. 2209.02	Dwg. Date 06/17/09	Drawn By MA
 <b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <b>Highlands Initial Assessment Report</b> BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 5 of 25 Drawing No. LMA
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### Legend

 Highlands Riparian Area



Borough of Bloomingdale

Borough of Pompton Lakes

Borough of Butler

Township of Pequannock

Dwg. Title

Riparian Areas Map

Project No.

2209.02

Dwg. Date

06/17/09

Drawn By

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Dwg. Scale

N.T.S.

Sheet No.

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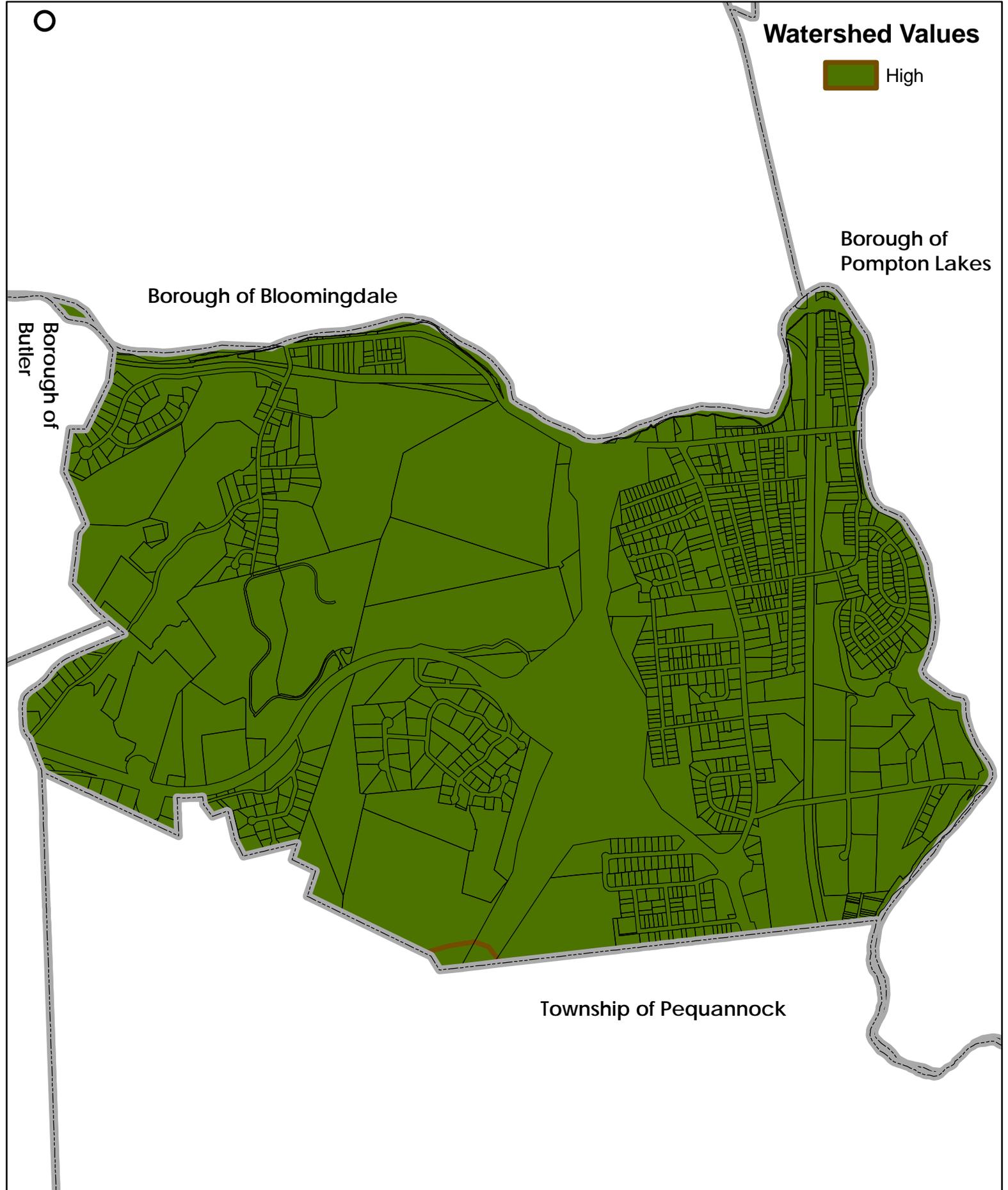
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# Watershed Values

 High



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Borough of Pompton Lakes

Borough of Butler

Township of Pequannock

Dwg. Title

Watershed Values by HUC14

Project No.

2209.02

Dwg. Date

06/17/09

Drawn By

MA



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Project Title

Highlands Initial Assessment Report

Dwg. Scale

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Sheet No.

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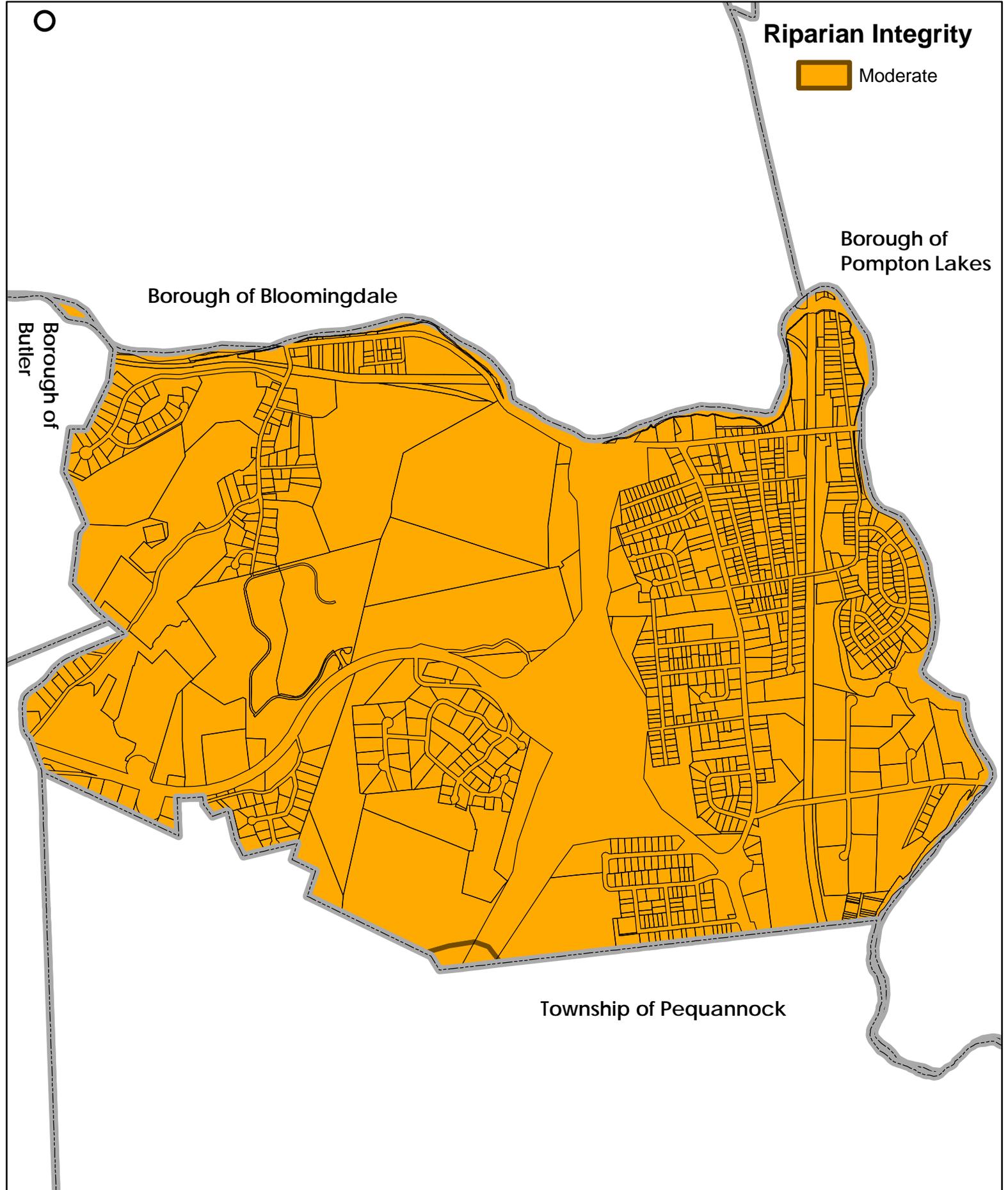
Drawing No.

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# Riparian Integrity

 Moderate

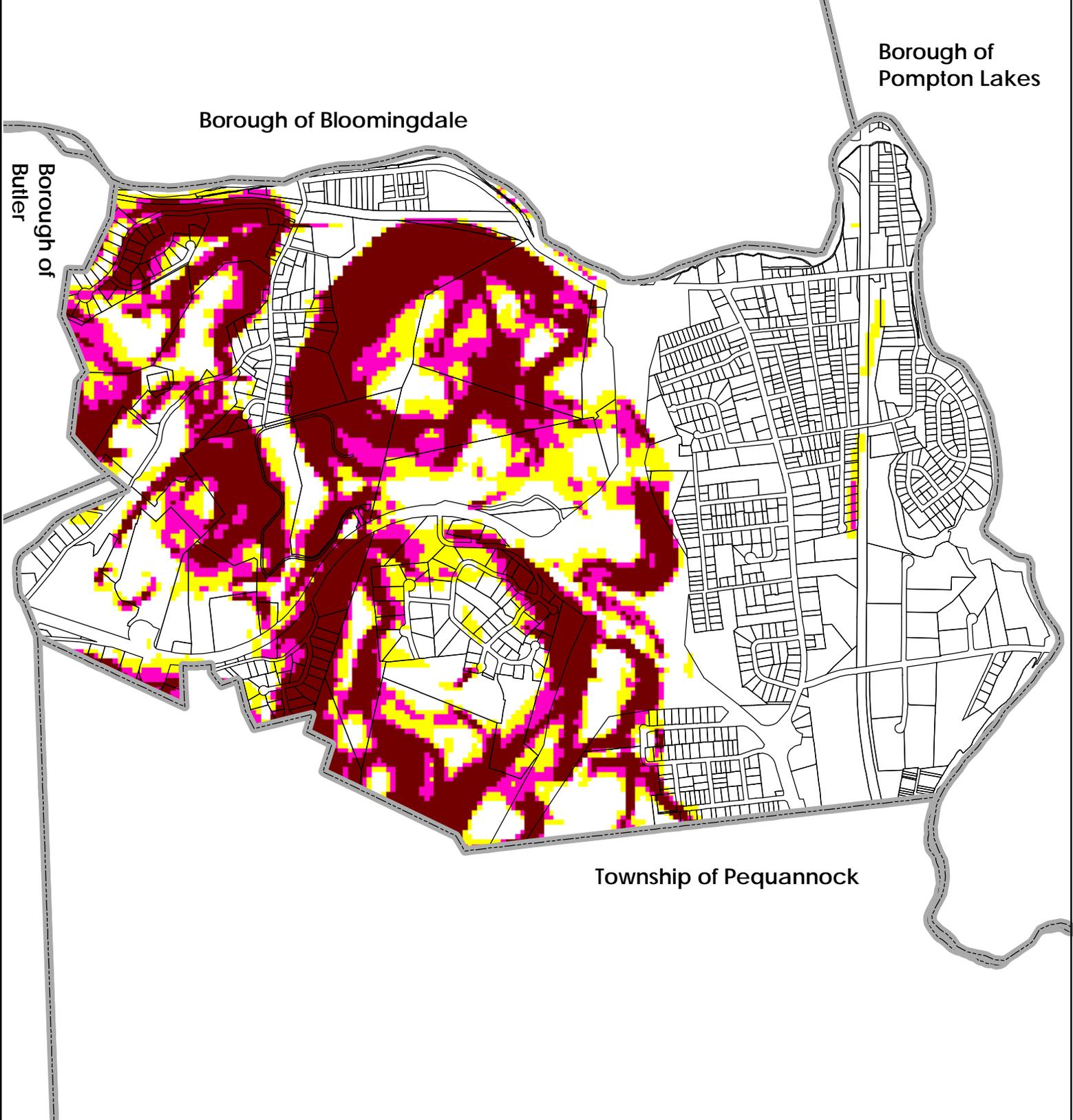


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O

### Legend

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



Dwg. Title

Step Slope Protection Area Map

Project No.

2209.02

Dwg. Date

06/23/09

Drawn By

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Project Title

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Dwg. Scale

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Drawing No.

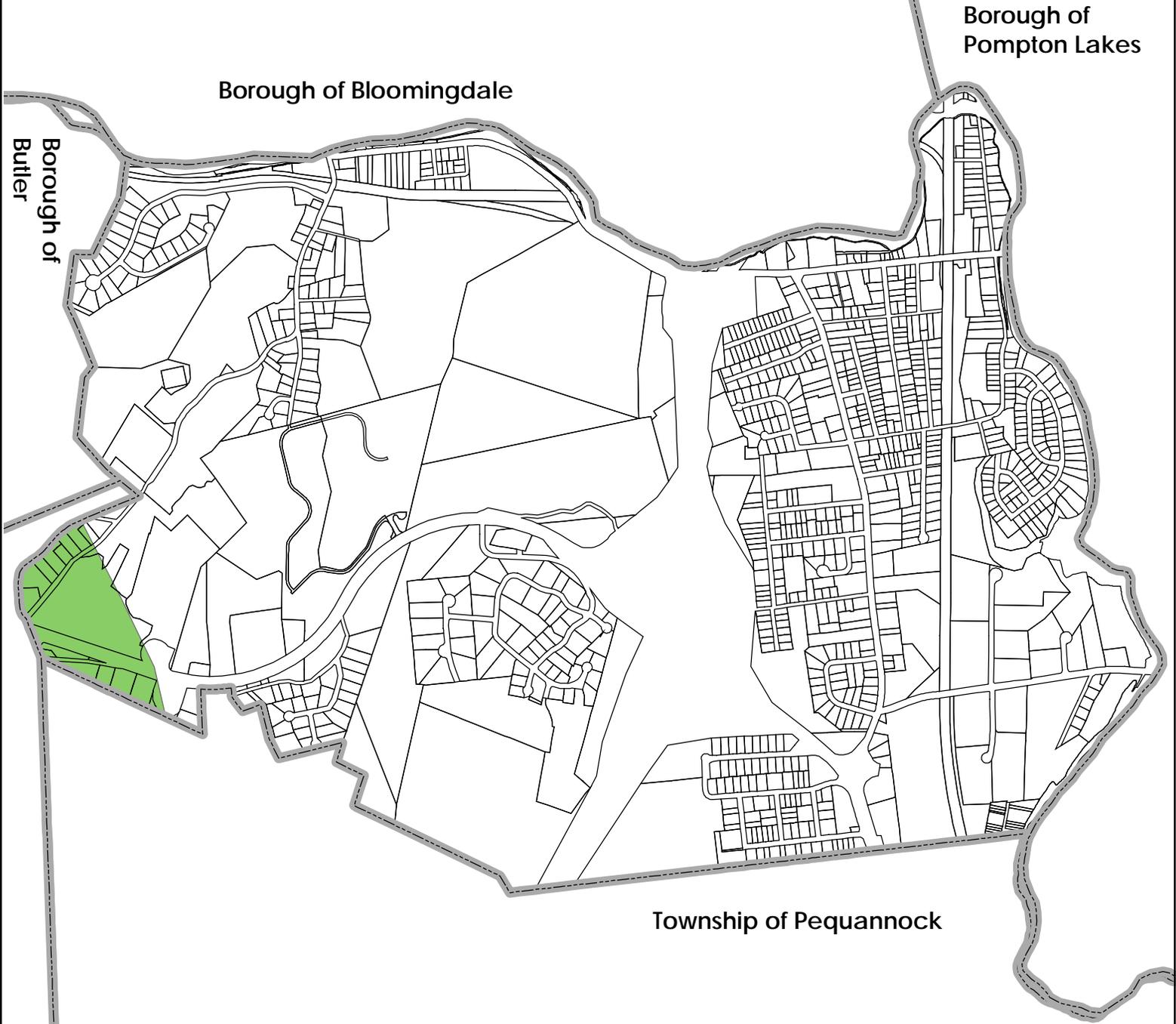
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### Legend

 Critical Wildlife Habitat



Dwg. Title

Critical Wildlife Area Map

Project No.

2209.02

Dwg. Date

04/29/09

Drawn By

AP



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### Legend

 MUNICIPAL

Borough of Bloomingdale

Borough of Pompton Lakes

Borough of Butler

Township of Pequannock



Dwg. Title

Preserved Lands

Project No.

2209.02

Dwg. Date

06/23/09

Drawn By

MA



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Project Title

Highlands Initial Assessment Report

Dwg. Scale

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Drawing No.

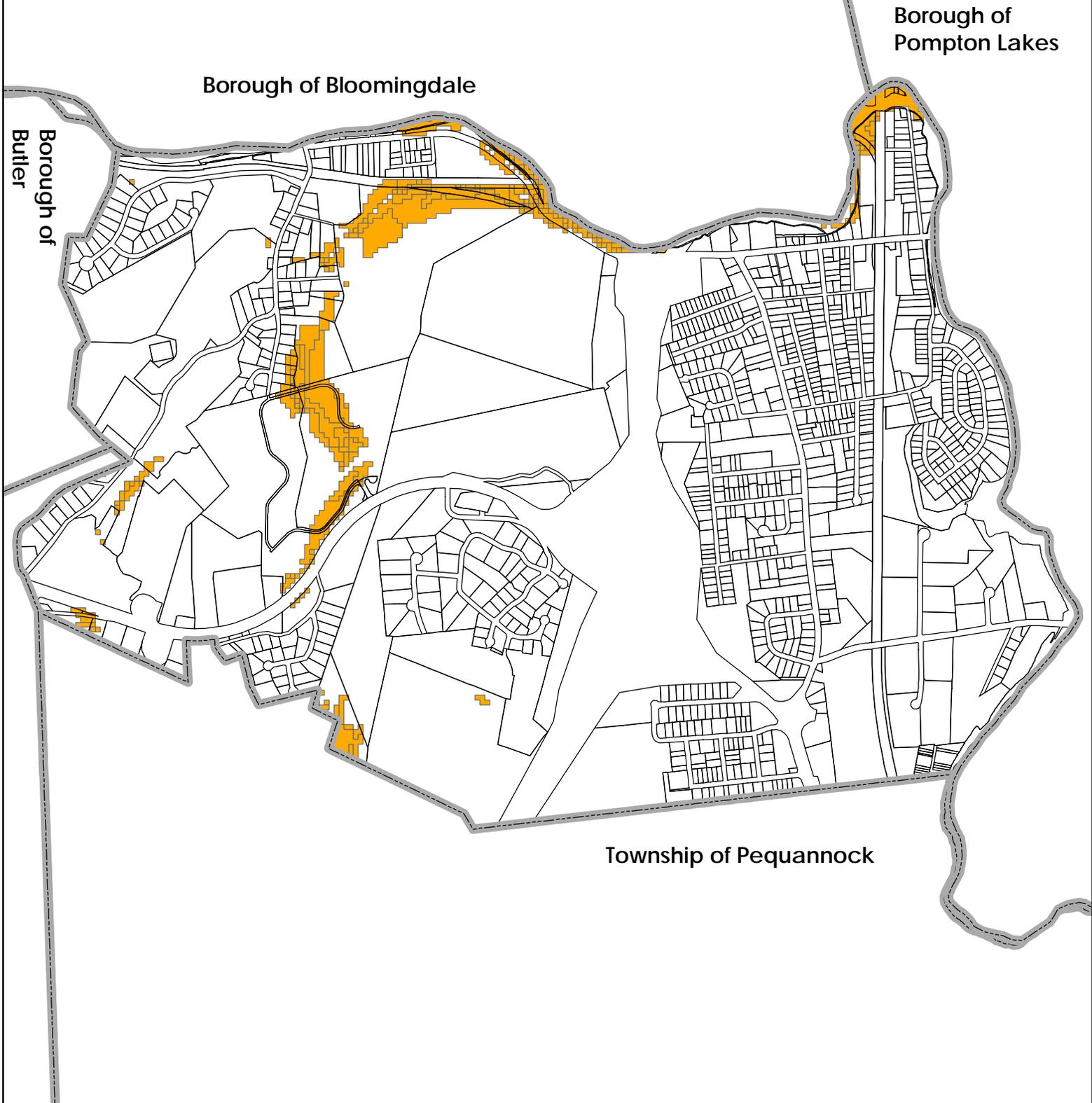
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# Conservation Priority Area

 Moderate



Borough of Bloomingdale

Borough of Pompton Lakes

Borough of Butler

Township of Pequannock

Dwg. Title

Conservation Priority Area

Project No.

2209.02

Dwg. Date

04/29/09

Drawn By

AP



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Project Title

Highlands Initial Assessment Report

Dwg. Scale

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Drawing No.

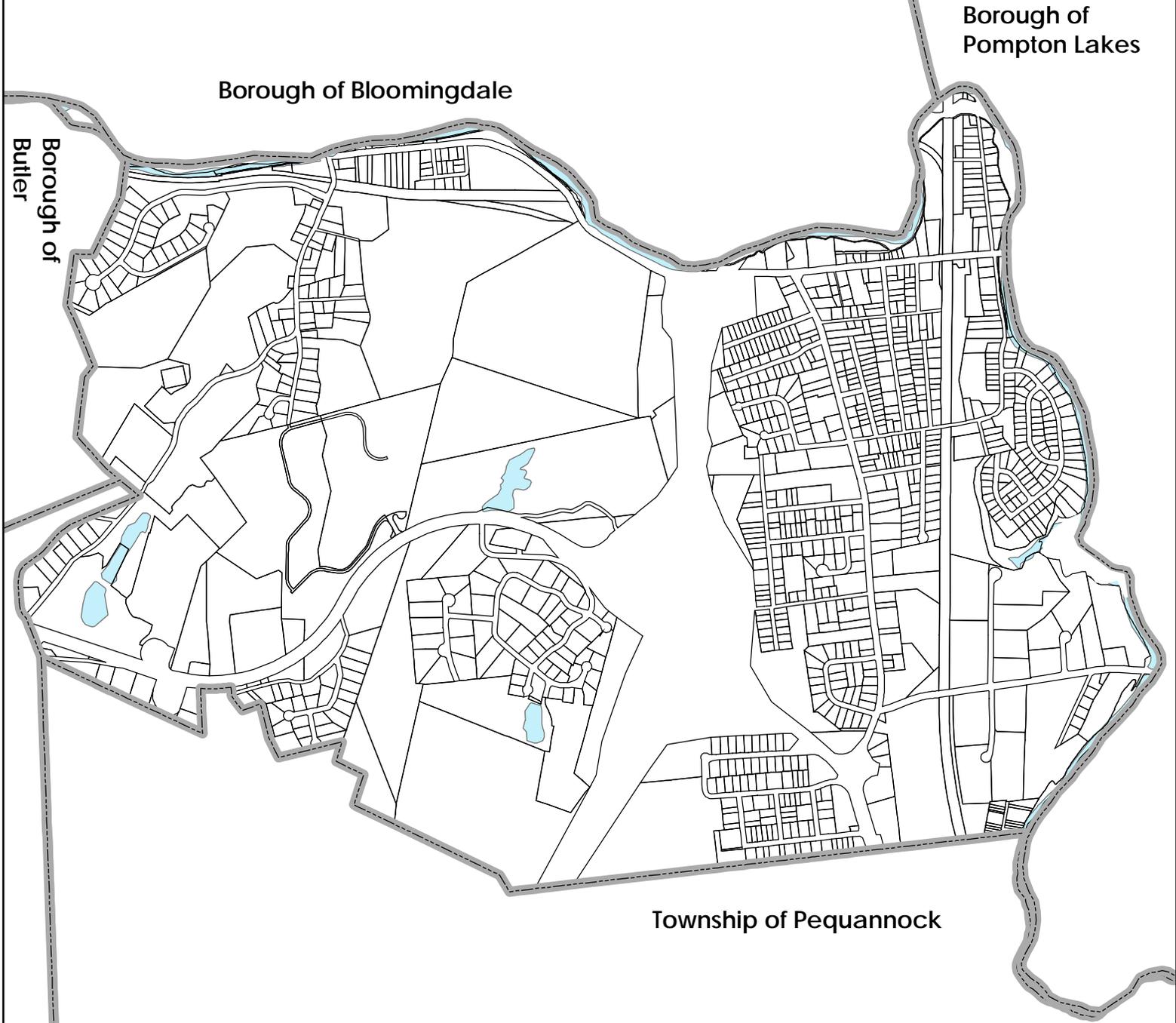
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### Legend

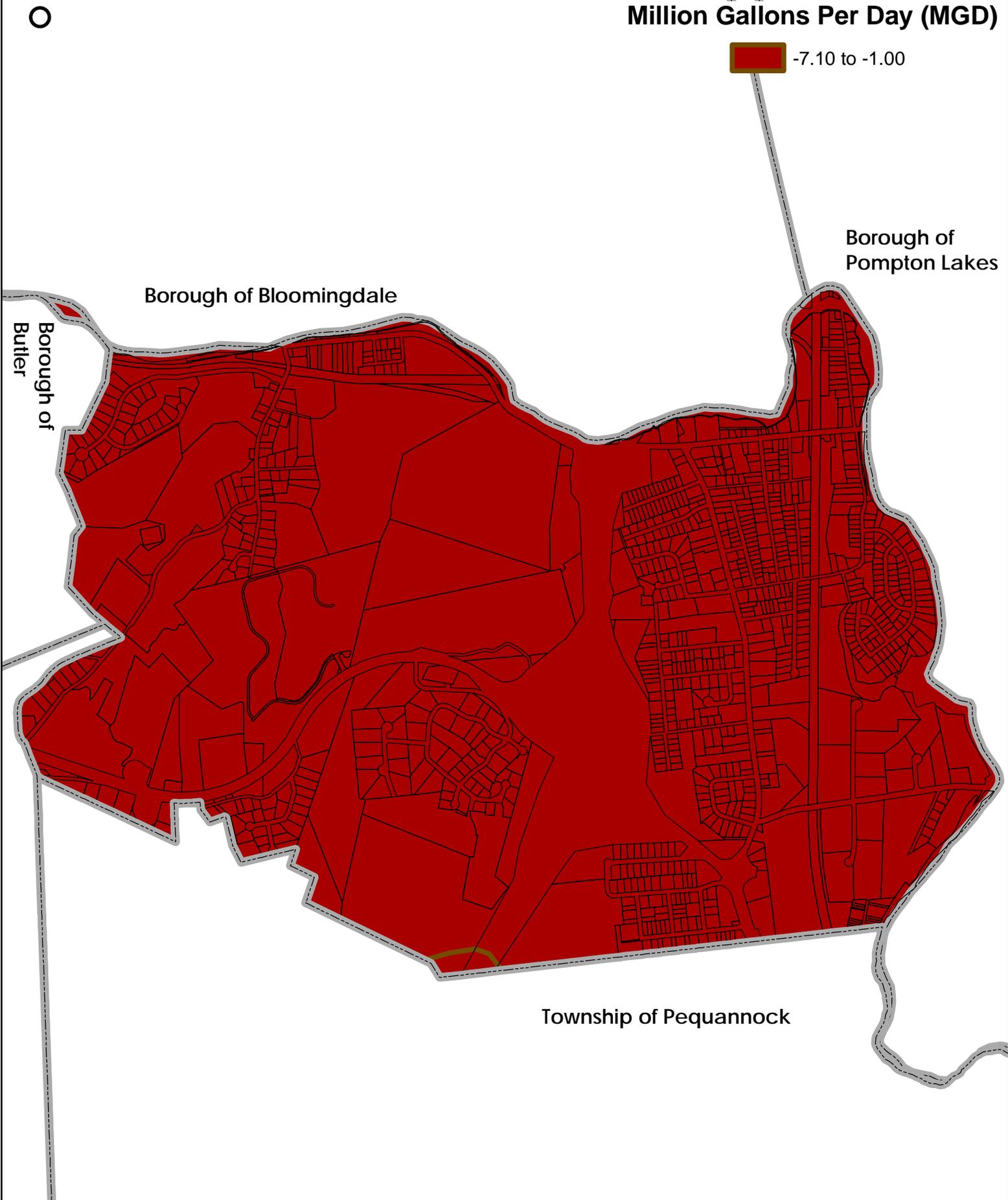
 Lakes and Ponds



Dwg. Title <p style="text-align: center;"><b>Lake Management Area</b></p>	Project No. <p style="text-align: center;">2209.02</p>	Dwg. Date <p style="text-align: center;">06/23/09</p>	Drawn By <p style="text-align: center;">MA</p>
 <b>BURGIS ASSOCIATES, INC.</b> 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;"><b>Highlands Initial Assessment Report</b></p> BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY	Sheet No. <p style="text-align: center;">13 of 25</p>	Drawing No. <p style="text-align: center;">LMA</p>
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**Million Gallons Per Day (MGD)**

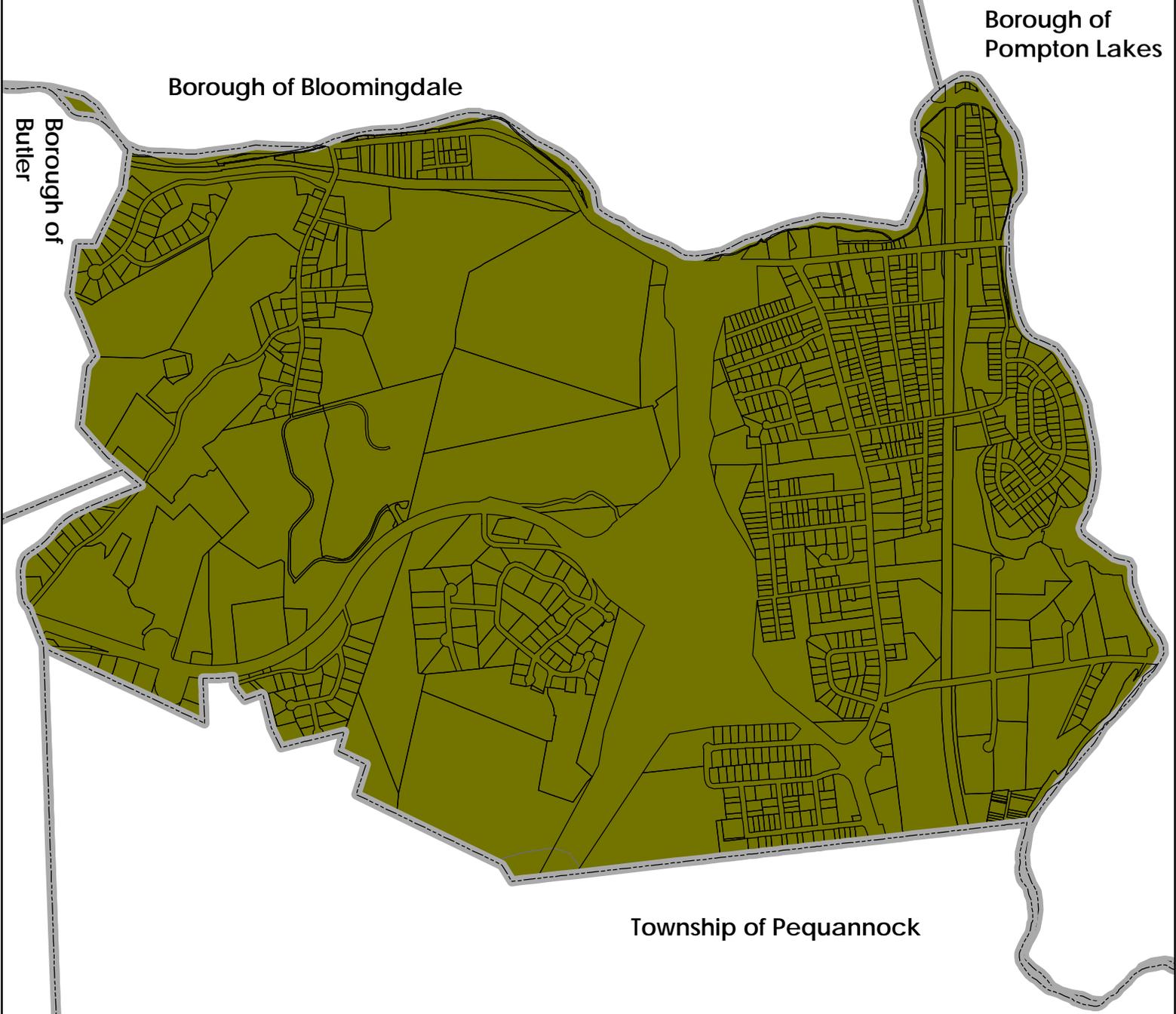
 -7.10 to -1.00



<p>Dwg. Title</p> <p><b>Net Water Availability by HUC 14</b></p>	<p>Project No.</p> <p>2209.02</p>	<p>Dwg. Date</p> <p>06/17/09</p>	<p>Drawn By</p> <p>MA</p>
 <p><b>BURGIS ASSOCIATES, INC.</b>          PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS          25 WESTWOOD AVENUE          WESTWOOD, N.J. 07675          201-666-1811 FAX: 201-666-2599</p>	<p>Project Title</p> <p><b>Highlands Initial Assessment Report</b></p> <p>BOROUGH OF RIVERDALE          MORRIS COUNTY, NEW JERSEY</p>	<p>Dwg. Scale</p> <p>N.T.S.</p>	<p>Sheet No.</p> <p>14 of 25</p> <p>Drawing No.</p> <p>LMA</p>
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# Net Water Availability (Conditional) By HUC14 Millions Gallons Per Day

 0.01 to 0.05



Dwg. Title

Land Use Capability Water Availability Map

Project No.

2209.02

Dwg. Date

06/24/09

Drawn By

MA



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Project Title

Highlands Initial Assessment Report

Dwg. Scale

N.T.S.

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Drawing No.

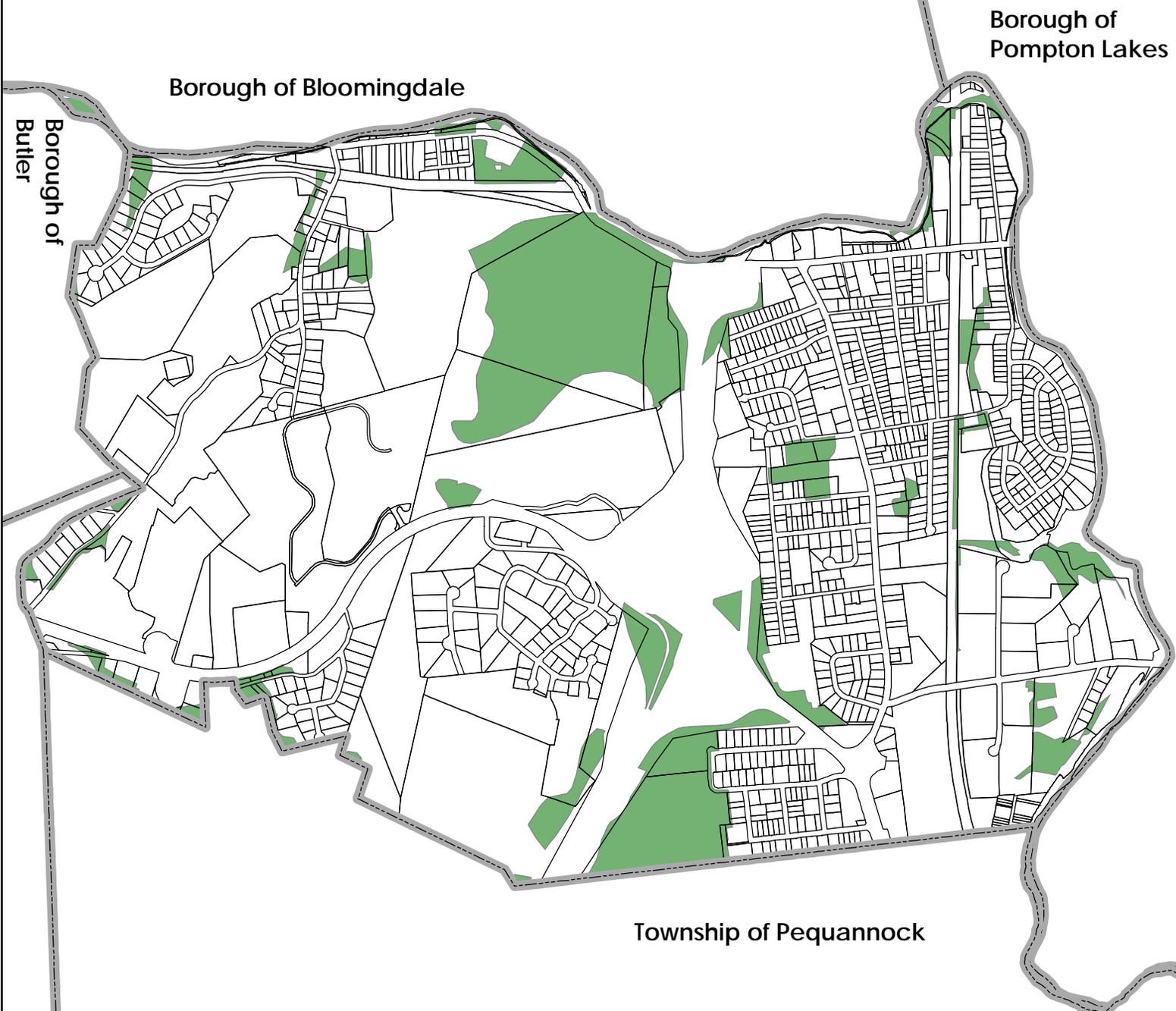
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# Legend

 Prime Ground Water Recharge Areas

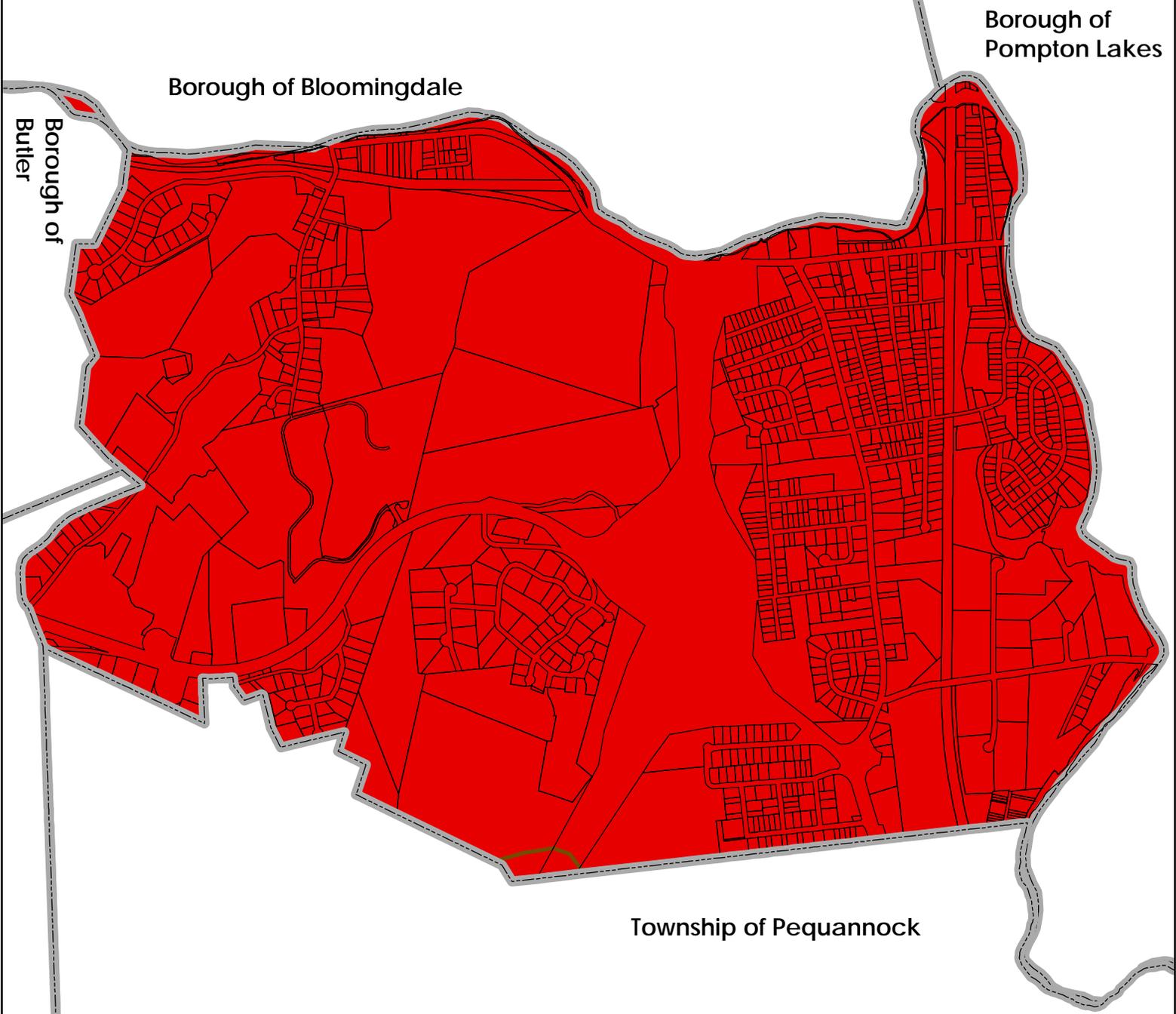


Dwg. Title <b>Prime Ground Water Recharge Area</b>	Project No. 2209.02	Dwg. Date 06/17/09	Drawn By MA
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# Legend

 Water Quality Impaired

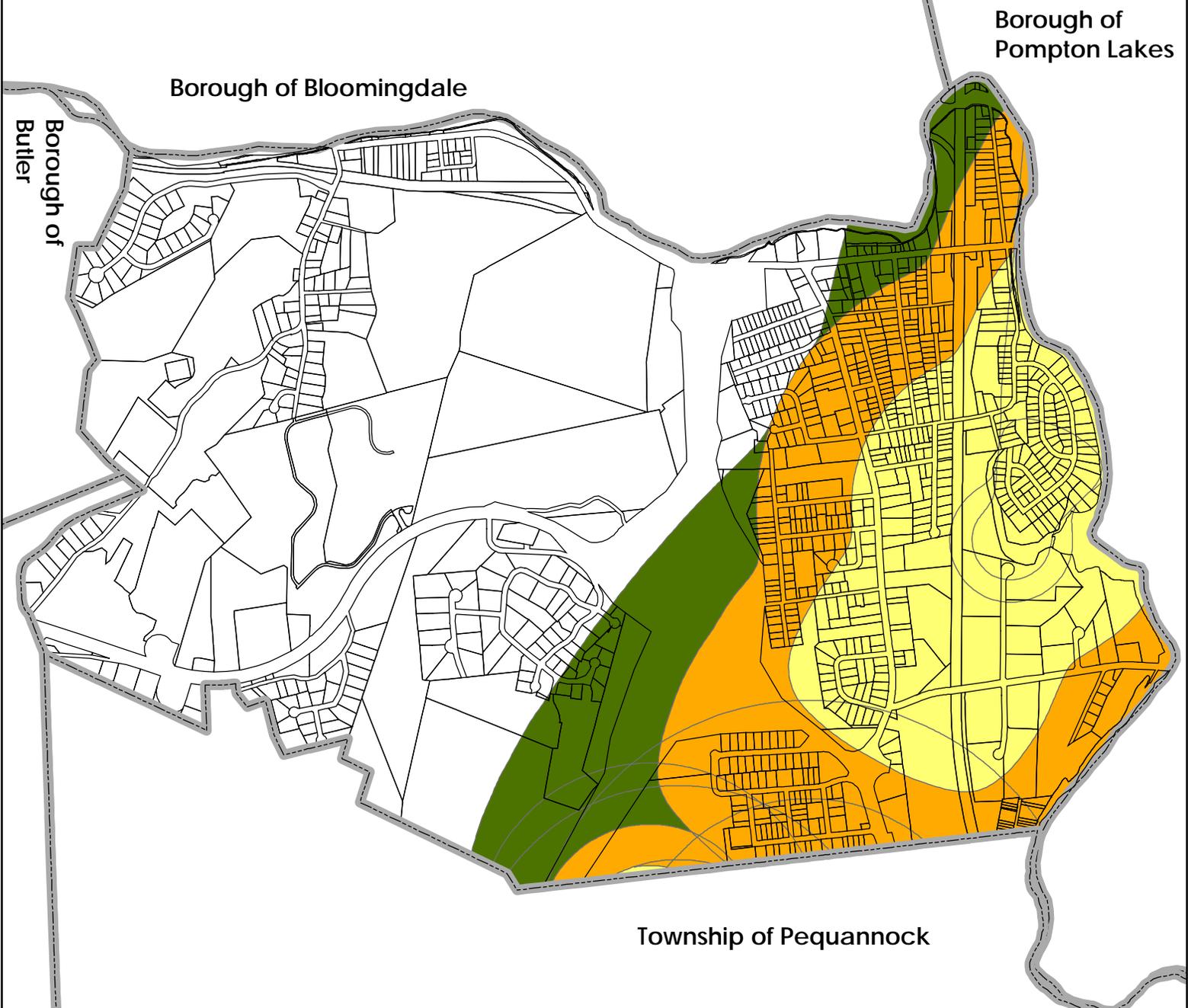


Dwg. Title <b>Impaired Waters Overall Assessment by HUC 14</b>	Project No. 2209.02	Dwg. Date 06/17/09	Drawn By MA
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# Legend

- 2-year Tier
- 5-year Tier
- 12-year Tier

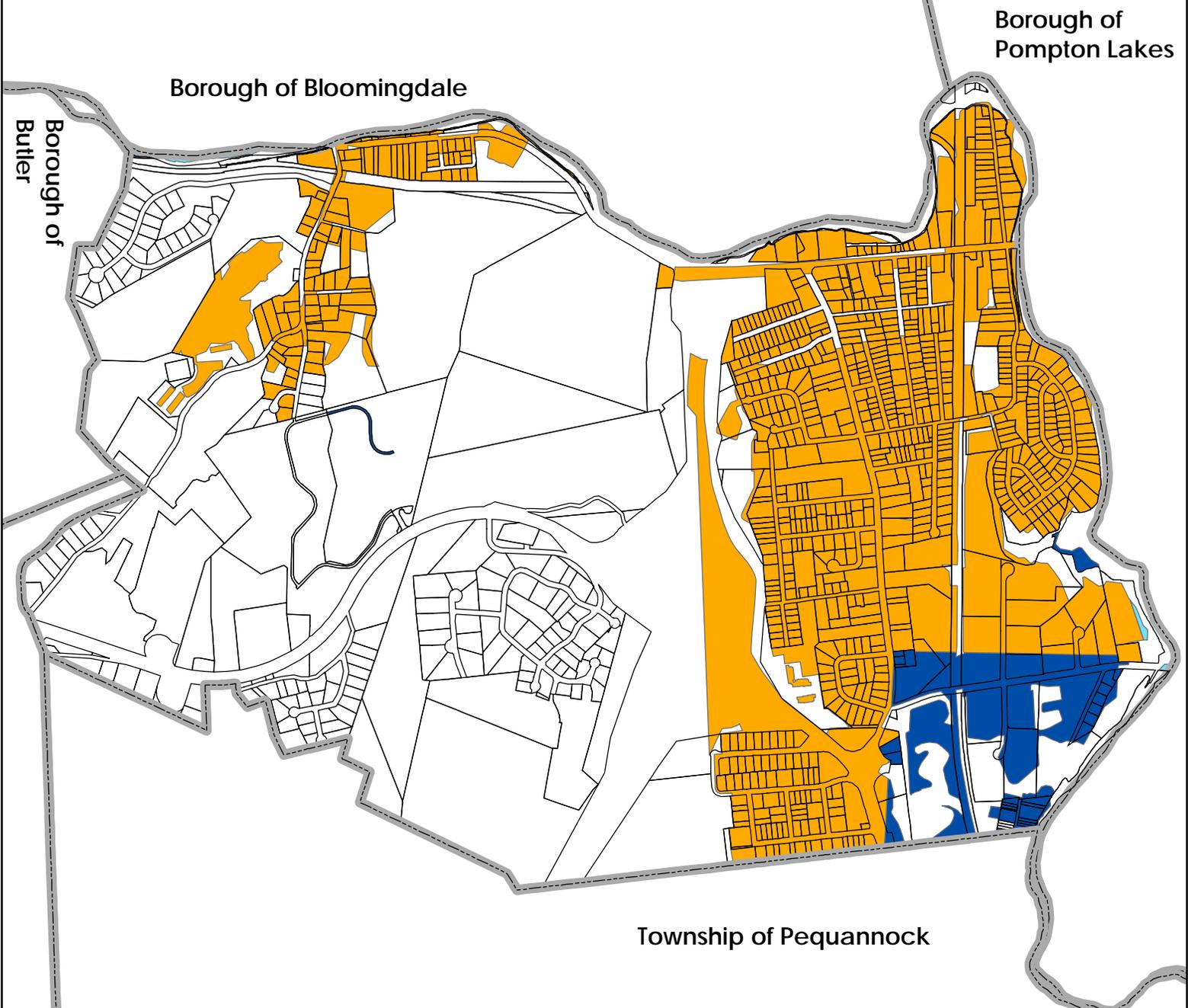
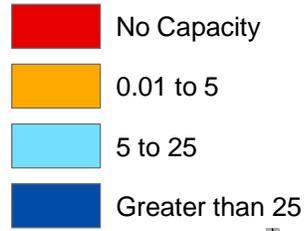


<p>Dwg. Title</p> <p style="text-align: center;"><b>Wellhead Protection Areas</b></p>	<p>Project No.</p> <p style="text-align: center;">2209.02</p>	<p>Dwg. Date</p> <p style="text-align: center;">06/17/09</p>	<p>Drawn By</p> <p style="text-align: center;">MA</p>
<p><b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL 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;"><b>Highlands Initial Assessment Report</b></p> <p style="font-size: small;">BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY</p>	<p>Dwg. Scale</p> <p style="text-align: center;">N.T.S.</p>	<p>Sheet No.</p> <p style="text-align: center;">18 of 25</p> <p>Drawing No.</p> <p style="text-align: center;">LMA</p>
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# Available Capacity in Million Gallons per month

## AVLCAP\_MGM



Borough of Bloomingdale

Borough of Pompton Lakes

Borough of Butler

Township of Pequannock

Dwg. Title  
**Land Use Capability Public Community Water Systems Map**

Project No.  
 2209.02

Dwg. Date  
 06/24/09

Drawn By  
 MA

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Project Title  
**Highlands Initial Assessment Report**  
 BOROUGH OF RIVERDALE  
 MORRIS COUNTY, NEW JERSEY

Dwg. Scale  
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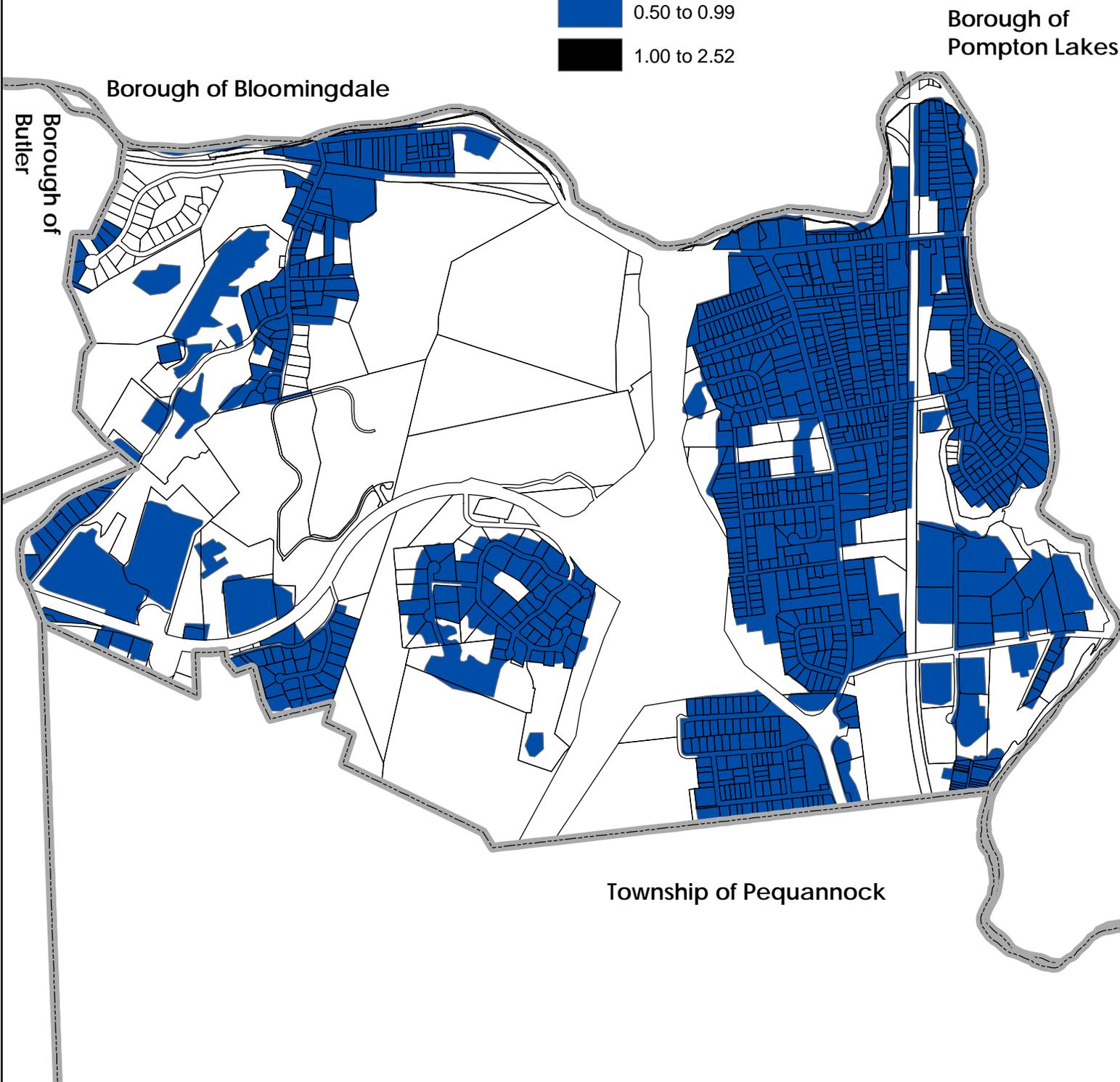
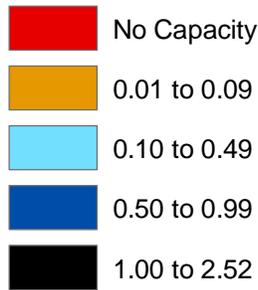
Sheet No.  
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Drawing No.  
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# Current Available Highlands Waste Water Capacity in Million Gallons per Day

## CUR\_AV\_CAP



Dwg. Title

Land Use Capability Domestic Sewerage Facilities Map

Project No.

2209.02

Dwg. Date

06/24/09

Drawn By

MA



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Project Title

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MORRIS COUNTY, NEW JERSEY

Dwg. Scale

N.T.S.

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Drawing No.

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# Septic System Yield by HUC14 and by municipality

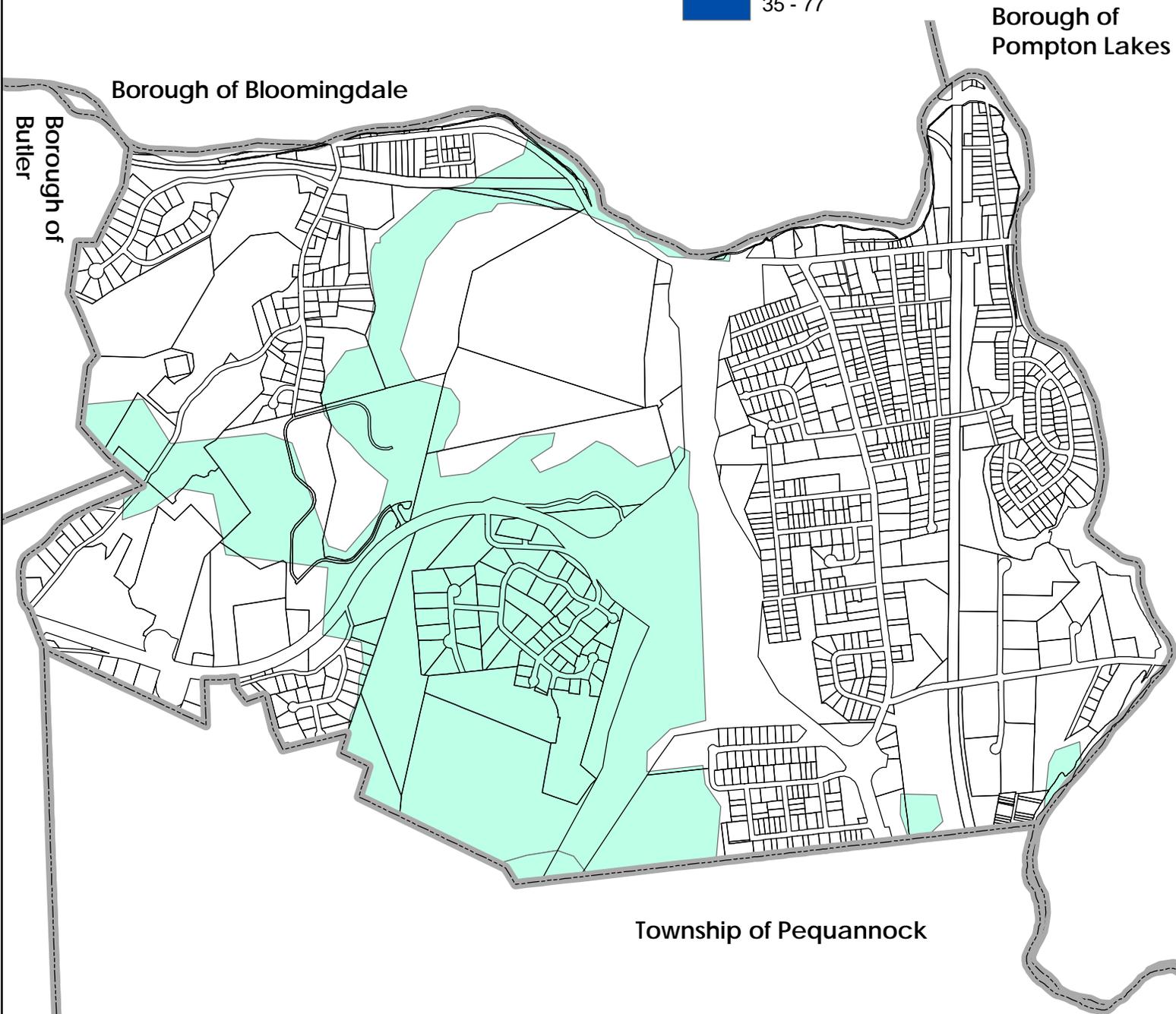
## Protection Zone

### YIELD

0 - 10

11 - 34

35 - 77



Dwg. Title

Land Use Capability Septic System Yield Map

Project No.

2209.02

Dwg. Date

06/24/09

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Project Title

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Dwg. Scale

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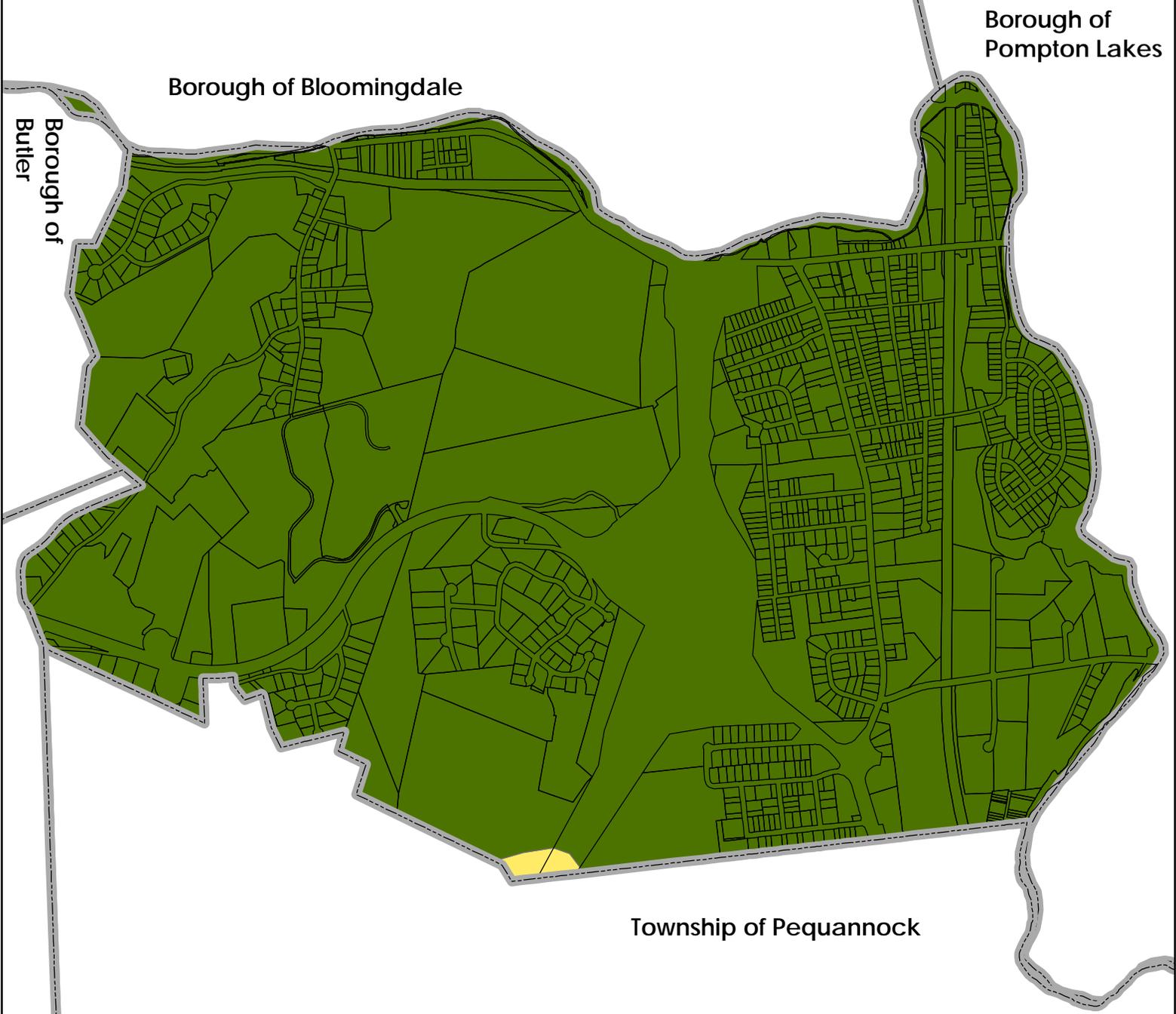
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# Median Nitrate Concentrations (Milligrams Per Liter)

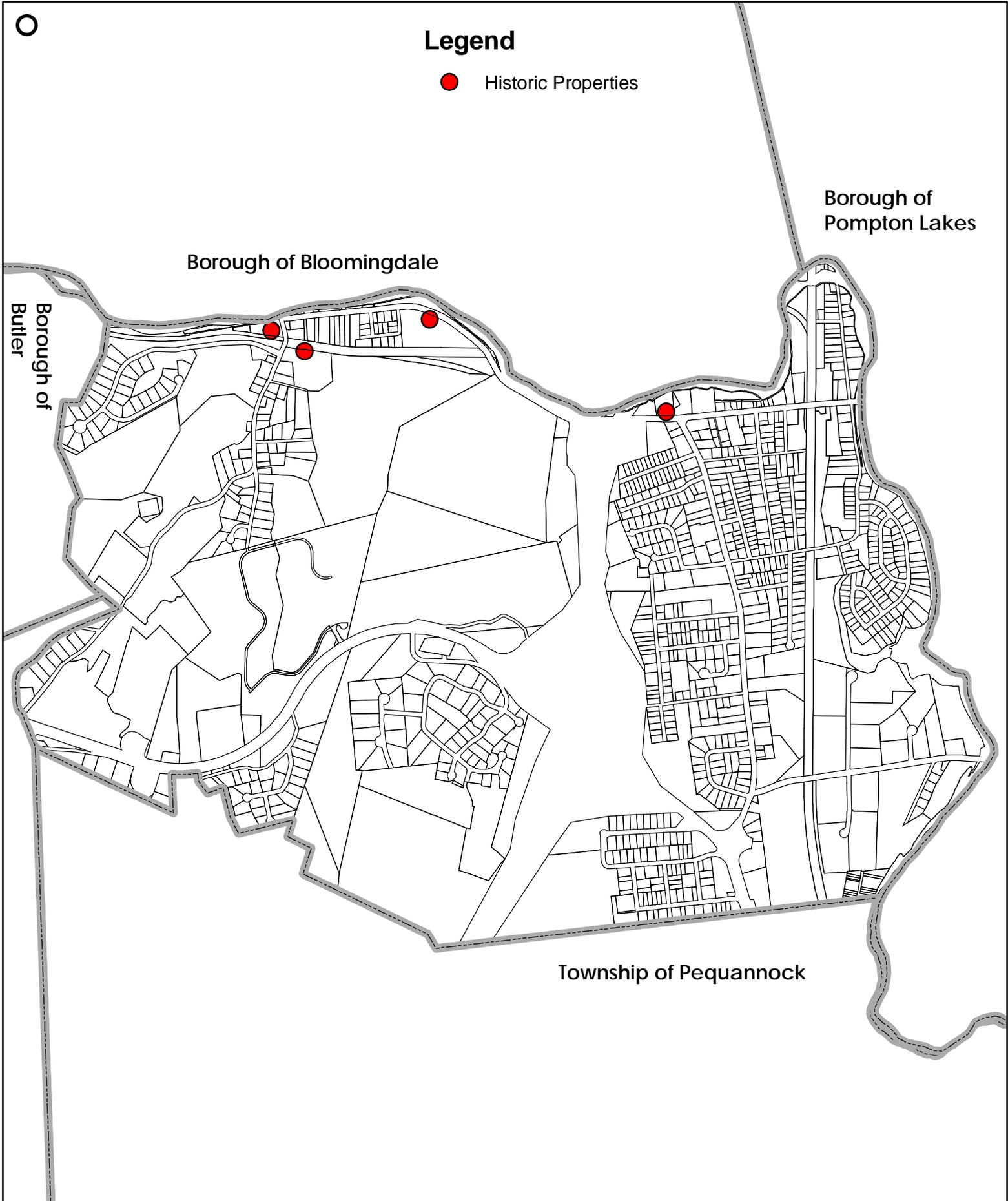


Dwg. Title <b>Median Nitrate Concentration by HUC14</b>	Project No. 2209.02	Dwg. Date 06/24/09	Drawn By MA
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### Legend

● Historic Properties

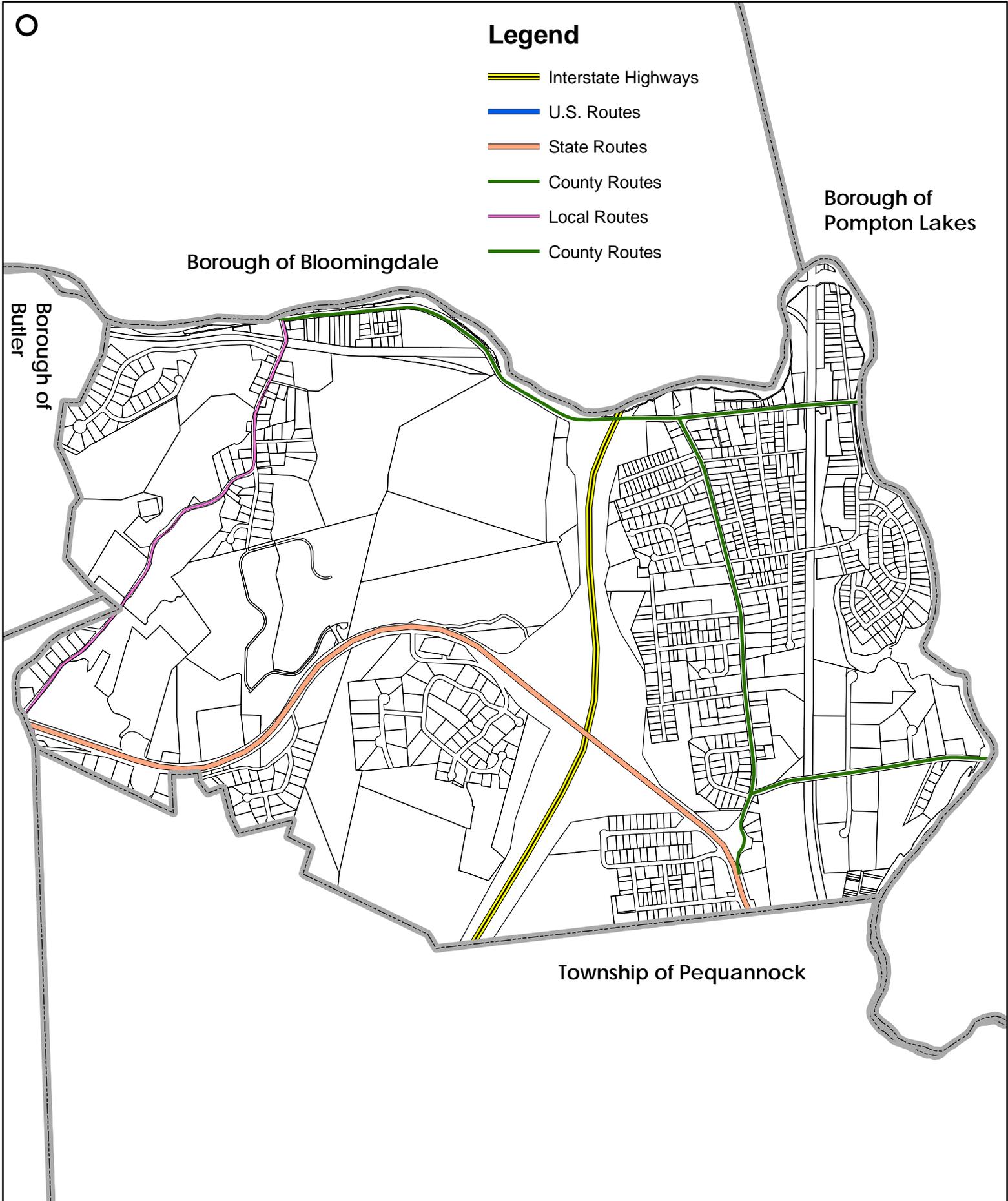


Dwg. Title <b>Historic Preservation Map</b>	Project No. 2209.02	Dwg. Date 06/26/09	Drawn By MA
 <b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <b>Highlands Initial Assessment Report</b> BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY	Dwg. Scale N.T.S. Sheet No. 23 of 25	Drawing No. LMA 2009 COPYRIGHT BA- NOT TO BE REPRODUCED

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### Legend

-  Interstate Highways
-  U.S. Routes
-  State Routes
-  County Routes
-  Local Routes
-  County Routes

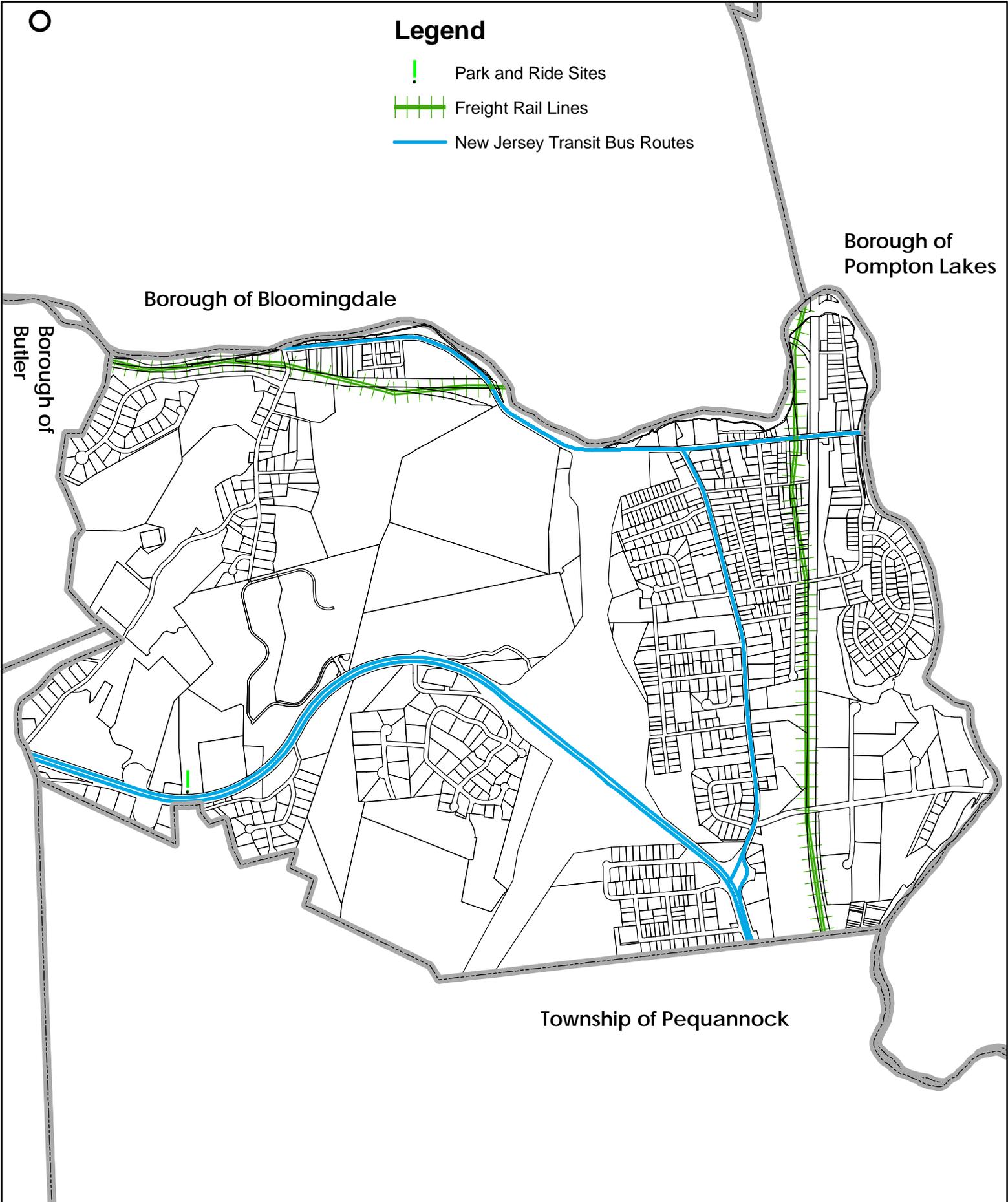


Dwg. Title <h2 style="text-align: center;">Roadway Network Map</h2>	Project No. 2209.02	Dwg. Date 07/06/09	Drawn By MA
 <b>BURGIS ASSOCIATES, INC.</b> PROFESSIONAL PLANNERS / LANDSCAPE ARCHITECTS 25 WESTWOOD AVENUE WESTWOOD, N.J. 07675 201-666-1811 FAX: 201-666-2599	Project Title <h3 style="text-align: center;">Highlands Initial Assessment Report</h3> BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 24 of 25 Drawing No. LMA
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# Legend

-  Park and Ride Sites
-  Freight Rail Lines
-  New Jersey Transit Bus Routes



Dwg. Title <h2 style="text-align: center;">Transit Network Map</h2>	Project No. 2209.02	Dwg. Date 06/17/09	Drawn By MA
 <b>BURGIS ASSOCIATES, INC.</b> 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> BOROUGH OF RIVERDALE MORRIS COUNTY, NEW JERSEY	Dwg. Scale N.T.S.	Sheet No. 25 of 25
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