

Municipal Ordinance Review Project Lower Delaware River Corridor

"Natural Resource Protection - The Case for Local Responsibility"



Delaware River at Doe Hollow, Upper Mount Bethel Township, Photo by Bob Chandler

**Delaware River Greenway Partnership
&
Lower Delaware River Wild and Scenic Management Committee
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Table Of Contents

Acknowledgements	ii
Table Of Contents	iii
Introduction	1
A. Introduction to Lower Delaware Wild and Scenic River Management Process	2
1. Background	2
2. Lower Delaware Wild and Scenic River Management Plan Goals	4
3. Summary of Recommendations for Local Governments	4
4. Wild and Scenic Incentive Grants Program	5
B. Natural Resource Protection within the Lower Delaware River Corridor	5
1. One River – Two States	5
Major differences at the state level	6
Water Quality Standards	6
Watershed Management.....	8
2. Municipal Resource Protection - What Was Reviewed and Why.	9
3. Outstanding Examples of Local Protection	10
a. Solebury Township.....	11
b. Tincicum Township	12
c. West Amwell Township – Municipal Assessment Program	13
C. Inter-municipal Cooperation	14
1. The Bridgeton-Nockamixon-Tincicum Groundwater Management Committee.....	15
2. Lower Delaware Regional Watershed Coordinating Council for Hunterdon County.....	16
D. What have we learned?	17
E. Where do we go from here?	17
F. How do we get there?	19
G. Appendices	21
Appendix A: Web Resources.....	21
Appendix B: Legal Challenges to Environmental Regulations – What have the Courts been Saying?.....	22
1. Rushton Family Limited Partnership v. Tincicum Township (Bucks County Court of Common Pleas, 2001)	22
2. C&M Developers, Inc. v. Bedminster Township ZHB 820 A.2d 143 (Pa. Supreme Court 2002).	23
3. Appeal of Dolington Land Group and Toll Bros. Inc. from the Decision of the ZHB of Upper Makefield Township. 839 A.2d 1021 (PA Supreme Court. 2003).....	23
4. Mt. Olive Complex v. Twp. of Mt. Olive (N.J. Superior Court. June 4, 2001)	24
5. New Jersey Farm Bureau v. Twp. of East Amwell, (App. Div. 2005) and Bailes v. Twp. of East Brunswick, (App. Div. 2005).....	26
Appendix C: Natural Resource Protection Ordinance Matrix	29

Lower Delaware Wild and Scenic River Corridor Natural Resource Protection - The Case for Local Responsibility

Introduction

The Lower Delaware River was added to the National Wild and Scenic River System in November 2000 with the signing of legislation designating specific segments of the river.

The Lower Delaware River is part of the National Park Service - Partnership Rivers Program. In addition to the Lower Delaware, there are seven other Partnership Rivers including the Farmington (Connecticut), Great Egg Harbor (New Jersey), Maurice (New Jersey), Lamprey (New Hampshire), Sudbury-Assabet-Concord Rivers (Massachusetts), White Clay Creek (Pennsylvania and Delaware) and the Wekiva River (Florida).

The distinguishing feature of a *Partnership River* is that it flows primarily through private land, and designation to the National Wild and Scenic River System does not change land ownership or the existing regulatory framework for land use and river recreation. The National Park Service plays an important advisory role, but it is prohibited (by the legislation that established the Wild and Scenic River designation) from owning or managing land.

Recognizing that local governments play a leading role in the management and protection of the river and its tributaries, the Lower Delaware River Management Plan *Goals and Recommendations* makes a strong “Case for Local Responsibility.”

Municipalities along the Lower Delaware River corridor have to varying degrees followed the River Management Plan recommendations. In particular, open space preservation programs (state-county-municipal-nonprofit) have done an outstanding job of protecting environmentally sensitive natural areas and establishing public parks and trails within the river corridor.

But in the end, only a fraction of the total landscape can be protected through open space and farmland preservation, while much of the undeveloped landscape is potentially subject to significant changes in land use.

Federal, state and county environmental regulations notwithstanding, local governments through their land use decision-making powers hold the primary responsibility for protecting vulnerable natural resources.

On this Fifth Anniversary of the Lower Delaware National Wild and Scenic Designation, it seems fitting to take an inventory of how and what local governments along the river corridor are doing to protect the Delaware River and its tributaries.

A. Introduction to Lower Delaware Wild and Scenic River Management Process

1. Background

The Lower Delaware River Wild and Scenic River Study was authorized by Congress in October 1992. The purpose of the study was to determine whether portions of the Lower Delaware River would be eligible and suitable for inclusion in the National Wild and Scenic Rivers System.

A required component of the Wild and Scenic River Study was the development of a river management plan. The Lower Delaware River Management Plan (Plan), completed in 1997 recommends actions to maintain and improve the Lower Delaware River, its tributaries and surrounding natural and cultural resources.

The Lower Delaware River was designated as part of the National Wild and Scenic River System by legislation signed into law by President Clinton in November 2000. The segment includes 67 miles of river along the southeastern portion of Pennsylvania and western NJ from the Delaware Water Gap to Trenton as shown in Figure 1. Included are three Pennsylvania tributaries, Tincicum, Paunacussing and Tohickon Creeks. This segment includes 35 municipalities shown on Figure 2.



Figure 1 – Location of Lower Delaware Wild and Scenic River Corridor

As recommended by the River Management Plan, the Lower Delaware River Wild and Scenic Management Committee (Committee) was formed and meets on a quarterly basis to review river-related issues and projects. The purpose of the committee is to promote the long-term protection of the Lower Delaware River in Pennsylvania and New Jersey and to support, coordinate and facilitate the implementation of the Plan. In addition to promoting the implementation of the Plan, the committee's major responsibilities are to: address river related issues, monitor the watershed, promote watershed enhancement initiatives, carry out education and outreach, administer municipal incentive grants, advise on the National Park Service allocation and make status reports.

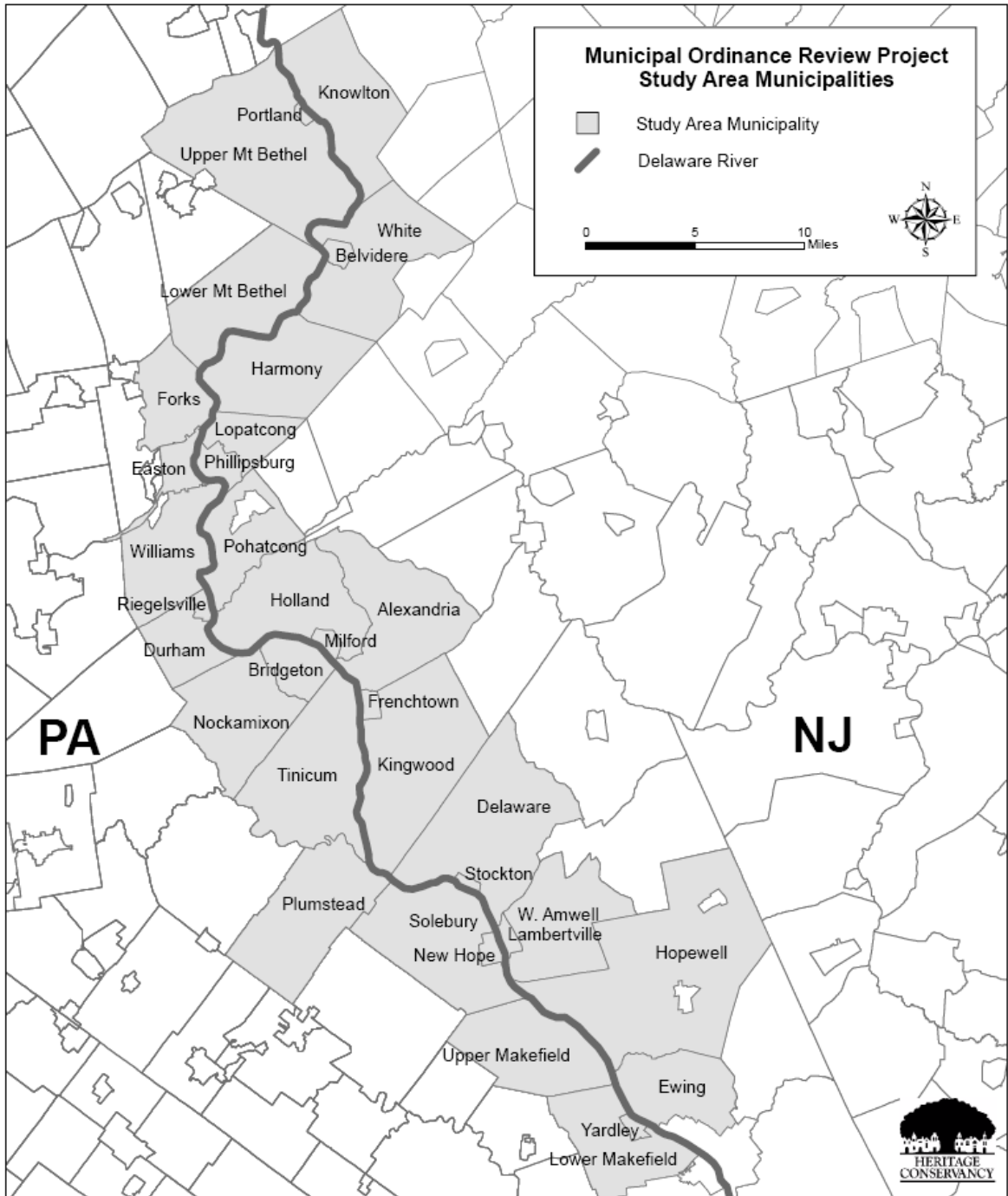


Figure 2 – Municipal Ordinance Review Project - Study Area Municipalities.

2. Lower Delaware Wild and Scenic River Management Plan Goals

Six goals were developed as the basis for the management plan and are summarized below:

Goal 1: Water Quality – Maintain existing water quality in the Delaware River and its tributaries from measurably degrading and improve it where practicable.

Goal 2: Natural Resources - Preserve and protect the river’s outstanding natural resources.

Goal 3: Historic Resources - Preserve and protect the character of historic structures, districts and sites, including landscapes, in the river corridor.

Goal 4: Recreation – Encourage recreational use of the river corridor that has a low environmental and social impact and is compatible with public safety, the protection of private property and with the preservation of natural and cultural qualities of the river corridor.

Goal 5: Economic Development – Identify principles for minimizing the adverse impact of development within the river corridor.

Goal 6: Open Space Preservation – Preserve open space as a means of maximizing the health of the ecosystem, preserving scenic views and minimizing the impact of new development in the river corridor.

3. Summary of Recommendations for Local Governments

To further these goals, the Management Plan includes methods that local governments can use to protect the natural, economic and historic resources of the Lower Delaware River corridor. These recommendations cover the areas of comprehensive planning, zoning and other regulations.

- Comprehensive Planning
 - Incorporate goals of the Management Plan into comprehensive plan.
 - Conduct a Natural Resource Inventory to identify important resources
 - Consider natural and river resources in recommendations for type, location, and intensity of land uses specified by the community comprehensive plan.
- Zoning and other regulations
 - Consider regulations to protect floodplains, steep slopes, wetlands, river corridor buffers, and outstandingly remarkable resources.
 - Consider regulations that guide development so that land uses will have minimal effects on the river and tributaries by controlling what types of activities are permitted and in what locations.
 - Enact regulations to control how development occurs: minimize adverse effects of stormwater runoff and soil and vegetation disturbance.

- Establish an Environmental Advisory Council/Board as official bodies of local government to advise local officials and planning commissions on environmental issues.

4. Wild and Scenic Incentive Grants Program

The National Park Service's Partnership Wild & Scenic Rivers Program provides funding for local governments and nonprofits to assist with projects that meet the resource protection goals identified in the Lower Delaware River Management Plan. Proposed projects must be undertaken in the Lower Delaware River corridor within municipalities that have adopted resolutions of support for the Lower Delaware Wild and Scenic River designation.

Over the past four years, grant awards totaling \$185,600 have gone to municipalities and nonprofit organizations in the Lower Delaware River corridor. The selection process for the Wild and Scenic Incentive Grant Program gives higher priority to projects that involve multiple partner organizations and/or municipalities, and that provide matching funds.

Wild and Scenic Incentive Grants have funded a variety of activities such as streambank stabilization, water quality and groundwater monitoring, and historic preservation. Over the past two years alone, Incentive Grant recipients have leveraged \$120,000 of National Park Service funding against over \$235,000 from local governments, private foundations, and state grant programs.

Several grants have been awarded to municipal Environmental Commissions/Councils to develop ordinances and upgrade comprehensive or master plans. For example Harmony Township (Warren County), Plumstead Township (Bucks County), and Stockton Borough (Hunterdon County) were each awarded small grants to conduct municipal-wide natural resource inventories. Solebury Township (Bucks County) received funding to update its natural resource ordinance revisions, Stockton Borough (Hunterdon County) was awarded a grant to conduct a master plan and ordinance update, and Bridgeton Township (Bucks County) received funding to update its comprehensive plan - Resource Protection Element.

The Delaware River Greenway Partnership administers the Wild and Scenic Incentive Grant Program. The request for grant proposals is issued each spring.

B. Natural Resource Protection within the Lower Delaware River Corridor

1. One River – Two States

New Jersey and Pennsylvania share a common boundary that also happens to be one of the most remarkable rivers in the nation. Beyond that, it is difficult to compare the two states. New Jersey is one of the smallest and most densely populated states, where sprawl and water resources are universal and bi-partisan concerns. Although the eastern edge of Pennsylvania along the Delaware River is in many ways a mirror image of its neighbor across the river, much of the rest of the state is rural, and entire regions would welcome any land uses that would spur economic development. These basic traits are reflected in the way the two states approach natural resource protection.

Major differences at the state level

Just as the reality of “home rule” has created a similar set of responsibilities and challenges for municipalities on both sides of the Delaware, the Federal Clean Water Act requirements have provided a degree of conformity to water resource protection at the state level. For example, both New Jersey and Pennsylvania delegate primary responsibility for erosion and sediment control programs through their county soil conservation districts.

The Clean Water Act, however, allows states considerable leeway in how certain water quality programs are implemented, which helps explain why there are such striking differences between the way NJ and PA meet certain federal mandates, a situation that is compounded by the fact that the Environmental Protection Agency splits the Delaware River Watershed into two regions, with Delaware and Pennsylvania included as part of EPA Region 3, and New Jersey and New York as included as part of EPA Region 2.

Surface water quality standards and watershed planning are two prime areas in which differences in the state approaches can significantly affect what local governments can or must do to effectively protect watershed resources from depletion and/or pollution.

Water Quality Standards

The federal Clean Water Act requires every state to develop *Surface Water Quality Standards* (SWQS) that establish designated uses and water quality criteria necessary to protect every water body. Designated uses include drinking water, propagation of fish and wildlife, recreation, agricultural and industrial supplies, and navigation. These are reflected in use classifications assigned to specific waters.

Each state is required to implement an *anti-degradation policy* for its highest designated waters. Anti-degradation means there is to be no measurable change in water quality, which in turn can directly affect local land use decisions involving surface water discharges and disturbance of wetlands and/or riparian areas.

In addition to the state programs, the Delaware River Basin Commission (DRBC) has a *Special Protection Waters* Policy in place that is designed to prevent degradation in streams and rivers considered to have "exceptionally high scenic, recreational, ecological or water supply values." The regulations discourage direct discharges of wastewater to the designated waterways.

In response to the Lower Delaware Wild and Scenic Rivers Act and a petition from the Delaware Riverkeeper Network, the DRBC has proposed a Special Protection Waters policy for the main stem Lower Delaware River. The DRBC is engaged in a comprehensive monitoring program to define existing water quality from the Delaware Water Gap downstream to the head of tide at Trenton. The DRBC on January 19, 2005 adopted a resolution to temporarily amend the commission's water quality regulations, water code, and comprehensive plan by classifying the Lower Delaware River as Special Protection Waters through September 30, 2005. On September 26, 2005, the commission extended the temporary designation through September 30, 2006.

The DRBC water quality monitoring data has shown that water quality in the main stem Lower Delaware River is higher than most of its tributaries. The Lower Delaware obviously benefits from the extraordinarily high quality water that flows down from the Upper and Middle reaches of the river. But as the Lower Delaware River flows past its tributaries, water quality begins to measurably deteriorate. In particular, nutrient levels (Total Phosphorus and Nitrate) are much higher in the Lower Delaware than in the upstream reaches due to input from the Lower Delaware tributaries. For example, DRBC found that Total Phosphorus was exceeded in more than 10% of samples taken from the Pequest River, Martins Creek, Pohatcong Creek, Musconetcong River, Nishisakawick Creek, Paunacussing Creek, Lockatong Creek, Wickecheoke Creek, and Pidcock Creek.

DRBC's water quality data indicates that the states, local governments and watershed associations have plenty of opportunities to improve water quality in the Lower Delaware tributary streams.

The New Jersey Department of Environmental Protection's highest water quality designation is known as Category One (C1), which is applied to a water body because it possesses one or more of the following qualities: "exceptional ecological significance, exceptional water supply significance, exceptional recreational significance, exceptional shellfish resource, or exceptional fisheries resource." The C1 designation is intended to protect water bodies from water quality degradation and "discourage activities that would impair natural resources and environmental quality."

A Category One designation carries stringent regulations for stream discharges, as required by the Clean Water Act. NJDEP has adopted strict land use regulations along C1 water bodies, requiring a minimum 300-foot buffer. New stormwater rules also contain special buffer area protections for Category One water bodies.

The NJDEP has recently made several amendments to the SWQS stream classifications. Nearly 50 streams and rivers have been upgraded to Category One over the past three years. Eight of those are tributaries to the Lower Delaware River including the Lopatcong, Pohatcong, Harihokake, Nishisakawick, Little Nishisakawick, Locatong, Wickecheoke and Alexauken Creeks. These recently re-classified streams are in addition to several existing C1 tributaries to the Lower Delaware River such as the Pequest River and Buckhorn Creek.

The Pennsylvania Department of Environmental Protection has taken a much more cautious approach to its anti-degradation policies and regulations. Exceptional Value (EV) is Pennsylvania's equivalent to New Jersey's Category One. Along the over 75 miles of the Pennsylvania side of the Lower Delaware River, only two tributary streams - Cooks Creek and Tincum Creek - have been classified EV.

PADEP's policies make it extremely difficult for citizens to succeed in petitioning for a higher stream classification. For example, the Tincum Creek received an Exceptional Value classification, but only after a 3-year persistent effort by local organizations and municipalities. Efforts have been underway to convince the PADEP to upgrade the Tohickon Creek classification, with unsuccessful results.

What do these different state approaches mean for local governments?

Even though most of the tributaries to the Lower Delaware in New Jersey benefit from the highest possible protection provided by C1 designation, municipalities still need to adopt strong stream and wetland buffer ordinances to ensure locally based protection and review of proposed land development projects that might impact water quality/quantity.

Municipalities on the Pennsylvania side of the Lower Delaware River that have not already taken steps to require stream and wetland buffers must act to provide stronger local protection for their waterways.

It is important for local governments to have strong local protections in place, but such regulations typically apply only to major new development. Municipalities on both sides of the river need to partner with local organizations to help educate the public, especially property owners, about the values of wetlands, floodplains and stream buffers. Raising awareness and changing attitudes requires a sustained education program.

Watershed Management

Just five years ago, New Jersey was in the midst of an ambitious statewide watershed planning effort with a goal of completing watershed management plans for each of twenty Watershed Management Areas (WMAs). Budgetary constraints and a change in administration brought a sudden end to watershed planning for all but a few WMAs. Public advisory committees for Watershed Management Areas 1 & 11 (the two WMAs that encompass the non-tidal Delaware River in New Jersey) saw their funding eliminated halfway through the planning process. Beginning in 2003 the NJDEP reclassified many streams and rivers to the highest water quality designation. Category One designation is an effective tool that protects water quality by discouraging stream discharge and requiring stream buffers. But that does not eliminate the need for watershed planning, which provides a consistent and methodical approach for identifying existing water quality problems, and implementing their solutions.

Watershed management in Pennsylvania has taken an entirely different route that is driven by a combination of locally based watershed planning and project implementation and state mandated watershed management planning for stormwater. In accordance with the Pennsylvania Storm Water Management Act of 1978 (Act 167), all counties within the commonwealth are required to prepare storm water management plans for each watershed within their boundaries. Watershed areas for storm water management are delineated by PA DEP based on hydrologic characteristics. Enacted in 1978, the primary focus was to address increases in localized flooding. In 2001, due to public demand, the focus of the Act 167 shifted to include increased priority for water quality. In 2003, groundwater recharge was included as a mandatory component of stormwater management. Each municipality within the watershed is required to adopt the provisions of the model ordinance within six months following the plan's approval by the PA DEP.

In addition to this state mandated program, watershed planning is accomplished through a variety of grant-funded initiatives, designed to involve multiple jurisdictions and local interests. Examples include the Rivers Conservation Planning program funded through the Department of Conservation and Natural Resources Community Conservation Partnership Program and the state's Growing Greener Program, funded through the Department of Environmental

Protection. Both programs provide funding for both planning and implementing watershed wide projects. These can include recreation improvements, open space acquisition, riparian corridor restoration, watershed assessments and implementation of stormwater best management practices.

On the Pennsylvania side of the River, most of the major tributary creeks and the Delaware River within the Lower Delaware Wild and Scenic Corridor have been included in the PA River's Registry, which provides higher priority consideration for additional implementation funds for projects identified in the river conservation plans for these sub-watersheds. These include: Bushkill Creek, Cooks Creek, Lehigh River, Lower Delaware River, Middle Delaware River, Lower Tohickon Creek, Upper Tohickon Creek, Paunacussing Creek, and Tinicum Creek.

What do these different state approaches mean for local governments?

Strong protection for stream buffers, wetlands and floodplains is essential to maintaining and improving water quality and quantity, but even if every tributary to the Delaware River were given the highest level of protection, the need to address existing nonpoint source pollution problems remains.

As watersheds do not follow political boundaries, it is important for all municipalities (boroughs, townships, cities) to work together to protect water quality and natural resources, which contribute to our quality of life. Integrating watershed planning on a regional basis is the most effective way to approach both water quality problems and engage local governments, organizations and property owners

2. Municipal Resource Protection - What Was Reviewed and Why.

In undertaking this project, we evaluated the range of resources protected by municipalities in their zoning and subdivision and land development ordinances. We narrowed our review to those basic provisions typically related to the direct protection of surface and ground water resources. Many of these resources, such as stormwater runoff, floodplains and wetlands are regulated through standards established at the state or federal level. Our interest was to evaluate which municipalities set standards above and beyond basic level standards established through existing state or federally mandated programs. In addition, this review enabled us to identify municipal approaches to resource protection, which could be helpful to others. The overview included the following:

- % protected on Steep Slopes >8%
- Open Space in sensitive areas
- Tree protection ordinances (y/n)
- Water conservation ordinance (y/n)
- Well head protection or limit development in groundwater areas (y/n)
- % protected for open space – lakes, ponds, watercourses
- % protected for open space- lake, pond, watercourse margin
- On-Lot Disposal System (OLDS) management ordinance (y/n)
- Erosion and Sedimentation Control (y/n)

- % protected in Floodplain
- % protected in Wetland Areas
- % protected in Wetland Margins and width
- Stream corridor (Riparian Buffer ordinance) (y/n) and width
- Appointed Environmental Commission or Board

The appendix includes a copy of the summary matrix where the various resource protection categories are delineated for each of the municipalities along the river corridor. The following table summarizes the number of municipalities with the specific ordinance and also the number that had ordinances which were determined to be more restrictive than state requirements for erosion and sedimentation control, wetland and wetland buffers, floodplain and riparian buffers.

Natural Resource Ordinance Provisions - Summary Table Lower Delaware Wild and Scenic River Corridor		
Ordinance Provision	Number of Municipalities with provision*	Number exceeding state requirement
Steep Slope 8-15%	6	
Steep Slope 15-25%	26	
Steep Slope > 25%	29	
Open Space in Sensitive Areas	24	
Tree Protection Ordinance	25	
Water Conservation Device	5	
Water Conservation Ordinance	7	
Well Head Protection/restrict level in groundwater areas.	19	
Lakes, ponds, watercourses	20	
Lakes, ponds, watercourse margins	20	
On-Lot Disposal System Management Ordinance	8	
Erosion and Sedimentation Control (both states regulate)	35	2- PA, 2- NJ
Floodplain Protection (both states regulate)	35	12- PA, 5- NJ
Wetland Protection (both states regulate)	35	13- PA, 6- NJ
Wetland Margin/Buffer Protection (NJ Regulates)	24	6- PA, 4- NJ
Stream Corridor/Riparian Buffer Protection (NJ Regulates)	21	6- PA, 7- NJ
Appointed Environmental Review Commission or Board	24	N/A

*Note: In some cases, ordinance provision data was not located by the reviewer, or ordinance was being updated.

3. Outstanding Examples of Local Protection

There are many examples of effective local government efforts to protect watershed resources. This report profiles a few municipalities within the Lower Delaware River corridor that have taken specific steps to protect water resources at levels beyond those that are minimally required. These can serve as useful models for municipalities throughout the river corridor and surrounding region.

a. Solebury Township

Solebury Township (Bucks County, PA) contains about 17,000 acres and surrounds the Borough of New Hope. Solebury has a long tradition of preservation and nearly a quarter of the Township's land is preserved (4,800 acres). Residents have approved land preservation bond issues on four occasions, the last one for \$18 million in the November 2005 election. Each of these bond referendums was supported by nearly 90% of voters.

Solebury Township's ordinances include a variety of measures, which afford special protection to natural resources including open space, ground and surface waters and stormwater. As part of the subdivision and land development process, Solebury requires preparation of an Existing Resources and Site Analysis Plan (ERSAP) at the very initial stages of the process, which is meant to familiarize officials with existing conditions on the applicant's property. In addition, a four-step design process is required to determine the most suitable development of the site. The steps are: 1) Delineation of Areas to be left undisturbed, 2) Preparation of Resource Conservation Plan, 3) Location of structures and alignments of infrastructure, and 4) Drawing lot lines.

Solebury specifically includes a provision for land development or subdivisions that lie within the Lower Delaware Wild and Scenic River designated areas. This provision is included in the Design Standards section of the Subdivision and Land Development Ordinance (SALDO). These standards are applied by the township in evaluating plans for proposed subdivisions and land developments. Essentially, any proposed development or subdivision that lies within the Wild and Scenic designated areas are subject to these additional requirements:

All proposed developments shall address the management goals of the wild and scenic area by including design and protective measures for protection of water quality, natural resources, historic resources, provision for public access for recreation, minimize impact of new development and maximize open space preservation.

Any project requiring a federal permit shall be subject to review by the NPS.

The township shall review and consider the NPS reports in making a decision.

The township's SALDO includes separate ordinances for Erosion Control and Stormwater Management. Both ordinances provide excellent examples of a municipality going well beyond the required minimum effort to protect water resources.

Solebury takes a proactive approach to protecting surface water quality from nonpoint source pollution with its recently adopted Soil Erosion, Sedimentation, and Grading Control Ordinance.

In both New Jersey and Pennsylvania, the county soil conservation districts (SCD's) are the primary state-designated agencies responsible for the review and enforcement of erosion and sediment control plans.

Most municipalities have at best an erosion and sediment control ordinance on the books that typically references the county SCD requirements; few towns take responsibility for site inspection or enforcement. This is left up to the county SCD's and they tend to have limited

staff resources to carry out site inspections. This situation has all too often led to serious sediment pollution problems for the river and its tributaries.

Solebury Township's ordinance requires an approved erosion control plan and a 48-hour notification prior to earthmoving activity. The ordinance also provides for site inspection by the township zoning officer, and more importantly allows for compelling enforcement actions including fines and where problems persist, the ability to suspend a construction permit until required erosion control measures are put in place. The ordinance does not apply to an agricultural operation that has an approved conservation plan.

Soil erosion from construction sites is a serious nonpoint pollution problem that is easily prevented, but often occurs due to careless earthmoving activities. Local oversight can greatly reduce impacts to water quality.

The Stormwater Management Ordinance requires that applicants apply a Comprehensive Stormwater Management Procedure to maximize use of multiple preventative non-structural techniques in the design stage to reduce total stormwater volume and peak rate calculations. The procedure is based on a set of underlying principles including:

- ✓ Stormwater is a resource to be valued, not a waste for disposal
- ✓ Prevent first, mitigate second
- ✓ Integrate stormwater management early in the site design process
- ✓ Manage stormwater as close to the source as possible
- ✓ Use natural systems
- ✓ Disconnect-distribute-decentralize
- ✓ Achieve multiple objectives as simply as possible

During the design stage, applicants must consider site factors such as developed features and natural features. The ordinance specifies pre-treatment options for stormwater hotspots and provides incentives for environmentally sensitive conservation design in the form of credits. These credits can affect both quantity and quality stormwater calculations.

As noted in the ordinance, “although the Procedure is presented as an integral part of stormwater management, the Procedure transcends the bounds of conventional stormwater management and involves the total design process.”

In addition, the township adopted a separate ordinance regulating the water resource analysis and construction of new wells. The purpose of this ordinance is to ensure that new wells constructed in the Township are able to provide a reliable, safe and adequate water supply to support intended uses within the capacity of available groundwater resources; to ensure that new wells do not infringe upon the performance of existing wells; to provide for the collection of accurate groundwater information; and to implement the Commonwealth's constitutional decree that people have the right to pure water.

b. Tincum Township

Tincum Township (Bucks County, PA), located along the Delaware River, south of Bridgeton and Nockamixon Townships, has been a regional leader in advocating ordinances and review

processes to protect their natural and cultural resources. The township endorsed National Wild and Scenic River designation for the Tincum and Lower Tohickon Creeks, and appointed an Environmental Advisory Council in 1990. In 2002 Tincum Township residents approved a 5 million dollar Open Space bond referendum to be used to further preserve the township's valuable land and water resources including the Tincum Creek - designated as an Exceptional Value stream by the PA DEP.

Township regulations prohibit development of environmentally constrained lands: floodplains, steep slopes, wetlands and wetland margins, streams, riparian buffer areas and hydric soils. Numerous overlay districts create additional provisions to protect hillsides, scenic, critical groundwater recharge areas, headwater and other natural and cultural resources as part of land use applications. Specific overlay districts include:

- Steep Slope Conservation District
- Wetlands and Wetland Margin Overlay District
- Riparian Corridor Overlay District
- Critical Recharge Areas Overlay District
- Tincum Creek Watershed Overlay District
- Tohickon Creek Watershed Overlay District
- Woodland and Hedgerow Overlay District
- Prime Farmland and Agricultural Soils Overlay District
- Delaware River Wild and Scenic Overlay District
- Scenic Resources Overlay District

Environmental Impact Assessments (EIA) are required for any application for preliminary and final subdivision and/or land development plans for specified zoning districts and any overlay districts that pertain to these districts. The EIA is a written assessment that describes, analyzes and documents beneficial and adverse effects of a proposed project on environmental, historic and cultural resources in accordance with provisions of the various ordinances and plans adopted in the township.

The township is currently in the process of adopting revised stormwater management regulations which implement the requirements of the Tohickon Creek and Delaware River (North) Watershed Act 167 Stormwater Management Plans. The revisions emphasize water quality management methods that are distributed through the site and utilize non-structural, low impact development techniques reducing and disconnecting impervious cover.

c. West Amwell Township – Municipal Assessment Program

West Amwell Township (Hunterdon County, NJ) encompasses portions of both the Delaware River and Raritan River Basins. The township surrounds the City of Lambertville, and the Alexauken Creek (recently reclassified Category One Stream) forms West Amwell's northern boundary.

A Municipal Assessment Program was developed by the Stony Brook-Millstone Watershed Association (SBMWA) to help municipalities evaluate their master plan goals, and zoning ordinances with an eye towards natural resource protection. SBMWA has partnered with several

municipalities to assess existing ordinances and policies, and develop new strategies for resource protection.

SBMWA worked with West Amwell Township officials to conduct a Municipal Assessment and in 2003 the township was provided with an extensive list of recommendations for updating their master plan and zoning ordinances to protect water quality/quantity.

The Municipal Assessment process prompted the Township Committee to adopt a more comprehensive *Stream Corridor Protection* ordinance that clearly spells out the intent and purpose as follows:

“The governing body of West Amwell finds riparian lands adjacent to streams that are appropriately vegetated provide important environmental protection and resource management benefits. It is necessary to protect and maintain the beneficial character of stream corridors by implementing specifications for the establishment, protection, and maintenance of protected corridors along the streams in West Amwell Township. These stream corridors must be consistent with the interest of landowners in making reasonable economic use of parcels of land that include such designated areas, and with a broader public interest in ensuring water quality, preventing erosion and protecting important plant and animal habitats.”

The West Amwell ordinance establishes a stream corridor overlay to all zoning districts and requires the Township to maintain a map of stream corridors that must be updated “at a minimum with each re-examination of the Township Master Plan.”

The Stream Corridor Protection ordinance does not apply to agricultural activities except for the creation of feedlots, farm waste disposal facilities or new structures such as barns or poultry buildings (subject to existing zoning regulations and provisions of the township’s Right to Farm ordinance).

C. Inter-municipal Cooperation

In the realm of natural resource protection, inter-municipal cooperation can take many forms including formal agreements (such as the multi-municipal framework in Pennsylvania) or informal cooperation to work on specific studies. There are several examples of inter-municipal cooperation in the Lower Delaware Wild and Scenic Corridor including the Lower Delaware River Management Committee, which is represented by municipalities from portions of five counties in New Jersey Pennsylvania.

Other examples include the formation of a joint municipal environmental advisory council (EACs) in Springfield and Durham Townships in Bucks County, which together managed the preparation of the Cooks Creek Watershed Management Plan. Similarly, there are numerous examples throughout the corridor of multi-municipal steering committees created to provide oversight on specific planning projects such as the Gallows Run Watershed Restoration and Protection Plan, Lower Tohickon Watershed Conservation Plan, and the Middle Delaware River Conservation Plan. In these efforts, a variety of interest groups and municipalities were represented and provided technical assistance in the development of these plans.

Multi-municipal planning efforts provide a number of benefits including more effective protection of watershed resources, which transcend political boundaries, and increased eligibility for grant funding, which usually gives a higher priority to joint or multi-jurisdictional projects.

The following two outstanding examples of multi-municipal planning efforts each have the potential to be adapted to municipalities on both sides of the Delaware River.

1. The Bridgeton-Nockamixon-Tinicum Groundwater Management Committee

The Bridgeton-Nockamixon-Tinicum Groundwater Management Committee was formed in 1999 by the three northern Bucks County townships to address groundwater issues. The townships include all or portions of several Delaware River tributary watersheds including Tinicum Creek and Gallows Run.

A report published by the United States Geological Survey in 1994 ("Hydrogeology and Ground-water Quality of Northern Bucks County, PA") found that groundwater resources in the region are both sensitive to pollution and depletion, and are interconnected by complex geological formations (Triassic shale and diabase) that transcend municipal boundaries.

The Committee adopted bylaws that state: "With groundwater as the primary local source of water, member municipalities recognize the need to protect and preserve both the quantity and quality of the groundwater resources. As groundwater resources know no municipal boundaries, member municipalities recognize the importance and need for cooperative municipal water resources planning and management. Member municipalities with interrelated watersheds, recharge areas, aquifers and other contributing natural resources will participate in the groundwater committee for the purpose of protecting their common watersheds through regional planning, conservation, and management of groundwater resources."

The Committee has initiated an impressive array of scientific studies, regulatory reviews and educational programs including:

Regulatory Review and Recommendations

- ✓ Wetlands Ordinance
- ✓ Groundwater Ordinance
- ✓ Petroleum Well Ordinance exchange
- ✓ Stormwater Ordinance enhancements
- ✓ Well Installation and Testing Procedures

Research studies:

- ✓ EPA "Wetland Study Results for Bridgeton, Nockamixon & Tinicum Township Bucks County, Pennsylvania" Jan 23, 2003
- ✓ EPA "Tinicum Creek Watershed" A study of the hydro-geomorphic characteristics of the uplands wetlands (in progress)
- ✓ "Groundwater Monitoring Project" (on-going Wild and Scenic Incentive Grant)
- ✓ PA DCNR, "Headwater mapping project"
- ✓ Gallows Run Watershed Study

Ongoing Public Education as committee members speak at public township meetings, also as noted:

- ✓ Water Resources Management Public Presentation – Wetland, Headwater & Land Use. Project Presentation.
- ✓ Water Cycle Interactions - Township Municipal Meeting.
- ✓ Wetlands Identification Training & Field Assessments Workshop/Walk About.
- ✓ Headwater Identification Training & Field Assessment Workshop/Walk About.
- ✓ Natural Resources and Land Development Site Map Workshop.

2. Lower Delaware Regional Watershed Coordinating Council for Hunterdon County

The Municipal Land Use Center at the College of New Jersey is bringing six Hunterdon County municipalities together to form the Lower Delaware Regional Watershed Coordinating Council for Hunterdon County. The municipalities include the Townships of Alexandria, Kingwood, and Delaware, and the Boroughs of Milford, Frenchtown, and Stockton. The Delaware River Basin Commission and Delaware River Greenway Partnership will also serve on the Coordinating Council.

All six municipalities have supported the Lower Delaware National Wild and Scenic River designation and the proposed Special Protection Waters designation by the Delaware River Basin Commission. They also realize that a coordinated, regional approach is essential to achieving more effective watershed protection at the local level.

Funded by the National Fish and Wildlife Foundation, the project aims to strengthen the link between municipal planning and regional resource management, resulting in the enhanced protection of the Delaware River. By the end of the project the six communities will have an established, ongoing, regional watershed coordinating council.

Project Objectives

- Form a permanent inter-municipal Watershed Coordinating Council (WCC).
- Increased capacity to more effectively share and understand water resource information, the connection between land use and water resource management, and the importance of supporting and participating directly in regional planning initiatives to promote enhanced, watershed- based planning.
- Identify municipal master plan consistencies and inconsistencies with each other and with regional, state and Federal plans as they relate to watershed protection goals
- Identify critical, consistent policy actions that must be taken to advance the long-term watershed-based protection that will become the basis for future efforts and likely the basis for seeking further funding support.

The Watershed Coordinating Council (Council) will also serve as a pilot institutional structure within the broader framework of the Lower Delaware Wild and Scenic River Management Plan Committee. The Management Plan Committee, administered by the Delaware River Greenway Partnership, is a non-regulatory mechanism for advancing the goals of the *Lower Delaware River Management Plan*. The Council will be a model for the formation of smaller coalitions supportive of the Management Plan Committee that share common resources, political and regulatory

structures, and resource management needs. Through a sub-regional system, municipalities will work cooperatively toward a common vision at a manageable scale.

D. What have we learned?

Our review reveals that most municipalities in the corridor provide the minimum required protection for natural resources such as floodplains, wetlands, erosion and sedimentation and stormwater. In some cases, municipal ordinances defer to state regulations to protect their resources (i.e. wetlands and erosion control), but do not specifically include additional requirements. Not surprisingly, boroughs and cities had fewer restrictive natural resource protection ordinances than the less developed municipalities.

Some municipalities have adopted more restrictive approaches to wetland buffer requirements than mandated by state regulations. For example, in Pennsylvania, where there are no state-mandated wetland buffer requirements, six of the 17 municipalities have adopted wetland buffer protection ordinances. Similarly, six of the 17 Pennsylvania municipalities have adopted riparian buffer ordinances. In comparison, the New Jersey municipalities in the corridor are mandated by the state to apply a 300-foot buffer to their Category 1 streams.

The few municipalities that have comprehensive and effective natural resource protection ordinances in place typically have strong and extended support by elected officials and residents. These municipalities understand that water resource protection must be the very foundation of sound land use planning and growth management.

E. Where do we go from here?

The Lower Delaware River is the boundary between New Jersey and Pennsylvania. It can also be said that the river is where these two states merge, in a river valley with a unique natural and cultural identity that in many ways transcends political boundaries.

Traveling downstream from the Appalachian Mountains, through the Highlands and into the rolling Piedmont, the river's historic bridges connect communities like Riverton and Belvidere, Phillipsburg and Easton, Upper Black Eddy and Milford, Stockton and Solebury, Lambertville and New Hope.

There are many similarities in the way New Jersey and Pennsylvania municipalities approach natural resource protection, which is not surprising since both states place primary responsibility for land use planning and decision making on local governments (i.e. "Home rule"). Ordinances dealing with flood plains, stream corridors, steep slopes, wetlands and erosion control appear in virtually every municipal codebook on either side of the river.

Indeed, differences in how Lower Delaware River corridor municipalities approach natural resource protection tend to be more a function of geographic rather than state boundaries. Generally speaking, municipalities in the downstream sections of the Lower Delaware (Hunterdon and Bucks) have faced more intense development pressures over a longer period of time and have responded accordingly with more aggressive and comprehensive efforts to protect vulnerable watershed resources.

Times have changed as more rural upriver communities are now facing the same degree of development pressure as their downstream neighbors.

Local government leaders have a unique opportunity to observe how their neighboring river corridor communities have responded to intensified growth pressure and potential threats to water quality, water quantity, and other resources that can be impacted by major changes in land use.

The following is a list of recommended actions that we hope will enhance efforts to protect the natural, economic and historic resources of the Lower Delaware River corridor and in meeting the objectives of the River Management Plan.

Local Recommendations:

- Municipalities should assess their current land use ordinances with master or comprehensive plans to assure compatibility and consistency.
- Municipalities should adopt adequate protection measures for wellhead protection, wetland and stream buffers, where such protection measures are absent, and provide stronger focus on protection of groundwater resources and headwater streams. (Note: NJ municipalities may not adopt ordinances which go above and beyond state wetland regulations)
- Each municipality should appoint a representative to serve on the W&S Management Committee
- Increase inter-municipal cooperation and communication; consider regional inter-municipal committees.
- Encourage formation of Environmental Advisory Commissions/Councils in the 30% of municipalities who currently do not have these advisory groups.
- Counties, municipalities and watershed organizations should complete watershed management plans for tributaries to the Delaware River that currently lack such a plan. Counties' and municipalities' watershed plans should correspond to and complement the towns' master or comprehensive plans and county comprehensive plans.
- Continue education efforts to identify and explain values of natural resources and the need to actively integrate natural resource and land use planning.
- Identify funding sources to assist municipalities in conducting natural resource inventories, surface and groundwater monitoring and increasing access to geospatial technology and mapping.

- Municipalities should review and provide revised or new ordinance information to the DRGP so that the ordinance review matrix can be maintained and updated as a resource tool in the corridor.
- Update the Lower Delaware Wild and Scenic River Management Plan to include more specific recommendations for resource protection language in municipal zoning and land development regulations.
- Seek resolutions of support for W&S designation from four townships that have not yet done so.

Regional, Interstate and National Recommendations:

- Congress should fully fund the incentive grant program to insure implementation of the above protection recommendations, implementation of the management plan and enhanced municipal cooperation.
- The Governors of both New Jersey and Pennsylvania should each issue an Executive Order regarding implementing and administering the state aspects of the Lower Delaware National Wild and Scenic River and River Management Plan.
- The Delaware River Basin Commission should adopt permanent Special Protection Waters regulations for the Lower Delaware River and consider inclusion of designated tributaries.

F. How do we get there?

Ten years ago, finding examples of model ordinances and information about land use planning tools could be a challenging task for even the most resourceful municipal official or interested citizen. Today, such information can easily be found, often through web-based sources.

County Planning Commissions, watershed associations, state environmental agencies, and nonprofit organizations continue to be the primary sources of information for ordinances and related information, and some of these have been included in the appendix.

One new source of information that merits special attention from municipalities on both sides of the river is the Hunterdon County Planning Commission, which has created the Hunterdon County Environmental Toolbox.

The Environmental Toolbox consists of a series of science-based model ordinances (some of which are still under development) for municipalities that want to ensure that only environmentally sound development take place.

The Environmental Toolbox is managed by a committee comprised of local officials, county and state agency representatives, land use attorneys, engineers, scientists, planners, landscape

architects, foresters, and representatives from both the environmental and agricultural communities.

Subcommittees were created to study and make recommendations on specific topics including: Agricultural Protection and Viability, Soils, Steep Slopes, Woodlands, Habitat Protection, Lighting, Water Resources, and Scenic Resources. Ordinances underwent thorough debate, revision, and scrutiny by diverse interests in order to ensure they were legally sound, scientifically valid and responsive to the concerns of the diverse interest groups that would ultimately be affected by them.

Although the Environmental Toolbox was created for Hunterdon County municipalities, it is an excellent resource that can be used by municipalities along the entire length of the Delaware River corridor and surrounding region.

It is recommended that a similar “tool-box” be developed by the Pennsylvania County Planning Commissions along the Lower Delaware Wild and Scenic River Corridor (Bucks and Lehigh Valley).

"To protect your rivers, protect your mountains"
Emperor Yu of China, 1600 BC

G. Appendices

Appendix A: Web Resources

There are many regional and state sources for environmental ordinances, watershed and inter-municipal planning including the following:

Regional

Delaware River Basin Commission (www.state.nj.us/drbc)

Delaware River Greenway Partnership (www.drgp.org)

Delaware Riverkeeper Network (www.delawariverkeeper.org)

Delaware Valley Regional Planning Commission (www.dvrpc.org)

New Jersey

Association of New Jersey Environmental Commissions (www.anjec.org)

Hunterdon County Planning Board (www.co.hunterdon.nj.us/planning.htm)

Municipal Land Use Center - College of New Jersey (www.tcnj.edu/~mluc)

Rutgers University (www.rce.rutgers.edu/njriparianforestbuffers)

The Stony Brook-Millstone Watershed Association (www.thewatershed.org)

The Watershed Institute (www.thewatershedinstitute.org)

Pennsylvania

Center For Sustainable Communities - Temple University
(www.temple.edu/ambler/csc)

Heritage Conservancy (www.heritageconservancy.org)

Pennsylvania Environmental Council (www.pecpa.org)

Pennsylvania Organization For Watersheds and Rivers (www.pawatersheds.org)

Appendix B: Legal Challenges to Environmental Regulations – What have the Courts been Saying?

The following section presents recent legal challenges to environmental protection ordinances in both Pennsylvania and New Jersey. Environmental regulations are often challenged on the basis that they unfairly restrict a property owner's right to develop land at its highest value. Both the State of New Jersey and the Commonwealth of Pennsylvania enable its towns and cities to preserve and protect natural resources through land regulations such as zoning and subdivision ordinances. These cases illustrate examples of the types of ordinances that have been upheld and those which have not.

1. Rushton Family Limited Partnership v. Tincum Township (Bucks County Court of Common Pleas, 2001)

The Court of Common Pleas rejected a developer's appeal of a Tincum Township decision to deny Ruston's subdivision plan. The primary source of disagreement was the failure of the plan to comply with the township's groundwater ordinance, which seeks to ensure "the availability of reliable, safe and adequate water supplies to support the intended land uses within the capacity of available water resources and to protect the aquifer."

The ordinance forbids approval of a subdivision plan that is predicted to result in a reduction of the water table on adjoining properties by more than two feet. The Ordinance also forbids approval of subdivisions that are predicted to result in an increase above stated levels in the nitrate content of groundwater at the down gradient property line or stream, and specifies the type of hydro-geological analyses required to prove compliance.

The township's expert reviewed the findings of the applicant's hydro-geological expert, and determined that the subdivision plan did not comply with the groundwater ordinance.

The township and applicant agreed that a third expert would be retained to review the hydro-geological data. The objective of this review was to determine which expert's opinion was the most sound, in light of the requirements of the ordinance. The third party review found, based on the data provided by the well pumping test that the proposed plan would likely exceed the maximum water table reduction of two feet, especially given the certainty that multiple wells would be in use under the plan as proposed.

The judge stated in his opinion that the mutual agreement to a third party review as a means of resolving the factual dispute precludes the applicant from claiming that the township acted capriciously or in bad faith, when the township relied upon that very review in rejecting the proposed subdivision plan. "The law of our Commonwealth grants municipalities the power to consider and protect groundwater in their zoning and planning activities. In our review, we must presume that a zoning ordinance implemented pursuant to statutorily granted power is valid and constitutional. The burden of proving otherwise is on the challenging party."

The court found that there was substantial evidence to support Tincum Township's denial of the subdivision plan approval, and ruled that the invalidity of the groundwater ordinance was

“neither properly raised nor successfully established.”

2. C&M Developers, Inc. v. Bedminster Township ZHB 820 A.2d 143 (Pa. Supreme Court 2002).

The Supreme Court reversed a decision by the Commonwealth Court that in turn supported a challenge to the standards of Bedminster Township’s Agricultural Preservation Zoning District. On properties of 10 acres or less, the minimum lot area requirement is 80,000 square feet. On properties greater than 10 acres, 60% of the prime farmland soils and 50% of the soils of state-wide or local importance must be “set aside.” On the developable portion of the tract, the minimum lot area is one acre (43,560 sq. ft.). This must be “one clear acre” which contains no watercourses, floodplains, floodplain soils, wetlands, lakes or ponds. Woodlands, steep slopes, agricultural soils that are not protected may be included in the “one clear acre.” In addition, there must be a 10,000 square foot building envelope within the “one clear acre.” The building envelope would not include setbacks and protected natural features.

The Supreme Court agreed that, pursuant to its police power, the township may use zoning regulations to preserve agricultural lands and activities. However, the court found that, although the township intended to achieve a reasonable balance between Ag land protection and the owner’s rights to use property, it failed to obtain a reasonable balance. The one-acre minimum lot area requirement, in particular the “one clear acre” provision and the township’s interest in avoiding large houses on small lots in the AP district, results in an exclusionary purpose and unreasonably restricts the property rights of landowners. The court upheld the agricultural standards of the ordinance; the development standards were not.

<p>Key Points: Although the court supported agricultural protection standards in the zoning ordinance, the mix of requirements for the development portion of the site were too severe.</p>
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3. Appeal of Dolington Land Group and Toll Bros. Inc. from the Decision of the ZHB of Upper Makefield Township. 839 A.2d 1021 (PA Supreme Court. 2003)

Developers filed a two-pronged challenge to the zoning ordinance. In the first, based on the fair share issue, both the Commonwealth and Supreme Courts upheld the ordinance. The second was based on the reasonableness of the zoning standards of the Conservation Management Zoning District. Under the ordinance, 90% of Class I ag soils, 85% of Class II and 80% of Class III soils had to be protected along with percentage protections of other natural features.

The Supreme Court upheld the zoning ordinance. The court said the standards primarily control the development’s layout and design, rather than its dwelling unit yields. The regulations also strongly encourage with its density incentives the use of cluster subdivisions and performance subdivisions where a site has significant natural constraints or agricultural soils.

In contrast, Bedminster’s mix of requirements, including the minimum lot area requirement of one acre plus the “one clear acre” requirement, reduced the permitted density.

The Court compared the Upper Makefield standard with Bedminster’s standards, as it discussed in the *C & M* opinion, and found that Upper Makefield protected prime farmlands and environmental features while providing the landowner with reasonable options for development.

The court went on to distinguish the restrictions that were overturned in the *C&M Developers* case from those at issue in *Dolington*. The restrictions deemed illegal in *C&M* controlled the “intensity of development,” noted the court. In comparison, the Conservation Management District standards in *Dolington* controlled the location and layout of development. A developer could maximize the site’s “development value” (i.e. number of dwelling units) by choosing one of the housing development alternatives permitted in the zone.

The court recognized that, on a severely constrained site, the maximum density might not be achievable, but acknowledged that would result from the site’s features, not the constraints of the ordinance.

The court noted approvingly that the township’s ordinance merely controls the layout of the development in order to preserve large areas of prime agricultural soils and sensitive natural features and has “no necessary impact on the maximum number of permitted dwelling units.”

**Comparison of
C&M Developers Decision with the Dolington Land Decision**

Make sure protection goals and implementing zoning provisions are balanced with the ability of property owners to realize reasonable use of their lands. Contrast *Dolington Land* (Upper Makefield Township) with *C&M Developers* (Bedminster Township).

**C&M Developers
Bedminster**

Affected intensity
(dwelling unit yield)

Permitted one
development type

Added “one clear acre”
and building envelope
requirements

**Dolington Land
Upper Makefield**

Affected layout and design

Permitted three development
options with density incentives

Number of dwelling units calculated without
deducting natural features and agricultural lands

4. Mt. Olive Complex v. Twp. of Mt. Olive (N.J. Superior Court. June 4, 2001)

Source: Watershed Institute and Stony Brook – Millstone Watershed Association

This case involved a zoning dispute that implicates Mount Laurel issues and the extent to which a municipality may rely on the State Development and Redevelopment Plan in rezoning property located in Planning Area 5 from single-family dwellings on small lots to one residential unit per five acres.

The court concluded that Mt. Olive Complex (Complex) did not satisfy the first prong of the Mount Laurel II builder's remedy test by failing to prove that Mt. Olive Township (Township) did not provide the requisite realistic opportunity for satisfaction of the Township's fair share. The court also concluded that the rezoning of the undeveloped portion of Complex's tract "was consistent with the standards and goals of the State Plan" and declared that the trial court erred in declaring the RR-AA and RA-1 zones invalid.

In the 1970s, Complex compiled more than 1,000 acres of undeveloped land in the Township and secured approval for a Planned Unit Development (PUD). By the late 1970s Complex had completed Section I of the PUD, which consisted of 833 units, mostly apartments. During this time Mount Laurel litigation was brought against the Township. The suit was settled in 1985, and although Complex was not a party to the litigation, it agreed to construct forty- moderate income rentals during the Section II construction phase of the development.

In 1988 the Township declared that Complex's PUD approval had expired. The remainder of Complex's property was then rezoned in 1996 to RA-1, which permits clustering on two-acre lots. Complex filed two separate suits, the first, in 1995, challenged the rezoning of the property, and the second, in 1997, sought a builder's remedy. These matters were consolidated and during the pendency of the consolidated actions, the Township rezoned the majority of Complex's property from two-acre lots to five-acre lots (RR-AA).

The trial court denied Complex's request for a builder's remedy, however, it invalidated the Township's RR-AA zone and the predecessor RA-1 zone.

With regard to the Mount Laurel issue, the appellate court concluded that Complex did not satisfy the first prong of the Mount Laurel II builder's remedy test by failing to prove that the Township did not provide the requisite realistic opportunity for satisfaction of the Township's fair share. Subsequently, in 1999, after the trial court's judgment, COAH granted the Township substantive certification.

The court also rejected Complex's argument that the Township had no right to unilaterally rezone property which, according to the 1985 judgment of compliance, was to provide forty moderate-income units. Case law holds that to modify or terminate a Mount Laurel consent decree, it must be established "that a significant change in facts or law warrants revision of the decree." The court reasoned that modification of the judgment was justified because there have been two revisions to the Township's fair share, there have been significant changes in the law, including the introduction of the Freshwater Wetlands Protection Act in 1987 and NJDEP's proposed regulations which would link future infrastructure development to the State Plan, and the fact that Complex's delay in enforcing its rights on the consent judgment was inexcusable.

"Of significance in this appeal is the extent to which a municipality may rely on the State Plan in redesigning its land use regulations." While the court did state that "the State Planning Act as presently structured does not require ordinances to be consistent with the State Plan, its very terms stress the importance of voluntary compliance." The court specifically cited the amendment to the MLUL requiring municipal master plans to include a specific policy statement as to the relationship of proposed development of the municipality to the State Plan.

The court concluded that the rezoning of the undeveloped portion of Complex's tract "was consistent with the standards and goals of the State Plan" and declared that the trial court erred in declaring the RR-AA and RA-1 zones invalid. Of significance was the fact that most of the RR-AA zone falls within Planning Area 5 and the Township is within the Highlands Special Resource Area.

The court also rejected Complex's takings claim, reasoning that although the development restrictions imposed on Complex's property are substantial, they are sustainable, as they advance a legitimate government purpose, are consistent with the State Plan and the MLUL, and do not deprive Complex of all reasonable use of its property.

5. New Jersey Farm Bureau v. Twp. of East Amwell, (App. Div. 2005) and Bailes v. Twp. of East Brunswick, (App. Div. 2005).

Source: Highlights from the presentation given by Howard D. Cohen, Esq., and Barbara B. Wolfe at New Jersey Future's December 2, 2002 Members & Friends event at Rutgers University's Eagleton Institute of Politics.

Background: The East Amwell Case

In 1999, in an effort to preserve the viability of its local farms and the town's rural character, East Amwell Township in Hunterdon County adopted zoning laws designed to preserve the town's farmland. The town created a new zoning ordinance for the Amwell Valley Agricultural District (AVA) that increased the minimum allowable house lot size from 3 acres to 10 acres (referred to as "down-zoning"). This reduced by two-thirds the amount of development allowed on some 11,000 acres of land, about 60 percent of the town.

Three types of development are now allowed in the AVA district: 1) conventional development on 10-acre lots; 2) lot averaging, which permits development on lots as small as 1.5 acres, provided average development for the parcel does not exceed one unit per 10 acres; and 3) "open lands" subdivision, which provides developers with a 50 percent density bonus if they "cluster" the development on a parcel to preserve 75 percent of the land in farmland (not exceeding an average 1.5 units per 10 acres).

Immediately after its adoption, the ordinance was challenged by several local landowners, including farmers and a real estate developer. The New Jersey Farm Bureau also challenged the ordinance, arguing that it decreased the value of their land.

In September 2002, in what was anticipated to be a decision of landmark importance, a New Jersey Superior Court judge upheld East Amwell's right to reduce the building density on those 11,000 acres.

The decision is considered significant, as it is the first to uphold the right of municipalities to protect farmland from sprawl by low-density zoning. In the East Amwell ruling, the court echoed a previous court decision, Kirby v. Bedminster, which concluded that zoning changes are valid if they are consistent with the New Jersey State Plan and local and county planning goals. Judge Helen Hoens asserted that while the State Plan has a regional approach, "it is one which in the end tolerates the choice of a particular community to safeguard its environs."

How Did East Amwell Win?

The town's high level of preparation and organization throughout the entire planning and legal process was integral to the court's ruling. The creation of the new zoning district followed years of public process and adherence to the affordable housing obligations under New Jersey's affordable housing laws, which allowed East Amwell to avoid a "builder's remedy" lawsuit or having the case thrown out on procedural grounds.

Howard Cohen, the attorney representing East Amwell in this case, has developed a nine-part recipe for preparing a defensible resource management zoning ordinance. The outline of his recipe follows, along with examples of how East Amwell met the demands of each item.

1. Preparation of an adequate record. The town had well-documented planning rationale in their master plan that was supported by underlying studies and analyses and competent expert opinion. The town had already articulated public policy objectives to conserve countryside, rural character, natural resources, scenic resources, agriculture, and open space.

2. Compliance with *Riggs v. Long Beach Township*. The town's zoning ordinance advanced one of the zoning purposes in the Municipal Land Use Law (MLUL), and was consistent with the Land Use and Housing Plan elements in the master plan. The town was in accordance with constitutional constraints on the zoning power, which states that as long as the zoning ordinance advances a legitimate state interest based on sound planning and does not deny the property owner of all economically beneficial use of the land, a regulatory taking does not occur. The property owner is not necessarily entitled to the most profitable use of the land.

3. Advancement of one of the purposes of the Municipal Land Use Law as set forth in N.J.S.A. 40:55D-2, including:

- Guiding appropriate land use to promote public health and welfare
- Providing open space
- Ensuring that development does not conflict with neighboring towns, county, or State
- Establishing appropriate population densities
- Providing sufficient space for agricultural, residential, and open space uses
- Promoting desirable visual environment
- Promoting conservation of open space and valuable natural resources and prevents sprawl and environmental degradation

4. Defined growth areas, showing balanced zoning with both development and preservation opportunities.

5. Compliance with New Jersey's affordable housing requirements. Once a municipality has satisfied its affordable housing obligation, it may engage in measures such as "large lot zoning" to "maintain its beauty and communal character." Mt. Laurel "is not designed to sweep away all land use restrictions or leave our open spaces and natural resources prey to speculators...municipalities consisting largely of conservation, agricultural, or environmentally-sensitive land will not be required to grow because of Mt. Laurel." (Mt. Laurel II 92 N.J. 158 (1983))

6. Consistency with the State Plan. The State Plan is not a regulatory instrument, but consistency with State Plan goals and objectives can be used to support the reasonableness of zoning ordinances.

7. A relationship between zoning and sewers. Sewer service should follow zoning and planning - not vice versa. (N.J.S.A. 7:15-15:18)

8. Integration of the public and other stakeholders into the planning process. Address and accommodate their concerns, when possible, without sacrificing significant resource management goals and objectives.

9. Putting it all together.

- Engage appropriate consultants and experts to fortify records (planners, engineers, appraisers, economists, wastewater management planning experts, traffic engineers, ecologists, hydrologists, soil scientists, etc.)
- Use demonstrative exhibits to tell the story, such as photographs, maps, etc.
- Ask for a judicial tour to help understand the evidence. Hire competent counsel to guide the planning process and defend it, if sued.

Appendix C: Natural Resource Protection Ordinance Matrix

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Bucks County, PA						
Bridgeton	Zoning Ord. June 1999, SALDO, 1995	No requirement	75%	25 to 35% slope - 90% >35% slope -100%	Max. building coverage/lot <30%: 70%, Max. building coverage/lot >30%: 50%- 100% Palisades Setback Area	Yes--100% in TPZ
Durham	Zoning Ord. 1992	60%	70%	85%	80%	Yes--100% in TPZ
New Hope	Zoning Ord. Amend. 1994	50%	70%	85%	60%	Yes--100% in TPZ
Lower Makefield	Zoning Ord. Update 2001		70%	85%	70%	Yes--100% in TPZ
Nockamixon	Zoning Ord. 2002	No requirement	15-24% slope, 70%	25-30% slope, 80% 30+% slope, 85%	OSM District-90%, RP & RA Districts-80%, R Districts-70%	Yes--100% in TPZ
Plumstead	Zoning Ord. Amend. 2001	No requirement	70%	85%	80% in zones RP, RO, R-1 - R-4, 60% in zones C-1, C-2, C-3, C-4, VC, I, LI, Q	Yes--100% in TPZ
Riegelsville	Zoning Ord. 1989	No requirement	70%	80%	80%, 50% in I - Industrial zoning district	Yes--100% in TPZ
Solebury*	S & LD May 25, 2004	Permitted conditional uses (residential a conditional use)	Permitted conditional uses (residential a conditional use) 100% > 20% slope	Ag. & rec. (no structures) uses only w/ setbacks	RD & RD-C distr. - prot. wherever poss., replace 10" & 12" caliper trees, respectively	Trees 6" or > diam. to be removed must be replaced (SALDO)
Tinicum*	Zoning Ord. Amendments to Nov. 2005	60%	15-20% slope: 70% 20-25% slope: 85%	25-30% slope, 90% 30+% slope, 100%	80% all areas	Has tree harvesting ordinance that regulates commercial forestry.
Upper Makefield	Newtown Area Joint Municipal Zoning Ord. 2001	No requirement	75%	85%	80% in zones JM, CM, CR-1	Yes--100% in TPZ
Yardley	The Code Of Yardley Amend. 10/99		70%	85%	50% all areas	Yes--100% in TPZ & have Shade Tree Commission

Water Resources - Water Supply							
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit devel. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	Water Resources - Water Quality On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Bucks County, PA							
Bridgeton	No requirement	No	No WHP, yes - limit devel in G.A. in comp plan 1994	100%	Pond 80% (75ft), 70% lake (50 ft)	OLDS Management	Yes--SLDO 1995
Durham	No requirement	Yes - 12/11/91	No WHP, yes-limit devel in GWP areas in ZO	100%	70% lake (150ft), 80% pond (75ft)	No	Yes--SLDO 1982
New Hope	No requirement	No	No, No	100%	80% pond (100ft), 70% lake (100ft)	No	Yes--SLDO Amend 1995
Lower Makefield		Yes--Includes Groundwater	No WHP, yes - limit devel in G.A.	100% ponds/lakes only	100% lake/pond (50ft), 100% watercourses		SLDO Update 1/2000
Nockamixon	Yes--on fixtures	Ch. 222, water	No WHP, yes - limit devel in G.A. in comprehensive plan	100%	No requirement	No	Yes --SLDO Amend. 1997
Plumstead	Yes--on toilets only	Yes	No, No	100%	100% (75 ft.)	(Will be required in updated Act 537 plan)	Yes --SLDO 2001
Riegelsville	No requirement	No	No, No	100%	80%	No	Yes --SLDO 1991
Solebury*	Yes--on Fixtures	Yes - 12/13/91	Yes, yes limit devel. in comp plan	100% streams only. Special requirements for Delaware Canal and State Parks and Lower Delaware Wild and Scenic River	No	OLDS Management	Ordinance No. 2004-214. SLDO May 25, 2004
Tinicum*	Yes--on fixtures	No	No WHP, Yes--limit devel in G.A. -Critical Recharge Overlay Distr. (Zoning Ord. 2005) - 50% less than required.	100%	100% - lake 150 ft, pond 75 ft, watercourse 50 ft (except roads and utilities)	OLDS Management	Yes --SLDO and Steep Slope Conservation District Overlay District Regs.
Upper Makefield	Yes--Twp. Code 1988	Yes--Twp. Code 1988	No WHP, Yes--Limit Devel in G.A. - Newtown Area Joint Municipal Comp Plan/zoning	100% ponds/lakes only	Riparian Buffer Overlay Zone (2004), 25 ft.	OLDS Management & Education Programs	Yes --SLDO 1996
Yardley	No	No	No, no	100%	80% (50 ft of minor surface waters)	?	Yes --SLDO Amend. 1990

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Bucks County, PA						
Bridgeton	100%	100%	50 ft.	75' Delaware Canal, 50' major waterways, 50' avg. water level of lake or pond.	No	Delaware Palisades
Durham	100%	100%	No	No	Yes	Cooks Creek EV Watershed
New Hope	100%	100%	No	No	No	Delaware River
Lower Makefield	100%	100%	100%	No ordinance, but setback required from Del. Canal	Yes	Delaware River
Nockamixon	100%	100%	No	No	Yes	Nockamixon Cliffs
Plumstead	100%	100%	100 % (75ft)	Yes, 75 ft. from top bank of watercourse.	Yes	Delaware River Management Area Overlay District
Riegelsville	100%	100%	80%	No	No	Delaware Canal restrictions
Solebury*	100%	Must be delineated as part of four-step process and preserved (100%)	No	No	Yes	Delaware River Wild and Scenic corridor (1/4 mile) requirements and Delaware Canal restrictions
Tinicum*	100%	100%	100% - 50 ft, except roads and utilities 75 ft for exceptional value wetlands	Yes, 100% protected - 75 ft minimum in Riparian Buffer Overlay District	Yes	Tohickon Creek, Tinicum Creek, Beaver Creek, Rapp Run
Upper Makefield	100%	100%	No	Yes - ordinance #2004-6, 25 ft. Riparian Buffer Overlay Zone	Yes	Delaware River
Yardley	50%	100%	80%	mentioned in Comp. Plan	No	Delaware Canal restrictions

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Northampton County, PA						
City of Easton	City of Easton Zoning Ordinance and Subdivision Regs. (2001 rev.)	No requirement	No requirement	Increase lot size by 50%, maximum impervious surface reduced by 25%.	Yes, consult with county conservation district	consult with county conservation district
Forks	Zoning Ord. 2000	No requirement	15-20% slope: 80% 20%+ slope: 90%	90%	90%: Floodplain, swamps 70%: Meisic Upland 50%:	Yes - woodland mgmt. plan required.
Williams	Zoning Ord. 1990	Requires site plan	Minimum 3-acre lot size. 70% protected	Minimum 5-acre lot size. 85% protected	No requirement	Plan required for removal of more than 10 trees with a trunk diameter of 6 inches or more.
Lower Mount Bethel	Zoning ordinance, 1972	No requirement	Restricts uses on lands over 15% slope located in Conservation District (CV)	restricts uses on lands over 15% slope located in Conservation District (CV)	Use restrictions in Agriculture and Preservation Districts. Hydrogeological report required for on-lot sewage systems installed in areas of groundwater quality concern. Testing required in areas of carbonate geology.	No specific ordinance, but dense wood cover Noted as being included in conservation district (CV). SLDO Notes that No trees > 6" caliper can be removed unless they are located within the proposed cartway, sidewalk or driveway etc..
Upper Mount Bethel	Zoning ordinance, 2004	No requirement under 15%	Uses must conform with Steep Slope Overlay District criteria. 67%	No grading permitted without special approval from supervisors. Uses must conform with Steep Slope Overlay District criteria. No structures are permitted. 75%	All uses in environmentally sensitive areas subject to conditional use procedures and resource related requirements. Environmental Constraints Analysis required. Lot sizes must be increased to reflect environmentally constrained lands.	No specific ordinance.
Portland Borough	Zoning Ordinance, 1966		No requirement			

	Water Resources - Water Supply			Water Resources - Water Quality			
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit level. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Northampton County, PA							
City of Easton	No requirement	N/A		No requirement	No requirement	None	Yes, subdivision ordinance, 1989
Forks	No requirement	N/A		100% ponds, lakes	70% within 50ft of lake, ponds, wetlands and watercourses	None	Yes - SLDO
Williams	No requirement	N/A		No requirement	25 ft. buffer along Delaware and Lehigh Canal. 75 ft. along Delaware and Lehigh Rivers. 25 ft. along streams.	None	Yes, SLDO
Lower Mount Bethel	No requirement	N/A	No specific requirement but high groundwater table and groundwater contamination are criterion for inclusion in conservation district. Developer must submit hydrogeological report per SALDO	No specific requirement	no specific requirement	None	Yes, SLDO
Upper Mount Bethel	No requirement	N/A	Uses that directly or indirectly result in groundwater pollution are prohibited in aquifer outcrops and/or recharge areas.	100%	Development proposed within 100 feet of stream, river bank, pond or reservoir shall be subject to approval of supervisors.	None	Yes, SLDO
Portland Borough	No requirement	N/A				None	Yes, SLDO

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Northampton County, PA						
City of Easton	Uses must conform with Flood Zone District Regulations. Land suitability report required.	Land suitability report required for sensitive areas	No requirement	No requirement	No	Getter's Island, Island Park, Easton Bluff
Forks	100% except by DEP permit	100%	No requirement	70% protected within 50 ft of shoreline of lake or pond	No	Delaware River
Williams	Uses must not result in increased flood height. Structures must be 1.5 feet above 100-yr. Floodplain elevation.	Permits issued if applicant complies with Federal and State wetlands regulations	No requirement	Yes. 75 feet from Delaware and Lehigh Rivers. 25 feet from streams. 25 feet landscaped buffer along Delaware and Lehigh Canal.	No	Hexenkopf Wetlands, Mariton Uplands, Delaware River, Old Sow Island, Whippoorwill Island, Raubs Island, Raubsville Lock
Lower Mount Bethel	100% Permitted uses are restricted to outdoor recreation with no structures.	No requirement	No requirement	No requirement	Yes	Foul Rift, Delaware Shore near Keifer Island, Oughoughton Creek Power House Site, Eastern Industries Quarry
Upper Mount Bethel	100% (Ordinance includes general floodplain district overlay)	100%	No specific requirement, but ordinance provisions for groundwater aquifer and recharge areas and areas of seasonal high water table.	No specific ordinance, but development proposed within 100 feet of stream, river bank, pond or reservoir shall be subject to approval of supervisors.	Yes	Mt. Bethel Fens, Mount Jack Limestone Outcrop, Delaware River Water Gap, Bear Swamp, Minsi Lake Vernal Pools, School Road Swamp, Arrow Island, East Johnsonville Swamp, Getz Swamp
Portland Borough	PA Floodplain Management Act		No requirement	No requirement	No	

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Hunterdon County, NJ						
Lambertville Borough	Land Use Plan Element, 9/28/98, Zoning Ord. 4/16/01	None	regulates disturbance over 15%	prohibits disturbance over 30% slope	NJ Regulations for wetland and C1 watercourse buffers apply.	Zoning 510.12 - existing trees on development site shall be retained to the greatest feasible extent. Prohibits removal of specimen trees > 24" diam.
West Amwell	E& S, 1978, Floodplain Mgmt., 1981, Land Development, 1990 with updates to 2004	For 15-20% - max of 30% of the total area of slope can be disturbed.	For 20-25%, a maximum of 20% of the total slope area can be disturbed.	Over 25% - No disturbance allowed, except where an applicant can demonstrate that disturbance is essential to access property or to establish reasonable use.	Alluvial soils must be kept in vegetated states within stream corridor buffers.	None. Certain size and species specified as sensitive for cluster development.
Stockton Borough	Borough of Stockton Zoning Ordinance - 1975, Subdivision & Site Plan Ordinance - 1981, Master plan, 1973- only in county planning office	No specific requirement	No specific requirement	Steep slopes must be identified in subdivision applications. Special provision in R-1-40 zone due to steep slopes.	Natural resource inventory information must be included in subdivision applications. Environmental Information Report (EIR) required for preliminary and/or site plan approval. Natural features shall be preserved whenever possible.	No trees can be removed or destroyed except in the location of the proposed structure. Must identify trees over 4 " in diameter and 4.5 feet in height.
Delaware	O.S. Preservation & Rec Component of Master Plan - 1/20/99 draft, Article XII Environmental & Natural Resources Requirements (Zoning). Article XI	No restrictions	100% protected for areas between 15-25% slope.	100% protected over 25% Slope.	For woodlands over 1/4 acre, 100% of floodplain/hemlock associations and 50% of mesic and upland associations shall be preserved. Preservation of hedgerows to the greatest extent practicable.	No Healthy trees >10 inches in diameter/4 feet above grade shall be removed, except as necessary. No greater than 1/3 of roots can be disturbed. Clear cutting requires woodland mgmt. Plan prepared by forester.
Kingwood	Zoning, Chapter 132 -Feb 1997,					

	Water Resources - Water Supply				Water Resources - Water Quality		
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit devel. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Hunterdon County, NJ							
Lambertville Borough			Two well-head protection areas in City. (only 20% of homes are on wells for water supply)		NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	see page 14 of SMP	City requires that all major developments follow Standards for Soil Erosion and Sediment Control in New Jersey. (Located in Stormwater Mgmt. Plan)
West Amwell	No requirement found	None found	No specific requirement but applicant must submit hydrogeological report for new wells	100% (considered critical environmental area)	Where critical areas do not exist, 50 ft. on either side of stream channel	New systems require permitting and inspection. All systems shall comply with NJAC 7:9A-12.1. Township recommends that system be inspected every three years and tank pumped at the same time. (Ch. 173) . Hosted public program on septic system maintenance and water quality impacts from failing systems.	Chapter 137 of zoning. No land area shall be disturbed without an E&S plan. No subdivision , site plan or land development plan shall be approved unless it includes an E&S Plan.
Stockton Borough	No requirement found	None found	Subdivision ordinance requires that aquifer recharge areas, including safe sustained ground water yield be identified on preliminary plan submissions.	watercourses, including width and direction must be identified on plan submissions.	EIR requires identification of natural features potentially impacted by development.		Article V - Subdivision and Site Plan Ordinance. E&S plans subject to review by Hunterdon County SCD under State Soil Erosion and Sedimentation Control Act.
Delaware			Groundwater resources evaluation (2004)	100%	100% within 50 feet of shoreline of a lake or pond.		Article XII- Section 12:8 - Plans must be approved by County Conservation District and certified by Township Planning Board. Plans must conform with "Standards for Erosion and Sediment Control" by NJ Article XI for plan requirements.
Kingwood						NJ State, E&S Regs.	

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Hunterdon County, NJ						
Lambertville Borough	NJ Flood Hazard Control Act applies	NJ Freshwater Wetlands Regulations apply.	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses. City requires stream corridor protection plans for C1 waters.	Yes	Alexauken Creek - C1 watercourse
West Amwell	Alluvial soils shall be kept in vegetative state. Development permitted with restrictions. Can not diminish flood-carrying capacity. Technical justification required for variances to flood ordinance.	100% - considered critical environmental area. NJ Wetlands Act Regulations apply.	Prohibits development on wet soils within 50 ft. of stream channel. (considered critical environmental area)	Section 109 of Zoning requires min. of 50 ft vegetated buffer on either side of stream channel. When the toe of slope >15% is less than 50 ft, the corridor shall extend to the top of the slope + 20' of moderate slope. In addition, NJ Special Protection buffer applies to C-1 waters.	Yes	Trout Production Waters (Stonybrook/Millstone Watershed)
Stockton Borough	Encroachments permitted with restrictions. Residential uses prohibited in flood hazard areas.	EIR requires identification of natural features potentially impacted by development. NJ Wetlands Act regulations apply.	NJ Freshwater Wetlands Regulations apply.	EIR requires identification of natural features potentially impacted by development. No specific riparian buffer requirement.	No	
Delaware	Floodplain and floodplain soils are 100% protected (Area of floodplain woodland also 100% protected.)	100% protected (as determined by NJ DEP)	100% protected as open space.	100% protected for streams and land within 50 feet of the top of the bank of any stream.	Yes	Article XII, Section 12:4: All applicants for major subdiv. Shall include an envir. Information report to evaluate primary and secondary environmental impacts.
Kingwood	Floodplain District Overlay. NJ Flood Hazard Control Act applies	NJ Wetlands Regulations Apply	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft Buffer applies to all Category 1 watercourses	Yes	Completed Environmental Resource Inventory in 2004

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Hunterdon County, NJ						
Frenchtown	Article III, Sections 308, 409, 506, 705, 707, 709, 710 & 713 - Land Use Ord. - 9/06/2000	No restrictions - but all areas must be delineated (from 0-14.99%)	85% protected for areas between 15-25% slope.	100% protected for slopes over 25%.		
Alexandria (NJ Highlands preservation & planning)	Land Use Code - Article VI - Environmental Performance Standards	No restrictions	70% protected between 15%-24.99%. Must obtain planning board approval.	75% protected over 25% slope. Must obtain planning board approval.	Woodland areas > 1/4 acre: 10% of floodplain associations, 30% of meisc associations, and 50% of upland associations may be developed..	Clear cutting requires a woodland mgmt. Plan and permit from planning board.
Milford Borough (NJ Highlands planning)	Land Use Plan and Conservation Plan Elements, April, 1996					conservation plan element encourages preservation of large trees and woodlands.
Holland Township (NJ Highlands preservation & planning)	Land use Code - March '98 Revisions underway expected in April 2006. Land Use Plan Element , 2001, Master Plan, 2001	No requirement	No requirement - reduced density in Rural Residential zone	No requirement - reduced density in Rural Residential zone	Development Regulations provide for Cluster development to preserve land for ag. Purposes and minimize development on environmentally sensitive areas.	

	Water Resources - Water Supply			Water Resources - Water Quality			
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit devel. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Hunterdon County, NJ							
Frenchtown							Section 713 of Land Use Ordinance - Plans must be approved and certified by Hunterdon County Soil Conservation District and filed with Zoning Officer. Plans must conform with "Standards for Erosion and Sediment Control" by NJ.
Alexandria (NJ Highlands preservation & planning)				100%	70% open space within 50 feet of lake and pond shorelines	Two septic drainfields required.	Must meet requirements of Article XXIII and State Soil Erosion and Sediment Control Act. E&S control plan must be certified by County SC District within 100 ft of blueline stream or slope > 10%.
Milford Borough (NJ Highlands planning)					Current minimum buffer required along natural watercourses in residential zones. Conservation Plan recommends 65 ft minimum in all zones.		NJ State E&S Regs.
Holland Township (NJ Highlands preservation & planning)			Yes. No development should exceed the water budget allocated to the tract on which it is located.				Stormwater Management Plan references state Soil Erosion and Sediment Control Act.

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Hunterdon County, NJ						
Frenchtown	Flood Hazard Area Zone.. NJ Flood Hazard Control Act applies	NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 Ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	No	Little Nishisakawick Creek
Alexandria (NJ Highlands preservation & planning)	Floodplain and floodplain soils are 100% protected (Floodplain Overlay District). However, variances may be granted by ZBA in certain conditions.	NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	All applicants for subdiv or site plan approval shall include natural resource maps. Also reference must be made to Alexandria Master Plan and NRI.
Milford Borough (NJ Highlands planning)	NJ Flood Hazard Control Act applies	NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	Minimum buffer required along natural streams in residential zones. NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	Milford/Hakihokake Creek - FW2 Trout Production and C-1 waterway
Holland Township (NJ Highlands preservation & planning)	Yes. NJ Flood Hazard Control Act Applies	NJ Wetlands Act Regulations apply.	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses. Requires all areas within SWRPA to be preserved by conservation easement.	Yes	Stonybrook/Millstone Watershed Musconetcong Gorge Nature Preserve

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Warren County, NJ						
Pohatcong Township *(NJ Highlands preservation & planning)	Land Use Plan '89, Zoning 2000 with amendments to 2003, Subdivision '94	No requirement	Lot areas shall not contain lands with slopes > 15%. Considered constrained land.	Lot areas shall not contain lands with slopes > 15%. Considered constrained land.	Environmental Resource Inventory Required.	None found
City of Phillipsburg *(NJ Highlands planning)	Ch. 72, Zoning 1994 revision. Master Plan Update, 2004	No regulation	No regulation	No regulation	No regulation	No formal regulation. "Trees shall be preserved whenever possible" (subdivision ord.)
Lopatcong Township *(NJ Highlands preservation & planning)	Chapter 243 Zoning and Land Use, 1999 with amendments, 2002 - Environmental Standards and ridgeline protection.	No regulation	Varies by zoning district. 50% of rate of coverage for applicable district. Lot grading plan required	100% - No structures permitted	Critical Areas Preservation	Ch. 243. Ridgeline protection amends zoning and land use. Establishes ridgeline protection area and tree protection zone.
Harmony Township (NJ Highlands preservation & planning)	Ch. 165 - Zoning, 2005. Ch. 185, Water supply	Woodlands with slopes > 10% should be avoided	Constrained Area (Protected)	Constrained Area (protected)	Must be considered in design of cluster subdivision.	
White Township (NJ Highlands preservation & planning)	Land Use, Chapter 71. 2002				Lot Averaging permitted to preserve environmentally sensitive areas. Provide open space for visual amenity. 60% contiguous open space for subdivisions in R-1 district	Lot averaging to protect tree rows and hedge rows
Town of Belvidere (NJ Highlands planning Area)	Ch. 160, Zoning, 2004 amendments	No requirement	No development permitted in areas over 15% slope in SC District	No development permitted in areas over 15% slope in SC District		Existing trees over 8" caliper shall be surveyed. Tree protection plan provided with site plan. Must be replaced with 3 to 3.5" caliper tree.
Knowlton	1998 Land Development Ordinance			Conservation Easements required for slopes over 35%	EIS required to include impacts from sites underlain by carbonate geology. Wildlife mgmt. plan and natural features inventory required for farmland preservation zone.	

Water Resources - Water Supply							
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit level. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	Water Resources - Water Quality On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Warren County, NJ							
Pohatcong Township *(NJ Highlands preservation & planning)	No requirement found	None found	Yes, 2003 amendment EIS must document withdrawals. Monitoring wells required and groundwater and geotechnical analysis.			No requirements found for management or education	Chapter 233 - Delegates to Warren County Cons. District as per NJSA 4:24-1
City of Phillipsburg *(NJ Highlands planning)	No regulation	No regulation	No regulation	No regulation	No regulation	No regulation	Yes
Lopatcong Township *(NJ Highlands preservation & planning)	No regulation	None found	Ridge Line protection and carbonate geology restrictions apply.	100%. Critical areas restrictions apply, no buildings or structures.	100% for 50ft. Wide buffer per stream corridor ordinance.	None found	NJ State, E&S Regs.
Harmony Township (NJ Highlands preservation & planning)		Ch. 185 - 2003 - Water Supply Ordinance	New wells must be certified. Hydrology report prepared.	Constrained area	Ref. To NJ Stream Encroachment and Floodplain Act. 100 ft for cluster residential. Evaluation criteria not required.		Yes
White Township (NJ Highlands preservation & planning)				Lot averaging permitted to preserve sensitive areas including ponds			Yes
Town of Belvidere (NJ Highlands planning Area)							Yes
Knowlton			EIS required for plan applications must include an analysis of groundwater pollution, reduction of groundwater capabilities and assessment of aquifer impact.	Conservation easements required for floodplains and open water bodies	Limits type and coverage of permitted development within 100 foot adjoining all waterways, brooks, streams, rivers, lakes.	All homes are on septic systems	NJ State, E&S Regs.

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Warren County, NJ						
Pohatcong Township *(NJ Highlands preservation & planning)	Encroachments permitted with restrictions. Residential uses prohibited in flood hazard areas. NJ Flood Hazard Regs. Apply	100% - Considered constrained lands. NJ Wetlands Act Regulations Apply.	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	Musconetcong River
City of Phillipsburg *(NJ Highlands planning)	NJ Flood Hazard Control Act applies	NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	No	
Lopatcong Township *(NJ Highlands preservation & planning)	Encroachments permitted with restrictions. Residential uses prohibited in flood hazard areas. NJ Flood Hazard Regs. Apply	100% - Considered constrained lands. NJ Wetlands Act Regulations Apply. Wetlands must be delineated on plans.	50% and NJ Freshwater Wetlands Regulations apply.	100% with some permitted uses within 100' buffer zone.	Yes	Marble Mountain, Scotts Mountain
Harmony Township (NJ Highlands preservation & planning)	100 ft. protected from floodline.	NJ Wetlands Act Regulations Apply	Residential Cluster - Maintain or create 100' buffer	NJ Stream Encroachment Law and Floodplain regs. In residential cluster -"consider 100' buffer to wetlands and surface waters.	Yes	Refers to EPA and/or State list of T& E species.
White Township (NJ Highlands preservation & planning)	NJ Flood Hazard Control Act applies	NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	
Town of Belvidere (NJ Highlands planning Area)	100% in Flood Hazard Zone	100% in SC Zone. NJ Wetlands Act Regulations Apply.	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	
Knowlton	Conservation easement required for floodplains outside building envelope. Restricts development in floodway and flood fringe areas.	NJ Wetlands Act Regulations apply. Conservation easement required for all wetland areas	NJ Freshwater Wetlands Regulations apply. Conservation easement required for all wetland transition areas.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses. Town limits development within 100 feet of all waterways.	Yes	Trout production streams. Delaware Water Gap National Recreation Area/Worthington State Park.

Lower Delaware Wild and Scenic River Corridor - Natural Resource Ordinance Summary (Draft)

		Land Resources - Steep Slopes			Land Resources - Woodlands	
Municipality	Location of recent Ordinances and date enacted	Percent Protected on Slope 8-15%	Percent Protected on Slope 15-25%	Percent Protected on Slope 25+%	Percent Protected for Open Space in Sensitive Areas	Tree Protection Ordinance**
Mercer County, NJ						
Ewing	Land Development & Zoning Ordinance - Sept. 1, 2000	No requirement	No requirement	No requirement	631 acres of Parkland and 261 of preserved farmland owned by NJDOC	None.
Hopewell	Zoning Ordinance - 2002. MRC and VRC districts tied to 2002 Master Plan. Stream Corridor Protection amendment adopted December, 2004.		Constrained Area (Protected)	Should protect in MRC and VRC Zones	60-75% must be designated as open lands in MRC and VRC zones. Includes prime ag soils & forested areas.	In MRC/VRC, 200 ft forest buffer along existing roads.

**Tree Protection: Some SLDO prohibit removal of certain sized trees except if they are located in ROW or within a specified distance from building. This permits design to dictate which trees remain, rather than specifying ways to avoid or minimize loss of the resource.

***Notes:**

Pohatcong Township established an Open Space Fund in 1999. Knowlton recently passed an open space tax.

Lopatcong Township , Ordinance #2003-3 - Ridgeline Protection. Provides special development controls for ridge line protection areas. Establishes a "tree protection zone"- no clearing of vegetation . Building permitted within building envelope which must be free of easements, wetlands & wetland transition areas and flood hazard areas. Maximum lot clearing ratio of 20%. Mandates specific planting requirements and continued maintenance for 2 years.

Delaware Township passed a non-binding ballot to establish an Agricultural Lands and Open Space Trust Fund in 1996.

Hopewell Township - MRC - Mountain Resource Conservation, VRC - Valley Resource Conservation - Both districts use deed restrictions to protect open lands. TDR plan between properties in MRC. Districts provide for lot averaging, cluster and open lands design.

Sources: Bucks County Planning Commission, Delaware Valley Regional Planning Commission, Hunterdon County Planning Board, Lehigh Valley Planning Commission, Warren County Planning Department, individual municipalities.

	Water Resources - Water Supply			Water Resources - Water Quality			
Municipality	Water Conservation Devices	Water Conservation Ordinance (Date enacted)	Well Head Protection/ Limit level. In groundwater areas	Percent Protected for Open Space for Lake/Pond/Watercourse	Percent Protected for Open Space for Lake/Pond/Watercourse Margin (Margin in ft.)	On-Lot Disposal System Management or Education Programs	Erosion and Sedimentation Control (Location of Criteria)
Mercer County, NJ							
Ewing	None found	None found				Township is completely sewerred.	Not in ordinance, but cited in checklist details for major subdivisions. Ref. To State Requirements in N.J.S.A. 4:24 -39 et seq.
Hopewell	No ordinance found	No ordinance found	Sensitive area per MRC and VRC designation		150 ft. Stream Buffer required per 2004 amendment.	Hosted public information program about septic system maintenance and the impacts of failing systems on water quality..	NJ State, E&S Regs.

	Land/Interface Resources - Floodplain	Wetlands				Significant Natural features - Wildlife
Municipality	Percent Protected for Development in 100-yr. Floodplain (% OS)	Percent Protected for Open Space in Wetland Areas	Percent Protected for Open Space in Wetland Margins (ft. and/or %)	Stream Corridor Protection/Riparian Buffer	Environmental Commission or Board Y/N	Critical Wildlife Habitat
Mercer County, NJ						
Ewing	Development permitted with restrictions.	NJ Wetlands Act Regulations apply.	NJ Freshwater Wetlands Regulations apply.	NJ Special Protection 300 ft buffer applies to all Category 1 watercourses and tribs that drain to these watercourses.	Yes	919 acres of critical and suitable habitat. 8 rare wildlife species and 4 rare plants
Hopewell	considered constrained area for development	Considered constrained area for development. NJ Wetlands Act Regulations Apply	NJ Freshwater Wetlands Regulations apply.	Yes per 2004 amendment. Specifies 150 ft, minimum buffer width and procedure for stream corridor permits. Stream corridors must be preserved by conservation easements.	Yes	

