

Municipal Master Plan Guidance and Model Municipal Environmental Ordinances: Abstracts

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May 2005

*This packet was prepared as part of a Clean Water Act Section 604b grant to the NJ Water Supply Authority from the NJ Department of Environmental Protection, Division of Watershed Management, for **IMPROVING THE UPPER RARITAN WATER QUALITY MANAGEMENT PLAN: HIGHLANDS REGION**. All materials in this packet represent the opinions of the authors and do not necessarily represent positions of their organizations, the NJDEP or the US Environmental Protection Agency.*

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PURPOSE OF THIS PACKET

This compilation is designed to provide the reader with an annotated synopsis of a variety of materials relating to the improvement of environmental planning, regulation and management in local communities. The materials have been gathered from a diverse range of sources. Overall, these materials may provide either general or very specific information useful for environmental planning and management in your community. The intended audience is municipal officials, staff and consultants, but citizen groups or interested individuals may also find the information useful.

The materials selected for inclusion are generally reliable and proven sources and are not experimental in nature, although some of the information presented may be new to your community. As such this information may sometimes be viewed as controversial but will generally prove to be dependable in content. This compilation emphasizes model ordinances generated through regional projects, and general guidance documents, rather than specific municipal ordinances.

The reader is cautioned, however, that since the practice of municipal planning and environmental management is constantly evolving, more “cutting edge” issues may not be as well addressed as may be desired. Overall, the materials are not “philosophical” in nature but rather are practical in content. The reader may find it necessary to delve deeper into a particular subject if the issue is concerned with the “why” rather than the “how” of a particular subject. Generally speaking, the materials are supported with additional contact information or bibliographic references to facilitate these efforts.

Each publication has been reviewed and summarized as to content. The summaries should be used as a guide for reading rather than as an exhaustive treatment of the publications that may contain useful information beyond that contained in these summaries.

There is no substitute for careful reading and the authors apologize in advance for not anticipating all your possible concerns in the synopses.

Some of the materials relating to legal issues, in particular model ordinances, are provided as examples for use. It should be kept in mind that any ordinance being developed for use in your community must be tailored to the actual situation, including the current legal framework, the character of the natural resources in your community, the relationships these resources may have to the surrounding region, the degree of development present, the anticipated pressures for development in the future as well as fiscal and political realities perceptions. Competent legal advice should always be sought in drafting new legislation and the reader is cautioned not to try to adopt any of the models provided without thorough review and supporting background research.

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GREAT SWAMP/TEN TOWNS MODEL ORDINANCES

**MODEL ORDINANCES
PREPARED BY THE
TEN TOWNS GREAT SWAMP
WATERSHED MANAGEMENT COMMITTEE**

The Ten Towns Great Swamp Watershed Management Committee exists for the specific purpose of developing and implementing a watershed management plan for the Great Swamp watershed in the upper Passaic River basin in northern New Jersey. The Committee was formed in 1995 through an Intermunicipal Agreement among the ten municipalities that have lands within the Great Swamp watershed, and by Somerset and Morris Counties.

Members include:

Bernards Township.
Bernardsville Borough
Chatham Township
Harding Township
Long Hill Township
Madison Borough
Mendham Borough
Mendham Township
Morris Township
Morristown
U.S Fish and Wildlife Service
Somerset County Park Commission

The model ordinances reviewed here are available directly on the Committee's web-site at www.tentowns.org

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Harry G. Gerken, Executive Director

Introduction

The Ten Towns Committee has prepared a series of model ordinances for use by its member municipalities. The model ordinances were developed using a consensus process to ensure that all municipalities could commit to their eventual adoption, to the extent that the ordinance were relevant to each municipality. The general overall purpose is to provide uniform coherent effective environmental protection for the Great Swamp drainage area.

Model ordinances have been prepared on the subjects of:

- Stormwater Management
- Soil Erosion
- Steep Slopes
- Stream Buffers
- Tree Preservation
- Wetland Protection

Each is reviewed below. Other jurisdictions may find these ordinances of value in preparing ordinances for their own municipality. Before adopting any model ordinance, it is strongly recommended that a review be made of the natural resource under consideration within the municipality. Natural conditions vary from place to place and different approaches may be warranted from a scientific viewpoint. Additionally a review of the municipality's existing ordinances may reveal other needs or no need at all. The recent adoption of NJDEP's stormwater management regulations and municipal stormwater permit program, and of the Highlands Water Protection and Planning Act, should also be factored into the use of these model ordinances, as all predate those changes. Finally, the political culture of the municipality should be considered. No ordinance should be seriously proposed without review by competent legal counsel.

Stormwater Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

The full text of this ordinance is available at www.tentowns.org. The model ordinance was adopted in the 1990's, prior to NJDEP's adoption of its new stormwater management regulations for new development and the new stormwater permit requirements for municipalities. While this model ordinance includes provisions compatible with the new State rules, it should be compared to more recent models (e.g., from NJDEP and the upcoming Hunterdon County Environmental Toolbox model) as well. This model ordinance contains the following sections:

1. Statutory Authority

Statutory authority is derived from the Municipal Land Use Law (40:44D-1 et. seq.) and the Soil Erosion and Sediment Control Act, (N.J.S.A. 4:24-39 et. seq.).

2. Findings of Fact

A total of nine specific findings of fact are cited. These are well prepared and flow in a logical sequence. Note that findings regarding ecological damage, danger to life and property reductions in ground water recharge are made. The link between development activities and damages from flooding and pollution is made, damages have already occurred, and remedy is possible. These are excellent findings in light of the renewed efforts to control stormwater in New Jersey.

Summarized findings include:

- Water bodies in the municipality are subject to flooding.
- Flooding is a danger to lives and property and to the natural resources of the municipality and the region.
- Land development alters the hydrologic response of watershed resulting in increases in the rate and volume of run-off, increased flooding, increased channel erosion and increased sediment and pollutant transport and deposition
- Land development activities create impervious surfaces from which stormwater runoff flushes pollutants into streams and wetlands
- The water resources of the municipality have deteriorated as a result of land development activities that have increased run-off, soil erosion, stream channel erosion and non-point pollution.
- These damages can be controlled by the regulation of stormwater run-off and land development activities.
- The State of New Jersey's Surface Water Quality Standards (N.J. A.C. 7:9B-1.1 et. seq.) are invoked as providing "reasonable guidance" to municipalities.
- Ground water recharge is reduced by impervious surfaces and regraded earth surfaces.
- The public interest is served by regulating stormwater run-off from development and other construction activities to control and minimize increases in run-off rates and volumes control and minimize soil erosion, stream channel erosion, and non-point pollution and to provide recharge of ground water.

3. Purpose

A total of thirteen purposes are cited. These are closely related to the findings and clearly establish the intent to protect the public health, safety, and welfare. They are designed to avoid charges of being arbitrary or capricious and are consistent with higher policies established by the Department of Environmental Protection.

Summarized these are:

- To establish standards
- To reduce artificially induced flood damage to public health, life and property
- To minimize the rate and volume of run-off
- To minimize the deterioration of water courses and structures
- To induce ground water recharge
- To prevent increases in non-point pollution
- To maintain the integrity of stream channels
- To control and minimize erosion and sediment
- To reduce rates and volumes of run-off and control non-point pollution
- To minimize public safety hazards at stormwater detention facilities
- To maintain high water quality
- To protect surface waters from degradation
- To protect ground water from degradation.

4. Applicability

The ordinance applies to any major subdivision or site plan application that disturbs 1,000 square feet or more of land surface. Certain provisions (roof run-off and drywells) apply to the issuance of building permits. Some exemptions may be made. Previously developed sites being modified are included "to the extent reasonable and practical." Applicability is fairly comprehensive, triggered by a low threshold of disturbance, the issuance of a building permit or redevelopment activity.

5. Definitions

A total of eighteen terms are defined. Some receive the definitions drawn from other laws and regulation; some are technical definitions (See: "treatment train) while others are simply provided to prevent confusion (Recharge: the replenishment of underground water reserves). The section specifies for other terms that unless specific meanings are found in the Municipal Land Use Law, the Soil and Sediment Control Act or in New Jersey's Surface Water Quality Standards their meanings shall be those of common usage.

6. Technical Standards

Section A 1 and 2 establish standards of *no net increase* in non-point pollution and sediment loadings. Section A 3 establishes a standard of *no net increase* in stormwater rate and stream channel erosion. Section A 4 establishes a standard of *no net increase* in run-off volume. Each of these sections is tied to specific, established methods. Section B establishes the procedures for measuring compliance with the no net increase standards. Specific methods are referenced. Specific procedures are provided for infiltration facility appropriateness. A non-point pollutant loading analysis is required using removal efficiency statistics provided in the Stormwater and Non-Point Source Pollution Control Best Management Practices Manual, again a specific methodological statement.

Section C describes the process to be used in granting waivers "if the natural or existing physical characteristics of the site preclude achievement", and upon specific proofs and

findings. Interestingly, offsets may be achieved by purchase and reforestation of privately owned lands “preferably adjacent to open waters”.

Section D allows for mitigation and specifies the analysis procedure, while Section E allows the funding of stormwater studies or specific project completion. Section F links design standards for detention and retention basins to the Ten Towns Stormwater Management Manual.

Section G.a establishes compliance proofs for water quality control and infiltration measures. Compliance with the no net increase goals of the ordinance “shall be based on a project wide summation of runoff characteristics”. Section G.b establishes compliance principals with specificity, a preference for managing runoff at the source, that designs shall use the natural qualities of the landscape, and the unsuitability (generally) of detention and retention basin facilities as infiltration devices is stated.

Section H defines the use of dry wells; their design is linked to the Ten Towns Stormwater Management Manual. Section I specifies that low maintenance is a design objective. Specific standards for maintenance and repair from the Ten Towns Stormwater Management Manual are referenced. Section J specifies safety feature requirements for all Stormwater projects and again references the Ten Towns Stormwater Management Manual.

7. Requirement For a Stormwater Management Plan

Section A establishes the requirement for submission of a Stormwater Management Plan for all major subdivisions or site plans subject to this ordinance. (See Applicability section). Section B establishes that the planning board shall review the plan and shall consult the engineer retained by the Board. Section C established the contents of the Stormwater Management Plan to include a topographic base map. Specific requirements are presented. The plan is to include an environmental site analysis, a project description and site plans with specific issues to be addressed and a map at the same scale as the topographic base map with specified contents. A Stormwater Management Facilities Plan with specified contents is required. A Drainage Area Map with specific contents is required. Calculations concerning hydrologic hydraulic and pollutant load data and design calculation for pre and post development conditions are required. A Maintenance and Repair plan with specified contents is required

8. Operation, Maintenance, Repair and Safety

The well-known problem of lack of long-term maintenance for stormwater facilities is addressed in this section. The overall objective of Section B is to have a specified permanent responsible party involved. Maintenance and repair procedures are described in Section C.

9. Enforcement, Violations and Penalties

The municipal engineer is the enforcing agent. Violation and Penalties are not as yet specified.

10. Compatibility with Other Permit and Ordinance Requirements

The applicant is still required to obtain all other required permits. The stormwater requirements are deemed to be the minimum requirements to protect the public health, safety and general welfare. In the event of conflict with other rules or regulation whichever rule is more restrictive or imposes higher standards shall prevail.

11. Severability: The severability statement is standard in nature.

12. Effective Date: The ordinance shall take effect upon final passage by the municipality.

Soil Erosion and Sediment Control Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

This extensive 16-page ordinance addresses one of the most critical and pressing issues facing the Raritan River. Excessive sediment is a known problem impairing biological integrity and water supply treatment. The complete text of this ordinance is available at www.tentowns.org.

The model ordinance contains the following sections:

1. Statutory Authorization

Statutory authorization comes from the Soil Erosion and Sediment Control Act, Chapter 251.

2. Title

Soil and Sediment Control Ordinance

3. Purpose

A general statement is provided to protect the public health, safety convenience, general welfare and water quality. The purposes statement also makes the link between construction activities and the potential for environmental damage. A total of eight "specific purposes" are cited, including the protection of land from erosion, protecting water quality and biodiversity of streams, preventing danger to life and property, detaining surface waters, preserving recreational uses of water bodies, reducing public expenditures, conserving taxable value by preserving environmental character and ensuring that adequate inspection and enforcement procedures are followed.

4. Applicability

The ordinance applies to all major subdivisions or site plan applications, or any other project defined in the ordinance. It also applies to the construction of single family and multi-family dwelling units and building additions.

5. Definitions

A total of 55 definitions are provided. Many are standard and will be familiar to municipal officials. Several are of note, however. There is a definition of "watercourse" that includes a broad range of topographic features and also includes the area adjacent to the channel inundated by floodwaters. "Vegetative protection" is also defined and may be unfamiliar to the reader.

6. Land Disturbance Permit Required

A land disturbance permit is required for all projects as defined in the ordinance except those specifically exempted.

7. Activities Exempt From Permit Requirements

The following exemptions are specified:

- Land disturbance in accordance with a farm conservation plan.
- Planting and harvesting of crops, plants, flowers or shrubs in areas devoted to such use prior to the adoption of this ordinance.
- Road and road shoulder work performed by the municipal Department of Public Works
- Projects exempt from requirements of State law.
- Land disturbance of less than 1000 square feet.

8. Applications for Land Disturbance Permits

A. Jurisdiction: The municipal engineer has jurisdiction over applicants

B. Application Forms: Forms are to be provided by the municipality. Specific minimum requirements are specified.

C. Plan to Accompany Application: Every application shall include a Plan meeting the requirements of sections C. 1 through C.4. A map and written report with specific guidelines must be submitted (C. 1). All stages of the construction process shall be covered from grading through establishment of finished grade and installation of improvements (C.2). Starting and completion dates and exposure time for the entire development sequence must be provided (C.3). The sequence and timing of control measures superimposed on a soils map must be provided (C.4).

D. General Conditions: Extensive general conditions are provided. Several are of particular note: Sections D. 6.a and b require that the "smallest practicable area of land shall be disturbed at any one time and duration of this disturbance shall be kept to a minimum" and "whenever feasible, natural vegetation and the natural ground surface shall be retained and protected."

E. Fees to Accompany Application: Specific procedures regarding fees are provided. A separate fee is required unless the application is part of a project governed by the Land Development Ordinance, in which case the fee will be a part of the general review fees charged. An escrow fee is to accompany the application to be used to pay for inspections by the municipal engineer. No application is to be processed unless fees and escrow payments are paid.

9. Action on Applications

Applications are to be reviewed by the planning board and the municipal within a specified time period. Other review procedures are provided, especially governing referral to the County Soil Conservation District, the environmental commission, other qualified government agencies or consultants. Detailed provisions governing approvals are provided. Time limitations are specified for the approval process. Referral to the County Soil Conservation District upon approval or by approval by inaction is specified.

10. Issuance of Permits

A performance guarantee is required. The amount of the guarantee shall not exceed 120% of the total cost of the improvements. Other detailed requirements dealing with the performance guarantee are provided. A land disturbance permit shall be issued after an application is approved and a performance guarantee is received.

11. Performance of Work

Strict adherence to the approved Plan is required. The municipal engineer shall inspect all projects for which a permit has been issued and shall be responsible for enforcing the conditions of the permit. A copy of the complete permit application shall be kept on site at all times. Inspections shall be made prior to any construction, intermittently during construction, after completion and at other times when conditions are unsatisfactory. Deviations from the approved plan are to be immediately corrected. Stop work orders may be issued to obtain compliance. The municipal engineer may order minor modifications. A detailed section on inspection fees is provided. Section F governs approval of completion. The municipal engineer issues the approval and no Certificate of Occupancy shall be issued until approval is granted.

12. Maintenance Obligation and Maintenance Guarantee

There is a two-year obligation to maintain all construction and installation work. A maintenance guarantee related on a percentage basis to the total cost of improvements is required. A figure of 15% is suggested.

13. Appeals

Appeals are made to the governing body.

14. Penalties and Injunctive Relief

Failure to comply with the requirement of an approved plan, or to comply with the terms of the ordinance, or the rules of the State Soil Conservation Committee may result in civil action for injunctive relief. The ordinance also specifies the ability to levy fines for non-compliance but specifies no specific amount.

Steep Slope Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

This ordinance has a number of interesting provisions. The full text of the ordinance is available at www.tentowns.org.

Conclusions: Control of development on steep slopes will continue to be an issue of increasing interest in the Highlands region. Adopted in October 2003, the Ten Towns model ordinance addresses traditional concerns related to soil loss, erosion, excessive stormwater runoff and surface water impacts, defined as purposes.

The ordinance does briefly touch upon aesthetic impacts in Section 3E. However, the primary methods used include a disturbance limitation based on steep slope category with a prohibition of disturbance except for roadways or utility construction. These are considered to be variance requests, requiring specific proofs.

There is no definition section. This should be remedied if this model is adopted. Disputes over compliance often arise when definitions are not overtly described. The Site Plan Requirements (Section 4) may prove to be difficult to evaluate.

The model ordinance contains the following sections:

1. Purpose

The purpose is to regulate the intensity of use in areas of steeply sloping terrain in order to limit soil loss, erosion, excessive stormwater runoff, the degradation of surface water and to maintain the natural topography of drainage patterns of land.

2. Applicability

The ordinance applies to all subdivisions, site plans or land disturbance applications as defined in the Municipal Land Use Law or any project defined by the NJ Soil Erosion and Sediment Control Act. Land disturbance is defined as any activity involving clearing, cutting, excavation, grading, filling, storing, transporting of land or any other activity which causes land to be exposed to the danger or erosion.

3. Requirements

No development, regrading, or stripping of vegetation is permitted on slopes of 25% or greater. Disturbances for road crossings or utility construction are considered variance conditions and an affirmative showing of necessity is required. Sloped areas to be disturbed shall be shown on the development plans for each individual lot.

- On slopes between 20.0% and 24.9%, maximum disturbance is limited to 20%*.
- On slopes between 15.0 and 19.95, maximum disturbance is 40%*.
- On slopes between 0 and 14.9% maximum disturbance is 100%*.

***Note: it is unclear what the percentage of limitation is based on: (individual slope polygon, total slope category on the lot, total category on the tract, etc.) -Ed.**

There is a requirement at 3E that site design and grading on slopes greater than 15% that shall **“provide the minimum disruption of view corridors and scenic vistas”** and **“shall preserve significant natural topographic features to the greatest extent possible”**. These

provisions are intended to address the issues of scenic and aesthetic impacts. However, since the ordinance contains no definition section, just how these provisions would be applied is unclear. “**View corridors**” and “**scenic vistas**” may be defined in the municipal master plan or elsewhere to allow implementation of these provisions.

Section 3F allows for a minimum size exemption but allows the user to define the size. No minimum size is suggested.

4. Site Plan Requirements

The ordinance requires that all earth moving activities on sites of 15% or greater be accompanied by a site plan prepared by a licensed professional engineer. The municipal engineer determines completeness and conformance. The municipal engineer may recommend acceptance, rejection or modification.

Minimum site plan requirements are provided at section 4, A-K. These are summarized as follows:

- A. Defines means of deriving slope category from contours (2 foot interval analyzed at 10 foot vertical interval).
- B. All water bodies must be located.
- C. Existing “natural and topographic features” must be shown.
- D. All existing and proposed buildings and streets must be shown.
- E. Existing vegetation is to be shown as “meadow”, “forest” and “scrub lands.” Areas to be removed and those to be preserved must be shown. Revegetation specifications shall be included.
- F. The plan must show “specific methods” for control of soil erosion, sedimentation, soil loss, and “excessive stormwater runoff”.
- G. Soil stability and the appropriateness of the construction method being proposed must be described.
- H. A “hydrology, drainage and flooding analysis” must be provided that includes a statement of the effect of the project on “water bodies or wetlands” “in the vicinity” of the project.
- I. Geologic stability must be addressed.
- J. Areas of disturbance proposed on each lot and roads must be calculated for each slope class.
- K. A grading plan must be provided for the site, including all access routes.

5. Performance Standards:

This section contains several unique and interesting provisions. Section A allows steep slope areas to be set aside for open space to be offered to the municipality, a private land trust or non-profit agency. The objective seems to be to provide for the preservation and maintenance of these areas. Finally, in Section B, the use of conservation easements is encouraged to preserve steep slope areas “in perpetuity”.

6. Exemptions: The only exemptions allowed are those site plans approved prior to the adoption of the ordinance.

7. Compatibility With Other Permit and Ordinance Requirements: This section’s language is generally standard in nature. Please note that the requirements are considered to be minimums.

8. Severability: This section is standard language.

Tree Preservation Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

Conclusion: This lengthy and complex ordinance is directed at controlling one of the more pervasive and irritating problems facing municipal governments: the removal of excessive numbers of trees during the development process or, in some cases when no subdivision or site plan approval is required. This problem tends to become more acute in developed areas where remaining undeveloped lots are often in a forested condition due to topographic condition.

The overall complexity of the ordinance will be difficult for applicants and the approving authority to administer. However, there are some noteworthy elements. The Purposes section does a good job of relating the control of excessive tree removal to the broader public interest. However, aesthetic considerations are not addressed directly but could be a consideration of Highlands planning.

The Definition section is a good attempt at defining specific unfamiliar terms and special meanings unique to the ordinance. The design requirements favoring minimum removal and the use of native species are good. Other requirements for tree protection and limitation of disturbance are sustainable.

The contents of this ordinance are as follows:

1. Purpose

This section is designed to establish the linkage between the preservation of trees and the public interest. The indiscriminate removal of trees is linked to drainage control costs, increases in soil erosion, sedimentation, decreased fertility of soil, degradation of ground water recharge, water resources, and interestingly, the build-up of atmospheric carbon, increases in dust and decreased property values. One purpose is to regulate and control the indiscriminate and excessive cutting of trees. Another is to preserve the maximum number of trees in the development review process. Older specimen trees are to be protected and innovative design to protect existing trees is to be encouraged.

The relationship between trees and water resources is stressed and the connection with development on steep slopes, tree removal, soil disturbance, and stormwater management is expressed.

2. Applicability

All removal of trees within the municipality is subject to the issuance of a tree removal permit. Exemptions are made in Section 5. An application for a tree removal permit is to accompany all applications for major or minor subdivisions or site plan approval where tree removal is to take place. Detailed but somewhat less comprehensive requirements for residential, commercial, business and industrial applications that do not involve subdivision or site plan approval are covered in Section 8. The ordinance prohibits the removal of trees planted or preserved as part of a landscape plan, or designated as part of a street tree requirement except as permitted in Section 5, subsection F, G, H, and I.

3. Definitions

There is an extensive definition section that clarifies many terms that may be unfamiliar to municipal boards, including, for example, "Caliper" and "Drip Line". Other terms with specific meaning in this ordinance are also defined such as "Wooded Acres Permitted for Development".

This definition specifically excludes wetlands from the calculation of unrestricted woodlands on the tract.

4. Tree Cutting or Removal Restricted

This section establishes the minimum size for a regulated tree (6" diameter at breast height) (DBH) and requires all removal of such trees to conform to the ordinance with the only exemptions being those defined in Section 5.

5. Exemptions

A total of 12 exemptions are provided for. Three of these are specifically related to agriculture. Specific guidance concerning the farmland assessment qualification and clearing forests to expand agricultural operations are provided in Section 5.K. Other exemptions are provided based on lot size and a low level of removal. Cemetery trees, diseased or dead trees, trees overhanging the public right of way or utility lines, and those that threaten safety or building stability are exempted. Finally, subdivision and site plan approvals granted prior to the adoption of the ordinance are exempted.

6. Tree Removal Requirements For Major and Minor Subdivisions and Site Plans.

A completed application for a tree removal permit must be submitted. A total of six items are required to be included on the application form. A Landscape Plan prepared by a landscape architect or a licensed professional engineer must be submitted as part of the application.

A total of 10 items must be addressed in what is termed the "Base Information"(Section B.1 (a-j)). For example, areas covered by tree canopy must be shown, individual trees greater than 6" DBH both within the disturbance area and on the entire lot must be shown. Within the disturbance area, individual trees and their drip lines must be shown, replacement tree locations must be specified, wetlands and water bodies must be located, and standard details such as the locations of existing buildings must be provided.

Six factors are to be noted as Design Requirements (Section B. 2 (a-f)). These include:

- Tree removal is limited to only those trees necessary to accomplish the proposed permitted uses, with a preference to maintaining existing vegetation "to the greatest extent feasible".
- Tree canopy removal is capped at 60%. The remaining 40% (to be preserved) must be shown on the plan.
- Within the disturbance area, no more than 10% of the existing trees with a DBH greater than 10" may be removed, unless replanting in accordance with Section 7 takes place.
- Input from the Shade Tree committee shall be sought.
- Waivers may be granted under specific conditions.
- A conservation easement may be required to protect "any and all trees or tree canopy areas".

Site protection is covered in Section C. Field marking of the limit of disturbance and tree protection measures is required. Barriers must be free standing, a minimum of 4 feet in height and be durable enough to last through the entire construction period. Chain link fence may be required in specific cases. Drip line fencing (snow fence) must be firmly anchored and be no less than 6 feet from the trunk. Grade changes and guidance on the application of tree wells an/or walls is provided. Soil stockpiling or material and equipment storage is prohibited within 6

feet of the trunk or drip line, whichever is greater. Clearing within the drip line or within 6 feet of the trunk must be done with hand equipment. A designated preservation tree that is damaged must be replaced as defined in Section 7.

7. Tree Replacement and Reforestation

Section 7 outlines the requirements for tree replacement. A schedule of replacement is provided based on the caliper of the tree removed. For example, a tree of less than 6 inches removed requires one replacement tree of 3" caliper, while the removal of a tree of 36-inch diameter or greater requires a number of 3" replacement trees equal to the DBH of the removed tree.

The replacement trees' quality and character are specified in Section 7.1. A policy decision is necessary to allow the use of a community tree bank in the event that replacement on site is not practical. Trees from the tree bank may to be used for planting on public lands.

Replacement trees shall be the same species as those removed or as approved by the governing body. Planting of replacement trees shall be under the supervision of a person with horticultural training. Replacement trees shall be monitored for a period of one year and any dead trees replaced by the applicant/developer.

8. Tree Removal and Protection On Residential, Commercial, Industrial and Business Zoned Lots (Excluding Major and Minor Subdivisions and Site Plans).

Differing requirements are provided for these types of lots. A complex applicability standard for residential lots is provided in Section 8.A and extended to commercial, industrial and business zoned lots in Section 8.B. The somewhat reduced contents of the application form are provided in Section 8.C.

Section 8.D defines the "Sketch Data", requiring a sketch location of all trees greater than 10" DBH. Design requirements are provided in Section 8.D(2), requiring removal to be the minimum necessary to carry out the project and limiting removal to less than ½ acre or 50% of the lot size, whichever is less. Existing vegetation is to be preserved to the greatest extent feasible. Site protection requirements are those of Section 6.C.

Five Tree Removal Criteria are provided in Section 8.F. Section 8.G allows for a review by the Planning Board. Section 8.H specifies that tree replacement requirements are as defined in Section 7.

9. Review Standards

Section 9 establishes review standards that define the conditions under which a permit may be issued, including:

- When a structure (among others) is to occupy the area or the tree is located within 20 feet of it.
- If not occupied by a structure, the presence of the tree is likely to cause danger to persons or property both on the tract and adjoining it.
- If a cut, depression or fill creates a condition injurious to the existing tree(s).
- The removal of trees is part of a forest management plan involving thinning.

Section 9.C allows the approving authority to grant a permit upon a specific finding that the tree removal requested will not increase or aggravate the impairment of growth of other trees and

shrubs on the tract or on adjoining tracts, increase soil erosion, sedimentation and dust, cause drainage or sewerage problems, create dangerous or hazardous conditions, or depress property values. Section 9.D allows the approving authority to impose reasonable conditions on the tree removal permit.

10. Protection of Trees

This somewhat redundant section specifies that materials and soil stockpiles shall not be placed within the drip line of a regulated tree and all conditions of Section 6 shall be observed.

11. Permit Approval

Section 11 governs the approval process. When accompanying a subdivision or site plan approval time limits governing these process shall apply. In the case of a residential, commercial, business or industrial lot, action time is 30 days with an extension if agreed to by the applicant. Failure to act within this time period shall be deemed approval. Approval by default (subdivision) shall not be deemed to be a waiver of a tree removal permit.

12. Duration of Permits

Tree removal permits run with the land and remain in force for the following periods:

- No building permit required - one year.
- Building permit required but no site plan required - until expiration of the building permit.
- Site plan approval required to obtain a building permit - until expiration of site plan approval or expiration of building permit issued after site plan approval.
- Minor subdivision - one year from subdivision date.
- Major subdivision - until expiration of subdivision approval.

13. Inspection

Inspections are to be made before granting final permit.

A municipal official must inspect the field marking of trees to be removed and areas to be cleared.

Periodic inspections are to be made during construction and shall include consideration of adjoining lands.

14. Notice of Commencement of Tree Removal

Notice of commencement must be made to the municipality at least four days prior to beginning work. Information about disposal of removed trees shall be provided. Diseased or dead trees shall not be converted to mulch to preclude infecting other trees on the site.

15. Fees

Section 15 allows the application of fees but does not specify an appropriate amount.

16. Penalties

Section 16 specifies that if trees are removed without a permit, replanting shall be "to the satisfaction of the appropriate municipal authority".

Wetlands Protection Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

Conclusion: This simple and easily administered ordinance provides the important linkage between the NJDEP's wetlands regulatory program and the municipal approval process. In addition, the ordinance provides for specific measures to protect wetlands and their associated transition zones both during and after construction.

The contents of this ordinance are as follows:

1. Purpose

The purposes section defines two purposes. First, to prevent the destruction of wetlands and wetlands transition areas and second, to provide provisions that link the municipal approval process to the NJDEP wetlands regulatory structure. The section also includes a brief statement regarding the value of wetlands.

2. Wetland Survey

Each application for major or minor subdivision shall have a wetlands survey prepared by a qualified evaluator. The survey shall state whether or not regulated wetlands are present on the site. All wetlands revealed in the survey and their accompanying transition areas are required to be shown on the plans submitted for municipal approval. The name of the surveyor is to be on the plans and, if no regulated wetlands are present, a note shall that a survey was performed, by whom, the date, and the method used. The note shall state that no regulated wetlands are present on the site.

3. Wetland Delineation

A Letter of Interpretation (L.O.I.) from the NJDEP must accompany any major subdivision or major site plan application. An L.O.I. need not accompany a minor subdivision but an on-site investigation must be performed by a qualified professional. Any wetlands identified must be shown on the plans. If, however, the proposed activity will disturb the wetlands present, an L.O.I. is required for a minor subdivision.

4. Plan Approval

No municipal approval for a major or minor subdivision or major site plan may be granted unless a wetland survey has been performed and evidence given to the municipality. All wetlands and transition areas required under the N.J. D.E.P. Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1 et seq.) shall be shown on the plans submitted to the municipality.

Section 4B establishes standards for wetland protection on the site before, during and after construction. These include:

- Installation of snow fence at the transition area boundary before construction begins.
- Silt fence and/or hay bales shall be installed downstream from disturbance areas adjacent to the wetland transition area line to prevent the movement of sediment into the wetland and transition zone.
- Final plats shall include the wetland line(s) identification number as assigned by the NJDEP.
- The applicant is directed to avoid encroachment into the regulated wetland and transition areas and existing vegetation within these areas shall be preserved.

- The applicant shall provide evidence of filing any deed restriction required by the NJDEP prior to signing the final plat or site plan.
- A sufficient number of permanent markers shall be installed at the boundaries of the regulated areas to assure that future encroachment does not take place.

5. Property Inspections

This section authorizes municipal inspection.

6. Exemptions

The only exemptions provided are for applications approved prior to the adoption of the ordinance.

7. Compatibility With Other Permit And Ordinance Requirements

Development approvals issued under this ordinance are considered to be a part of the subdivision and site plan review process and do not relieve the applicant of other regulatory requirements. The requirements of this ordinance are held to be the minimum requirements to promote the public health, safety and general welfare and the protection of water quality.

8. Severability

This section is standard language.

Stream Buffer Conservation Zone Model Ordinance

Source: Ten Towns Great Swamp Watershed Management Committee

Conclusions: This ordinance was prepared prior to enactment of the Stormwater Rules and may not provide adequate spatial protection for riparian functions, especially for Category 1 streams. Fixed distances and floodplain delineations are used to define riparian areas. Current thinking and regulation generally increases the scope of the area being covered, spatially increasing its extent.

Still, the ordinance is important as a source of guidance on restoration and maintenance issues within the riparian area. The use of a Riparian Buffer Management Plan that includes not only proposed activities but makes provisions for on-going operation and maintenance is a useful approach that addresses the stewardship of riparian areas, a pressing concern. The emphasis on the use of native plants within the regulated area is also noteworthy. It is also important to note that specific “by-right” uses are permitted in the regulated area and others are allowed subject to review.

The Legislative Intent section is a comprehensive discussion of the purposes to be served by such regulation and is reasonably useful in the current context.

This ordinance contains the following provisions.

1. Legislative Intent

This section established the rationale for the ordinance stating, “natural features contribute to the welfare of residents”. The ordinance is designed to provide “reasonable controls” for the restoration, conservation disturbance and management of riparian buffers. Riparian buffers are applied to “all perennial and intermittent streams and all lakes and ponds in the municipality”.

This section also contains a three-item definition section, including the terms “**Stream**”, “**Perennial stream**”, and “**Intermittent stream**”. The definition of “**Intermittent stream**” is curious in that it seems to indicate that any stream with a drainage area of 50 acres or greater is to be considered intermittent. ***The reader is advised to carefully review this provision and to consider alternative definitions.***

The section also provides a fairly detailed list of seven specific purposes and intents that can be utilized in other situations and that fairly accurately capture the importance of protecting riparian areas.

2. Definitions, Establishment, and Width Determination of the Riparian Conservation Buffer Zone.

The Riparian Buffer Zone is defined as those areas that:

- Intercept surface runoff, wastewater, subsurface flow and/or deep ground water flows from upland sources;
- Function to remove or buffer the effects (on surface waters) of nutrients, sediment, organic matter, pesticides or other pollutants;
- May provide wildlife habitat, control water temperature, attenuate flood flow, and provide (passive) recreational opportunities.

The section also recognizes that the riparian buffer may have already been disturbed. Overall, this section provides a fairly comprehensive definition of the values and functions of the riparian area, including hydrologic, chemical, physical and biological values.

3. Establishment

This Section 1 references a “*municipal riparian buffer map*” that presumably must be produced to accompany the ordinance. Such a map could be included in an Environmental Resources Inventory (E.R.I.) or, more appropriately in a Master Plan Conservation Element. Section 2 establishes the width of the buffer as 75 feet from the defined edge of an identified watercourse or the extent of the 100-year floodplain, whichever is greater. In addition to this map, the applicant is responsible for establishing the riparian zone boundaries for any activity that requires plan submission or permits.

A two-zone approach is proposed, with differing degrees of control specified in each zone. Zone One occupies a distance of 25 feet from the streambank at bankfull flow. Steep slopes (>25%) adjacent to streams are considered as a special case, extending Zone One to the full extent of the steep slope area. If the steep slope length is greater than 75 feet, no Zone Two need be established. If the slope length is less than 75 feet, the width of the total buffer, including both Zone One and Zone Two is to be adjusted to a maximum of 75 feet.

Zone Two begins at the edge of Zone One, and extends a minimum of 50 feet beyond this point. The 100-year floodplain is treated as a special case. If the defined floodplain is greater than 75 feet in width, Zone Two extends to the edge of the floodplain while Zone One is 25 feet.

3. Uses Permitted in the Riparian Buffer Conservation Zone

Uses are specified for the riparian buffer zone in general with specific differences applied to Zones One and Two. The preparation of a Riparian Zone Management Plan is required for all uses. The requirements for these plans are described at Section 8(A)(1).

In Zone One uses permitted “by right” include wildlife sanctuaries, nature preserves, forest preserves, fishing areas, passive areas of public and private parklands and reforestation and streambank stabilization in compliance with a Riparian Buffer Management Plan.

Municipal review and approval is required for buffer crossings by farm vehicles and livestock, recreational trails, roads, railroads, centralized sewer and/or water lines and public utility lines with the requirement that buffer improvements are made in conformance with a Riparian Buffer Management Plan.

In Zone Two, uses by right include open space including wildlife sanctuaries, nature preserves, forest preserves, passive areas of public and private parklands and recreational trails. Reforestation is permitted provided it complies with a Riparian Buffer Management Plan. Minimum front, side and rear yards are permitted provided that such yard does not extent more than one half the distance between the outer boundaries of Zone One and Zone Two. Previously existing agricultural uses are also permitted by right.

In Zone Two, municipal review and approval is required for new agricultural uses, buffer crossings as defined in Zone One, centralized sewer and/or water lines and utility transmission lines running along the buffer. These lines must be located as far from Zone One as practicable and are subject to buffer improvements identified in the Buffer Management Plan. Selective cutting of trees is permitted if consistent with the standards of the Buffer Management Plan. Camps, campgrounds, picnic areas, golf courses and active recreation areas may be permitted

provided they do not permit concentrated flow. Naturalized stormwater basins must be located at least 50 feet from watercourses and must comply with the Buffer Management Plan.

Uses Specifically Prohibited in the Riparian Buffer Conservation Zone

All other uses not specifically mentioned in Section 3 are prohibited. A total of thirteen examples are given (A-M) as specifically prohibited, but are not inclusive.

4. Non-conforming Structures and Uses In the Riparian Buffer Conservation Zone.

Non-conforming uses are to be governed under existing zoning regulations regarding non-conforming uses but additional requirements are applied. These include:

- Existing uses may continue but may not be expanded.
- A discontinued use may be resumed if resumption occurs less than one year after it is discontinued but may not be approved if it contradicts the purposes of the ordinance.
- This requirement does not apply to agricultural crop rotation performed using Best Management Practices.

5. Boundary Interpretation and Appeals Procedure

A procedure for resolving boundary disputes regarding the limits of Zone One, Zone Two, the edge of a watercourse or a surface water body is provided. The applicant (or landowner) bears the burden of justification. The municipal engineer, governing body, or appointed representative must produce a written report within 45 days and communicate it to the applicant, the governing body and municipal planning board. Further appeal to the governing body is permitted with the burden of proof on the appellant.

6. Inspection of Riparian Buffer Conservation Zone.

Inspection of the Riparian Buffer Conservation Zone by a municipal representative is required when a subdivision or land development plan is submitted, a building permit is requested, or a change or resumption of a nonconforming use is proposed. Inspections may also be made to assess compliance with an approved restoration plan or when problems are brought to the attention of municipal officials.

7. Management Of The Riparian Buffer Zone

This ordinance is unusual in that it controls proposed uses, mitigation measures, and on-going management of the riparian area. The Riparian Buffer Management Plan controls these provisions. This plan must be prepared by a landscape architect, professional engineer, "or other qualified professional". The plan must evaluate the effects of any proposed changes, and identify existing conditions, all proposed activities, and proposed management activities to offset disturbances to the riparian zone. The municipal engineer, governing body or appointed representative must approval the Plan as a part of the subdivision and land development process.

8. Vegetation Selection

The selection of appropriate vegetation for the riparian area is given considerable attention in Section 9. This section is unusual in that it specifies the use of native species appropriate for riparian uses. In Zone One, a variety of native riparian trees, shrubs, tall grasses and streambank stabilization plants may be used. In Zone Two, dominant vegetation is to be native riparian trees and shrubs and "appropriate plantings necessary to stabilize the soil". Disturbed areas are to be re-vegetated with approved riparian buffer plants. Areas that cannot be re-vegetated must be stabilized in accordance with the Riparian Buffer Management Plan.

WHIPPANY RIVER WATERSHED ACTION COMMITTEE MODEL ORDINANCES

**MODEL ORDINANCES
PREPARED BY THE
WHIPPANY RIVER WATERSHED ACTION COMMITTEE**

Four model ordinances prepared by the Whippany River Watershed Action Committee have been reviewed for this publication. These include:

Tree Protection and Removal Model Ordinance

Cahill Associates, June 2001, (11 pgs.)

Steep Slope Conservation District Model Ordinance

Cahill Associates, July 2001 (5 pgs.)

Riparian Buffer Conservation Zone Ordinance (as edited for Hanover Twp.)

Cahill Associates, February 2002. (8 pgs.)

Soil Erosion and Sediment Control Model Ordinance

Undated, no attribution (15 pgs.)

As might be anticipated due to the dates of development these ordinances may lack specific applicability to the current regulatory situation. The Whippany model ordinances are essentially similar to the model ordinances developed by the Tens Towns/Great Swamp Committee. The reader may rely on the abstracts beginning at [Great Swamp/Ten Towns Model Ordinances](#) for further information.

HUNTERDON COUNTY ENVIRONMENTAL TOOLBOX COMMITTEE MODEL ORDINANCES

The Hunterdon County Environmental Toolbox Committee is an informal project of county officials, municipal officials, attorneys, planners and engineers, and subject matter experts. The Committee is not an official County body. The members are working through subcommittees to develop model ordinances that are closely tailored to Hunterdon County circumstances, and primarily that of the sixteen townships of the County where the vast majority of undeveloped, unpreserved land exists. A few of the model ordinances are final and available (e.g., steep slopes), and many more are nearing completion.

Information on all of the Toolbox Committee results is available through the Committee chair and organizer, Hunterdon County Freeholder Marcia Karrow, or through the County Planning Board offices. As ordinances are finalized, the results are posted at the Web site below for public use.

Hunterdon County Environmental Toolbox Committee
c/o Hunterdon County Planning Board
PO Box 2900
Flemington, NJ 08822-2900
908-788-1490
www.co.hunterdon.nj.us/planning/toolbox.htm

Steep Slopes Model Ordinance

Publication Date: 2004

Source: Hunterdon County Environmental Toolbox Committee

Conclusion: This model ordinance was developed prior to adoption of the Highlands Act and will need to be modified with regard to the Preservation Area prohibitions on development on slopes of 20% or more, and restrictions on slopes of 10% to 20%. However, it otherwise is a clearly written ordinance that can provide sound guidance to municipalities. It focuses primarily on lands with slopes of 15% or more. Purposes include both natural resource protection and scenic/viewshed issues.

Abstract: This model ordinance was developed to incorporate the best provisions of various existing and model ordinances in New Jersey. It has five sections, which address the following issues:

Section I: PURPOSE: The purpose statement provides the general rationale for protecting steep slopes, including controlling soil erosion, protecting streams and maintaining the ability of soils to absorb precipitation. The purpose of the ordinance is to regulate steep slope disturbances and to minimize visual impacts associated with clearance of and development upon steep slopes. It states that riparian protection ordinances should have precedence over the steep slope ordinance where the two coincide, and that the ordinance is not intended to conflict with any "right to farm" for agricultural lands.

Section II: DEFINITIONS: This section provides technical definitions in support of the ordinance, most of which are commonly used terms regarding development and site plans. However, the definition of "Ridgeline Development" is important as it addresses development at the "crest of a hill" that can substantially impair public views.

Section III: APPLICABILITY: The ordinance is intended to apply to all applications for major subdivision, site plan or land disturbance approval, Planned Unit Development (PUD) or Planned Industrial Development (PID). In addition, provisions exist for applicability to "site disturbance, development or redevelopment" for commercial, residential or public purposes above a threshold (left blank for the municipality to fill in) that aren't otherwise covered. Exemptions are provided for single home development that isn't part of a subdivision, for gardens and home horticulture, for small disturbances, for quarries and landfills, and for agriculture covered under "right to farm" provisions.

Section IV: STEEP SLOPE DEVELOPMENT: This section prohibits all clearing of slopes greater than 25% (N.B., Highlands Preservation Area prohibitions start at 20%), allows road and utility line construction on such slopes only with a variance and proof of necessity, and provides for a maximum percent disturbance of slopes above 15% (20% of the area) and above 20% (10% of the area). Disruption of view corridors and scenic vistas must be minimized. Site plan, grading plan, architectural plan, sediment and soil erosion control plan and hydrology/drainage/flooding analysis report provisions are included in the mandatory information requirements for the applicant. Special exemptions are allowed only to the minimum extent necessary to provide relief under the MLUL, and with no relief for Soil Conservation District requirements or slopes in excess of 35% under any circumstance.

Section V: ADMINISTRATION, ENFORCEMENT, VIOLATIONS AND PENALTIES: Physical inspection is provided for during clearing and construction. Violations can be subject to stop-work orders, revocation of building permits, denial of certificates of occupancy, or refusal to approve further work. Remedial measures may be required, and fines imposed.

Well Head Protection Model Ordinance

Publication Date: 2005 (in final draft)

Source: Hunterdon County Environmental Toolbox Committee

Conclusion: This model ordinance was developed in 2004 and is in final review. It is based on the Passaic Valley Ground Water Protection Committee's (PVGWPC) model ordinance, but differs in several significant ways. First, it addresses public noncommunity water supply wells and clusters of domestic wells, along with the public community water supply wells addressed by the PVGWPC model. Second, it includes extensive commentary to help explain the ordinance provisions. These comments can easily be removed from the Word version of the ordinance so that the legal text remains. Third, it includes provisions to ensure compatibility of municipal ordinances with State law regarding NJ Department of Environmental Protection regulation of certain underground storage tanks. The model ordinance addresses both new land uses (through the Municipal Land Use Law) and existing land uses (through the New Jersey Local Boards of Health Law). Overall, the Hunterdon model is an expanded and updated version of the PVGWPC model and will be especially useful in municipalities where public noncommunity wells (e.g., self-supplied restaurants, businesses, medical facilities) and domestic wells supply significant quantities of water.

Abstract:

The model ordinance has nine major sections, which cover the following:

Section I. STATEMENT OF FINDINGS: States the importance of ground water as a water supply in the municipality, the concern for potential contamination, and the value of preventive actions to preclude contamination from land uses.

Section II. PURPOSE: Furthers protection of public health, safety and welfare through the protection of drinking water supplies using regulation of land uses and activities.

Section III. STATUTORY AUTHORITY: This section advances the Municipal Land Use Law and the New Jersey Local Boards of Health Law as relevant authorities.

Section IV. DEFINITIONS: Establishes a wide range of definitions in support of technical terms within the ordinance. Most important are: "well head protection areas" which are the land areas from which recharge moves to wells within a 12 year time of travel; and "potential contaminant sources" which are divided into major and minor.

Section V. ESTABLISHMENT OF WELL HEAD PROTECTION AREAS AND MAPS: This section has three parts, addressing the delineation of well head protection areas (WHPAs) for public community water supply wells (using NJDEP delineations already available), public noncommunity wells (using a NJDEP method that is readily available) and clusters of domestic wells (using an easy method specified in the ordinance). All WHPAs within the municipality would be shown on a map and cross-referenced in the ordinance as an overlay zone to the existing zoning.

Section VI. REGULATION OF WELL HEAD PROTECTION AREAS: The ordinance applies to any MLUL development or change in land use. New Major and Minor Potential Contaminant Sources are prohibited in Tier 1 of the WHPA, which is closest to the well. Strictly limited variances are provided for. New Major Potential Contaminant Sources are prohibited also in Tier 2 (the intermediate Tier). All other new potential contaminant sources anywhere within the WHPA must comply with best management practices and have an approved Operations and Contingency Plan. All existing Major Potential Contaminant Sources in Tiers 1 and 2 (but not Tier 3) must file and receive approval of a Operations and

Contingency Plan for their facility as well. The requirements supplement any other requirements of the municipality.

Section VII. BEST MANAGEMENT PRACTICE PERFORMANCE STANDARD: BMPs are defined to prevent the discharge of hazardous substances, prevent precipitation falling on outdoor handling areas for hazardous substances, and provide for secondary containment for all such outdoor handling areas. Specifications are provided for secondary containment.

Section VIII. OPERATIONS AND CONTINGENCY PLAN: The plan must provide information about the potential contaminant sources, their nature and volume, means to prevent movement of hazardous substances to ground water (including the BMPs above), and response measures to any discharges that do occur.

Section IX. INSPECTIONS AND ENFORCEMENT: In addition to development inspections, inspections for existing, Major Potential Contaminant Sources are called for annually, and the Board of Health and municipality (as appropriate) is provided authority to pursue remedies in Superior Court.

Well and Aquifer Testing Model Ordinance

Publication Date: 2005 (in draft)

Source: Hunterdon County Environmental Toolbox Committee

Conclusion: Several municipalities in the Hunterdon and Mercer County area have adopted ordinances addressing the testing of aquifer units to ensure that they are capable of supporting the anticipated on-site wells for potable water supply. This model ordinance represents a compilation of the best points from such ordinances. It is undergoing legal review as of February 2005 and may change in both structure and wording, but the technical approach is likely to remain. Hunterdon County includes mostly hard rock aquifers, including Highlands units. As such, this model ordinance should be useful throughout the Highlands region, especially for the construction of small wells (including domestic wells) in low-yield ground water units.

Abstract:

The draft model ordinance has eight sections, but nearly as much material in five appendices that include the technical methods for the well and aquifer testing. The following provisions are included:

Section 1: ADMINISTRATIVE: Provides a sequence of steps and a place for the municipal fee structure.

Section 2: PURPOSE AND INTENT: To ensure that regulated developments have adequate water supply and water quality, and do not interfere with or impair neighboring wells, water uses and natural resources, including wetlands and streams.

Section 3: APPLICABILITY: The model ordinance applies to all residential subdivisions and all site plan applications involving the creation of a water use, and all commercial developments with water uses greater than 800 gallons per day.

Section 4: PROHIBITIONS: Suggests prohibited or constrains water uses in areas with marginal aquifer systems or during droughts, including pools, sprinkling systems and commercial irrigation

Section 5: DEFINITIONS: Provides technical definitions in support of the ordinance. Key definitions are provided regarding hydrogeology, well construction, types of wells, water quality, treatment systems, etc. A "Qualified Hydrogeologist" definition is provided to ensure that tests under this ordinance are both made and reviewed by fully qualified professionals.

Section 6: AQUIFER TEST AND ANALYSIS: The ordinance calls for a preliminary and then (upon review) final hydrogeologic evaluation and aquifer test plan. Each test requires a placement of observation wells, and multiple tests may be required if there are more than one aquifer unit on site. Neighboring properties must be notified and their wells can be monitored. There are three phases to the actual test – background monitoring, pumping test and recovery monitoring. Water quality samples are taken during the testing. A draft and then (upon review) final hydrogeologic report are then submitted. This report becomes part of the decision making process for the reviewing body.

Section 7: WATER QUALITY EVALUATION: The pumping well and the observation wells must be tested for water quality during the pumping phase of the well test. Specific parameters are listed for testing.

Section 8: HYDROGEOLOGIC REPORT: The report must include all results, including data logs, etc., documenting the results of the evaluations. It must also include an inventory of

neighboring wells, and an assessment of potential impacts from septic systems on ground water quality and wells. This section also defines when tests must be repeated, such as when a precipitation event or pump failure occurs during the test, the pumping rate doesn't properly stress the aquifer, data recording fails, etc. It also defines situations where the aquifer lacks sufficient capacity to support the proposed development, and how changes are then required to the site plan.

Appendix A: AQUIFER TEST PROCEDURES: Provides the detailed technical approach for the three-phase testing process, including pumping test rates and duration.

Appendix B: OBSERVATION WELL REQUIREMENTS: Provides technical details on the observation wells, including locations, depth, orientation, number and data requirements.

Appendix C: NEARBY WELL/SPRING OWNERS: Owners within 500 feet of the site boundary must be given the opportunity to have their wells monitored during the test. Technical requirements are provided to protect the wells during monitoring.

Appendix D: NOTICE OF AQUIFER TEST: A draft form letter for notification of nearby well and spring owners is provided.

Appendix E: FINAL HYDROGEOLOGIC REPORT CHECKLIST: This appendix is provided as a tool for applicants.

Model Stormwater Control Ordinance for Municipalities

Publication Date: 2005 (in draft)

Source: Hunterdon County Environmental Toolbox Committee

Conclusion: This model ordinance was drafted using the NJ Department of Environmental Protection's *Model Stormwater Control Ordinance for Municipalities* as a basis. The Stormwater Subcommittee of the Hunterdon County Environmental Toolbox Committee is clarifying many provisions, deleting provisions that are not relevant to non-coastal areas, and improving the flow of the ordinance. Please see the abstract of the NJDEP model ordinance for a discussion of its major sections. The intent of the Stormwater Subcommittee is to provide a much clearer, technically useful model ordinance that still meets all NJDEP requirements from the Stormwater Management Rules, NJAC 7:8. A final model ordinance is anticipated in the summer, 2005.

Abstract: The most significant changes to the NJDEP model ordinance involve the following:

- Clarification of the policy statement and purpose
- Clarification of the application to agricultural development and activities
- Addition of many definitions used in the NJDEP model ordinance but not defined within it, and of references to the Highlands Act
- Reorganization of the stormwater management requirements (Section 4) for a more logical flow of information and requirements
- Clarification of various technical and policy provisions (including the potential applicability of Total Maximum Daily Load, or TMDL, requirements as adopted by NJDEP)
- Clarification of the maintenance plan provisions, so that the final maintenance plan is a separate document (for ease of use by inspectors) that reflects as-built conditions (rather than measures as approved)
- Providing explanatory information so that municipalities can better follow the rationale behind various ordinance provisions, and removal from the ordinance of language (from NJDEP's stormwater rules) that are actually advice to the municipalities rather than ordinance language

Model Ordinance for Natural Resource Protection Subdivisions

Publication Date: 2005 (in draft)

Source: Hunterdon County Environmental Toolbox Committee

Conclusion: This model ordinance is currently going through Toolbox Committee review and therefore is not generally available. It addresses the question of natural resource protection through the application of various objectives, criteria and design standards that will influence the size, orientation and design of subdivision lots. The general policy is that lots should be the minimum size possible and located within the smallest part of the tract possible to meet the objectives. In this manner, any of several lot design methods (e.g., lot size averaging, conservation or open space subdivisions, clustering) can be used. This approach avoids potential complications with the MLUL regarding requirements that open space created by “cluster subdivisions” is reserved to the subdivision landowners.

Abstract: The model ordinance begins with a background statement that discusses why prior attempts at “clustering” have not always worked – the focus usually is on the layout of the developed areas with little attention to the layout of the protected areas. The model ordinance reverses that process so that natural, historic and cultural resources are identified first, and then the development is planned around them to the extent possible. The model ordinance has ten major sections and seven appendices, which address the following:

Section 1: PURPOSE AND INTENT: The focus is on preserving natural, historic and cultural resources, open space and agriculture, within the context of new subdivisions. Ten specific objectives are defined, including a reference back to Master Plan objectives.

Section 2: RESOURCE PROTECTION DEVELOPMENT REQUIREMENTS: The intent is to confine residential development in subdivisions to the smallest area on the smallest lots, unless site conditions clearly make that infeasible. The emphasis is on preserving natural and cultural resources, and then accommodating the development. No specific method of lot layout is demanded, as the site conditions will drive the appropriate method. Densities are set using “net buildable area” (Section 3) rather than the full site area. Eight specific criteria are provided as a guide for protecting specific site resources, including prime agricultural soils, woodlands/trees, environmentally critical areas, water quality and supply, viewsheds, stream corridors/buffers, wildlife habitat and historic/cultural features. Design standards are then prescribed for each criterion, many of which can rely on other, stand-alone ordinances (e.g., stream corridor buffers, woodlands). The review process and criteria for municipal decision-making are then provided.

Section 3: CALCULATION OF SITE CAPACITY: The calculation of site capacity (or “yield”) is determined by subtracting from gross acreage of the site a variety of restricted lands, such as existing developed area, rights-of-way and easements, floodplains and wetlands, and steep slopes. (NOTE: Some of these provisions will be affected by the Highlands Act within the Highlands Preservation Area.)

Section 4: INVENTORY AND SITE ANALYSIS: A site inventory and analysis (essentially an environmental resource inventory) is required.

Section 5: DENSITY AND DIMENSIONAL STANDARDS: This section provides a table where municipalities would insert key zoning provisions for each zone, such as minimum site area, maximum density, setbacks, maximum lot coverage, etc.

Section 6: LANDSCAPING: This section provides fairly detailed requirements for landscaping, with a preference for keeping existing vegetation and for all new plantings to be

with native species. It also includes language regarding vegetation planting for energy conservation.

Section 7: OWNERSHIP & MAINTENANCE OF COMMON FACILITIES & OPEN SPACE:

All “common facilities” must be owned and maintained through one or more of several optional arrangements, including homeowners associations, condominium agreements, fee simple or easement dedication to a public agency or approved nonprofit organization, or ownership (under conservation easement) by the original owner (i.e., for agriculture). A Land Stewardship Plan is mandated, covering all such facilities.

Section 8: SEWERAGE AND WATER SUPPLY FACILITIES: This section sets forth some basic requirements on the selection of facility type, such as septic systems/wells or public water and sewer.

Section 9: DESIGN REGULATIONS: This section provides extensive guidance and direction on street, lot and building layout, design, screening and architectural design (to ensure context-sensitive building design).

Section 10: DEFINITIONS: The definitions address technical terms that are relevant to the model ordinance. Most are standard planning, site design and architectural terms.

Appendices: There are seven appendices (comprising half of the length of the model ordinance package) that cover details of the following topics: principal, conditional and prohibited uses; clustering option; density exchange option; lot size averaging option; cluster development samples; sample design regulations for cluster development; and alternative wastewater treatment systems.

NJDEP MODEL ORDINANCES

The model ordinances developed by the NJ Department of Environmental Protection are intended for municipal use in complying with Tier A and Tier B Municipal Separate Storm Sewer System (MS4) Permits under the NJ Pollutant Discharge Elimination System (NJPDES) program. The most complex of the ordinances is the Municipal Stormwater Management Ordinance, intended to be used for local regulation of new development, in compliance with the MS4 NJPDES permits, the NJAC 7:8 Stormwater Management Regulations and the Residential Site Improvement Standards. The others are for compliance with the MS4 NJPDES Permits regarding existing land uses.

Information on all of the stormwater management requirements from NJDEP is available through the Web site: www.njstormwater.org. General information is also available from these two sources:

**NJ Department of Environmental Protection
Division of Watershed Management
PO Box 418
Trenton, NJ 08625-0418
<http://www.>**

**NJ Department of Environmental Protection
Division of Water Quality
Bureau of Nonpoint Source Pollution Control
PO Box
Trenton, NJ 08625-
<http://www.>**

Model Stormwater Control Ordinance for Municipalities

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/bmp_manual2.htm

Conclusion: This model ordinance was released as Appendix D in the *New Jersey Stormwater Best Management Practices Manual* (February 2004). The model ordinance is written so that a municipality may adapt it for local use and be relatively assured of compliance with the NJDEP's 2004 Stormwater Management Rules (NJAC 7:8). The model ordinance has some limitations in that it does not reflect the Highlands Act, lacks definitions for some critical terms, and has a number of places where the technical provisions are not sufficiently clear for easy use by site engineers and municipal review bodies. In addition, the model ordinance was written for statewide use, which means that more regional issues (such as karst topography in limestone valleys) are not thoroughly addressed. As such, the model ordinance is a good starting point for any municipality but will require additional work. The Stormwater Subcommittee of the Hunterdon County Environmental Toolbox Committee is working to clarify many provisions, delete provisions that are not relevant to non-coastal areas, and improve the flow of the ordinance. The intent of the Stormwater Subcommittee is to provide a much clearer, technical useful model ordinance that still meets all NJDEP requirements from the Stormwater Management Rules, NJAC 7:8. A final model ordinance is anticipated in the late spring, 2005.

Abstract: The NJDEP model ordinance addresses the following:

Section 1: PURPOSE: This section states a policy regarding the preference for stormwater management through nonstructural and "low impact" techniques, before relying on structural methods. Its purpose is to establish minimum requirements for major development, and it applies to any site plan or subdivision that requires preliminary or final site plan review.

Section 2: GENERAL STANDARDS: This section mandates that major development meet erosion control, ground water recharge, stormwater runoff quality and stormwater runoff quantity requirements. The standards can be superceded by an approved regional stormwater management plan or Areawide Water Quality Management Plan, and supercede the Residential Site Improvement Standards to the extent that the RSIS are less stringent. Where the RSIS address issues not covered by this ordinance, the RSIS apply.

Section 4: STORMWATER MANAGEMENT REQUIREMENTS FOR MAJOR DEVELOPMENT: Developments shall have a maintenance plan, and shall avoid harming habitat for threatened and endangered species through concentrated flow. This section provides exemptions from ground water recharge standards for certain utility lines and pedestrian walkways. Provisions may be waived for certain transportation and walkway enlargements. Major developments must achieve the stormwater requirements through nonstructural stormwater strategies to the maximum extent practicable. A variety of nonstructural strategies are listed. A cross-reference to the Soil Erosion and Sediment Control Standards is provided to ensure compliance with those rules as well. **Ground water recharge** post-construction must at least match pre-construction levels, with two options provided for calculation, but this provision is waived in urban redevelopment areas or where the stormwater is not of acceptable quality for recharge. **Runoff quantity** must not increase stream flows or flooding; three methods are provided for calculating the discharge levels required. **Agricultural** development that is a major development (but not regulated by the municipality) shall be reviewed by the Soil Conservation District to ensure that the

requirements are met. **Stormwater quality** standards require that the post-construction site load of Total Suspended Solids be reduced by 80 percent prior to discharge. The reductions provided by various technologies are provided. Nutrient load reductions are required “to the maximum extent feasible”. Finally, a **300 foot buffer** is established along every Category 1 surface water body, which must be preserved and through which no stormwater facility may be constructed. Limited exceptions are allowed where encroachment already exists (e.g., parking lots, lawns, agriculture), or where some encroachment (down to a minimum of 150 feet) is required for a stable discharge of stormwater prior to the buffer. The 300 foot buffer may be modified somewhat through a regional stormwater management plan, a municipal stormwater management plan, or a stream corridor management plan.

Section 5: CALCULATION OF STORMWATER RUNOFF AND GROUND WATER

RECHARGE: This section provides the technical methods for calculating rates of runoff and recharge. Two methods are provided for runoff – Natural Resource Conservation Service methods and the Rational or Modified Rational Methods. Only one method, from the NJ Geological Survey, is provided for direct recharge calculations.

Section 6: STANDARDS FOR STRUCTURAL STORMWATER MANAGEMENT

MEASURES: This section provides general guidance on structural measures, specific standards for trash racks, and a cross-reference to the technical standards of the Residential Site Improvement Standards (which have more detail on construction materials and designs).

Section 7: SOURCES FOR TECHNICAL GUIDANCE: The *New Jersey Stormwater Best Management Practices Manual* is the primary guidance, along with the *Standards for Soil Erosion and Sediment Control in New Jersey*, the Rutgers Cooperative Extension Service and the various soil conservation districts.

Section 8: SAFETY STANDARDS FOR STORMWATER MANAGEMENT BASINS: This section provides technical standards for safety regarding trash racks, overflow grates, and escape provisions from stormwater systems and basins.

Section 9: REQUIREMENTS FOR A SITE DEVELOPMENT STORMWATER PLAN: This section provides the procedural and checklist requirements for a development application. Site conditions, project descriptions (including the nonstructural methods proposed) and plans, stormwater management facilities maps, calculations and a “maintenance and repair plan” must be submitted.

Section 10: MAINTENANCE AND REPAIR: This section mandates the preparation and implementation of a maintenance plan for the development, including identification of the responsible party (which may not be an individual landowner within a larger project), unless the facilities are dedicated to a governmental entity. All maintenance actions must be logged and provided upon request to a review agency. The municipality retains the right to act if the responsible party does not, and a facility becomes a hazard. Penalties are provided.

Section 12: DEFINITIONS: This section provides a number of definitions for technical and planning terms used within the model ordinance.

Yard Waste Collection Program Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic model ordinance that prohibits the placement of loose (i.e. not containerized) “yard waste” (defined as leaves and grass clippings) at or along a public road, except during the seven day period prior to a scheduled and announced collection – assumably by the municipality. While not clearly stated in the purpose section, the primary intent appears to be to prevent the yard waste from coming into contact with stormwater, and eventually entering the municipal separate storm sewer system (MS4) or a water body. Prohibited acts include the “blowing” of yard waste at the curb or street. In this regard, the ordinance would appear to require a substantial modification of the common landscaping practice in which the ubiquitous “leaf blower” is used to blow leaves and grass clippings into the street. However, since the ordinance does not apply to “private” property such as office and retail complexes – even though those stormwater systems may be connected to the MS4, or discharge to a water body – it fails to address this common problem on a comprehensive basis.

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to establish a yard waste collection and disposal program to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support, and fails to elaborate on the benefits of such a program.

Section II. Definitions: Provides a number of terms to define who and what activities are regulated by the ordinance.

Section III. Yard Waste Collection: Strictly prohibits the placement of loose yard waste along a public street, except during the seven day period leading up to yard waste collection activities. The ordinance requires the party who illegally placed the yard waste to remove it or be deemed in violation.

Section IV. Enforcement: Provides municipality with the option of which department to vest with enforcement authority.

Section V. Violations and Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

Containerized Yard Waste Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic model ordinance that prohibits the placement of loose (i.e. not containerized) “yard waste” (defined as leaves and grass clippings) in a public street. It is very similar to the **NJDEP Yard Waste Collection Program Model Ordinance** with two exceptions. One, it does not allow the placement of loose yard waste in the street under any circumstances. (In this case it would appear to be in direct conflict with the above mentioned ordinance, which permits such placement during the seven day period leading up to a scheduled yard waste collection event.) Second, it specifically makes reference to lawn care and landscaping contractors and prohibits them, as well as owners and occupants of property from placing loose yard waste “in the street.” As with the above referenced ordinance, this ordinance also fails to clearly state, in the purpose section, specific reasons and benefits to be gained by preventing yard waste from coming into contact with stormwater, and eventually entering the municipal separate storm sewer system (MS4) or a water body. Additionally, because the ordinance does not apply to “private” property such as office and retail complexes – even though those stormwater systems may be connected to the MS4, or discharge to a water body – it fails to address this common problem on a comprehensive basis.

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to establish requirements for the proper handling of yard waste to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support, and fails to elaborate on the benefits of such a program.

Section II. Definitions: Provides a number of terms to define who and what activities are regulated by the ordinance.

Section III. Prohibited Conduct: Prohibits the placement of loose yard waste in a public street. The ordinance requires that the party who is responsible for placing the loose yard waste in the street must remove it or be deemed in violation of the ordinance.

Section IV. Enforcement: Provides municipality with the option of which department to vest with enforcement authority.

Section V. Violations and Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

Pet Waste Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic ordinance that is intended to require the immediate removal and proper disposal of pet solid waste from all public or private property, other than the private property of the person who owns or is responsible for the pet. This ordinance does not apply to an owner or keeper of a “disability assistance animal” while the animal is being used to provide such assistance. Otherwise, the ordinance applies to all domesticated animals. The ordinance requires that removal of the pet solid waste take place immediately, which is defined as “at once, without delay.” Proper disposal options are specifically defined.

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support.

Section II. Definitions: Defines the meaning of the terms used throughout the ordinance.

Section III. Requirement for Disposal: Immediate disposal of pet waste is required, except for when it is on the pet owner’s own private property.

Section IV. Exemptions: As indicated above, disability assistance animals and their owners or keepers are exempt when the animals are being used for that purpose.

Section V. Enforcement: Provides municipality with the option of which department to vest with enforcement authority.

Section VI. Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

Wildlife Feeding Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic ordinance that prohibits the feeding of wildlife in public parks and other property owned or operated by the municipality that enacts the ordinance. According to the definition of “feed” in the ordinance, an element of intent is required for a violation to have occurred. Certain exceptions are made for feeding wildlife in zoos, rehabilitation centers, and other places. Baiting in the legal taking of fish or game is also exempted from the ordinance. Otherwise, feeding all manner of wild animals is prohibited by the ordinance. Feeding of domesticated animals is exempted.

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support.

Section II. Definitions: Provides a number of terms to define who and what activities are regulated by the ordinance.

Section III. Prohibited Conduct: Prohibits the feeding of wildlife in designated places, with certain exceptions.

Section IV. Enforcement: Provides municipality with the option of which person or department to vest with enforcement authority.

Section V. Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

Illicit Connection Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic ordinance designed to prohibit discharges of certain defined substances *other than stormwater* to a municipal separate storm sewer system (MS4). The effect of the ordinance is broader than the title would seem to indicate, in that it defines “illicit connection” as “any physical or non-physical connection that discharges...” a prohibited substance to the MS4. In this way, it regulates less obvious discharges such as “leaks, flows or overflows.” It also broadly defines the MS4 to include “roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man made channels, or storm drains.” The ordinance exempts discharges that are authorized under a NJPDES Permit (other than the Tier A Municipal Stormwater General Permit).

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support.

Section II. Definitions: Provides a number of terms to define who and what is regulated by the ordinance. Reference is made to the NJPDES rules at N.J.A.C. 7:14A-1.2 with an indication that the ordinance definitions are the same as or based on the corresponding definitions in those rules. The definition of MS4 contained in this ordinance *excludes combined sewer systems*.

Section III. Prohibited Conduct: Strictly prohibits the discharge of the covered substances. In other words, intent to discharge is not necessary to result in a violation of the ordinance, simply the act of discharging would appear to result in a violation.

Section IV. Enforcement: Provides municipality with the option of which person or department to vest with enforcement authority.

Section V. Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

Improper Disposal of Waste Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: While not clearly evidenced in its title, purpose or definition sections, this model ordinance appears to regulate the disposal of both solids and liquids in the municipal separate storm sewer system (MS4), or at least arguably applies to both solids and liquids. That being said, all enumerated exceptions in the ordinance deal with liquids, although those liquids may contain trace amounts of solids based upon their described sources. With the exception of stormwater (and those substances exempted by Section IV), the ordinance prohibits “the spilling, dumping or disposal of materials...” to the MS4. Nowhere is the word “materials” defined, nor is any statute or regulation referenced as a guide. In addition, the ordinance doesn’t specifically deal with situations where “materials”, due to improper storage, may be introduced to stormwater and eventually enter the MS4. The very general and perhaps ambiguous language could subject the ordinance to legal challenges based on over breadth or ambiguity, and should therefore be reviewed in detail with legal counsel prior to adoption (as should all ordinances).

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to protect public health, safety and welfare by prohibiting spilling, dumping, or disposal of “materials” to the MS4, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support.

Section II. Definitions: The ordinance broadly defines the MS4 and explicitly states that the definition of MS4 does not include combined sewer systems. As indicated above, the ordinance does not define “materials” nor does it provide any statutory or regulatory references for guidance.

Section III. Prohibited Conduct: The ordinance prohibits the spilling, dumping, or disposal of “materials” *other than stormwater* to the MS4. While it also prohibits the “spilling, dumping, or disposal of materials ... in such a manner as to cause the discharge of pollutants to the [MS4],” it doesn’t address instances where improper *storage* of materials results in stormwater transporting pollutants to the MS4. “Pollutants” is not defined, and no statutory or regulatory scheme is provided as a reference guide.

Section IV. Exceptions: The nine liquids (other than stormwater) that are exempt from the ordinance are described by reference to their sources. Examples of exempt liquids and their sources include: groundwater from basement sump pumps; irrigation water (including landscape and lawn watering runoff); residential car washing water; and flows from fire fighting activities.

Section V. Enforcement: Provides municipality with the option of which person or department to vest with enforcement authority.

Section IV. Penalties: Suggests a fine be imposed, after notification and failure to abate the violation, but leaves amount to be established by municipality.

Litter Control Model Ordinance

Publication Date: 2004

Source:

NJ Department of Environmental Protection

http://www.njstormwater.org/tier_A/ordinances.htm

Conclusion: This is a very basic ordinance that is intended to prohibit persons (which by definition include corporations, associations, etc.) from improperly disposing of items (such as bottles, cans, cigarettes, wrappers, etc.) that are commonly associated with litter found along roadways, streams and other places. However, the ordinance's definition of "litter" also includes "grass clippings or other lawn or garden waste." It prohibits littering on both public and private property with no further distinction, clarification or exception for such properties or certain practices that may be commonly related to landscaping or agricultural activities (e.g. leaving grass clippings in place). It also regulates littering from vehicles. No mention or reference is made to the New Jersey Solid Waste Management Act (N.J.S.A. 13:1E-1 et seq.) or New Jersey Statutes or Regulations governing motor vehicle or agricultural operations. In some of these respects, the ordinance as written, may be subject to preemption, or may even be at risk of being considered overly broad or ambiguous, and therefore unenforceable. These are issues that should be reviewed with legal counsel prior to adoption of this model ordinance.

Abstract: The NJDEP model ordinance addresses the following:

Section I. Purpose: Provides that the purpose is to protect public health, safety and welfare, and to prescribe penalties for failure to comply. The ordinance does not provide any reference to specific statutory support.

Section II. Definitions: The ordinance broadly defines litter as discussed above. It does not cross reference the definition of "litter" with any other statutes or regulations. It does exclude certain wastes, when those wastes are from the "primary processes" (a term that is not defined) of "mining or other extraction processes, logging, sawmilling, farming or manufacturing."

Section III. Prohibited Acts: Includes littering on private property, public property, and from vehicles or boats.

Section IV. Enforcement: Provides municipality with the option of which person or department to vest with enforcement authority.

Section V. Penalties: Suggests a fine be imposed, but leaves amount to be established by municipality.

HUNTERDON COUNTY PLANNING BOARD MODEL ORDINANCE

“Building Greener Communities - Planning for Woodland Conservation” Handbook and the Woodlands Retention Model Ordinance

Publication Date: 2003 and 2004

Source:

Hunterdon County Planning Board
(with the North Jersey Resource Conservation & Development Council)
PO Box 2900
Flemington, NJ 08822-2900
908-788-1490
<http://www.co.hunterdon.nj.us/planning/woodland.htm>

Conclusion: The Woodlands Retention Model Ordinance was a 2004 follow-up document to the 2003 “Building Greener Communities - Planning for Woodland Conservation” Handbook. The Handbook is a very thorough treatment of the entire topic of woodlands conservation during the development process (as distinct from the preservation of trees on existing land uses). The model ordinance was created as a tool for municipal use, focused on site plan and subdivision applications. Both are solid tools, and the Handbook received statewide recognition from the New Jersey Chapter of the American Planning Association.

Abstract:

“Building Greener Communities - Planning for Woodland Conservation” Handbook

The handbook has ten chapters that go through the rationale and science of woodland retention, how woodlands retention issues should be reflected in master plans, and implementation through ordinance(s). It also discusses development of a community forestry plan, managing woodlands on public lands, and involving the public. Appendices provide some detailed information on interpreting development plans, plants native to Hunterdon County, and exotic/invasive plants. The handbook is available on the Hunterdon County Planning Board Web site, and includes a number of color photos and graphics to help the reader understand the issue.

Woodlands Retention Model Ordinance

The model ordinance package includes a statement of prerequisites, including provision in the Master Plan for “priority woodlands” and policies for woodlands retention, methods for addressing potential conflicts between woodlands retention and agricultural preservation, and other issues. A technical appendix includes: a Forest Stand Sample Data Sheet; a Sample Woodlands Conservation Easement; and a Reference List. The model ordinance itself has eleven sections, covering the following:

Section I: Purpose: This section connects the preservation of woodlands to a variety of purposes from the Municipal Land Use Law and provides a narrative statement of the technical justification for doing so, including air quality, water quality, soil cover, ecological and aesthetic reasons.

Section II: Definitions: This section provides some technical definitions related to the ordinance. Most critical is the definition of “forest” which is described in terms of minimum area (10,000 square feet), canopy height, and tree density. A “Woodlands Advisor” is provided for who has expertise in woodlands management and forestry and advises the municipality regarding this ordinance.

Section III: Applicability: The ordinance is focused on applications for site plans and subdivision approvals. Tree cutting on existing properties for which no municipal application is submitted must be addressed under a separate ordinance, using municipal “police powers.”

Section IV: Environmental Resource Inventory: Applications must include an ERI for the site that shows (on a map and aerial photograph) and describes (in a report) a variety of site conditions, including woodlands, steep slopes, water bodies, areas of higher than average ground water recharge, etc.

Section V: Woodland Retention and Preservation Plan: The ERI serves as the basis for developing and submitting this plan, which must be approved prior to site plan or subdivision approval. The plan must identify all forest stands and larger trees that are to be retained, information on the percentage of the lot with existing and retained woodlands, description of areas and methods for protection of trees and woodlands that will be retained, etc. The retention and preservation plan must meet the requirements of Section VI.

Section VI: Woodland Retention Requirements: The ordinance intent is to have development maximize retained woodlands, but establishes minimum thresholds that must be met unless a mitigation plan is approved (Section VII). Priority for retention is focused on priority woodlands from the master plan; and woodlands that are in riparian areas, steep slope areas, ground water recharge areas or critical viewsheds; woodlands that function as habitats for threatened and endangered species; and woodlands that connect to larger woodland corridors. A 10 percent maximum is placed on woodland removal from a site, and removal of any priority woodlands requires acre-for-acre mitigation even if the 10 percent limit is met. Removal is specifically allowed for streets, public utilities and public stormwater facilities, and for dwellings, accessory buildings, driveways, septic systems and underground utility lines (with limited clearance widths around each) on each new residential lot up to maximums that depend on the lot size. Specimen trees and larger trees must be saved if possible. Protection for retained trees and woodlands are specified in this section to ensure that construction activity doesn't destroy tree health. Permanent monuments for conservation easements may be required.

Section VII: Woodlands Mitigation: Mitigation, if required, must be described in a mitigation plan that results (in order of priority) creation of new woodlands on-site, off-site on public lands, or off-site on deed-restricted private lands. Specifications on planting density, diversity, the use of native species, and a maintenance plan and planting survival rates over a two-year period are provided. The performance bond for the project must include the mitigation work costs. The mitigation area must be subject to a conservation easement, regardless of location.

Section VIII: Conservation Easement: This section describes the mandatory provisions of the conservation easement, what uses can be made of lands within the easement, and specific prohibitions. Right of access and inspection for municipal agents must be provided.

Section IX: Fees, Violations and Penalties: This section provides for inspection fees, violations and penalties, including stop-work orders by the municipality.

NORTH JERSEY RESOURCE CONSERVATION & DEVELOPMENT COUNCIL MODEL ORDINANCE

Carbonate Area District Model Ordinance**Publication Date:** N/A**Source:**

North Jersey Resource Conservation & Development Council
54 Old Highway 22, Suite 201
Clinton, New Jersey 08809-1389
908-735-0733
<http://www.northjerseyrcd.org>

Conclusion: This model ordinance is intended for use by municipalities with areas that are underlain by carbonate bedrock such as limestone and dolomite. The primary purposes of the ordinance are to protect and preserve ground water resources and to reduce the frequency of structural damage to public and private improvements caused by sinkhole collapse or subsidence in areas of limestone geology. The ordinance establishes a geotechnical investigation process, and makes compliance with that process a pre-condition to an application for development for projects that are located in the land area underlain by limestone and any land area that drains surface water into a land area underlain by limestone. The ordinance establishes performance standards including testing procedures for use during the site investigation phase.

Abstract: The model ordinance addresses the following:

Section 100.0 Purpose: Establishes the rationale and legal basis for the ordinance, which includes health safety and welfare issues as well as issues related to orderly development in the municipality. The need for protection of ground water supplies is noted, as is the propensity of carbonate bedrock to make the overlaying land unstable and susceptible to subsidence and collapse.

Section 101.0 Definitions: Explanations for terms used throughout the ordinance.

Section 102.0 Applicability: Identifies what activities are regulated by the ordinance. Regulated activities include development activities that require subdivision or site plan approval, building permits, zoning permits and wastewater approvals, in addition to installation of wells, site improvements, pond construction (except for agricultural purposes*), filling of any sinkhole, or any other activity which could be affected by the presence of limestone geology. (*It is unclear as to why agricultural ponds are exempted, given that they can cause similar sinkhole formation.)

Section 103.0 District Identification: Establishes districts and their components. Provides that regulation of these districts is in addition to existing zoning requirements. Under the ordinance, the Carbonate Area District includes those lands underlain by carbonate rock, as well as those lands that drain surface water to lands underlain by such rock.

Section 105.0 [sic] Performance Standards: Provides mandatory performance standards applicable to development activities that trigger application of the ordinance. Requirements include the showing of sinkholes, etc., on final plat maps, deed notification language and both "direct" and "indirect" testing procedures for performing geotechnical investigations.

Section 106.0 Procedures and Submission Requirements for the Carbonate Area District: Establishes requirements for applicants for development permits or approvals as they relate to undertaking a geotechnical investigation and reporting on the results. These include: The completion of Phase I and Phase II Checklists; a geotechnical investigation and report; review of the report and recommendations by the municipality's geotechnical consultant; and action by the municipal authority on the geotechnical aspects of the project. There is the ability to wave some or all on the geotechnical investigation requirements after submission of the Phase I Checklist, but only for less intensive projects (e.g. a residential addition). The purpose of the program is to provide the approval authority with sufficient data on conditions that may affect construction and land use activities on the site. (Note that the municipality's site plan and subdivision checklists will need to be amended to require compliance with this testing program as a condition of completeness.)

Section 107.0 Re-Evaluation: Provides standards for those situations where the geologic hazard or condition is not discovered until during or after construction.

Section 108.0 Compliance and Enforcement: Requires compliance with this ordinance prior to the granting of subdivision or site plan approval, zoning or building permits or permits for treatment works, unless the applicant is exempted or a waiver has been obtained. Provides the municipality with the ability to issue a stop work order, revoke permits and deny certificates of occupancy if compliance has not been achieved.

Section 109.0 Carbonate Area District Data Distribution: Provides that copies of the final geologic investigation report and all maps and accompanying data be made available to the public, as these represent significant data resources.

Section 110.0 Application and Escrow Review Fees: Establishes fees and escrow deposits for review of the application and geotechnical report. It is noted that the strength of this ordinance greatly depends on the municipality's ability to hire qualified and competent experts who are well versed in limestone geology issues and proper engineering solutions. Separate escrows are established for Phase I and Phase II Checklists in order to alleviate a potential financial burden for applicants for projects that will not require completion of the Phase II Checklist.

PASSAIC VALLEY GROUND WATER PROTECTION COMMITTEE MODEL ORDINANCE

Well Head Protection Model Ordinance

Publication Date: 2003

Source:

Passaic Valley Ground Water Protection Committee
c/o Passaic River Coalition
246 Madisonville Road
Basking Ridge, NJ 07920
908-766-7550
<http://www.passaicriver.org>

Conclusion: This model ordinance was developed by an inter-municipal committee in the Central Passaic River Basin, where municipalities rely heavily on public community water supply wells for their potable water. This model ordinance was used as the basis for the Hunterdon County Environmental Toolbox Committee's 2005 model ordinance, which expanded the provisions to include public noncommunity water supply wells and clusters of domestic wells (issues of interest to many of the rural Highlands municipalities), language regarding NJDEP regulation of underground storage tanks, and expanded commentary. The PVGWPC ordinance addresses both new land uses (through the Municipal Land Use Law) and existing land uses (through the New Jersey Local Boards of Health Law).

Abstract:

The model ordinance provides that any applicant for a permit requesting a change in land use or activity that is subject to review under the provisions of the Municipal Land Use Law and other pertinent regulations, that is located within a delineated WHPA, and that involves a Potential Pollutant Source (PPS), shall comply with its requirements. This model ordinance requires the following:

- Any change in land use or activity that introduces a Major or Minor PPS shall be prohibited within a Tier 1 WHPA.
- Any change in land use or activity that introduces a Major PPS shall be prohibited within a Tier 2 WHPA.
- Any change in land use or activity that involves any PPS within any WHPA, that is not prohibited, shall comply with Best Management Practice Standards.

The abstract of the Hunterdon County Environmental Toolbox Committee's 2005 model ordinance provides more detail on the provisions that the two model ordinances have in common regarding this approach.

SOUTH BRANCH WATERSHED ASSOCIATION MODEL ORDINANCES

New Jersey Highlands Wellhead Protection Project and Wellhead Protection Model Ordinances

Publication Date: 1998

Source:

South Branch Watershed Association
Lechner House – Echo Hill Environmental Education Area
41 Lilac Drive
Flemington, New Jersey 08822
(908) 782-0422
http://www.sbwa.org/publications.html#highlands_wellhead_protection

Conclusion: The Highlands Wellhead Protection Project began in 1995 and the Project report and products were issued in 1998. The overall objective of the Project was to develop tools to assist municipalities with the protection of recharge areas of drinking water wells in communities underlain by hard fractured rock geography. The report includes findings, conclusions and recommendations concerning the need for wellhead and aquifer protection and the steps that municipalities can take to address these needs. Appendices include: wellhead and aquifer protection ordinances for consideration by municipalities and Boards of Health; BMP manuals for well owners, Planning Boards and Boards of Health; an elementary school science lesson; and various other resources.

Abstract One: *The Highlands Wellhead Protection Project Report.* The Report consists of seven chapters totaling 60 pages, followed by appendices totaling approximately 250 pages. The model ordinances (summarized separately below) are contained in the appendices. The following chapters may prove very useful to municipalities that are interested in developing a comprehensive wellhead and aquifer protection program.

Chapter I. This chapter provides background and factual support for the enactment of a municipal wellhead and aquifer protection ordinance. A profile of the Highlands study region is provided based on available well and aquifer information as of 1998. Recommendations for Planning Boards include: master plan mapping tools; subdivision and site plan ordinance considerations; and zoning considerations. The zoning considerations section includes a discussion on the use of “Carrying Capacity” zoning to protect aquifer yield and base flow of streams. The municipal model ordinance included in the appendices incorporates the principals discussed in this chapter.

Chapter III. This chapter examines the legal authority and the ability of the local Board of Health, County Health Department and local Construction Code Official/Department to regulate and protect wells and aquifers in the Highlands region. The chapter concludes with recommendations that are incorporated in the Board of Health model ordinance provided in the appendices.

Chapter IV. This chapter reviews and recommends Best Management Practices (BMP’s) handbooks, guides, studies and reports that were available at the time the Report was completed (1998), and that are useful in helping to communicate the issues and solutions concerning wells and aquifers and their protection. The Chapter discusses BMP guidance suitable for use by: the general public (well owners); municipalities; and Boards of Health.

Abstract Two: *Model Municipal Wellhead and Aquifer Protection Ordinance.* This model ordinance establishes standard practices for new development that require hazardous

substances and toxic wastes to be set back from wells at various specified distances. It also establishes a set of Best Management Design and Performance Practices for the handling and storage of toxic substances in areas designated as Drinking Water Aquifer Areas by the municipality. It provides for the adoption, and incorporation into the Master Plan, of a local geology map, a drinking water aquifer map and a wellhead protection area map. Finally, it requires the Planning Board to undertake a study addressing local aquifer recharge and a dependable yield analysis. A technical appendix includes: an application checklist to be completed by non-residential land use applicants; public well identification list; BMP checklist for regulated facilities and activities; Groundwater Recharge Evaluation Method (NJDEP Geological Survey Report GSR-32 – 1993); and BMP signage. The ordinance itself consists of 22 pages and ten sections in addition to the “Purpose” section, summarized as follows.

Purpose: Establishes the need to protect wells and aquifers in order to: protect human life and health; minimize expenditure of funds on remediation projects; prevent interruption of water supply for commerce; and protect property values and maintain a stable tax base by assuring a safe, enduring water supply.

Section A. Wellhead Protection Area Development Regulations: This section establishes a program to protect the quality of water entering the most critical groundwater recharge area (Tier I) by establishing minimum setbacks for potential pollution sources. The ordinance defines a Tier I Wellhead Protection Area (WHPA) as an area surrounding a well from which the well will draw its water supply in a two-year period. (**NOTE:** The model ordinance does not address Tiers 2 and 3. However, it is noted that the WHPAs addressed by the ordinance were considered “interim” WHPAs until NJDEP developed WHPAs, which has since been accomplished. See Note under Section D. below.)

Section B. Drinking Water Aquifer Protection Regulations: This section establishes an aquifer pollution prevention program for uses, activities and facilities which handle hazardous substances and toxic wastes and which are not otherwise regulated under Federal or State laws. (**NOTE:** The model ordinance does not address a municipality’s ability to adopt more stringent measures for activities that are otherwise regulated, provided that NJDEP’s approval is obtained. Some of the newer model ordinances address this issue.)

Section C. Best Management Development Practices: This section establishes a set of development practices aimed at preventing or limiting the probability of leakage or discharge of hazardous wastes or substances into drinking water aquifers. This section does not cover facilities otherwise regulated by NJDEP.

Section D. Drinking Water Area Maps: This section serves to adopt, by reference, certain maps for use in implementing the ordinance for the purpose of informing the Planning Board and applicants of the type and location of the municipality’s various geologic formations. Reference is made to the direct correlation between rock type and water availability, transmissivity, and the eventual calculated distances of WHPAs. Referenced maps include: geology; drinking water aquifer area; special aquifer protection area; and wellhead protection area. (**NOTE:** Since development of this model ordinance, NJDEP’s Geological Survey has developed and published WHPAs for public community water supply wells, which can be used by municipalities.)

Section E. Drinking Water Aquifer Research: This section requires the Planning Board to undertake a study to evaluate and rank the ground water recharge area of the municipality’s aquifers. It also requires a study to assess and quantify the portion of the ground water

recharge that annually recharges the drinking water aquifer. Finally, it requires the Planning Board to study the Safe Sustained Yield of each of the drinking water aquifers within the municipality. The "Safe Sustained Yield" is defined as "the amount of water which can be safely withdrawn by a well over time without the risk of exceeding rainfall replenishment and significantly impairing the essential flow of the groundwater system to other wells and the surface water system in the local watershed."

Section F. Application Requirements: This section establishes additional submittal requirements for a subdivision or site plan application, as they relate to wells and aquifers.

Section G. Review Standards: This section requires that the applicant show that the proposed development is in compliance with the applicable setbacks and Best Management Practices of Section D.

Section H. Exemptions: This section establishes when an exemption or waiver of the standards may be granted.

Section I. Fees: This section provides for the establishment of fees.

Section J. Definitions: This section provides definitions for the technical terms used throughout the ordinance.

Abstract Three: *Model Board of Health Wellhead and Aquifer Protection Ordinance.* The objective of this ordinance is to put in place an easily administered, inexpensive local management system to protect the community's drinking water supply in perpetuity. This objective is accomplished by authorizing and directing the local Board of Health (pursuant to the powers granted by N.J.S.A. 26:3-31) to implement a program that addresses: public health education for well owners; wellhead protection areas; and drinking water aquifer protection. Specific programs included in the ordinance are: well owner management certificate program; wellhead setback regulations; drinking water aquifer protection program; BMP's; wellhead BMP signage; and wellhead and aquifer data recording. The ordinance itself consists of 28 pages and contains sixteen sections. There is also a 30-page technical appendix.

Section A. Well Owner's Management Certificate: This section establishes an education and outreach program directed at well owners. The program involves the annual mailing of a "Wellhead Management Certificate" along with information that includes ground water facts and "DO's and DON'Ts."

Section B. Wellhead Protection Area Regulations: This section is similar to Section A of the above model municipal ordinance, except that: 1. It also requires pre-existing regulated activities to be brought into compliance with the regulations, or obtain an exemption; and 2. It does not clearly address the fact that the regulation of certain activities may be pre-empted, or the options for dealing with the pre-emption issue. (See Note under Section B of the municipal model ordinance summary.)

Section C. Inspections of Certain Wellhead Protection Areas: This section establishes a regular inspection program (with the right of entry) by the Board of Health's agent to ensure compliance with setbacks and BMP's within a WHPA.

Section D. Drinking Water Aquifer Protection Regulations: This section is essentially the same as the municipal model ordinance Section B, summarized above.

Section E. Best Management Practices for Drinking Water Areas: This section establishes BMP's for facilities that handle hazardous substances or toxic wastes and includes both design and performance standards.

Section F. Signage and Postings – Best Management Practices Education: This section requires that facilities regulated by the ordinance post signage in certain facility areas. Sample signage is provided in Appendix B.

Section G. Application Requirements for New Wells: This section is essentially the same as the municipal model ordinance Section F, summarized above.

Section H. Review Standards: This section requires that the application conform to the minimum standards of protection set forth in Sections B, D and E of the ordinance.

Section I. Water Supply Mapping: The purpose of this section is to adopt, by reference, the following maps: municipal geology map; municipal drinking water aquifer map; and a wellhead protection area map.

Section J. Drinking Water Aquifer Management and Research: This section creates an Aquifer Management Research Program in order to establish a working body of knowledge concerning the specific nature of the drinking water aquifer(s) of the municipality and their current utilization and future management. Various studies and data collection activities are identified. These include: a Ground Water Recharge Evaluation; a Drinking Water Aquifer Recharge Study; and a Safe Sustained Yield Aquifer Study.

Section K. Definitions: This section provides definitions for the technical terms used throughout the ordinance.

Section L. Severability: This section addresses legal issues having to do with the validity of the remaining sections of the ordinance, in the event certain sections are determined by a court to be invalid.

Section M. Non-Limiting Provision: This section indicates that the ordinance is not intended to limit the exercise of other rights and powers by the Board of Health.

Section N. Penalty: This section provides for the imposition of penalties for violations of the ordinance.

Section P. [sic] Effective Date: This section gives notice as to when the ordinance takes effect.

STONY BROOK-MILLSTONE WATERSHED ASSOCIATION MODEL ORDINANCE

Stream Corridor Ordinance Implementation Package

Publication Date: 2002? 17 pp. plus eight appendices

Source:

Stony Brook-Millstone Watershed Association
31 Titus Mill Road
Pennington, NJ 07028
609-737-3735
www.thewatershed.org

Conclusion: This ordinance was developed to promote improved protection of stream corridors and riparian areas in the Millstone River watershed. Several municipalities have used the package as guidance in developing and adopting stream corridor ordinances. The package includes both technical and policy information necessary to justify stream corridor ordinances, and ideas on developing a local ordinance. It also includes the SBMWA Model Ordinance for Stream Corridor Protection as Appendix B. In total, this package provides ample ordinance language and technical support for the adoption of a municipal ordinance. In the Highlands Preservation Area and municipalities with Category 1 streams, the model ordinance definition of stream corridors will need to incorporate the 300 foot buffer if they want to be consistent with State regulations (the NJDEP Stormwater Management Rules at NJAC 7:8 and the Residential Site Improvement Standards).

Abstract: This guidance package was developed to incorporate the best provisions of various existing and model ordinances in New Jersey, including provisions of the Delaware & Raritan Canal Commission's regulations that apply to some stream in the Millstone River watershed. It has both narrative information and nine appendices, which address the following issues:

BACKGROUND: This section provides both general and scientific rationales for protecting stream corridors. A list of stream corridor functions can be used in a municipal master plan to justify adoption of a stream corridor ordinance.

AUTHORITY: This section describes the applicability of State law to stream corridor protection. The Flood Hazard Area Control Act provides for more restrictive municipal requirements. Case law in the Freshwater Wetlands Protection Act seems to provide for municipal regulations that have "tangential or ancillary effects on wetlands and transition areas and were predicated on different concerns, such as stream corridor ordinances." The Municipal Land Use Law provides several purposes relevant to stream corridor protection. The importance of basing ordinances on clear language within the master plan is noted, and there is value in using provisions of the State Development and Redevelopment Plan (which has policies clearly supporting the concept) and other planning documents as well.

ORDINANCE STRUCTURE AND ORGANIZATION: Basic provisions of a stream corridor ordinance include a clear purpose, thorough definition of key terms (including the dimensions of stream corridors and their components), permitted uses, prohibited uses, submission requirements, variances, enforcement and penalties. Several types of stream corridors are described, including fixed width, variable width depending on the percentage of a lot that is affected, widths based on stream order (from headwaters first-order streams to major rivers), and variable widths based on environmental conditions such as steep slopes and intended lot use. Permitted uses should allow for maintenance of natural ecosystems, pre-existing agricultural and development, and recreation. Prohibited uses should include major cutting of natural vegetation, septic systems, grading and dumping, and development. The most common reasons for variances are economic hardship and compelling public need; variances

can also be prohibited for certain types of uses. Enforcement is a critical element for an ordinance but most existing ordinances lack enforcement provisions beyond inspections during active construction. Police power provisions should be included to address stream corridor damages that aren't related to site plans and subdivisions.

IMPLEMENTATION: A public education program is strongly encouraged, to provide support for development, adoption and implementation of the ordinance. Wherever possible, stream corridor protection should be included as part of a more comprehensive approach.

APPENDIX A: Provides a matrix showing the provisions of six existing ordinances and the SBMWA model ordinance. East Windsor, one of the examples, has adopted the SBMWA model since this report was completed. The actual ordinances for Clinton Township (2002), East Windsor Township (2000), Montgomery Township (1990), Holmdel Township (1994), Princeton Township (1990), and South Brunswick Township (Draft, 1998) are provided in **Appendices C through H.**

APPENDIX B: MODEL STREAM CORRIDOR PROTECTION ORDINANCE AND THE BASIS AND BACKGROUND: The SBMWA model ordinance was first developed around 1997 and then updated in 2002. The model ordinance covers all of the issues described above. Key is the definition of stream corridor width, which is the designated flood plain (where one exists; otherwise the stream "top of bank" is used) plus 100 feet plus all contiguous slopes of 12 percent or greater plus all wetlands contiguous to the stream. However, the definition appears to be applicable to streams with drainage areas of 50 acres or more; municipalities can include all delineated streams to ensure headwaters protection. The ordinance provides for some flexibility of the line ("averaging") within lots, but must be at least the flood plain plus 50 feet at all locations, and all State permits must be received. Some relief can also be provided in cases of extreme economic hardship or compelling public need, or where the stream corridor is more than 75 percent of the total tract. The Basis and Background statement can be used by municipalities (with suitable local information) within their master plan.

APPENDIX I: Provides information on a Stream Corridor Protection and Management Overlay Zone model ordinance prepared for the Middlesex County Planning Board in 1993.

ANJEC PUBLICATIONS

ANJEC, The Association of New Jersey Environmental Commissions is a statewide non-profit organization that assists the efforts of environmental commissions, local officials, interested citizens, private organizations and government agencies.

ANJEC has developed a well-deserved reputation for providing factual information to assist local government. The documents selected for review in this section generally have broad applicability to the municipal planning and environmental management process. ANJEC also has an extensive compilation of existing municipal ordinances.

For further information on any of the publications reviewed or to learn more about the services provided by ANJEC the following contact information can be used:

Association of New Jersey Environmental Commissions
P.O Box 157
Mendham, N.J., 07945
(973) 539-7547
www.anjec.org

Smart Growth Survival Kit: Practical Approaches to Managing Growth

Publication Date: 2004

Source: Association of New Jersey Environmental Commissions

Conclusion: The planning theory, known in New Jersey as “Smart Growth”, is a rapidly evolving subject area. Since municipalities have a major role to play in planning and what has come to be known as “growth management”, obtaining and maintaining an awareness of the principles of “Smart Growth” is likely to be a continuing process. Municipal officials, experts and the general public should be aware of the rapid evolution of thinking in this theoretical area. Continued attention to new products and resources will be required.

Several core principles of “Smart Growth” defined first in the 2001 State Development and Redevelopment Plan are unlikely to change. These include:

- Coordinated planning
- Natural resource protection
- Compact development where infrastructure is present

Overall, the objective of the Survival Kit is to empower municipal officials, including environmental commissions, to produce local master plans that “ensure that future growth will be consistent with the vision of the State Plan” (“Introduction”, p.2).

Overall, the package provides a great deal of useful information on specific issues and processes necessary for effective local environmental management. It is useful as both a general overview for municipal officials and as specific guidance on individual issues.

Contents:

The Smart Growth Survival Kit is a packet of resource papers on a variety of subjects designed to assist municipalities with practical guidance in the implementation of “Smart Growth” principles.

The Survival Kit’s configuration will change over time as ANJEC completes new topic papers. The current packet reviewed for this document included resource papers entitled:

- Introduction
- The Environmental Resource Inventory
- A Vision Statement
- Planning: Build Out and Capacity Analysis
- Affordable Housing
- Open Space Plan
- Master Plan
- Ordinances

Each of the resource papers is discussed below.

“Introduction”

This brief two-page document establishes the critical relationship between land use and environmental quality. Local land use regulatory authority is viewed as the key to statewide planning success. Local Master Plans that are consistent with the overall objectives of the State

Development and Redevelopment Plan (SDRP) will help “direct growth where infrastructure exists, and protect sensitive natural features” (p.2).

Such “Smart Growth” approaches not only protect our environmental future but save money as well. “Smart Growth” is viewed as a complex of interwoven policies and regulations rather than a single issue. Tools to be used to achieve “Smart Growth” objectives include: Environmental Resource Inventories (ERIs), master planning, build-out and capacity analysis, environmental ordinances, affordable housing plans and local open space plans (p.2).

“The Environmental Resource Inventory: ERI”

This twelve page document is an excellent source of information about the uses, preparation and importance of a fundamental building block of environmental planning and management at the local level, the Environmental Resource Inventory.

Often confused with functional plans such as open space plans, the ERI is an unbiased report of environmental factors in the community. It serves as the objective index and provides a description of environmental features and their functions rather than providing interpretation or recommendation.

The legal authority for ERIs is described on p.1. Specifically, the ERI is authorized by the Environmental Commission Enabling Legislation (N.J.S.A. 40:46A) and the Municipal Land Use law (N.J.S.A. 40:55 D-1 et. seq.). If an environmental commission has produced and submitted an ERI, the planning board and the board of adjustment must make an informational copy of every application for development submitted to either board available to the commission.

The contents of an ERI are discussed in several sections, beginning with a general statement. Basic contents include climate, geology, geography/topography, soils, hydrology, vegetation, wildlife and habitat, critical areas and land use. Discussing the relationships between local resources and their regional context is also recommended. A more elaborate ERI might also include information on historic and cultural factors, scenic areas, air quality, transportation, noise and contaminated sites (p.2).

Guidance is provided concerning sources of information and the use and preparation of maps. The use of geographic information system technology (G.I.S.) is discussed and recommended. In addition to maps, the ERI should also contain a report that describes the natural and environmental characteristics and features of the municipality. Any specific recommendations arising from the report should be published in a separate report.

The enabling statute specifically authorizes the keeping an “Index of Open Space”. In this case, the term “open space” is to include all undeveloped land. This requirement is fundamental to many other municipal environmental planning processes such as the production of an Open Space Plan or the preparation of a Build-Out analysis.

Other uses of an ERI are also covered. It may be used in many different ways and in many municipal processes. Environmental resource inventories are often used by environmental commissions, planning boards, zoning boards of adjustment, developers, planners, engineers, environmental consultants, open space committees and elected officials. The reader is referred to the Environmental Commissioner’s Handbook, Chapter 3, which discusses the significance of ERI data (p.4).

The process of creating an ERI is discussed in the section *“How Do You Conduct and ERI?”* Seven specific steps are recommended.

The actual creation of the ERI is discussed in the section *“Creating the ERI”*. Each of the topic areas is discussed briefly and sources of information are provided. These recommendations should allow the preparation of a high quality product. Geographic Information systems technology will be of great utility.

Copies of ERIs are available from the ANJEC Resource Center, the New Jersey Digital Library and on some municipal websites. Finally, there is a two and a half page presentation of tables of contents from selected ERIs from throughout the state.

“A Vision Statement”

This brief four-page paper deals with expanding the planning time frame in your municipality from a reactive (site plan review focused) process to a pro-active, perhaps multi-decade vision.

This process is to be engaged as part of the master planning process and should involve a collaborative effort by citizens, municipal officials, developers, engineers, and professional planners.

The use of various “Tools for Visioning” is discussed. These tools include photographs (both positive and negative images) and scale models, either actual or virtual (computer generated). Citizen preferences may be revealed by standard surveying techniques, focus groups, and telephone surveys. Each of these methods has advantages and drawbacks. These are briefly explained.

The *“Essential Elements of the Vision”* are described as:

- *Identification of important or unique resources to be preserved through the development process.*
These include but are not limited to: streams, mature woodlands, steep slopes, agricultural resources, historic and cultural resources, scenic resources as well as “non-renewable resources of economic value”. Brownfield sites should also be identified to facilitate their re-development.
- *Consideration of Costs and Benefits*
This recommendation indicates that often a small investment in planning now may yield substantial cost savings in the future. For example, preservation of natural flood control capacity in stream corridors may reduce the need for expensive capital projects to control floodwaters.
- *Character and Design*
Once essential general requirements have been worked out, the overall desired look of the community could be addressed using such factors as land use, infrastructure and open space to define character and govern design.
- *Traffic and Parking*
Thinking about these subjects with a view for increasing use of mass transit and creating pedestrian friendly environments is recommended.

The final section of the paper, *“Writing the Vision Statement for the Municipal Master Plan”* deals with the actual production of language for incorporation into the master plan. The need for specificity is identified, reducing “room for interpretation” (p.4). The vision statement should be used to review development proposals and to inform potential developers of the community’s desires. The need for flexibility and open mindedness in developing the Vision Statement is stressed.

“Planning: Build Out and Capacity Analysis”

This eight- page paper deals with an increasingly important subject for municipal planners. The first section, “Build Out”, defines a build-out analysis as depicting what the community will look like when all the vacant land is built on. This is seen as a vital exercise since New Jersey is expected to be the first state in the nation to reach this condition as early as 2030. Build-out analyses not only allow visualization of the “end game” of current zoning but also may be used to evaluate the environmental social and economic impacts of full development.

Importantly, a build-out analysis should not be expected to evaluate the capacity of natural or infrastructure systems, but it may well reveal potential conflicts between the existing zoning and these factors. Capacity analysis is covered in the second part of the document.

The steps to be taken in completion of a build-out analysis are described. Determining the study area is the first task. The study area may be all or a part of a municipality. A list of sources from which to gather appropriate data is given, including information from municipal sources, counties and State (G.I.S.) data. Although G.I.S. has certain advantages over manual mapping techniques, the document states that manual mapping techniques “can still be effective” (p.2).

Preparing the build-out is discussed with the first step being a calculation of the “Gross Land Surface”: all the land within the study area. Secondly, identify and map “Constrained Lands” such as lands in public ownership wetlands, floodplains steep slopes and other environmentally critical areas, areas designated as historic sites, and conservation easements. Development approved but not yet build should also be included. In sum, the document says that, “All land should be considered developable unless state laws (e.g. wetlands, floodplains) or municipal ordinances (e.g. steep slopes, stream corridors) restrict their use (p.3).

“Net Usable Land” is calculated next by subtracting the “Constrained Lands” from the “Gross Land Surface”. This results in the depiction of the land area available for future growth. This area will include farmland, forests, undeveloped open areas, and areas that could accommodate more intense uses. The “Net Usable Land” is then transferred to the base map.

“Total Developable Acreage” is calculated by applying the zoning requirements of the various zones to the “Net Usable Land”. *(This may prove difficult and a series of judgments about the actual impact of zoning may need to be made. These should be overtly stated-Ed.)*

“Full Build-Out” is calculated next by dividing the total developable acres by the lot size requirement for each zone. This will produce an estimate of total potential new residential units. For commercial areas where a floor area ratio (FAR) is applicable, the total developable area is multiplied by the FAR to determine the amount of commercial square footage possible.

“Education and Outreach” is viewed as an essential element of the analysis. The overall objective of the process is to adjust zoning so as to be in harmony with the goals and objectives of the master plan.

The section entitled *“Next Steps-Carrying Capacity of Natural Systems”* discusses how to relate the build-out analysis to the capacities of the natural and infrastructure systems. The document specifically states that “projected growth should be sustainable” and that “natural systems should not be overloaded and a balance is achieved between developed and natural systems” (p.5). An example of capacity planning from the Pinelands (Nitrate Dilution Model) is presented and recommendations as to the use of capacity analysis by the State Planning Commission are briefly discussed.

The section entitled *“General Approach for Natural Resource Capacity Analysis”* discusses the use of a consultant supported by municipal officials, environmental commission and interested citizens to “tailor the study to local resources” (p.5). Capacity analysis may be performed on a regional or strictly municipal area. The selection of which resources to evaluate is seen as being limited by time and money. Water resources are viewed as a critical element to be investigated.

A literature review is recommended and various regional and statewide sources are listed. The application of various models and approaches is discussed and the use of overt, checkable assumptions is strongly recommended.

Finally, the results of the Capacity Analysis and those of the Build-Out Analysis should be compared. If projected development exceeds the available capacity, development potential should be adjusted. If properly prepared and presented, both analyses may be used successfully to develop and defend new land use policies such as down zoning.

“Affordable Housing: Meeting a Town’s Affordable Housing Obligation While Protecting Natural Resources”

This eight page paper relies on the Council on Affordable Housing (COAH) Regulations and the so-called “second round” fair share numbers that were issued in 1994. A revised version is planned to reflect the recent release of “third round” fair share numbers and revised regulations, but is not yet available. Readers should consult the COAH for the most recent information. However, much of the information presented is of value.

The “Background” section reviews the history of the affordable housing issue, known generally as the Mt. Laurel Doctrine. The history of court actions, the creation of Fair Housing Act and the Council on Affordable Housing are treated briefly. The threat of the “builder’s remedy” is discussed. The need to comply with the constitutional mandate to provide affordable housing is summed up clearly, “Rather, municipalities that do not take the necessary steps to create affordable housing and to obtain COAH certification leave themselves vulnerable to unwanted large scale projects” (p.2).

The section entitled *“Approaches to Meeting Municipal COAH Obligations”* explores various approaches to compliance. New construction is treated first; focusing on municipally constructed and controlled projects. Note is made of rental bonuses. Inclusionary zoning techniques are discussed. These approaches generally require that a specified portion of all new construction be low and moderate priced units. The report states that this approach should only be used in places that are suitable for higher density development such as areas adjacent to compatible land uses, having adequate infrastructure and no environmental constraints.

According the COAH rules of 1994, inclusionary zoning could only be applied in a Designated Center if the project was located in Planning Area 4 or 5. Center designation and Planning Area

designation was determined by reference to the State Development and Redevelopment Plan and were determined by the State Planning Commission. Inclusionary zoning approaches and the so-called builder's remedy approaches often result in large scale projects that are not only environmentally damaging but also result in unwanted economic and social impacts.

Municipalities are encouraged to use a combination of available techniques to address their affordable housing obligations. Specifically recommended are:

- Rehabilitation of existing sub-standard housing stock
- Creation of accessory apartments, shared senior housing or elder cottage housing.
- Special needs/group homes
- "Buy downs" of existing housing
- Bonus credits for family rental units
- Conversion of unneeded schools or other buildings to residential units
- Regional Contribution Agreements (RCAs)
- Creation of Assisted living residences

Specific examples of the use of RCAs, an accessory apartment program, the use of group homes, a write down-buy down program and the use of development fees are provided (p.3-4).

"COAH's *Environmental Policies*" are discussed relating to use of the inclusionary zoning technique, and the use of a "vacant land adjustment" by a municipality to reduce its obligation. The limits of COAH's environmental protection concerns are viewed as not being protective of many critical areas commonly addressed in municipal plans. According to the document, "Protecting these areas, particularly from builder's remedy lawsuits, is best done by finding and designating other sites for affordable housing".

The section entitled "*The Importance of Planning*" discusses the changing situation with regard to COAH rules at the time of publication. The reader is advised to seek the most up to date information regarding the new third-round rules directly from COAH.

However, the final statement of the section remains valid, " Proactive, comprehensive land use planning and a housing plan with COAH certification is the only way to protect a community from massive builder's remedy projects that may degrade the environment and reduce the quality of life" (p.5). This statement, of course, applies only to municipalities with unmet affordable housing obligations.

The "*Questions for Environmental Commissions to Explore*" section outlines eight subjects for local environmental commissions to address on the subject of affordable housing. Finally, the document presents "*A Brief Outline of the COAH Process*". This should be checked with COAH for the latest process requirements.

"Open Space Plan"

This twelve-page paper covers the rationale for and preparation of open space plans. An open space plan is defined as "a comprehensive document that serves as a guide for open space protection in a municipality, a county or some other defined region like a watershed" (p.1). The plan ideally should contain text, maps, tables, and aerial photos.

As a policy document expected to operate over a protracted time period, an open space plan should examine a community's needs and goals, analyze open spaces and set out priorities and

strategies for preservation. Overall, an open space plan facilitates systematic, cost effective preservation of open space to meet a community's social and natural resource protection objectives.

The primary benefits of preparing an open space plan are described in the section "*Benefits of an Open Space Plan*". The primary benefit is an orderly, cost effective land preservation process. The cost of creating an open space plan is viewed as small in relation to the costs of land preservation. An open space plan will help avoid making "hasty purchases made in response to a development proposal or political pressure" (p.2). If particularly crucial lands are targeted by the plan they are less likely to be lost or altered. An orderly plan can be used to provide a predictable flow of funding for acquisition purposes. The preparation of the plan will help focus attention on the issue of open space protection in the municipality. Of particular interest is the leveraging of funds from the Green Acres program and possibly other sources. Finally a regional focus may emerge as municipalities begin to create and compare their open space plans. This is an important potential benefit.

The responsibility for creating an open space plan is discussed in the section "*Who Creates an Open Space Plan?*" Although there is a statutory requirement for environmental commissions to keep an Index of Open Spaces, such a compilation is not the full policy document envisioned as an open space plan. Typically, the preparation of these plans involves a collaborative effort that involves the environmental commission, an open space committee and sometimes, private land trusts. Consultants are also often used and municipal experts (planner and engineer) often participate. The use of information from an environmental resource inventory (ERI) is viewed as essential for the evaluation of lands to be preserved.

There is a brief discussion about funding sources that indicated funding is available from the NJDEP Environmental Services Program and, under certain conditions, from the Department of Community Affairs.

The "*Elements of an Open Space Plan*" are discussed in relation to the requirements of the Green Acres Program. The Green Acres Program requires seven elements to qualify for funding. These elements are each discussed in considerable detail and practical guidance is provided as to sources of information, data preparation and data organization. G.I.S technology is recommended.

Both "Needs Analysis" and "Resource Assessment" are discussed. Needs Analysis is presented in relation to the Green Acres "balanced land use guidelines". The importance of the ERI is discussed in some depth with a focus on water resources, soils data to assist in farmland preservation and vegetation and wildlife habitat information.

The development of ranking systems to allow the comparison of various parcels is discussed. Factors to consider in the development of a ranking scheme are presented (p.8).

The section on "*Recommendations/Action Plan*" indicates that this component of an open space plan should include:

- Preservation Techniques
- Funding sources
- Monitoring systems
- Public Education
- Maintenance and Management of Preserved Open Space
- Timetable
- Ordinances

Green Acres requires the preparation of an overall system map depicting the existing and open space sites and potential open space areas. Public involvement is also a requirement of the Green Acres Program and evidence of how the public was involved in the planning process must be submitted. Planning consistency with the conservation and recreation elements of the master plan is also required.

“The Master Plan: Smart Growth, the Master Plan & Environmental Protection”

This eight-page document outlines one of the most important and critical elements of municipal growth management, the Master Plan. The Master Plan is authorized under the Municipal Land Use Law (N.J.S.A. 40:55D-1 et. seq.) that provides the legal framework for land use control by local government. As a comprehensive planning document, it not only depicts existing conditions but also provides a vision of the community’s social, economic and physical future.

The master plan’s role in protecting natural resources is discussed in the section *“How A Master Plan Can Help Protect Natural Resources”*. The specific authorization flowing from the Municipal Land Use Law to protect the environment in a master plan is discussed. The contents of the master plan are discussed with an emphasis on providing an overall vision and relating the local plan to more regional concerns.

Goals and Objectives are discussed. Goals are viewed as fairly general in nature, while objectives are viewed as being more specific. More specific goals are recommended in each element of the master plan. Care in crafting both goals and objectives is warranted since these pronouncements can influence the zoning, land preservation, water resources protection and legal defense.

The required and optional elements of a master plan are discussed with particular emphasis on the Conservation Plan, an optional element. The conservation plan provides the environmental framework for the master plan. Developing a conservation plan is heavily dependent on the environmental resources inventory (ERI). The role of the conservation element in facilitating open space protection is discussed. The underlying role of the conservation element is discussed in the section titled *“Other Master Plan Elements”* where it is viewed as providing an awareness of environmental resources in all other elements. Other elements are discussed, including the circulation plan, the historic preservation plan, the community facilities plan, the recreation plan, the housing plan and the utility plan.

Public participation is viewed as a vital part of master plan development and participation of the broadest possible scope is recommended.

There is an interesting section entitled *“Caveats”* that discusses the importance of comprehensive open space planning in a legal case (Township of Monroe v. Noonan, Petrone and Hsu) in which an attempted condemnation of land by a municipality was found improper due to a lack of specificity about the subject parcel in the master plan. There is also a brief discussion on the taking issue that warns against regulating away all uses of land but maintains that it is appropriate to condition the uses of land in a manner sensitive to the environment.

“Ordinances: Using Local Ordinances to Protect Local Natural Resources”

This twelve-page document addresses the use of ordinances, drafting concerns, and ordinance structure. Also treated is the ordinance approval process. Specific examples of various sections of ordinances are provided including, “Purpose” statements, “Definitions”, “Standards”

and "Submittals". Finally, there is a presentation about the ANJEC Ordinance Database, an electronic database of environmental protection ordinances.

The document begins with a general discussion of the importance and process of developing ordinances at the local level. The importance of paying attention to the political process in successful ordinance development is stressed. The idea of finding a key advocate or advocates for a new idea is presented. Specific guidance is provided on "*Zoning Ordinances to Help Preserve Open Land and Critical Areas*". Specifically discussed are:

- Carrying capacity zoning
- Cluster zoning
- Floor area ratio
- Large lot zoning
- Lot size averaging
- Overlay zone
- Performance zoning
- Special zoning district

Drafting ordinances receives considerable attention in the section titled "*A General Approach to Drafting an Ordinance*". A four-step approach is recommended.

Identification of the specific issue of concern is the first step. This is followed by a critical review of existing ordinances to determine if the issue arises from lack of enforcement or if an amendment, rather than a new ordinance, is appropriate. The ease of amending an existing ordinance is noted as compared to the preparation of an entirely new approach.

A third step involves an analysis of basis in law; is the desired action supported by enabling statute or other laws at other levels of government? Finally, a fourth step is the gathering of background information about the subject. Accurate information will be valuable in building support, defending the proposed ordinance during the public hearing process and defending it in court if it is adopted, implemented and challenged. A review of other related ordinances enacted by other municipalities is recommended and reference is made to the ANJEC ordinance database that contains over 500 environmental ordinances as well as other sources.

The structure of ordinances is discussed with attention paid to the standard sections that are included in most ordinances. Title, Purpose, Definitions, Standards, Applicability, Submittals and Penalties and Fees are each discussed.

The approval process is discussed with emphasis on the first reading, second reading, public participation, and notice requirements. The issue of a filed "protest" requiring a super-majority of the governing body for passage is touched upon.

Acting Locally: Municipal Tools for Environmental Protection

Publication Date: 2002 147 pp.

Source: Association of New Jersey Environmental Commissions

Conclusion: Overall, this publication is a readily accessible resource for elected or appointed municipal officials seeking general understanding and specific practical advice regarding environmental protection in their community. It is recommended that this publication be used in conjunction with the *Manual for Local Officials* and, if the reader is on a local environmental commission or is interested in serving on one, the *Environmental Commissioner's Handbook*. Taken together, the three publications will provide an excellent basis for informed local decision making about the environment in your community. In addition, once such basic understandings are developed, local officials will find it much easier to review development applications and to work with municipal and applicant's professionals, attorneys and other experts involved in land use decision making.

This 147-page publication is a comprehensive presentation of environmental issues that often come before local government decision makers, either in the development of planning policies, administration of zoning ordinances or general environmental management. While it contains some important theoretical discussion, these are presented in clear non-technical language designed to meet the needs of non-expert citizens. Overall, the information is accessible and easy to understand. Each chapter can be used in a stand alone way, allowing the reader to access only those portions of the total package that are of interest. There is also a solid Index that allows the reader to rapidly access issues by topic.

Overall, this resource is an excellent beginning for those newly elected or appointed to municipal government positions that deal with environmental issues.

Contents

Chapter 1 presents a justification for the importance of local (as distinguished from State and Federal) environmental protection and touches on the enabling legislation (the Municipal Land Use Law) that empowers municipalities to plan their future and govern the use of land. The roles of the governing body, planning board, zoning board of adjustment, environmental commissions, the board of health and municipal utilities authorities are briefly described.

At the end of this section there is an important note that refers the reader to two other ANJEC publications: the *Environmental Manual for Local Officials* and the *Environmental Commissioner's Handbook* for more detailed information on legal responsibilities, policies, and operations of municipal boards and commissions. Specific guidance for local environmental commissions is provided in the *Environmental Commissioner's Handbook*. Both of these publications are reviewed below.

There is also a section called "About This Book" that provides a quick read on what the book contains. Each chapter first seeks to develop a basic understanding in the reader of the particular natural resource being addressed. This type of information is useful not only for personal understanding but can prove useful in advocating for environmental protection among other municipal officials and the general public.

Federal and State laws are discussed in their relationship to local action and the reader is referred to the *Environmental Manual for Local Officials* that covers these laws in greater detail.

Each chapter outlines the “practical specific actions and techniques local officials can take to protect environmentally significant features in their towns”. Ordinances, development standards, data collection and public education are presented and discussed. For example in the chapter on Groundwater Protection, the “Local Action Steps” discussed include:

- Ground Water Recharge Mapping
- Wellhead Protection
- Natural Resources Inventory
- Groundwater Protection Ordinances
- Aquifer Overlay Zone Ordinances
- Ground Water-based Carrying Capacity Studies
- Wastewater Management
- Septic Management Ordinance
- Landfill or Dumpsite Investigation
- Limestone Area Protection
- Road Salt Restrictions
- Contamination from Organic Chemicals
- Testing for Contaminants
- Water Conservation

The recommendations are based on actual experiences throughout New Jersey and the reader is invited to access more detailed and specific information available from ANJEC. Although each chapter may be used independently, the reader is advised that environmental features are closely interrelated and is urged to view the whole picture throughout the book.

The specific environmental subjects treated include:

- Ground Water Protection (Chapter 2)
- Streams and Rivers (Chapter 3)
- Wetlands (Chapter 4)
- Lakes (Chapter 5)
- Preserving Forests and Trees (Chapter 6)
- Protecting Steep Slopes (Chapter 7)
- Open Space (Chapter 8)
- Coastal Protection (Chapter 9)
- Estuaries: Coastal Cornucopia (Chapter 10)
- Reducing Waste (Chapter 11)
- Air Quality (Chapter 12).

There is also an Appendix that gives contact information for other organizations mentioned in the book.

Environmental Commissioner's Handbook, Fourth Edition

Publication Date: 1997 86pp

Source: Association of New Jersey Environmental Commissions

Conclusion: This document should be viewed as a standard reference for functioning environmental commissions and as a training manual for new commission members or those wishing to develop new skills. It is also valuable as a tool to facilitate intelligent communication between environmental commissions, planning boards, governing bodies and municipal experts. The language is accessible and is designed primarily for interested non-experts. Specific information is provided on legal, procedural and scientific issues. The extensive Appendix section allows the reader to access a variety of sources to expand understanding and to seek specific information in greater depth.

A well functioning municipal environmental commission is a keystone of good environmental planning and management in a municipality. In New Jersey every municipality is empowered to create an Environmental Commission under N.J.S.A. 40:56A, the enabling statute. At present there are approximately 350 such entities in New Jersey out of a total of 566 municipalities. Environmental Commissions can and do play an important role in environmental planning and management within municipalities. Clearly, the establishment, training and funding of these important bodies should be an important priority for every municipality. Professionals advising municipalities can play an important role in establishing and serving environmental commissions.

This publication is a basic training manual for environmental commissioners and is essential reading for anyone wishing to form a commission like members of the governing body, newly appointed commissioners, and sitting commissioners engaged in commission activities. The publication consist of seven chapters plus some very valuable appendices. Each chapter is summarized briefly below.

Chapter 1, "What is an Environmental Commission?" deals with enabling legislation, legal status, membership, responsibilities and powers and funding. The enabling statute is discussed briefly and the powers of the commission are presented in brief form. The entire text of the enabling statute is presented as Appendix A. Establishment of a municipal environmental commission is discussed. Establishment at the local level requires the preparation and passage of a municipal ordinance. A *model ordinance* to establish an environmental commission is provided on P. 70, in Appendix A.

Other practical details such as membership, length of term and legal liability are also covered in this chapter. Of particular note is the required integration between the commission and the planning board. Explicit language in the statute requires that one member of the environmental commission be a member of the planning board.

The *mandated responsibilities* of the commission are also discussed. Significantly, the commission is *to keep records*, prepare an *annual report* and keep an *index of open space*, "either publicly and privately owned". If properly prepared the annual report can serve as an important guidance document for the governing body and the planning board. The index of open space, if properly prepared, is of great utility for open space acquisition programs and as an overall tool to evaluate the effectiveness of the municipal master plan. The Environmental Commission may also *acquire property in the name of the municipality*, an important potential in

open space protection. **It should be noted that, in the experience of the author, these statutorily mandated functions are often ignored or poorly executed-Ed.**

Another mandated function, the preparation and maintenance of an *Environmental Resources Inventory (E.R.I.)* is crucial for all forms of environmental planning and management in the municipality.

Finally, the commission is empowered to “study and make recommendations” on a broad range of environmental issues including:

- Open space preservation
- Water resources management
- Air pollution control solid waste management
- Noise control
- Soil and landscape protection
- Environmental appearance
- Marine resources
- Protection of flora and fauna.

In sum, the Environmental Commission can and should provide other elements of the municipal government with important research as well as gathering and dissemination of environmental information. Thus, the environmental commission can function as the “environmental conscience” of the municipality in numerous ways.

Finally Chapter 1 deals with funding for the environmental commission, the legal requirements for budget management and, significantly, discusses “other sources of funding” that may include grants and gifts of land, subject to approval of the governing body.

Chapter 2, “How and Effective Commission Operates”, deals with practical guidance for the operation of the commission including compliance with the “Sunshine Law”. The structure of the commission, communicating with the public and the relationships with other levels of municipal government including the planning board, the municipality’s experts (planner and engineer), the zoning board of adjustment, the environmental officer (if present), the construction sub code official, and the board of health. Relations with other levels of government (county, state, and legislative bodies) are also described in practical terms.

Chapter 3, “The Environmental Resources Inventory” deals with a particularly crucial aspect of the powers of the environmental commission. The creation and maintenance of the environmental resources inventory is a fundamental building block of a sound, integrated environmental planning and management program. The desired content of an ERI is discussed and a complete list of factors is provided in Appendix E (p 84). Each factor is discussed in manner that allows interested laymen to interact with experts in a meaningful manner. Significantly, once an ERI is prepared and adopted, the environmental commission must be given copies of all site plans for review.

Chapter 4, “Land Use Planning and Regulation” deals with the environmental commission’s role in regional planning, including the relationship to the “cross acceptance” process mandated under the State Development and Redevelopment Plan. Municipal planning, including preparation of the Master Plan, zoning ordinances and the relationships between these efforts and the ERI are discussed.

Particular practical guidance is provided on specific planning and zoning techniques including:

- Large lot zoning
- Lot size averaging
- Performance zoning
- Carrying capacity zoning
- Cluster zoning/planned unit development
- Special zoning district
- Overlay zones
- Zoning to Protect Critical Areas

The environmental commission's crucial role in subdivision and site plan review is discussed in considerable detail, both in terms of meaning and procedure. The role of the Environmental Impact Statement (EIS) is presented accompanied by a listing of subjects to be included in an EIS in Appendix E (p.86).

Significantly, due to the publication date of the document, relations with the Highlands Council and Highlands Act and specific guidance with regard to compliance with the recently adopted NJDEP Stormwater Rule (NJAC 7:8) are not addressed. However, the basic process of environmental review, if followed, should allow municipal environmental commissions to address these issues as they evolve.

Chapter 5, "Preserving Natural and Cultural Resources" covers the environmental commission's roles in open space preservation and the protection of historic resources. The enabling legislation specifically authorizes the environmental commission to "research, inventory and recommend plans for development and use of the community's open lands and its resources" (p.42).

The mandatory keeping of the open space inventory is stressed. The inventory should include "all vacant land and any easements on private parcels" (p.42). The inventory is viewed as a starting point for overall open space planning. Practical guidance in some areas of land preservation is provided, including forms of ownership (fee simple, easement, life estate, and undivided interest). Methods of land acquisition are discussed including purchase, condemnation, donation, bargain sale, and tax title liens. Funding for open space acquisition is discussed including the mechanisms of local open space tax, bonding, and Green Trust.

Because the sources of land preservation funding are in a constant state of flux, several sources of funding are not discussed that have come into being since the publication date. The commission's role in preparing "base line" documentation for preserved lands and the obligation to monitor conservation easements is touched on briefly. The chapter also briefly discusses regulatory strategies that can result in the preservation of important open space areas. Specifically, cluster ordinances and the transfer of development rights are discussed. The section on transfer of development rights is not up to date in detail but the discussion does provide an adequate understanding of the technique in general.

There is a brief discussion of historic preservation issues that outlines the State and National Register process, discusses historic sites inventories and the role of the Historic Preservation Commission and the importance of obtaining Certified Local government status. Overall, those

interested in historic preservation issues will want additional information from the sources specified on p. 50.

Those interested in land preservation should take advantage of the expertise available in the land trust community as recommended in the chapter. Many of these sources are available in Appendix B, beginning on p. 72.

Chapter 6, "Pollution Control", discusses the environmental commission's roles in solid waste and recycling, protecting water resources, hazardous substances and clean air.

The section on solid waste and recycling discusses the municipal responsibilities created with the passage of the 1987 Statewide Source Separation and Recycling Act. The role of the environmental commission in this subject area has changed from one of direct involvement, for example actually running recycling programs, to one of communication and support. Environmental commissions are encouraged to educate the public about recycling and research ways and means to improve and increase the amount of material collected and recycled. Specific advice is given on so called "pay as you throw" (unit pricing) approach and the commission's opportunities to control litter such as education programs and organizing clean-up days.

Although the section on Protecting Water Resources is relatively short, about 3 ½ pages, important information is presented. Specific topics include stream encroachment and the importance of municipal review of stream encroachment permit applications. The Department of Environmental Protection's Land Use Regulation Program must provide notice to environmental commissions on wetlands and stream encroachment permit applications. Commissions have an important opportunity to provide comment based on local knowledge on these applications. The importance of knowledge about trout associated waters, acid producing soils and local wetlands conditions cannot be stressed enough in the application process.

Monitoring programs including visual, biological and chemical monitoring are encouraged. Information from such programs is viewed as essential since established DEP and NJGS monitoring sites often are not located in headwaters and other smaller sensitive tributaries. Monitoring programs are also viewed as important educational tools that may be used to create a support constituency for water resources protection. The commission's role in providing public information on water is discussed and monitoring of private wells is encouraged. Compiling and distributing water conservation information is also seen as an important activity of the commission.

There is a relatively short section on non-point source pollution (NPS) that is factually correct but does not reflect the current level of concern for this issue. Readers should seek alternative sources of information on this issue.

The section on hazardous substances presents the legal definition of hazardous substance and briefly outlines the federal regulatory framework including the federal Resource Conservation and Recovery act (RCRA), Superfund and the New Jersey Worker and Community Right to Know Act. The latter law is viewed as a source of information for environmental commissions concerning the presence of hazardous materials in the community. There is an interesting perspective provided that suggests that zoning can be used to reduce the risk of accidental exposure to residents by separating facilities that store and use hazardous materials from residential areas.

Contaminated sites are addressed. Environmental commissions can access the known contaminated sites data now available on the NJ DEP website. *Several municipalities have included these data in both map and tabular formats in recently prepared E.R.I. documents- Ed.*

Household hazardous waste issues receive only brief treatment. Educational efforts and coordinating hazardous waste collection days are suggested as appropriate activities for environmental commissions.

Clean Air is an addressed subject in this section. There is a brief discussion of the federal Clean Air Act. The section primarily views local air pollution control efforts as being directed at mobile sources through the mechanism of anti-sprawl land use controls. The reader is referred to another ANJEC publication, "Municipal Planning and Clean Air" for further information.

Chapter 7, "Ordinances", deals with the subjects of ordinance contents and the process of ordinance development and passage. Specific sample (actual) ordinances are available from the ANJEC Resource Center. The development of specific ordinances in concert with the planning board is discussed. An extensive list of appropriate subject areas for ordinance development is provided.

The Environmental Manual for Municipal Officials, Second Edition

Publication Date: 1998 176 pp.

Source: Association of New Jersey Environmental Commissions

Conclusion: Issued in 1998, the *Environmental Manual for Municipal Officials* was intended to provide a comprehensive overview of the duties and powers of municipal government with regard to the environment. Due to the issue date, several important, recently evolving subject areas and more recent legislative mandates are not covered. However, the Manual provides an excellent overall framework for municipal government agencies concerned with environmental protection. It is particularly valuable when reading concert with two other ANJEC publications included in these reviews: **The Environmental Commissioner's Handbook** and **Acting Locally, Municipal Tools for Environmental Protection.**

The publication is composed of three sections. A review of each section is provided below.

Part I

Part I is an overview of some of the substantial environmental issues that face state and local officials. Despite the evolution of legislation, regulation and general planning theory these issues are likely to persist. Thus, the basic understandings presented will be valuable to the reader. Topics include air and water pollution, land and wildlife preservation, waste management, control of noise, radiation, toxic substances and pesticides and the protection of special areas and historic resources. Chapter 1 of Part I provides a series of introductory essays on selected environmental topics. These essays are designed to provide a basic framework of understanding on the topic. Issues addressed include:

Clean Air: Described as "...perhaps the most pervasive and intractable form of pollution" (p.2) a brief history of the evolution of the problem is presented, identifying health problems and climate alterations as serious concerns. New Jersey's situation is aptly described, with "8 million residents, traveling an average of 7,804 vehicle miles per year, totaling over 62 billion vehicle miles per year" (p.2).

The two most problematic areas are described as transportation and energy production. There is a discussion of each of the six pollutants covered by the Federal Clean Air Act: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Each is presented with reference to sources, health effects and environmental effects.

Although many of the problems caused by air pollution are seen as global in nature (for example, global warming and sea level rise), municipalities are encouraged to address these issues locally. Local land use decisions designed to reduce vehicle miles traveled, site plan review designed to limit parking spaces, and encourage vanpools and carpools. Master planning to support mass transit and site plan ordinances to encourage southerly orientation in buildings to reduce energy consumption is also recommended.

The issues of emergency preparation and response, radiation protection and noise control and pesticide management are discussed. Although the information provided concerning emergency response planning is sound, municipalities will need to address additional considerations in the post 9-11 era.

Radiation protection discusses radon gas exposure briefly. The discussion on noise control defines exposure levels and impacts and suggests that local ordinances can be devised to

regulate noise during construction. The health effects of pesticides are discussed and the importance of public education and proper application are stressed. The use of integrated pest management (IPM) is advocated.

The discussion of "Clean Water" (p. 7), covers the general situation of New Jersey (44 inches of precipitation per year) as compared to the national average of 28 inches. The hydrologic cycle is discussed briefly as are groundwater and surface water. Pollution sources are discussed as "point sources" and "non-point sources".

The discussion on point sources is linked to area-wide water quality management plans (WQMP) and local wastewater management plans (WMP). An important statement is made: ***"Local land use planning drives the local WMP. It (the WMP) must be consistent with local zoning"*** (p.9). Significantly, the opposite approach, that the local zoning must be consistent with the WMP and the higher level goals of the area-wide WQMP is not suggested. *There is no reason not to take this approach-Ed.*

There is only a brief discussion of non-point source pollution. What is provided is only a general discussion. This section, on its own, is not adequate information to address the more recent concerns related to watershed management and non-point pollution control. There is, however, a brief but excellent discussion of the types of pollutants that will undoubtedly be encountered in New Jersey. Topics covered include:

- Nutrients
- Pathogens
- Sediment
- Thermal Pollution
- Toxicants

The subject of water supply receives only a one-paragraph discussion. There is also a brief discussion entitled "Who Protects our Water" that outlines the fragmented lines of authority that exist with regard to water resources protection.

The section on Waste Management deals extensively with the subject of solid waste, providing an historic overview of the development of the problem and offering some solutions, including recycling and waste reduction. Hazardous waste and contaminated sites are discussed briefly, outlining the history of the problem.

Protective mechanisms for historic resources are discussed and the basic legal framework for their protection using the National and State Registers of Historic Places is outlined. The importance of local historic surveys and local protection by means of ordinance and the designation of sites and districts is presented.

While not stated in so many words the discussion entitled "Land and Wildlife" urges thinking of these resources as a series of interdependent relationships and seems to suggest a "landscape level" approach. However, more recent thinking on these matters has resulted in a generally better understanding. The material presented, although generally correct is insufficient to provide meaningful insights or practical guidance.

Due to the date of the publication, the Highlands area is not included as a Special Protection Area. However, the rationale for such designations is well presented. The importance of

regional planning is stressed and the responsibility of local government to participate in such regional planning efforts is touched upon.

Part II

Part II deals with seven selected municipal boards and commissions that have special duties and powers with regard to environmental protection. The laws that establish each board or commission, and their powers and duties are discussed, focusing on environmental issues. The ways in which local government agencies can harmonize with and complement state and federal environmental protection efforts are also described.

Section A of Chapter 2 begins with an introduction to the powers of the governing body, including general police powers and those police powers that relate to the local environment. The issue of State preemption is discussed briefly. Other police power topics covered include microwave towers, noise pollution control, acquisition of open space, shade tree protection, alignment and regulation of roads, beach erosion control, street lighting, and water supply.

On page 22 there is an interesting discussion about using the Environmental Rights Act to bring suit to address environmental problems. Interestingly, municipalities may sue or be sued under the statute.

General powers over lands use are discussed, including the power to adopt a subdivision and site plan ordinance, the power to require developer contributions for off-tract improvements. The meaning and power of the "Official Map" is discussed. The issue of open space management provisions for Planned Unit Developments is presented.

Considerable effort is made to explain the role of the zoning ordinance, with particular emphasis on subject areas relevant to environmental protection. The discussion of Mt. Laurel II presents the case for providing affordable housing in the context of comprehensive planning. Overall the discussion is adequate as an historical analysis but, due to the publications' date, recent developments with regard to rulemaking by the Council on Affordable Housing (COAH) are not addressed.

Others powers of the governing body discussed include the ability to establish joint planning boards and boards of adjustment, the power and duty to re-examine master plans at least once every six years, and the power to adopt development moratoria.

Interestingly, in light of the recently adopted NJDEP stormwater rules, the power and duty to adopt stormwater management plans is discussed. Due to the publication date there is no specific guidance provided about compliance with the new rules.

Section B discusses policies and operations of the governing body from the practical political perspective. The importance of building a functioning municipal team that includes the board of health, the environmental commission, planning board, board of adjustment, and other municipal commissions is stressed. This section also includes a discussion of the Environmental Agenda that is largely a presentation of the same materials covered in Part I, dealing with clean air, emergency preparation and response, radiation, noise control and pesticide management, waste management, historic resources, land and wildlife and special protection areas. Importantly, the subject of clean water is more fully developed in this section than in Part I.

Chapters 3-7 treat the functions and duties of Planning Board and Zoning Board of Adjustment (Chapter 3), the Environmental Commission (Chapter 4), Historic Preservation Commission, (Chapter 5), the Board of Health (Chapter 6) and the Municipal Utilities Authority (Chapter 7) in a similar format. Each municipal entity is described as to its legal requirements, duties and powers followed by a more practical discussion of policies and operations. Overall, these sections provide an excellent guide for municipal officials at all levels seeking a better understanding of their respective roles in the scheme of municipal government.

Part III

Part III of the document deals specifically with State laws and the various programs that address environmental issues. The relationships between municipal authority and higher levels of government are discussed. As may be expected, numerous regulatory and legislative changes have taken place since the publication of the document in 1998. Numerous issues of concern today are not addressed or are addressed as they should have been at the time. Areas addressed include clean air, environmental quality, clean water waste management, historic resources, land and wildlife and special protection areas.

Site Plan Review: Procedures for Environmental Analysis

Publication Date: 1992 12 pp.

Source: Association of New Jersey Environmental Commissions

Conclusion: This brief twelve-page document outlines the municipal site plan review process. The information presented is drawn largely from other ANJEC publications and is a reliable guide for the review of site plans at the municipal level. Although the document is somewhat dated, the basic framework of municipal process remains largely the same today. Because a majority of municipal planning boards and environmental commissions tend to spend the majority of their time reviewing site plans, a firm grasp of the process and its potentials for environmental improvement is necessary. This document provides a quick, introductory to the process.

It should be kept in mind, however, that site plan review takes place within a broader planning context and that when proper attention is paid to overall planning, site plan review is more efficient and capable of producing better overall results. Site plan review is presented as the third step in a three-step process authorized by the Municipal Land Use Law (N.J. S. A. 40:55D-1 et. seq.).

The document stresses the importance of the Municipal Master Plan, “a comprehensive plan for its present and future development based upon its present and future development based upon its physical, economic and social factors” (p. 1). Master planning is followed by the preparation of a zoning ordinance which “regulates the size of building lots; the height of buildings; the amount of open space by established setbacks and what uses are allowed at those locations” (p. 1)

Finally, site plan review “determines how the master plan will be carried out” (p.1)

Contents

Subject areas covered include:

- **Legal Authority**

A discussion of the Municipal Land Use Law is presented and the procedural requirements are outlined. Preliminary Approval is discussed, stressing the importance of review by “the municipal engineer, planner, environmental commission, other local agencies and interested citizens” (p. 1). The granting of preliminary approval is viewed as a fairly final process that provides the specifics of the project, including overall design, engineering detail and preservation of natural resources. Significantly, the document states, “Once a project has received Preliminary Approval, there are rarely any major changes in the plan” (p.1). Final approval is also discussed. Importantly, the document states; “The developer receives Final Approval to go ahead with the project when all the conditions of Preliminary Approval have been met” (p.2). The reader is then referred to Chart A, which is a general flow chart of the subdivision and Site Plan Review Procedures. The importance of involvement by the Environmental Commission is stressed and the empowering statutory provisions presented briefly.

- **Procedures for Environmental Review**

Seven steps in the approval process are outlined, including pre-application conference, application submission, public hearings, site inspection, environmental commission review, granting of preliminary approval and the granting of final approval. The role of the

Environmental Commission is covered in considerable detail, stressing early involvement, continual participation, and direct presentation to the commission by the developer. A specific 10 step review procedure is recommended that specifically mentions a comparison with Environmental Resources Inventory (ERI), a review of the Environmental Impact Statement (EIS) and a comparison of the application to the municipal master plan, county and state master plans and other data bases. The evaluation of environmental impacts is presented in considerable detail and is supported by Chart B, an extensive guide to various review factors. Each factor is presented with reference to its depiction on the applicant's maps ("Plat/ Site Plan Symbol"), "Identification", "Environmental Meaning" and "Environmental Alert". Overall, this chart is an excellent framework for investigation by the Environmental Commission and other reviewers.

- **Guidelines for Site Inspection Visits**

Site inspections are viewed as essential to the intelligent review of a development application. Considerable emphasis is placed on preparation that includes obtaining the current development submission plans, review for critical areas, off-site impacts and review of wetland information, floodplain data, and threatened and endangered species information. Both short-term (construction phase) and long-term (post construction) impacts should be reviewed. The review of the applicant's environmental impact statement (EIS) is stressed to formulate questions during the site visit.

Practical guidance in setting up a site visit is provided. The site visit is viewed as an interactive process between the developer, developer's experts and the Commission. The importance of conducting the site visit early in the review process is stressed. After the site visit, it is recommended that the Commission review its notes, and focus on specific concerns, raising them with the developer. A second meeting may be necessary to address these concerns. Finally, a report is to be prepared.

- **Sample Format for Environmental Commission Reports**

Guidance is provided on the specific contents of the Environmental Commission's report including: Specific Findings of Fact, Findings of Impacts (local and regional), Recommendations, and Conclusions.

Freshwater Wetlands Protection in New Jersey: A Manual for Local Officials

Publication Date: 2004 52 pgs.

Source: Association of New Jersey Environmental Commissions

Conclusion:

This 52 page manual provides local officials with an accessible guide to the Freshwater Wetlands Protection Act and its regulations. In addition, it provides guidance on techniques that may be used in local land use planning and the development application process to complement the state program. It is designed to inform municipal environmental commissions, planning boards, boards of adjustment, boards of health and interested citizens in their efforts to protect wetlands and complement the program of the Department of Environmental Protection.

The manual is valuable to municipal officials and citizens as both educational background and practical guidance.

Contents:

The manual consists of nine chapters, an appendix and a series of tables.

Chapter I covers the definition of freshwater wetlands, the importance of protecting these resources, and the physical attributes of wetlands. Available wetlands maps are discussed and the delineation methodology described.

The section on "*Wetlands' Physical Attributes*" is particularly noteworthy, covering wetlands vegetation, wetland soils and wetlands hydrology in brief presentations. Also presented is a list of New Jersey's hydric soils that is of utility for municipal planning, especially the preparation of environmental resource inventories. The discussion of maps is brief but informative, directing the reader to the best source of wetland mapping (N.J. D.E.P.) but cautioning that site-specific delineations are required for site plan review. An understanding of the delineation methodology is provided with reference to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Some understanding of the procedures used in the Manual is essential for local officials reviewing development applications.

Chapter II discusses the N.J. Freshwater Wetlands Protection Act. The intent of the Act, the background leading to its development, an overview of its major provisions, regulated resources, exemptions and significant amendments since 2000 are presented. This chapter provides a quick overview of the legislation that is primarily useful as background information. However, the discussion of exemptions will prove useful to local reviewers. Keeping abreast of the continuing stream of amendments to the regulations is also facilitated by the section "Significant Amendments Since 2000" although the reader is cautioned to check with the Department of Environmental Protection for the most recent updates.

Chapter III is of particular concern for local officials. A basic understanding of wetlands permit requirements is needed for intelligent review of site plans and development applications at the local level. Letters of Interpretation, their duration and extension policies and the resource value classification system are well explained. The various types of permits including both individual and general permits are explained.

The section "*Suggestions for Municipal Action*" provides guidance for planning boards, boards of adjustment, boards of health and environmental commissions about interacting with and supplementing the activities of the Department of Environmental Protection, which has

preemptive authorities regarding the regulation of wetlands impacts. Since review and comment by the public, including municipal government, is provided for in regulation an understanding of the response time for comment is essential. This is well depicted in Table 3 on page 18.

Chapter IV discusses Transition Areas. Issues presented include a general presentation of transition areas and their functions, the required size of transition areas, activities allowed within transition areas, activities that need permits, transition area waivers and public notice requirements. In addition to assuring that applications are in compliance with transition area rules, local government is entitled to comment on transition area waiver applications.

Chapter V deals with the State review process. Areas covered include pre-application conferences; permit application review, public notice requirements, and relationships to other D.E.P. programs. Again, the municipality has comment opportunities and may possess local knowledge relevant to the permitting process. To meet the limited comment period deadlines, it is recommended that each board at the municipal level designate one individual to respond to public notice for Letters of Exemption, Letters of Interpretation, Statewide General Permits and Individual Permits.

Chapter VI addresses the subject of enforcement. Local officials may find themselves involved in such matters since they are often the first government source available to citizen's reporting possible violations. Thus, an understanding of enforcement procedures can be helpful in resolving potential violations. In addition to describing the state enforcement process, this chapter contains additional suggestions for municipal action. Municipalities are encouraged to report suspected violations to the Department through the 24-hour Action Line (609-292-1240). Table 7 on page 33 illustrates the violation form used by the Department as an example of the type of information needed to effectuate rapid enforcement.

Chapter VII covers the subject of mitigation. Mitigation generally involves activities carried out to compensate the public for loss of wetlands or open waters as a result of permitted actions. The various types of mitigation are discussed, including restoration, creation, enhancement, purchase of credits from the mitigation bank, upland preservation, land donation and monetary contributions. The differing policies relating to mitigation of large sites and small sites is discussed. The powers and duties of the Wetlands Mitigation Council are discussed. Finally, municipalities can play an important role in identifying areas of disturbed wetlands, and are advised to create an inventory of such areas so as to provide potential restoration opportunities.

Chapter VIII presents the relationship between the Freshwater Wetlands Law and the Municipal Land Use Law. A brief presentation is made concerning the general subject of land use in New Jersey. And municipalities are encouraged to map wetlands in their environmental resource inventories and to consider zoning that incidentally protects wetlands. Several types of ordinances are suggested as being helpful in protecting wetlands. These include:

- Open space/cluster ordinances
- Non-contiguous cluster ordinances
- Lot size averaging
- Overlay zoning
- Critical areas ordinances
- Stream corridor protection overlay ordinances
- Steep slope protection

- Soil and sediment erosion control requirements
- Stormwater management requirements
- Tree protection ordinances
- Usable yard area ordinances

Several strategies for integrating wetlands protection into the municipal approval process are suggested, including requiring a Letter of Interpretation as part of the municipal checklist. Municipalities are encouraged to be vigilant regarding the issuance of building permits, grading permits, septic system approvals and well permits that may involve wetland or transition zone areas.

Chapter IX deals with long-term protection of wetlands. Permanent deed restrictions on wetland areas are seen as the most effective way to protect these areas in the long term. Several mechanisms are discussed, including fee acquisition, the purchase of conservation easements, and restricting activities on open spaces set aside during the development process.

Septic System Management for Clean Water

Publication Date: 2003 12 pp.

Source: Association of New Jersey Environmental Commissions

Conclusion:

Septic systems provide wastewater treatment for a substantial portion of New Jersey and the Raritan Highlands are no exception. When properly sited, installed, and significantly, operated, septic systems can provide cost effective, reliable and environmentally sound wastewater treatment.

This brief twelve-page publication deals primarily with the need for a structured management approach to assure proper operation of septic systems. The management of septic systems will become increasingly important in the preparation of wastewater management plans. This document provides a basic understanding of septic systems, discusses the need for septic management and provides a model ordinance to accomplish this objective.

Overall, the document is a readable and useful source for those interested in protecting clean water in areas served, either wholly or partially, by septic systems.

Contents:

The first section, *"How Septic Systems Work"*, very briefly describes how septic systems work and the physical components that make up such systems.

The second section *"Proper Location, Design and Operation"* deals with each of these issues in a separate discussion. Location is discussed in the context of DEP regulations (N.J.A.C. 7:9A) that govern the minimum requirements for location. Geographic and geologic factors are briefly discussed. Adequate permeability and separation of septic systems from various features such as streams, wells and occupied dwellings is discussed. The relationship between site conditions, chiefly permeability, and size of the service population are presented as determinants of design, especially size and configuration. Existing operational regulations are briefly discussed including prohibited discharges and additives.

The importance of septic systems as a treatment option is discussed in the section *"Properly Functioning Septics Support the Water Cycle"*. Because septic systems (when combined with on-site wells) recharge the majority of water removed by the well, these systems are viewed as supporting and helping maintain the local aquifer.

The section *"Why Septic Management"* deals with the need to more carefully control the operation of septic systems, and this task is viewed as primarily a local municipal government responsibility. Alternatives for older systems are briefly touched upon with the emphasis placed on the addition of aerobic chambers.

The section *"Septic Management-Good Environmental Sense"*, recommends management for both older and newer systems. Basic septic management consists primarily of periodic pumping to remove solids that accumulate in all septic tanks. Poisoning by toxic substances and overloading from garbage disposals are also cited as substantial contributors to operational failure.

The subject of establishing appropriate densities for septic systems is presented with reference to the subject of nitrate attenuation. The use of the Nitrate Dilution Model as developed for

application in New Jersey by the New Jersey Geologic Survey is presented. The use of this model is recommended as a starting point in this effort. The selection of a final nitrate concentration is a critical component in the model's application. Using the statewide groundwater anti-degradation standard of 5.2 mg/l is described as "strictly health based" and the fact that it does "not take critical resource protection" into account is mentioned (p.4). Critical resources such as trout streams may require much lower assumptions, (2.5 mg/l).

The document includes a "*Model Septic Management Ordinance*" (pgs. 7-12) developed in consultation with an attorney. The model ordinance, to be operated by the Board of Health, establishes a licensing system, specifies renewal procedures, provides reasons under which a license can be suspended or modified and establishes special requirements for retail food handling establishments.

General standards are provided as well as requirements for disposal field maintenance and for the treatment of abandoned systems. Systems with installed grease traps and dosing tanks are treated as special cases with additional inspection and maintenance requirements. Procedures are established for the removal and disposal of septic sludge.

The ordinance allows for an appeal process to the Board of Health upon written application to the Board.

Enforcement is based on a declaration of nuisance and is under the powers of the Board of Health. The Board may require correction alteration or replacement of a failing system, require regular pumping until corrective action is completed or, upon notice with opportunity to comment or appeal, suspend the septic license. The Board is also specifically authorized to enter the property to inspect a system under its existing powers.

The model ordinance also contains a provision for the establishment of fees for initial licensing, renewal inspection for renewal for sludge removal operators, and for sludge removal permits.

Violations and penalties are addressed, including fines and community service. Repeal of inconsistent ordinances, effective date, and severability are also provided for.

Other ordinances that are viewed as complementing a septic management ordinance are discussed and availability through ANJEC of other model ordinances is offered.

Other complementary ordinances are suggested on the topics of:

- Aquifer Recharge Area Protection
- Clustering
- Floodplain Protection
- Impervious cover
- Limestone Protection
- Lot size Averaging
- Septic system Design (stricter than minimum state standards)
- Shade Tree Protection
- Steep Slopes
- Stormwater Management
- Stream Corridor Protection
- Usable Lot Area
- Wellhead Protection

Municipal Options for Stormwater Management

Publication Date: 2001 12 pgs.

Source: Association of New Jersey Environmental Commissions

Conclusion: This brief, twelve page document provides a good general basis for understanding stormwater at the municipal level. Due to its publication date, specific guidance in compliance with the recently adopted NJDEP stormwater rules is not present. However, the document was produced in anticipation of the regulatory changes and provides sound general guidance for compliance as well as a general understanding of the issues involved. Thus, the document has considerable value. It should be required reading for those involved in the efforts to comply with the recently adopted NJDEP rules.

Contents:

A brief introductory essay on "What is Stormwater" is provided that discusses stormwater run-off under natural conditions. Changes resulting from the imposition of impervious cover are discussed. A useful comparison of changes in run-off under natural conditions and those resulting from developing high levels (75-100%) of impervious cover is provided.

The section entitled "*Why Worry About Stormwater Runoff*" (p.2) focuses primarily on water quality problems resulting from non-point pollution carried by runoff. It does not, however, deal with specific issues relating to flooding, channel alteration, or reductions in ground water recharge related to increases in runoff from impervious surfaces. The reader is advised to consult other more recent sources for information on these issues.

Non-point pollution parameters discussed include:

- Nutrients (especially nitrogen and phosphorous)
- Pathogens (bacterial and viruses, especially fecal coliform bacteria)
- Sediment
- Toxic Contaminants (including heavy metals and pesticides)
- Debris
- Thermal Stress

All of these factors are known to be problems in the Raritan Basin, with particular emphasis on nutrients, pathogens, sediment and thermal stress. A basic understanding of these relevant issues is imparted by the document.

The section entitled "*What Can and should Municipalities Do? Plan to Protect Water Quality,*" (p.3) emphasizes the relationship between local land use decisions and both the quality and quantity of stormwater run-off. Although, due to the date of publication, the discussion precedes more recent regulatory efforts to control stormwater, the general discussion is of value and provides important insights in how to craft a Stormwater Management Plan.

Addressing the issue of stormwater through the Municipal Master Planning is presented as the first step recommended. Specific authorization in the Municipal Land Use Law is cited. The use of a greenway plan to protect water bodies is specifically recommended as a component of the Master Plan. The importance of basing the Master Plan on the physical characteristics of the municipality is stressed. The use of an Environmental Resources Inventory (ERI) is viewed as essential to this process. The development and incorporation of a stormwater management plan into the Master Plan is specifically recommended. This plan should be watershed based and may involve the cooperation of upstream and downstream municipalities.

The specific contents of a stormwater plan are discussed. Identification, using Environmental Resource Inventory (ERI) data of “*Natural Stormwater Management Areas*” (floodplains, wetlands and steep slopes) is recommended. A box on p. 4 highlights the importance of each of these features in addition to ground water recharge areas and stream headwater areas.

Identification of each waterway’s watershed area and a description of its land use, topography, and soils are seen as important required elements. Assessments of the hydrology and hydraulics of each watershed are recommended and the importance of compiling “baseline documentation” against which future monitoring can be based is stressed.

Identification and prioritization of existing stormwater problems is recommended to guide future corrective actions and to obtain funding in an orderly manner. A map of existing stormwater infrastructure is recommended. A maintenance schedule to include street sweeping, and cleanout of stormwater catch basins is recommended. The plan should also include the recommendation for the development of a specific stormwater ordinance. Additional guidance on this issue is provided on p.5 and should be used primarily as background reading for the development of the ordinance required by the recently enacted Stormwater Rules.

Finally, the plan should include a public education component to educate the public in its role in preventing of non-point pollution.

“*What Else Can Municipalities Do? Zoning and Land Use Ordinances*” explores the relationships between various zoning techniques and protecting water resources. Specific mechanisms addressed include:

- Impervious cover limitations
- Large-lot zoning
- Lot-size averaging
- Open space/cluster
- Planned Unit Development (PUD)
- Noncontiguous cluster
- Overlay zoning

Beyond zoning, the specific contents of site plan and subdivision regulations are seen as important tools for stormwater management. Primary emphasis is placed on the Stormwater Ordinance that is discussed in terms of “Principals”, “Standards”, Maintenance Requirements”, and “Best Management Practices”.

A two-page (p7-8) presentation deals with some best management techniques (BMPs). Both non-structural and structural techniques are discussed. Non-structural techniques include dispersion filtration, retention of natural vegetation, and stream buffers. Structural elements include bio-retention systems, infiltration techniques, dry wells, enhanced swales, pervious pavement, and sand filters. Generally, this discussion is valuable but the reader should consult the most recent version of the N.J. Stormwater Best Management Practices Manual (includes a model ordinance) and other more in depth publications on the subject currently available.

Other ordinances relating to the issue of stormwater management are also discussed. These include:

- Critical Area Ordinances
- Aquifer Recharge Ordinances
- Impervious Cover Requirements
- Lot Grading
- “Pooper Scooper” Ordinances
- Setback Requirements
- Shade Tree Protection Ordinances
- Soil Movement Ordinances
- Steep Slope Protection Ordinances
- Stream or Riparian Corridor Ordinances
- Usable Yard or Lot Area Ordinances
- Wellhead Protection Ordinances

All of these techniques are recognized as potentially effective in addressing stormwater related issues and should be investigated for municipal implementation.

In the section *“What Else Can Municipalities Do? Retrofit/Redevelopment”*, the importance of fixing existing stormwater problems and applying new techniques to redevelopment projects is discussed including: retrofitting catch basins, installation of water quality treatment catch basins, employing sand filters, using constructed wetlands, changing riser pipe configurations, trash rack installation, converting impervious surfaces to more pervious conditions, use of “sunken islands” in parking areas, use of dry wells, shade tree planting, and tree planting. Streambank stabilization is briefly touched upon in this section.

The section *“EPA Phase II Stormwater Permits”* discusses the pending (at date of publication) DEP stormwater regulations and their relationship to the EPA stormwater requirements for municipalities, large public complexes and highway agencies. The contents of the DEP regulations are discussed in general terms. More recent information from the Department and EPA is more applicable.

The section entitled *“Municipal Opportunities”* introduces the reader to the availability of non-point pollution educational materials from the Nonpoint Education for Municipal Officials (NEMO) program developed by the Connecticut Extension Service. These materials have been adapted by ANJEC for New Jersey and were available at time of publication. Contact ANJEC for further information. The use of Integrated Pest Management (IPM) techniques is recommended to reduce non-point pollution from pesticides. Applicability includes municipal properties and schools. Schools are seen as an important educational resource and can serve as models for application of non-point pollution techniques.

Finally, the document includes a valuable *“List of Useful References”* (p.11) and a list of other sources of information (p. 12)