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pg. 10
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Environmental factors and planning.
a brief review of selected state
documents

pg. 7
(double-sided)

Ringwood's designation under the
state development guide plans

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ENVIRONMENTAL FACTORS AND PLANNING:
A BRIEF REVIEW OF SELECTED STATE DOCUMENTS

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December 15, 1983

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ENVIRONMENTAL FACTORS AND PLANNING:

A BRIEF REVIEW OF SELECTED STATE DOCUMENTS

Outline

1. Introduction
2. Northeast New Jersey Water Quality Management Plan
- 3« New Jersey Stormwater Quantity/Quality Management Manual
4. State Development Guide Plan
- 5» Discussion -
6. References Cited

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1. Introduction

In the revised draft of the State Development Guide Plan issued by **the** New Jersey Department of Community Affairs (1980), recommendations were made about where future development and conservation efforts in the state should be concentrated. These recommendations are embodied both in policies which provide environmental and developmental guidelines, and in generalized concept maps which delineate areas of the state where growth should be either encouraged, delayed for some time, or discouraged.

The entire borough of Ringwood is designated on the concept maps as a Conservation Area, which means that the state is recommending that growth in this area be discouraged. Therefore, the purpose of this report is to summarize some of the physical-environmental factors that are important in the Conservation Area designation, and also to show how other state documents support the general goals of the State Development Guide Plan.

2. Northeast New Jersey Water Quality Management Plan

The Northeast New Jersey Water Quality Management Plan (hereinafter called the Plan) was prepared by the New Jersey Department of Environmental Protection (NJDEP) in 1979, adopted by the State on March 12, 1980 and approved by Region 2 of the U.S. Environmental Protection Agency (EPA) in April, 1980. The Plan was prepared under Sections 208 and 303(e) of the Federal Water Pollution Control Act Amendments of 1972 and 1977.

The Plan is a voluminous document, consisting of 576 pages of text, tables and figures. The protection and management of environmentally sensitive areas is a major component of the Plan. The document recognizes that certain lands have a more direct relationship with water resources than other lands. These lands may have substantial development constraints because of physical and hydrological factors. Unrestricted development of these lands can result in intensified water quality problems. In short, NJDEP (1979) has identified several environmental factors which should receive special attention in any local or regional land use decision-making process.

A partial list of these environmental factors includes the following:

- a. Wetlands; are those areas where the water table

is close enough to the ground surface to normally support vegetation which can exist under saturated soil conditions.

Wetlands provide (NJDEP, 1979, p. IV-56):

" . . . natural flood control, recharge of aquiferst natural purification of waters, stabilization of stream flow, and habitats for a diversity of terrestrial and aquatic wildlife. Wetlands act as sediment and pollutant traps, and remove nutrients from water under certain conditions."

Wetlands in Ringwood have been delineated on a map prepared by Kasler & Associates (1981) at a scale of 1" = 1200'.

b. Stream Corridors: are located along streams and form buffers against water pollutants. Riparian vegetation acts as a filter for overland runoff entering a stream and also maintains cooler water temperatures by providing shade. Disturbance of the vegetation along stream corridors can result in sedimentation from accelerated bank erosion.

Stream corridors should be left in their natural vegetated condition as much as possible. Buffer strip widths of at least 50 - 100 feet are recommended.

c. Headwater Areas; are land areas which drain into ephemeral and intermittent streams. As defined by NJDEP (1979), ephemeral streams carry water only during and immediately following a period of rain. Intermittent streams

are defined by NJDEP (1979) as streams with a Q7-10 low flow of less than 0.1 ft.³/second. Note: the Q7-10 value is the flow in a stream which is expected for seven consecutive days with a recurrence interval of 10 years. It is a very low discharge value and is generally exceeded 99 per cent of the time.

A broader and less restrictive definition of headwater areas is provided in the revised Glossary of Geology (Bates & Jackson, 198C) which simply includes the upper part of a drainage basin. In the latter instance, all of Ringwood is located within a headwater area. Most of Ringwood drains into Wanaque Reservoir while the southeastern section drains into the Wanaque River and then the Passaic River which is used downstream as a source for public potable water supply. Thus, all of Ringwood drains the upper portions of watersheds which are used by the North Jersey District Water Supply Commission and the Passaic Valley Water Commission at Little Falls for public potable water supply purposes.

In any event, improper development in headwater areas can result in substantial local and regional water quality impacts. For example, (NJDEF, 1979, p. IV-5?):

"At a local scale, development in headwater areas can result in contaminated runoff entering streams which have little or no capacity to assimilate the polluted runoff. The impervious cover associated with develop-

ment can result in increased runoff and decreased ground water recharge, and thus, a reduction in base flow. A reduction in base flow effectively reduces stream assimilative capacity."

"At a watershed scale, downstream reaches can be significantly degraded by the cumulative contribution of contaminated headwater streams. Good water quality downstream is highly dependent on headwater areas supplying adequate amounts of unpolluted water."

<* Steep Slopes; refer to the vertical change in elevation per horizontal distance. Slopes of 12 percent or greater are potentially unstable. Developments on steep slopes can result in accelerated erosion and sedimentation, increased runoff, and flooding. Large areas of Ringwood have slopes of 15 percent or greater, as shown in a map prepared by Kasler and Associates (1981) at a scale of 1" = 1200..

e. Woodlands: are forested areas generally larger than 20 contiguous acres, as defined by KJDEP (1979). Woodlands provide environmental benefits as they retard runoff, minimize erosion, and filter out pollutants "before they can reach ground or surface waters. Woodlands are often associated with other natural features of the landscape, such as steep slopes, stream banks, and wetlands.

3. New Jersey Stormwater Quantity/Quality Management Manual

Stormwater runoff from developed areas has "been recognized by many agencies as a major water quality problem. Since a large portion of the damage to stream beds and water quality occurs in suburbanizing watersheds, it is considered more efficient and cost-effective to work on preventive measures for developing areas rather than rely on expensive remedial controls after the damage is done. Consequently, a Stormwater Quantity/Quality Management Manual (hereinafter called the Stormwater Manual) was prepared by the Delaware Valley Regional Planning Commission for use by NJDEP (1981).

Many of the recommendations contained in the Stormwater Manual pertain to land use management practices. These practices included recommendations to plan growth to protect clean water and also to limit development affecting sensitive hydrologic areas (water supply sources, wetlands, woodlands, and stream buffer zones). The land use management practices can be categorized as follows (NJDEP, 1981):

- a. Establish regional and local growth policies: this implies an evaluation of growth limits and population shifts between developing areas which can result in better water quality protection. Note that total pollutant loads consist of both point and non-point sources.

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b. Plan open space and rural land uses* providing for ample open space and protection of rural lands leads to higher levels of water quality protection.

c. Protect water supply watersheds: a variety of pollutants contained in urban runoff (heavy metals, nutrients, and hydrocarbons) can seriously degrade streams and reservoirs. Conventional water supply treatment processes do not completely remove many of these pollutants and in certain cases may even make things worse. For example, disinfecting with chlorine may result in the creation of chlorinated hydrocarbons.

NJDEP (1981) recommends that major growth be directed away from water supply watersheds in order to insure proper protection.

d. Preserve wetlands; improper development in upland areas can result in large amounts of nutrients and sediment being transported to wetlands. Protection is needed to guard against potential eutrophication and siltation.

e. Preserve woodlands? areas left in woods can reduce the impact of flooding and limit erosion and siltation. In this context, cluster developments may be beneficial since smaller amounts of land are disturbed.

f. Preserve • stream buffer zones; the adverse impacts of urban development can be mitigated by maintaining vegetated corridors along the streams. Where appropriate, adjacent areas with steep slopes and woodlands should be included in the buffer zone.

V. State Development Guide Plan

The revised State Development Guide Plan is a generalized policy guide which recommends where future development and conservation efforts in New Jersey should be concentrated. The Guide Plan makes recommendations where growth-inducing developments, such as highways and water and sewer infrastructure should or should not be made.

The entire borough of Ringwood falls within the Conservation Area on the concept maps contained in the Guide Plan. Conservation Areas meet the following criteria:

- a. Low density development with minimal public water and sewer infrastructure;
- b. large areas of environmentally-sensitive land proximate to existing public holdings;
- c. limited accessibility from population and employment centers by major road and rail facilities.

In essence, the concept of Conservation Areas implies the recognition of the need to protect wetlands, steep slopes,

stream corridors and other environmentally critical areas from improper development.

5» Discussion

Management of environmentally sensitive lands requires a combination of local and state involvement. Local involvement is necessary inasmuch as land use regulation rests mainly with the municipality. Furthermore, the Municipal Land Use Law requires municipalities to take environmental factors into account in the preparation of master plans.

Knowledge of environmental features in a municipality along with socio-economic information facilitates effective master planning. Environmentally-based master planning can identify areas where development could cause substantial water quality problems. On the other hand, areas could be identified where development could occur because of more favorable environmental conditions.

Ringwood occupies that part of New Jersey where environmentally-sensitive lands (steep slopes, severe limitations for onsite septic systems, etc.) predominate. It is only reasonable and good planning, therefore, that this environmental information be included in the zoning process.

6. References Cited

1. Bates, R.L. and Jackson, J.A. (eds.)» Glossary of Geology. Falls Church, Va.: American Geological Institute, 2nd ed., 1980, 7[^]9 PP«
2. Kasler, Malcolm. Ringwood Borough Master Plan. Report prepared for Ringwood Borough by Malcolm Kasler & Associates, Hackensack, N.J., 1981, 104 pp.
- 3« New Jersey Department of Community Affairs. State Development Guide Plan. Revised Draft. 1980, 179 PP.
4. New Jersey Department of Environmental Protection. Northeast New Jersey Water Quality Management Plan. 1979, 576 pp.
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RINGWOOD'S DESIGNATION UNDER THE
STATE DEVELOPMENT GUIDE PLAN

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5. Conclusion

Ringwood occupies that part of New Jersey where environmentally-sensitive lands (steep slopes, severe limitations for onsite septic systems, etc.) predominate. Therefore, based on the physical-environmental factors present in Ringwood, the State Development Guide Plan designation of Conservation Area for Ringwood is reasonable.

6. References Cited

1. Bates, R.L. and Jackson J.A. (eds.). Glossary of Geology. Falls Church, Va.: American Geological Institute, 2nd ed. , 1980, 749 pp.
2. Kasler, Malcolm. Ringwood Borough Master Plan. Report prepared for Ringwood Borough by Malcolm Kasler & Associates, Hackensack, N.J., 1981, 104 pp.
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