

MASTER PLAN

BOROUGH OF HOPATCONG

Most of this land is in the Rural Planning-Area (PA4) and Environmentally Sensitive Planning Area (PA5) in the State Development and Redevelopment Plan which means that it is suitable only for limited development. Much of the undeveloped land in Hopatcong Borough is rocky, steep sloped with shallow or no soil coverage. There is little chance of substantial development given the present zoning and infrastructure. Lack of public sewage and potable water facilities makes development at densities suitable for low and moderate income housing, at the least, difficult to achieve.

RESOURCE ELEMENT

Introduction

This element of the master plan will explore ways in which the Borough may encourage economic quality of life.

Beginning in the early 1970's, the need for a reasonable basis for land use regulations was recognized. Prior to this point zoning was a matter of property value protection with little attention to the environmental consequences of the permitted development. Inappropriate development of environmentally sensitive land frequently resulted. As a result of this awareness, in 1974 the Borough prepared a Natural Resource Inventory and Assessment. This document reviews the natural resource base of the Borough and assess its ability to sustain development.

Geology

Natural resources are the single most important determinants of appropriate development feasibility. The following discussion will highlight the geology, topography, hydrology, soils, and vegetation of Hopatcong.

The Borough of Hopatcong lies in the Reading Prong of the New England Highlands physiographic province. This group of formations runs from the Connecticut-New York border to the vicinity of Reading, Pa. - hence its name. The Highlands are generally broad, high ridges which are composed of a Precambrian Rock which has been folded and through which faults run. These ridges are separated generally by deep, fairly narrow valleys. Hopatcong is located on one of the broad ridges bounded by the Lubbers Run Valley to the northwest and on the southeast by the valley filled by Lake Hopatcong.

Several different formations are associated with the province. Those found in Hopatcong are described below and shown on Exhibit 3.

Precambrian Crystallines (PC) - These rocks, the oldest known in this area (1.5 to 2 billion years old), are dense granites and gneisses. The rock is between 1,000 and 1,500 feet in depth, in layers of 0.5 to 4 inches thick. The rock exhibits no primary porosity, which means that there is no internal water storage. Nearly all the available water is found in faults and Fractures of the rock.

TOPOGRAPHY

It is obvious that the rise and fall of land has an impact on its eventual use. Even farming, traditionally considered a low intensity use, employs protective techniques (e.g. contour plowing) to accommodate slopes.

Relief runs from zero (flat) to one hundred percent, a 45 degree angle. It is calculated as rise over run (e.g. a ten foot rise in 100 feet = 10% slope). In Hopatcong, there are examples across this spectrum and beyond (some near vertical walls of mined areas).

Topographic areas of critical concern are those which are flat or show strong slopes, (in excess of 15%). Areas which are very flat in the Borough generally tend to be wet, lying within either flood plain or wetlands areas. These areas must be protected as they are directly connected to the subsurface water supplies upon which Hopatcong depends. Areas of thin soil are generally found where slopes are in excess of fifteen (15%) percent, and undergo greater disturbance from development than do slopes of lesser degree.

Hydrology

The hydrologic character of many areas has been severely affected by development. The structure of water is such that it does not compress. In other words, if water is diverted or its passage altered, there will be a direct effect. Of primary concern here is drainage and aquifer recharge. Where runoff is rerouted through drainage, its velocity and scouring effects are increased.

Development, wherever it occurs, has a direct effect on hydrology, in constructing buildings, paving roads and driveways, or removing vegetation. Development causes an increase in total value as an increase in the rate of discharge of storm waters from any given site. Additionally, with the best and most advanced soil erosion and sediment control provisions in place, there is still a loss of soil which translates not only into a loss of fertility of the area directly affected, but may result in pollution of downstream water bodies.

Where rain or snow is prevented from infiltrating the soil, it adds to the above effects and decreases the amount available for recharge of subsurface water supplies. The Borough is totally dependent on such supplies. It is accordingly necessary, as indicated in the public utilities portion of this document, that storm water management be improved in order that future development does not exacerbate current problems, and also that steps may be taken to ameliorate current drainage and pollution concerns. The Borough continues to investigate outside sources of funding in order to pursue this objective. It also has adopted a Flood Plain Management Ordinance, and may consider other municipal actions.

To the maximum extent possible, development should not be permitted which would have a substantially adverse impact on aquifer recharge areas, nor should developed areas alter drainage flow rates to the detriment of upstream or downstream areas.

Although it is extremely difficult to locate faults with accuracy in the Pre-Cambrian Crystalline Rock (characteristic of Hopatcong), these areas are vulnerable to pollution and should be avoided and protected whenever encountered. The Valley Bottom is also an area where particular care should be taken to avoid development which could affect aquifer recharge. Development should not alter drainage flow rates to the detriment of upstream or downstream areas as this has a dramatic effect on the quality of water entering the various surface water bodies in the Borough. As discussed above, appropriate municipal action may be undertaken.

Slope and Ridgetop Community

A significant percentage of Hopatcong is steeply sloping, rock outcrops and ridge tops; this last community is perhaps most representative of the area. These areas are drier than the me sic uplands for two reasons:

- a. Runoff is more rapid at a steeper slope and that which does penetrate through this soil will evaporate more quickly due to exposure to wind and sun.
- b. The soils themselves are thin and do not hold water well. As a result of these characteristics, this is a harsh, infertile environment.

RECOMMENDATIONS FOR RESOURCE PROTECTION

The Natural Resource Element indicates areas of concern both to the Borough and its developers. In order to provide a clear set of guidelines, the following areas should be classified as critical and their use strictly controlled:

1. Surface water -Streams, ponds, lakes, etc.
2. Aquifer recharge areas - areas where ground water is replenished from surface sources.
3. Wetlands - Those areas with a seasonal high water table at or within two feet of the surface.
4. Areas of Seasonal High Water Table (not wetlands) -Water table between 2' to 4' from the surface as indicated by mottling or other physical evidence.
5. Steep Slopes - Slopes in excess of 25% and severely erodable soils at any grade.
6. Very Shallow Soils - Soils of a depth of less than 3 feet.
7. Endangered Vegetation and Wildlife.

How can these critical areas be protected from inappropriate development and at the same time permit a reasonable use of the land? The most generally utilized and legally acceptable in New Jersey is the method of calculation of General Capacity within a particular zone.