

## **6.0 Section Environmental Impact Statement**

### **6.1 Purpose:**

The developer is required to submit an environmental impact statement. The purpose of this statement is two-fold. First, the information gathered in this statement is intended to alert the developer to the possible adverse effects the subdivision may create on the environmental resources near the development site. Second, the purpose is to provide town officials with sufficient information on the impact the development will have on town services and resources in order that the town can plan to meet these needs. In reviewing the statement, it is the intent of the Board to use the information concerning the impact of the development on town resources for the purposes of accepting or rejecting the Definitive Plan.

The Board may waive the requirement for the submission of any section or sections of the statement, which it deems inappropriate to the proposed development. It is suggested that the developer discuss the requirements with the Board at the time of the submission of a Preliminary Plan. The statement should be to the greatest extent possible a technical rather than a subjective document. References and calculations shall be submitted with the plan and the statement itself shall include the following elements unless waived by the Board.

### **6.2 Soils**

Provide a general description of soils on the site. Provide information on erosion and the suitability of the soils. Provide information on the suitability of soils for flooding infiltration at such location(s) as the Board, Board of Health, or Conservation Commission may require. The Board may utilize the service(s) of the Soil Conservation Service or its consulting engineer to determine the same, and may apply to some or all of the cost of such services to the Applicant.

#### **a. Sub-Surface Conditions**

- 1) Indicate the depth to bedrock and the location of bedrock outcropping.
- 2) Indicate whether the site is located on an aquifer and note its approximate yield and/or saturated thickness. Also note the location of any recharge areas.
- 3) Describe any potential limitations to the proposed project that might be imposed by sub-surface soil and water conditions.
- 4) Evaluate the possible impact of sewage disposal methods on the quality of sub-surface water. A determination of nutrient loading lie within the watershed or zone of contribution of a public water supply well(s), either existing or proposed. It shall be the responsibility of the Applicant, with written conformation from the Water Supplying Agency, to determine whether the plan for subdivision falls, partially or totally, within an existing or proposed public water supply well(s), watershed or zone of contribution.

#### **b) Nutrient Loading**

Determination of nutrient loading shall be done using available loading estimates from the local Board of Health, State or Federal performance standards (whichever is the more restrictive) and shall include, at a minimum:

- 1) The existing condition of the water body or water supply, including physical characteristics;
- 2) The expected change in the condition of the water body or water supply as a result of the proposed development;
- 3) The comparison, on a per acre basis, of the total nutrient loading from the proposed development with:

- a. The loading rate which would be expected to produce critical eutrophic levels in a water body, or in the case of water supply, the loading rate which would produce nitrate-nitrogen levels in excess of five (5) parts per million, /or;

- b. The loading rate of those contaminants, which the Planning Board and Board of Health may necessarily require but which are only provided by the State of Massachusetts Listing of Primary Maximum Allowable Contaminant Levels in Water.

- 4) The proposal of measures to mitigate and reduce the nutrient loading if (3) above indicated that the per acre loading rate from the proposed development equals or exceeds the critical loading rate when combined with the existing and potential development within the recharge area. For these purposes, the following standards shall apply, unless petitioner demonstrates to the Planning Board with concurrence from the Board of Health, that other standards are appropriate for this project:

- a. Loading per person:

- 5lbs. Nitrogen/person/year;
- .25 lbs. Phosphorus/person/year for those sewage disposal systems within two hundred (200) feet of any body of water at the highest water mark;
- three persons per dwelling unit, and one dwelling unit per each forty thousand (40,000) square feet of buildable lot area, unless and until public sewer is made available to each lot and connected.

- b. Loading from lawn fertilizers:

\*3 lbs. Nitrogen per one thousand (1,000) square feet of lawn/year;

- c. Loading from street runoff:

\*, 19lbs. nitrogen per lineal mile/one way/day;

\*, 15 lbs. Phosphorus per lineal mile/one way/day.

- d. Critical eutrophic levels in fresh water concentration for total phosphorus = .02.mg/liter.

- e. Critical level for drinking water = 5 ppm, or 16.0 lbs./year, whichever is less.

The formula for estimating the average nitrate concentration appears below:

$$\frac{N \text{ (lbs./year)} = N \text{ (lbs.)} \times 454,000 \text{ (mg/lb.)}}{R \text{ (gal./year)} \times 3.8 \text{ (1/gal.)}}$$

N=Total nitrogen load in pounds from septic tank effluent and lawn fertilizer sources.

454,000=conversion factor from milligrams to pounds.

R=precipitation that recharge the groundwater (or 16" /year/acre).

3.8= conversion factor from liters to gallons.

### **6.3 Water Supply**

Describe the source(s) of water supply that will be used to service the subdivision. Estimate what the daily average and the summer peak daily average demand will be for the proposed subdivision when completed. Perform fire flow tests on the water system to ensure adequate fire protection. Proposed mitigation: A mitigation plan shall be submitted to the Board, Fire Chief, and water supplying district, outlining improvements to the water system in order to provide adequate fire protection.

### **6.4 Solid Waste**

Estimate the amount and type of solid waste that will be generated by the subdivision per year. Indicate the most likely means of disposal and the probable disposal site(s).

### **6.5 Transportation**

List and indicate on a locus map of a scale of one-inch equals four hundred feet (1"= 400') any regional and local highway arteries that will provide service to the subdivision. Where information is available, indicate the theoretical capacity (vehicles per hour) and the present usage (average vehicle per hour and average rush hour vehicles per hour) for these arteries. Describe and locate any mass transit facilities that will service the subdivision. Estimate the traffic generation rate from the subdivision. (Average vehicles per hour and average rush hour vehicles per hour).

#### **a. Traffic Impact**

A detailed traffic impact analysis shall be submitted for any application for subdivision approval.

1. In determining traffic generation under this provision, the data contained in the most recent edition of "The Institute of Transportation Engineers" publication "Trip Generation" shall be used.

2. A registered professional engineer experienced and qualified in traffic engineering shall prepare the traffic impact analysis.

#### **b. Scope of Traffic Impact Study:**

1. Existing traffic conditions: Average daily and peak hour volumes, average and peak speeds, sight distances, accident data for the previous three years, and levels of service (LOS) of intersections and streets affected by the proposed development. Generally, such data shall be presented for all streets and intersections adjacent to or within 1000 feet of the project boundaries,

and shall be no more than 12 months old at the date of the application, unless the Board specifically approves other data.

2. Projected traffic conditions for completion of the subdivision: year 100 percent occupancy, average annual background traffic growth, impacts of proposed developments which have already been approved or are pending before the Board.

3. Projected impact of proposed development: Projected peak hour and daily traffic generated by the development on roads and ways in the vicinity of the development; sight lines at the intersections of the proposed streets; sight lines of existing intersections; condition of existing streets, and projected post development traffic volumes and levels of service of intersections and streets likely to be affected by the proposed development (as defined in above).

4. Proposed mitigation: A plan to minimize traffic and safety impacts through such means as physical design and layout concepts, roadway and intersection improvements, drainage improvements, pedestrian and bicycle facility improvements. Measures shall be proposed to achieve the following post-development standards: All streets and intersections impacted shall be brought into compliance with the Board Rules and Regulations as most practicable.

## **6.6 Air Pollution**

If the proposed development contains large air pollution generators such as incinerators, power plants, industrial or commercial heating units, industrial processing units, large parking areas or traffic generation, the developer may be required to submit the following:

- a) Where available, describe the daily average, eight (8) hour average and maximum one (1) hour concentration of air pollutants in the development site area. Include the following pollutants: sulfur dioxide, particulate, carbon monoxide, photochemical oxidants and hydrocarbons.
- b) Where information is available, note the standards, which have been violated for the parameters listed above.
- c) Estimate for the appropriate parameters the generation rates from those components of the development identified as large pollution generators.

## **6.7 Noise Pollution**

For developments judged to have the potential for a large noise pollution impact the following information may be required:

- a) Provide information on the ambient noise level at the site.
- b) Estimate the potential increment caused by the development on the ambient noise level.

## **6.8 Social Environment**

1. Schools: Estimate the probable number of pupils by type of school that will be generated by the subdivision.

2. Health Services: Comment on the overall age structure of the inhabitants of the subdivision and whether any particular services may be demanded.

3. Recreational Facilities: Indicate whether the subdivision will include any recreational facilities. Note the type of facility and intended usage group.

## **6.9 Impacts and Conflicts**

- For the elements above which been addressed, indicate where significant impacts may be imposed on the environment at the development site. Specify the source, severity and duration of each of the possible impacts. Discuss any action or alternatives that will be undertaken or investigated to ameliorate the environmental damage. Indicate further whether any significant conflicts or impacts with the Town's infrastructure, social structure or environment have been identified.
- Indicate whether any modifications may be undertaken in the subdivision plan to lessen these potential town wide conflicts. This town wide information is requested for community planning purposes in order to better anticipate and provide for demands created on Town services. This information may be used as a basis for accepting or rejecting the Definitive Plan.