

The Wareham Sensitive Coastal Embayment Nitrogen Management Overlay Districts

A sample Zoning Bylaw prepared by the Buzzards Bay Project National Estuary Program
at the request of the Planning Board

June 27, 2006

This bylaw has not been adopted.

Background

The division and development of land for residential and non-residential development leads to numerous quantifiable impacts to drinking, fresh and coastal water quality. Four major watersheds in the town of Wareham, surrounding the coastal estuarine waters known as the Weweantic River, Onset Bay, Buttermilk Bay, and the Wareham River-Agawam River system, are already impaired or threatened by new nitrogen inputs associated with development. This water resource protection bylaw is intended to assist the Town of Wareham to protect the coastal water quality and living resources in these coastal embayments by establishing the Sensitive Coastal Embayment Nitrogen Management Overlay District (NMOD). This bylaw will lead to the protection of coastal water quality and living resources by establishing estuary watershed boundaries and standards for the purposes of regulations promulgated by the Planning Board, Conservation Commission, and Board of Health.

1.0 Purpose and Intent:

It is the purpose of this section to protect the coastal water quality and living resources in these coastal embayments of the Town of Wareham by establishing the Sensitive Coastal Embayment Nitrogen Management Overlay District (NMOD). This section will protect coastal water quality and living resources by establishing estuary watershed boundaries and nitrogen loading standards for those watersheds to enable the Town of Wareham to manage nitrogen discharges from new and existing development. Because the Wareham-Agawam River system and Weweantic River systems are already impaired by excessive nitrogen, and in light of the fact that the Massachusetts Department of Environmental Protection Massachusetts Estuaries Project is, during the next five years, developing recommended total maximum nitrogen loads for each of these coastal embayments, this bylaw shall adopt an interim standard of 7.9 pounds per acre of nitrogen for the lower portions of each watershed and 11.3 pounds per acre of nitrogen for the upper portions of each watershed using the nitrogen loading approach described in section 8.2(b). This dual system of loading has been adopted as recognition that development closer to surface waters and the coast contribute somewhat greater amounts of nitrogen than sources more distant to coastal waters due to small losses of nitrogen within ground water and intercepting wetlands.

[Chuck-it might be appropriate to adopt interim standards for only Weweantic and Wareham-Agawam systems because these are clearly impaired. Interim standards for Onset Bay and Buttermilk Bay watersheds could be different.]

The intent of this section is to

- (a) manage nitrogen inputs to protect public health, water quality, and the welfare of the residents of the Town of Wareham through the preservation of the Wareham's groundwater and surface water resources;
- (b) identify uses that are prohibited or allowed only by special permit within the designated NMOD;
- (c) protect groundwater and surface water resources from nitrogen contamination and pollution from surface and groundwater discharges of nitrogen; and
- (d) protect other sensitive water resource areas, including those land areas that contribute

recharge to private drinking water supply wells from excess nitrogen inputs.

2.0 Definitions

For the purpose of this section, the following definitions shall apply:

- 2.1. Estuary Watershed: The geographic area of surrounding an estuary that contributes fresh water to the estuary via surface water and ground water.
- 2.2 "Nitrogen Management Overlay District" means those land areas designated on the map titled **“Wareham Sensitive Coastal Embayment Nitrogen Management Overlay District ”** dated July xx, 2006 adopted pursuant to this bylaw that define the boundaries of this watershed. *[The overlay district is composed of two areas: Nitrogen Zone A (Lower Watershed), an area within 1000 meters of surface waters and streams directly discharging to the Wareham River Agawam River estuary system and terminating at dams and water reservoirs, and Nitrogen Zone B,(Upper Watershed) excluding Nitrogen Zone A. Zone A is the low nitrogen attenuation zone, Zone B shall be defined as the nitrogen attenuation zone where natural losses of nitrogen in wetlands and groundwater may be credited.]*
- 2.3 "Best management practices" mean any structural or non structural mechanism designed to minimize the impact of nonpoint source pollution on receiving waters or resources, including, but not limited to: nitrogen removing wastewater disposal systems, stormwater treatment such as vegetative swales and buffers to remove nitrogen, fertilizer management, animal waste management, and public education programs.
- 2.4 "Development" means the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mine, excavation, landfill, or land disturbance; and/or any change in use, or alteration or extension of the use, of land.
- 2.5 "Lot" means either: (a) the basic development unit for determination of lot area, depth, and other dimensional variations; or (b) a parcel of land whose boundaries have been established by some legal instrument, such as a recorded deed or recorded plan, and is recognized as a separate legal entity for purposes of transfer of title.
- 2.6 "Nitrogen management" means the process of ensuring that nitrogen generated by land uses does not exceed established capacities of the resources receiving nitrogen inputs.
- 2.7 "Stormwater management" means the process of ensuring that the magnitude and frequency of stormwater runoff does not increase the hazards associated with flooding and that water quality is not compromised by untreated stormwater flow.
Commentary: If not properly managed, stormwater runoff can increase flood flows and can carry contaminants into groundwater and surface water systems, threatening receiving water quality and contributing to nitrogen loading.
- 2.9 “Cultivated lawns” means a vegetation cover of sod forming grass species, which is regularly fertilized, irrigated, and maintained at a height of four inches (4) or less, on an appropriate loam base.
- 2.10 “Impervious surface” means any area not vegetated.
- 2.11 “recharge area” means the area encompassing land and water surface through which precipitation enters the groundwater body, and from which groundwater flows naturally or is drawn by pumping out of a water well.

3.0 Applicability

All development located within the NMOD shall meet the requirements of this bylaw.

4.0 District Area

4.1 There is hereby established within the town a Sensitive Coastal Embayment Nitrogen Management Overlay District (NMOD) which is delineated on an overlay map, entitled " **Wareham Sensitive Coastal Embayment Nitrogen Management Overlay District** , July XX, 2006."

Commentary: The boundaries of the NMOD must be determined prior to adopting this bylaw.

4.2 Where the boundary line of the NMOD divides a lot, the requirements established by this bylaw shall apply only to the portion of the lot that is located within the NMOD.

5.0 Permitted Uses

Within the NMOD the requirements of the underlying districts continue to apply, except that uses listed in Section 6.0 are prohibited and all uses other than the activities of constructing, repairing, or maintaining any building or structure existing on the effective date of this section on lands located within an NMOD, provided that all contractors, subcontractors, laborers, material men, and their employees use those applicable Best Management Practices, as set forth in Exhibit B attached hereto and incorporated herein,

Commentary: Include in this section any exemptions from a special permit. Towns should tailor their own bylaw as appropriate.

6.0 Prohibited Uses

The following uses and activities shall be prohibited within the NMOD:

- (a) landfills, public or private and landfilling of sludge or septage as defined in 310 CMR 32.05;
- (b) sewage treatment facilities, public or private, with on-site disposal of effluent, unless tertiary treated and needed to remediate existing on-site contamination or to comply with loading limits specified by this bylaw;

Commentary: This Section allows towns to develop a list of prohibited uses and activities from within the NMOD.

7.0 Uses by Special Permit:

The following uses and activities located within an NMOD shall require a special permit from the Planning Board, in accordance with G.L. c. 40A §9:

- (a) all development activity, other than those permitted in Section 5.0, which are authorized in the underlying district and which are not otherwise prohibited by Section 6.0;
- (b) the construction of 5 or more dwelling units, whether on one or more contiguous lots, tracts, or parcels, or whether contained within one or more structures;
- (d) any nonresidential development of 40,000 square feet or greater in either lot size or gross floor area;
- (e) any construction that renders an area 10,000 square feet or greater of impervious surface;
- (f) any use which disposes of greater than 2,000 gallons per day of wastewater, unless connected to a public wastewater treatment facility;

Commentary: Section 7.0 establishes those uses and activities that will require a special permit in order to be located within an NMOD. The special permit approval procedure gives the town the opportunity to carefully review the proposed use or activity to ensure its appropriateness within the NMOD and to attach conditions, if necessary, to its approval. This list is provided for illustrative purposes only and should be altered to reflect local conditions and needs.

8.0 Criteria for Special Permit Approval; Design and Operating Guidelines:

8.1 No special permit shall be granted for a development, identified in Section 7.0 above, that does not, or after conditions are imposed, will not, comply with the requirements of this section. Therefore, as a condition of granting a special permit for uses and activities identified in Section 7.0 above, the Planning Board may require adherence to any or all of the following design and operation guidelines, where, in its opinion, such adherence would further the purposes of this section.

Commentary: Towns are encouraged to expand this Section to coincide with current "criteria for approval" sections within the zoning bylaws. For example, existing land-use regulations may already contain specific prerequisites for approval and findings of fact that must be made prior to the issuance of a special permit.

8.2 **Performance Standards:** Land uses and developments within the NMOD shall conform to the following performance standards for nitrogen management. These performance standards shall be considered as criteria for the grant of a special permit.

(a) No land use or development regulated by this section shall exceed a nitrogen loading limit of 7.9 pounds per acre in the Lower Watershed, or a nitrogen loading limit of 11.3 pounds per acre in the Upper Watershed, as per the loading coefficients in section 8.2(b) or as calculated in the Nitrogen Loading Worksheet (Exhibit A)

Commentary: This is the equivalent of nitrogen loading from residential development in land zoned at 3 acres with 3 person occupancy. Two acre zoning is the equivalent of 11.1 pounds per acre.

(b) For the purposes of calculating annual nitrogen generation, the following standards shall be used:

1. nitrogen from dwelling units that use septic systems shall be calculated at 5.94 pounds per person. Average occupancy shall be calculated at 3 persons per dwelling unit

Commentary: Higher occupancy rates could be included as a margin of safety, but higher acceptable loading rates may need to be considered.

2.. nitrogen from lawn fertilizers: shall be shall three pounds per unit for a typical 5,000 square foot lawn, or 26.14 pounds per acre for maintained turf.

Commentary: This is based on an assumed 20% leaching rate and an application rate of 130 lbs of N per acre.

3. natural landscapes: 0.15 pounds per acre

Commentary: Recharge from natural (undeveloped) land is assumed to be 18 inches per year (generalized throughout Cape Cod) and the recharge is assumed to have a concentration of 0.05 mg/l of nitrogen.

4. roads and ways: 13.6 pounds per acre

5. roofs and sidewalks: 6.5 pounds per acre

6. other land uses as allowed by zoning: [insert literature values, for wastewater facilities, multiply maximum allowed discharge volumes times permit limit for nitrogen concentration, for farm animals, multiply animal units times waste nitrogen concentrations reported by USDA]

Commentary: It is likely that some land uses and development proposals that contribute nitrogen to groundwater, not included in the listing above, may be proposed within an NMOD (e.g., a golf course). Evaluation of nitrogen inputs

from these uses should be evaluated based on existing literature, including work on file with the Buzzards Bay Project National Estuary Program, Cape Cod Commission, the Department of Environmental Protection, and the U.S. EPA.

9.0 Pre application Conference Requirement:

9.1 **Timing.** Prior to the submission of an application for a special permit under this section, the applicant is strongly encouraged to meet with the Planning Board at a public meeting to discuss the proposed development in general terms and establish the plan filing requirements. The Planning Board shall meet with an applicant within 21 days following a written request submitted to the Board and the Town Clerk. If the Planning Board fails to meet with an applicant who has requested such a meeting within 21 days of said request and said meeting has not been postponed due to mutual agreement, the applicant may proceed with a special permit application without need for a pre-application conference.

11.2 **Filing Requirements.** The purpose of the pre-application conference shall be to inform the Planning Board as to the preliminary nature of the proposed project, and, as such, no formal filings are required for the conference. However, the applicant is encouraged to prepare sufficient preliminary site design or engineering drawings to inform the Planning Board of the scale and overall design of the proposed project.

Commentary: The purpose of a pre-application conference is to give the special permit-granting authority advance notice of an application for development within the NMOD and remove some of the "pressure" that a Board may experience once a formal special permit has been applied for. The conference is further designed to educate both the special permit-granting authority and the applicant as to the project and the likely concerns it will raise. Since there are no formal filing requirements proposed in this model bylaw, towns may articulate their own specific filing requirements, although it is recommended that these requirements be kept to a minimum for this pre-filing phase. Those towns with site plan review or other local land-use regulations that require pre application meetings or conferences may wish to substitute the process described in this Section with their existing pre-application review regulations and are encouraged to combine the pre-application conference required by this bylaw with one that may also be required under another local regulation.

10.0 Special Permit Filing Requirements:

10.1 **Plan Filing Requirements.** Unless determined by the Planning Board at the pre-application conference that some of the following requirements are not necessary to reach a decision on the merits of the special permit application, the following plans/items shall be submitted for development within an NMOD. The applicant shall provide an analysis of the impact of the proposed development demonstrating compliance with the requirements of Section 8.2(b).

(Commentary: The plan filing requirements are intended to place an applicant for a special permit within an NMOD on notice as to what materials will be expected as part of the application. The requirements specified focus only on the two areas highlighted by this bylaw: stormwater and nitrogen management. Local governments should consider expanding this Section to encompass regulation of other areas of concern (e.g., see the Cape Cod Commission's hazardous materials/waste model regulation).

11.0 Nonconforming Uses

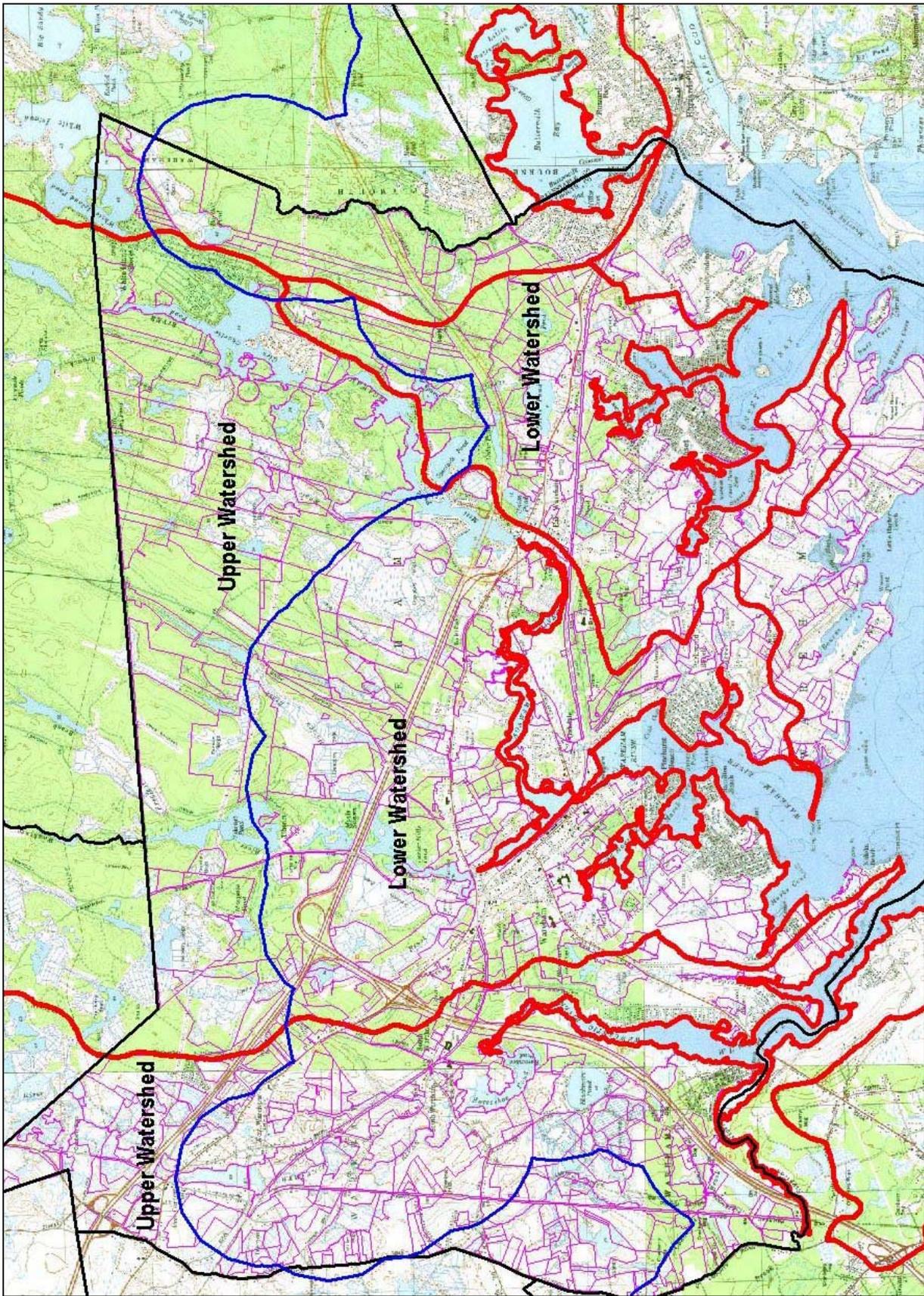
- 11.1 Nonconforming uses that were lawfully existing, begun or in receipt of a building or special permit prior to (the first publication of notice of public hearing for this bylaw) may be continued. Such nonconforming uses may be extended or altered, as specified in Massachusetts General Laws, Ch. 40a, Sec. 6, provided that there is a finding by the Planning Board that such change does not increase the danger of groundwater pollution from such use. Applicants shall follow procedures specified in Section 9 of this bylaw.
- 11.2 **Expansions, Alterations and Modifications.** The Planning Board shall be the special permit-granting authority for the purpose of this bylaw and shall be notified in writing prior to the expansion, alteration, or modification of a use or activity holding a special permit under this bylaw. Such expansion, alteration, or modification may result from increased square footage or increased sewage flow.

Commentary: This Section provides a list of important guidelines for both the special permit-granting authority and the applicant to consider for developments located within an NMOD. While these guidelines are directed at developments that will use hazardous materials or generate hazardous wastes, many are applicable to other types of developments that also require a special permit under this bylaw. For example, the special permit-granting authority may wish to require the installation of monitoring wells and may establish a monitoring schedule for certain large-scale developments within an NMOD, even those that may not use hazardous materials.

12.0 Severability

Any provision of this section or portion thereof, declared invalid shall not affect the validity or application of the remainder of said section or this zoning bylaw.

Commentary: This Section is a generic severability clause. Severability clauses are intended to allow a court to strike or delete portions of a regulation that it determines to violate state or federal law. In addition, the severability clause provides limited insurance that a court will not strike down the entire bylaw should it find one or two offending sections.



Wareham Sensitive Coastal Embayment Nitrogen Management Overlay District, July XX, 2006