**Model Water Supply Protection Zoning Bylaw**

*Prepared by the Pioneer Valley Planning Commission*

**1.0 Purpose of District**

 To promote the health, safety and welfare of the community by protecting and preserving the surface and groundwater resources of the Town and the region from any use of land or buildings which may reduce the quality and quantity of its water resources.

**1.1 Definitions**

 **Aquifer:** Geologic formation composed of rock or sand and gravel that contains significant amounts of potentially recoverable potable water.

 **Groundwater:** All water found beneath the surface of the ground.

 **Hazardous Waste:** A waste which is hazardous to human health or the environment. Hazardous wastes have been designated by the Regulations in 310 CMR 30.130 adopted pursuant to the Massachusetts Hazardous Waste Management Act, Massachusetts General Laws, Chapter 21C.

 **Impervious Surfaces:** Materials or structures on or above the ground that do not allow precipitation to infiltrate the underlying soil.

 **Primary Aquifer Recharge Area:** Areas which are underlain by surficial geologic deposits including glaciofluvial or lacustrine stratified drift deposits or alluvium or swamp deposits, and in which the prevailing direction of groundwater flow is toward public water supply wells or potential sites for such wells.

 **Secondary Aquifer Recharge Area:** Areas which are underlain by surficial geologic deposits including till or bedrock, and in which the prevailing direction of surface waterflow is toward public water supply wells or potential sites for such wells.

 **Toxic or Hazardous Material:** Any substance or mixture of physical, chemical, or infectious characteristics posing a significant, actual, or potential hazard to water supplies or other hazards to human health if such substance or mixture were discharged to land or water of the (Town/City) of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Toxic or hazardous materials include, without limitation, synthetic organic chemicals, petroleum products, heavy metals, radioactive or infectious wastes, acids and alkalis, and all substances defined as Toxic or Hazardous under Massachusetts General Laws (MGL) Chapter 21C and 21E and 310 CMR 30.00, and also include such products as solvents and thinners in quantities greater than normal household use.

 **Trucking Terminal:** Business which services or repairs commercial trucks which are not owned by the business.

 **Wastewater Treatment Works:** Any wastewater treatment plants or works, including community septic systems, which require a permit from the (State Agency).

 **Watershed:** Lands lying adjacent to water courses and surface water bodies which create the catchment or drainage areas of such water courses and bodies.

 **Zone I Recharge Area:**That circle of a 400-foot radius extending around the wellhead of a drinking water well with the wellhead at its center and including all land within the boundaries of said circle.

**Zone II Recharge Area:** Means that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield, with no recharge from precipitation). It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone II shall extend up gradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide a contact with till or bedrock, or a recharge boundary).

**1.2 Scope of Authority**

 The Water Supply Protection District is an overlay district and shall be superimposed on the other districts established by this bylaw. All regulations of the Town of \_\_\_\_\_\_\_\_\_\_\_\_\_ Zoning By-law applicable to such underlying districts shall remain in effect, except that where the Water Supply Protection District imposes additional regulations, such regulations shall prevail.

**1.3 District Delineation**

 1.3.1 The Water Supply Protection District is herein established to include all lands within the Town of \_\_\_\_\_\_\_\_\_, lying within the primary and secondary recharge areas of groundwater aquifers and watershed area of reservoirs which now or may in the future provide public water supply. The map entitled “Water Supply Protection District,” Town of \_\_\_\_\_\_\_, on file with the Town Clerk, delineates the boundaries of the district.

 1.3.2 Where the bounds delineated are in doubt or in dispute, the burden of proof shall be upon the owner(s) of the land in question to show where they should properly be located. At the request of the owner(s) the Town may engage a professional hydrogeologist to determine more accurately the location and extent of an aquifer or primary recharge area, and may charge the owner(s) for all or part of the cost of the investigation.

**1.4 Permitted Uses**

 The following uses are permitted within the Water Supply Protection District, provided that they comply with all applicable restrictions in this bylaw:

 1.4.1 Single family residences;

 1.4.2 Residential accessory uses, including garages, driveways, private roads, utility rights of way, and on-site wastewater disposal systems;

 1.4.3 Agricultural uses such as farming, grazing and horticulture;

 1.4.4 Forestry and nursery uses;

 1.4.5 Outdoor recreational uses, including fishing, boating, and play areas;

 1.4.6 Conservation of water, plants, and wildlife; wildlife management areas;

 1.4.7 Excavation for earth removal, provided that the requirements of Section 4.6 are met, and an earth removal permit is granted by the Board of Selectmen;

 1.4.8 Day care centers, family day care homes, and school age child care programs;

 1.4.9 Structures for educational or religious purposes.

**1.5 Prohibited Uses**

 The following uses are prohibited within the Water Supply Protection District:

 1.5.1 Business and industrial uses, not agricultural, which generate, treat, store, or dispose of hazardous wastes, including but not limited to metal or jewelry plating, chemical or plastics manufacturing, wood preserving, furniture stripping, dry cleaning, and auto body repair, photography laboratories, asphalt plants, hazardous materials processing or transfer, laboratory operations, machine shops, metal working, electronic components or semi-conductor manufacturing, except for the following:

(1) Very small quantity generators of hazardous waste, as defined by 310 CMR 30.00 as amended which generate less than 20 kilograms or 6 gallons of hazardous waster per month may be allowed by Special Permit in accordance with Section 4.8 of this bylaw;

(2) Household hazardous waste collection centers or events operated pursuant to 310 CMR 30.390 as amended;

(3) Waste oil retention facilities required by M.G. L. C.21, s.52A; and

(4) Treatment works for the remediation of contaminated water supplies, which are approved by Mass. Department of Environmental Protection and designed in accordance with 314 CMR 5.00 as amended.

 1.5.2 Business or industrial uses, not agricultural, which dispose of process wastewaters on-site;

 1.5.3 Motor vehicle and boat service and repair businesses, car washes, motor vehicle gasoline sales, automotive body and repair shops, commercial fuel oil storage and sales;

 1.5.4 Solid waste landfills, dumps, auto recycling, auto graveyards, junk and salvage yards, landfilling or storage of sludge and septage, with the exception of the disposal of brush or stumps;

 1.5.5 Storage of liquid petroleum products, except for the following:

(1) Storage which is incidental to:

(a) Normal household use, outdoor maintenance, or the heating of a structure;

(b) Emergency generators required by statute, rule or regulation;

(c) Waste oil retention facilities required by statute, rule, or regulation;

(d) Treatment works approved by the Massachusetts Department of Environmental Protection designed in accordance with 314 CMR 5.00 for the treatment of contaminated ground or surface waters provided that storage, listed in items 1-4 above, shall be in a free standing, above ground container within a structure or within the basement of a structure, with secondary containment adequate to contain a spill the size of the containers total storage capacity. The storage tank and piping must comply with all applicable provisions of 527 CMR 9.00 Massachusetts Board of Fire Prevention regulations.

(2) Replacement of storage tanks or systems for the keeping, dispensing or storing of gasoline, which existed the time of adoption of this bylaw, provided that:

(a) All such replacement storage tanks or systems shall be located underground as required by Mass. Board of Fire Prevention regulation 527 CMR 14;

(b) All such storage systems shall be protected by one of the secondary containment systems specified in Mass. Board of Fire Prevention regulations 527 CMR 9.08 (3);

(c) The head of the Fire Department may deny an application for tank replacement, or approve it subject to conditions if he or she determines that it constitutes a danger to public or private water supplies, in accordance with 527 CMR 9.26(4)(d).

Replacement of all other storage tanks for liquid petroleum products other than gasoline must be above ground.

 1.5.6 Outdoor storage of salt, de-icing materials, pesticides or herbicides;

 1.5.7 Dumping or disposal *of any hazardous material or hazardous waste* on the ground, in water bodies, in septic systems or in other drainage system. This shall include the use of septic system cleaners which contain toxic chemicals such as methylene chloride and 1-1-1 trichlorethane.

 1.5.8 Stockpiling and disposal of snow or ice removed from highways and streets located outside of the Water Supply Protection District that contains sodium chloride, calcium chloride, chemically treated abrasives or other chemicals used for snow and ice removal;

 1.5.9 Wastewater treatment works subject to a groundwater discharge permit under 314 CMR 5.00 except the following:

(1) The replacement or repair of an existing system(s) that will not result in a design capacity greater than the design capacity of the existing system(s);

(2) The replacement of an existing subsurface sewage disposal system(s) with wastewater treatment works that will not result in a design capacity greater than the design capacity of the existing system(s); and

(3) treatment works designed for the treatment of contaminated ground or surface waters subject to 314 CMR 5.00.

 1.5.10 Residential, commercial or industrial uses within Zone I of any municipal water supply well;

 1.5.11 Multifamily residents uses which are not served by the municipal sewer system.

**1.6 Performance Standards**

 All uses, whether allowed by Special Permit or by right, must meet the performance standards herein:

 1.6.1 Sodium chloride for ice control shall be used at the minimum salt to sand ratio which is consistent with the public highway safety requirements, and its use shall be eliminated on roads which may be closed to the public in winter.

 1.6.2 The storage of sodium chloride, calcium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads shall be covered and located in a paved surface with berms, or within a structure designed to prevent the generation and escape of contaminated run-off.

 1.6.3 Fertilizers, pesticides, herbicides, lawn care chemicals, or other leachable materials shall be used in accordance with the Lawn Care Regulations of the Massachusetts Pesticide Board, 333 CMR 10.03 (30,31), as amended, with manufacturer’s label instructions and all other necessary precautions to minimize adverse impacts on surface and groundwater.

 1.6.4 The storage of commercial fertilizers and soil conditioners shall be within structures designed to prevent the generation and escape of contaminated run-off or leachate.

 1.6.5 To the extent feasible, all new permanent animal manure storage areas shall be covered and/or contained to prevent the generation and escape of contaminated run-off or leachate.

 1.6.6 All hazardous materials, as defined in M.G.L. Chapter 21E, must be stored either in a free standing container within a building, or in a free standing container above ground level with protection to contain a spill the size of the container’s total storage capacity.

 1.6.7 For commercial and industrial uses, to the extent feasible, run-off from impervious surface shall be recharged on the site by stormwater infiltration basins or similar systems covered with natural vegetation. Such run-off shall not be discharged directly to rivers, streams, or other surface water bodies. Dry wells shall be used only where other methods are infeasible. All such basins and wells shall be preceded by oil, grease, and sediment traps to facilitate removal of contamination. All recharge areas shall be permanently maintained in full working order by the owner(s). Infiltration systems greater than 3 feet deep shall be located at least 100 feet from drinking water wells, and shall be situated at least 10 feet down-gradient and 100 feet up-gradient from building foundations to avoid seepage problems. Infiltration basins and trenches shall be constructed with a three foot minimum separation between the bottom of the structure and maximum groundwater elevation.

 1.6.8 In accordance with the State Plumbing Code, all vehicle maintenance facilities must have floor drains, unless they receive a variance from the State Plumbing Board, which must be connected to a municipal sewer system or to a state-approved holding tanks in unsewered areas. All other facilities which use, store or maintain hazardous materials or wastes must, with state approval, seal floor drains or connect them to a sewer system or holding tank.

**1.7 Area Regulations**

 Within the primary aquifer recharge area, the minimum allowable lot size shall be 40,000 square feet in areas not served by municipal sewerage systems.

**1.8 Special Permit Uses**

1.8.1 Uses Allowed by Special Permit obtained from the Planning Board:

(1) Commercial, industrial, governmental or educational uses which are allowed in the underlying district, and which are not prohibited in Section 6;

(2) With respect to pre-existing non-conforming uses, any of the following changes in an existing business, commercial or industrial use:

(a) Increase in generation of hazardous wastes above quantities permitted in the Special Permit for the use;

(b) Increase in impermeable surfaces to greater than 15% of lot area or 2500 square feet, whichever is greater;

(c) Change of use;

(d) Enlargement in the building footprint greater than 25% of the existing footprint.

(3) The rendering impervious of greater than 15% of the area or 2,500 square feet whichever is greater, provided that a system for artificial recharge of precipitation is developed. The management of stormwater and any artificial recharge systems developed shall be designed so as not to result in the degradation of groundwater:

(a) For commercial uses, a stormwater management plan shall be developed which provides for the artificial recharge of precipitation to groundwater, where feasible. Recharge shall be attained through site design that incorporates natural drainage patterns and vegetation, and through the use of stormwater infiltration basin, infiltration trenches, porous pavement or similar systems. All infiltration practices shall be preceded by oil, grease, and sediment traps or other best management practices to facilitate removal of contamination.

(b) For residential uses, recharge shall be attained through site design that incorporates natural drainage patterns and vegetation. To the extent possible, stormwater runoff from rooftops, driveways, roadways and other impervious surfaces shall be routed through areas of natural vegetation and/or devices such as infiltration basins, infiltration trenches or similar systems.

Infiltration practices shall be utilized to reduce runoff volume increases to the extent possible as determined in accordance with infiltration standards and specifications established by the Soil Conservation Service. A combination of successive practices may be used to achieve the desired control requirements. Justification shall be provided by the person developing land for rejecting each practice based on site conditions. Any and all recharge areas shall be permanently maintained in full working order by the owner. Provisions for maintenance shall be described in the stormwater management plan.

(4) Excavation for removal of earth, loam, sand, gravel and other soils or mineral substances shall not extend closer than five (5) feet above the historical high groundwater table (as determined from on-site monitoring wells and historical water table fluctuation data compiled by the United States Geological survey, whichever is higher). A monitoring well shall be installed by the property owner to verify groundwater elevations. This section shall not apply to excavations incidental to permitted uses, including but not limited to providing for the installation or maintenance or structural foundations, freshwater ponds, utility conduits or on-site sewage disposal:

(a) Access road(s) to extractive operation sites shall include a gate or other secure mechanism to restrict public access to the site.

(b) Upon completion of earth removal operations, all altered areas shall be restored with topsoil and vegetative plantings suitable to control erosion on the site. All fine materials, such as clays and silts, removed as part of the earth removal operation and leftover as by-products, shall be disposed of off-site to prevent damage to aquifer recharge characteristics.

1.8.2 Requirements for Special Permit in the Water Supply Protection District

 The applicant shall file six (6) copies of a site plan prepared by a qualified professional with the Special Permit Granting Authority. The site plan shall at a minimum include the following information where pertinent:

(1) A complete list of chemicals, pesticides, fuels and other potentially toxic or hazardous materials to be used or stored on the premises in quantities greater than those associated with normal household use.

(2) Those businesses using or storing such toxic or hazardous materials shall file a hazardous materials management plan with the Planning Board, Hazardous Materials Coordinator, Fire Chief, and Board of health which shall include:

(a) Provisions to protect against the discharge of hazardous materials or wastes to the environment due to spillage, accidental damage, corrosion, leakage or vandalism, including spill containment and clean-up procedures.

(b) Provisions for indoor, secured storage of hazardous materials and wastes with impervious floor surfaces.

(3) The applicant will submit evidence of compliance with the Regulations of Massachusetts Hazardous Waste Management Act 310 CMR 30 and information on anticipated hazardous waste generation rates. Copies of Massachusetts Hazardous Waste Reporting forms shall be made available to the Zoning Enforcement officer upon request.

(4) Drainage recharge features and provisions to prevent loss of recharge.

(5) Provisions to control soil erosion and sedimentation, soil compaction, and to prevent seepage from sewer pipes.

(6) Periodic water quality monitoring may be required by the SPGA, including sampling of wastewater disposed to on-site systems and sampling from groundwater monitoring wells to be located and constructed as specified in the Special Permit with reports to be submitted to the SPGA, the Board of Health, and the Board of Water Commissioners. The costs of monitoring, including sampling and analysis, shall be borne by the owner of the premises.

1.8.3 Additional Procedures for Special Permit in the Water Supply Protection District:

(1) The Special Permit Granting Authority shall follow all special permit procedures contained in Section \_\_\_ of this By-law. In addition the Special Permit Granting Authority shall distribute copies of all application materials to the Board of Health, the Conservation Commission, and the Water Commissioners, each of which shall review the application, and following a vote, shall submit recommendations and comments to the Special Permit Granting Authority. Failure of boards to make recommendations within 35 days of distribution of the applications shall be deemed to be lack of opposition. One copy of the application materials shall be transmitted to or retained by the Town Clerk for viewing by the public during office hours.

(2) The Special Permit Granting Authority may grant the required special permit only upon finding that the proposed use meets the following standards and those specified in Section \_\_\_\_ of this bylaw. The proposed use must:

(a) In no way, during construction or thereafter, adversely affect the existing or potential quality or quantity of water that is available in the Water Supply Protection District; and

(b) Be designed to avoid substantial disturbance of the soils, topography, drainage, vegetation and other water-related natural characteristics of the site to be developed.

(3) The Special Permit Granting Authority shall not grant a special permit under this section unless the petitioner’s application materials include, in the Board’s opinion, sufficiently detailed, definite and credible information to support positive findings in relation to the standards given in this section.

**1.9 Non-conforming Use**

Non-conforming uses which lawfully existed, 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 non-conforming uses may be extended or altered, as specified in M.G.L. Ch. 40a, Sec. 6, provided that there is a finding by the Planning Board that such change does not increase the danger of surface or groundwater pollution from such use.