

MEMORANDUM

TO: Sherborn Zoning Board of Appeals (ZBA)
FROM: Daryl Beardsley, Board of Health Co-Chair
DATE: September 9, 2025
RE: Context and Comparisons – Eastern Massachusetts Local Septic Regulations

Authority and Mandate

In accordance with the following State-level provisions, local Boards of Health across Massachusetts have adopted additional regulations to address public health concerns and influences within their communities.

Title 1 of the State Environmental Code, 310 CMR¹ 11.02, states: *“Unless otherwise expressly provided in any other title, the legally designated health authority of any city, town, county or other legally constituted governmental unit within the Commonwealth having the usual powers and duties of the board of health may, as it considers necessary to promote and protect the health and wellbeing of the particular locality under its jurisdiction, adopt under its own legal power as exists in the General Laws any rules or regulations containing requirements stricter than those contained in this code. Nor should the existence of this code limit or otherwise affect the power of any health authority with respect to any matter for which this code makes no provision.”*

From Title 5², 310 CMR 15.003(3): *“Local approving authorities may enact more stringent regulations to protect public health, safety, welfare and the environment only in accordance with M.G.L. c. 111, section 31.”* [Note that Section 31 states: *“Boards of health may make reasonable health regulations. ...”*]

Minimum standards of fitness and sanitation for human habitation are specified by 105 CMR 410. Note that 105 CMR 410.130 requires that the property owner *“shall provide a supply of potable water sufficient in quantity and pressure to meet the ordinary needs of every occupant.”* That supply can be from a public water supply or a private source approved by the local Board of Health. There are no other State regulations for private wells, only guidelines. This section also states that *“For each residence, the owner shall provide and maintain in a sanitary condition a sanitary drainage system...”*.

¹ CMR = Code of Massachusetts Regulations

² “Title 5” is used to refer to the septic system regulations of 310 CMR 15.

Sherborn Regulations Are Similar to Those of Other Municipalities

Based on septic and sewer information collected during a study about residential land-use regulation in eastern Massachusetts³ and supplemented by selections from current septic regulations in other MA towns similar to Sherborn, it is demonstrated that Sherborn is not a regulatory outlier with respect to municipalities having private wells and septic systems.

Participating municipalities responded to the question of “What percentage of the city/town is serviced by public sewer?” as follows:

No houses on sewer	53
1 – 25%	20
26 – 50%	21
51 – 75%	23
76 – 98%	43
98 – 100%	26
<i>Total # municipalities</i>	<i>186</i>

Below is presented a summary of survey results gathered during the study. The first table is for yes/no responses; the second table addresses numerically-based requirements. Sherborn’s current response status has been added for reference.

Issue	Yes	No	Sherborn*
Does the municipality have its own regulations for on-site sub-surface sewage disposal systems (i.e. septic systems) that go beyond Title 5's requirements?	109	78	Yes
Does the municipality limit the times of year when percolation tests are to be observed?	21	87	Yes [a]
Does the town limit the months when septic systems can be installed/constructed?	16	93	No [b]
Does the municipality prohibit shared septic systems?	29	80	No
<p>* Variances to Sherborn regulations may be granted for replacement of failed or otherwise inadequate systems, subject to Conservation Commission and other inputs.</p> <p>[a] This provides property owners with more reliable results for more robust systems.</p> <p>[b] However, frozen soils and other weather-related conditions can limit installation activity due to concerns for installation quality and performance.</p>			
<i>(continued)</i>			

³ Residential Land-Use Regulation in Eastern Massachusetts, A Study of 187 Communities; Pioneer Institute for Public Policy Research and Rappaport Institute for Greater Boston (Kennedy School of Government, Harvard University); 2005

Issue	Mean	Std.Dev.	Sherborn*
What is the highest "depth to groundwater" minimum requirement in any area of the city/town (number of feet)?	5.14	0.35	5
What is the municipality's maximum allowable percolation rate (minutes per inch)?	51.4	15.3	40 [c]
What setback distance (in feet) does the municipality require between a soil absorption system and property line?	12.3	4.9	20
What setback distance (in feet) does the municipality require between a soil absorption system and bordering vegetated wetlands?	79.7	41.1	125
What setback distance (in feet) does the city/town require between the soil absorption system and private wells?	108.8	23.6	125-175 [d]
<p>* Variances to Sherborn regulations may be granted for replacement of failed or otherwise inadequate systems, subject to Conservation Commission and other inputs.</p> <p>[c] Soils with percolation rates > 40 minutes per inch have reduced drying ability. Bacteria and viruses survive longer in wet conditions; thus, their inactivation is enhanced by drier conditions.</p> <p>[d] The minimum distance is subject to soil type plus up- or down-gradient relationship to the wells.</p>			

Examples of Expanded Drinking Water Protection Measures in Other Municipalities

Currently posted septic regulations in non-urban, eastern Massachusetts municipalities were reviewed to identify specific elements of their regulations that offer greater water supply protections than do Title 5's minimum standards. Of the Local Board of Health websites and/or regulations reviewed, most included statements about their supplemental efforts being driven by prevention of negative impacts to ground and surface water resources.

A small subset of examples of current local regulations that exceed Title 5 is presented in the following table. The municipalities identified below were selected due to their reliance --in whole or in part-- on septic systems and use of the groundwater resources beneath those septic systems:

- Carlisle – the town considered most similar to Sherborn (nearly all private well/septic)
- Dover – similar to Sherborn except for PWS water supplied to roughly one-third of the residences
- Duxbury – largely served by a municipal water system drawing from 10 wells located in town, but with some private wells in use; septic systems are in use
- Hingham – served in part by municipal water (from local surface and ground sources) and sewer, but private wells and septic systems are also in use
- Sharon – largely served by a municipal water system drawing from 6 wells located in town, but with some private wells in use; septic systems are in use
- Sudbury – largely served by a municipal water system drawing from 9 wells located in town, but with some private wells in use; septic systems are in use
- Weston – largely served by MWRA water, but with some private wells in use; septic systems are in use

Septic System Regulations Pertaining to Enhanced Drinking Water Quality Protection		
Municipality	Regulatory Provision	Comment
Separation to Groundwater		
Duxbury	“The minimum vertical distance from the bottom of the stone underlying the soil absorption system to the maximum high groundwater elevation shall be: (a) five (5) feet in soils with a recorded percolation rate of more than two (2) minutes per inch; (b) six (6) feet in soils with a recorded percolation rate of two (2) minutes or less per inch.”	More precautionary
Hingham	“Soil Absorption Systems shall not be constructed in soils where the Maximum Groundwater Elevation or mean high tidal water is less than five (5) feet below the bottom of the Soil Absorption System except that if the percolation rate of the soil in the Soil Absorption System is between two (2) and five (5) minutes per inch, at least six (6) feet of naturally occurring permeable material must exist between the bottom of the Soil Absorption System and the Maximum Groundwater Elevation and/or mean spring tidal water.” “Construction of Soil Absorption Systems in clean granular fill is permissible only: ... Where the impervious material can be excavated to pervious material (determined by a percolation test) and be replaced with clean fill, <u>and</u> where at least five (5) feet of the underlying naturally occurring pervious strata is above the Maximum Groundwater Elevation, except that at least six (6) feet of the underlying naturally occurring pervious strata must be above the Maximum Groundwater Elevation if the percolation rate of the pervious material is between two (2) and five (5) minutes per inch; ...”	More precautionary
Sharon	“For areas located within Water Resource Protection Districts and Zone IIs, there must be five feet of naturally occurring soil between high groundwater elevation and the bottom of a leaching facility. The system will be designed to maximize this distance.”	More precautionary ⁴
Sudbury	“If a subsurface disposal system is to be installed in a Zone II aquifer protection area, the distance from the bottom of the leaching facility to the high groundwater must be six (6) feet.”	More precautionary
Percolation Rate		
Carlisle	“The slowest rate obtained within 30 feet of a leaching facility design location must be utilized as the design application rate.”	More precautionary

⁴ Functionally, all of Sherborn can be equated to a Zone II for water supply wells and to a Water Resource Protection District.

Septic System Regulations Pertaining to Enhanced Drinking Water Quality Protection																				
Municipality	Regulatory Provision	Comment																		
Dover	“The maximum allowable percolation rate for new construction on a previously undeveloped lot shall be 25 minutes per inch in order for soil to be considered suitable for the subsurface disposal of sewage. A rate exceeding 25 minutes per inch may be acceptable to the Board if it can be shown that sewage break-out will not occur. ...”	The regulations specify how the applicant shall demonstrate acceptability.																		
Sharon	“The minimum percolation rate for determining the leaching area requirements shall be 6.0 minutes per inch.”	More precautionary																		
Bedroom Definition for System Sizing																				
Carlisle	Design flow requirements for single dwelling units vary according to the number of bedrooms in the unit: <table border="1"> <thead> <tr> <th>No. of Bedrooms</th><th>Total GPD* required per Bedroom</th><th>Total GPD**</th></tr> </thead> <tbody> <tr> <td>Three</td><td>165</td><td>495</td></tr> <tr> <td>Four</td><td>150</td><td>600</td></tr> <tr> <td>Five</td><td>125</td><td>625</td></tr> <tr> <td>Six</td><td>110</td><td>660</td></tr> <tr> <td>>Six</td><td>110</td><td>110 per bedroom</td></tr> </tbody> </table>	No. of Bedrooms	Total GPD* required per Bedroom	Total GPD**	Three	165	495	Four	150	600	Five	125	625	Six	110	660	>Six	110	110 per bedroom	Accounts for baseline water uses
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Carlisle	“Bedroom Deed Restrictions will not be considered for new construction or existing dwelling utilizing septic systems that are more than ten (10) years old.”	New criteria																		
Duxbury	“Any unfinished room, libraries, studies, studios, or other easily converted rooms, which provide privacy, shall be considered bedrooms for the purpose of design flow.”	More stringent																		
Sharon	A bedroom is defined as “Any area in a dwelling unit which is or could be used for the provision of private sleeping accommodations for residents of the premises, whether such area is designated as a bedroom, guest room, maid’s room, dressing room, den, study, library, or by another name, unless more than half of its floor-to-ceiling height is below the average grade of the adjoining ground.”	More stringent																		
Sudbury	“The sewage design flow for multiple family residences shall be based upon 200 gallons per day for one bedroom units and 110 gallons per day per bedroom for units with more than one bedroom.”	New criteria to address flows																		

Septic System Regulations Pertaining to Enhanced Drinking Water Quality Protection		
Municipality	Regulatory Provision	Comment
Environmental Health Impact Assessments/Reports (and Related)		
Carlisle	“For Systems having a cumulative project flow of 2000 gallons per day or greater, a hydrogeological evaluation utilizing a three-dimensional model such as ModFlow must be performed by a qualified engineer or geologist, at the expense of the applicant, to be reviewed and approved by the Board of Health prior to the issuance of a DSCP. Models must predict no rise in groundwater elevation and no greater than 5 mg/L of total nitrogen at the perimeter boundary.”	Comparable
Duxbury	“For the purposes of calculating nitrogen loading only upland area shall be used. Drainage easements, paved areas, cranberry bogs and wetlands shall not be used ...”	New criteria; more stringent
Sharon	“The Board of Health may require the project proponent to submit an Environmental Health Impact Report pertaining to the proposed subdivision, to determine if the project is protective of public and environmental health and ensure that adequate protection against flooding, siltation, and other drainage problems is provided.”	Comparable
Weston	“A hydrological survey to determine any impact on subsurface waters may be required where the design flow for the subsurface sewage disposal system exceeds 2000 gallons/day ...”.	Comparable
Setback Distances		
Carlisle	“The minimum setback distance between a system 2000 GPD or larger to a well is 150’.”	New setback criteria
Dover	“For new construction on a vacant lot, where no dwelling unit has previously existed, all parts of the proposed subsurface sewage disposal systems shall be not less than 100 feet from any open surface drain or any watercourse, including streams, brooks, ponds, swamps or other wetlands (as defined in MGL c. 131, section 40).”	Comparable
Duxbury	Minimum setbacks of soil absorption systems from bordering vegetated wetlands and private water supply wells or suction lines are both 150 feet.	Larger wetland setback and similar well setback

Septic System Regulations Pertaining to Enhanced Drinking Water Quality Protection		
Municipality	Regulatory Provision	Comment
Hingham	“No Sewage Disposal System or Plant shall be constructed within: ... Two hundred and fifty (250) feet of any private potable well; ... One hundred and fifty (150) feet of any Protected Water Body; ... Twenty five (25) feet of any surface or subsurface Drain when the Drain elevation is higher than the proposed Soil Absorption System; ... Fifty (50) feet of any surface or subsurface Drain when the Drain elevation is equal to or lower in elevation than the proposed Soil Absorption System; ... One hundred twenty five (125) feet of any surface or subsurface Drain which discharges into a Protected Water Body.”	Larger well setback
Weston	“No part of the structural components of a leaching facility shall be located within 100 feet of a wetland as defined in M.G.L. chapter 131 section 40 (Wetland Protection Act).”	Similar to Sherborn
Garbage Grinders		
Carlisle	“Garbage grinders are not allowed in any soil absorption system constructed in Carlisle. This is based on the fact that use of a garbage grinder adds considerable solids and may shorten the life of a system. As a result, systems with garbage grinders require additional land area and more frequent pumping. Alternative locations for siting compliant systems are often unavailable on properties and the use of garbage grinders compromises the availability of already limited area for repairs or upgrade.”	Bans garbage grinders
Weston	“Garbage grinders are inherently destructive to soil absorption systems. Consequently, the use of garbage grinders is discouraged. However, all residential sewage disposal systems shall be designed for an increase of 150% over that required by title V [sic]. This increase is to prolong the life of a septic system in the event that a garbage grinder is used or installed in the future.”	More stringent and no deed restriction option
Other Provisions		
Carlisle	“A Septic System Escrow Agreement must be executed in order to guarantee the long-term operation, maintenance and eventual replacement of the system.”	In reference to shared systems serving multi-dwelling unit developments
Dover	“There shall be a minimum of 4 deep test pits evenly distributed within the limits of the proposed leaching area and integrated expansion area, plus any others that might be designated by the Board’s Agent, either at the time of testing of during the plan review period. If ledge is encountered or indicated, additional test pits must be dug to determine its limits. ...”	More subsurface investigation required

Septic System Regulations Pertaining to Enhanced Drinking Water Quality Protection		
Municipality	Regulatory Provision	Comment
Hingham	No Sewage Disposal System shall be designed to discharge more than 110 gallons of design flow per day per twelve thousand five hundred (12,500) sq. ft. in Lot area, except for those Lots located entirely or partially within the North Sewer District ... where only ten thousand (10,000) sq. ft. in Lot area is required for every 110 gallons of daily design flow.	Requires more land per bedroom for septic management except in the sewer district
Sharon	“At the time of inspection, all septic tanks 25 years of age or older shall be replaced unless structurally certified by a licensed Title 5 inspector to be structurally sound and leak-proof.”	
Sharon	“At the time of inspection, all cesspools shall be replaced with systems in maximum feasible compliance with Title 5 and Article 7.”	Replacement upon identification required
Weston	“Construction of subsurface sewage disposal systems shall not be allowed from the first day of December through the last day of February. The Board or its agent may allow exceptions for buildings currently in use as a residence if the Board or its agent deems existing conditions pose a hazard to the health and safety of the occupants or the public.”	More limited installation options