



Groundwater Protection Committee Posting: Spring, 2021

Sherborn's Groundwater Protection Committee (GPC) is part of our town government's approach to monitoring, advising, and when necessary, regulating, the use of the town's natural resources. The GPC's 8 members represent a range of skills and expertise, especially in the area of hydrology and engineering. The committee is creating a program to increase awareness among residents and business owners of the factors that can potentially affect our water supply.

It may be surprising to hear but—Massachusetts was in a critical drought during summer 2020

After the substantial rain and snow of the past several months, many of us may not have realized that until the month of November, 2020 was a year of extreme drought. In the past **five** years, we have experienced **two** droughts that are categorized as "*once in every 50 years*."

Climate change is bringing home the fact that our resources and their supporting infrastructure are vulnerable to extremes in weather that we never anticipated even as recently as a decade ago. The devastating impact of unprecedented cold in Texas is just one example of this trend. It is important that we plan for future droughts as proactively as possible. Recently, many regions of the United States have suffered severe droughts that have damaged agriculture, recreation and drinking water. In Sherborn, the impact of droughts on our water supply can significantly affect our quality of life and the value of our homes and businesses.

Should drought concern Sherborn residents in particular?

Yes, here's why: For the majority of the 351 towns in Massachusetts, water is supplied by large reservoirs. In Sherborn, the water supply is almost entirely dependent on private wells. Ninety nine percent of our water comes from private wells, which means we rely solely on the water beneath our town. Did you know that over the last decade in Sherborn, 54 wells needed to be replaced, 22 wells had to be drilled deeper due to insufficient water supply, and 9 wells required hydraulic fracturing or "fracking" to create water bearing seams in the bedrock? These are costly endeavors that the homeowner must bear. In Sherborn, if we experience critical problems with our groundwater quality or quantity, we have no "Plan B" for our water supply!

What sources the water in our wells?

Virtually all of Sherborn's water lies underneath the town. Under ordinary conditions, the aquifers are sufficient to provide Sherborn with water. A sizable drop in aquifer levels will create problems for Sherborn residents and businesses.

If a drought becomes severe and reduces our water supply, what are the possible consequences to residents?

There are a number of consequences, including supply and potability. In terms of supply, one may experience lower water pressure in faucets, hoses, showers, etc., which can become endemic in a sustained drought. More drastically, one's well can run dry. If this happens, the homeowner must drill a deeper well, which can be very costly. Sometimes the water supply cannot be restored, which affects the value of a home or business. Likewise, a history of problems in a structure's water supply can reduce the value of the property.

In terms of potability, a sinking water table can also increase contamination of the wells, because a reduced water supply can concentrate the amount of sediment, pesticides, or other chemical toxins. Mitigation of contamination will fall on the homeowner. An obligation to disclose the problem to potential buyers also falls on the homeowner.

If we get our water from private wells, doesn't that mean each of us has our own water supply?

No. The aquifer that feeds your well can extend for miles underground and supply water to many wells. Also, water is not necessarily distributed evenly within the aquifers. There is no private "pool" of water that serves just one resident or one small neighborhood. Our groundwater is a dynamic, integrated system in which water is constantly in motion. The well belongs to you. The water is a shared resource.

If wells are connected to aquifers, and if one well goes dry, shouldn't that mean all the wells served by that aquifer will too?

No, because there are many contributing factors. Well depth, water bearing fractures in bedrock, and soil types affect where the wells draw from. These factors and more all influence the water's path and velocity to the wells.

How do we know there's a drought?

Water supplies rise and fall according to two primary factors: precipitation and use, or, *inflow* and *outflow*. The most obvious indicator is the amount of precipitation. If precipitation is well below normal for an extended period of time, a drought is likely. The impact of drought is revealed by measuring water table levels and water levels in our rivers and streams. These measurements indicate how much water is in the aquifers. Observation wells can be installed to measure the water table levels and these wells can be used to measure contaminants.

How does the town protect the water supply?

Planning for future droughts is conducted via a coordinated effort among several boards and committees. The goal is clear: to secure future adequate water for our homes and businesses. The Town Master Plan and Town Open Space Plan provide a framework for protecting our water supply.

The state's "Drought Management Plan" (September, 2019), advises:

"Planning is the key word. One of the most important actions a community can take to prepare for a drought is to develop a local drought plan to guide actions before, during, and after a drought. A critical companion to the local drought plan is a Water Conservation Program, which will help conserve water at all times, but especially during a drought. The Water Conservation Program should be developed before the local drought plan because it will inform the plan. Each of these requires significant effort to develop and establish. When the next drought is experienced, appropriate tools and programs will be in place to respond without delay and minimize impacts and disruptions to municipal services, businesses, and residents." (p.48).

The water supply is an ongoing concern for our town government. For example, our Conservation Commission works to maximize the infiltration of rainwater and snow melt back into the ground. The effects of stormwater runoff from impervious surfaces (rooves and pavement) can be mitigated with green spaces (vegetation). Stormwater management systems can reintroduce precipitation back into the ground where it is naturally filtered. This process prevents the stormwater from being diverted into rivers, where it heads out of town to the oceans. Water is a public resource and the state also has a good deal of input on how water resources are managed. The GPC will be engaged in planning to mitigate for future droughts, and plans to conduct research as to the state of Sherborn's water supply.

Where do we go from here?

During periods of normally fluctuating precipitation, water supplies in Sherborn are fine. At this writing, we are not currently facing an emergency. But in the recent past, wells have run dry in Sherborn, Dover and other nearby towns. The GPC will be reaching out to the community from time to time as the state issues future drought bulletins. It is important that as individuals we understand how our quality of life depends on our inherently fragile water supply, and that as a community we plan for the future.

Questions or Comments? Contact Sherborn's Groundwater Protection Committee [Town of Sherborn webpage](#)

Get usable information about what you can do to protect groundwater:

<https://www.doverma.org/504/FAQs-and-Resources>

For up-to-date drought levels in Massachusetts and general information about drought:

[Massachusetts Drought Management Task Force](#)

Curious about groundwater education and protection?

<https://www.groundwater.org/>