

# Barnstable Drinking Water Resources Protection

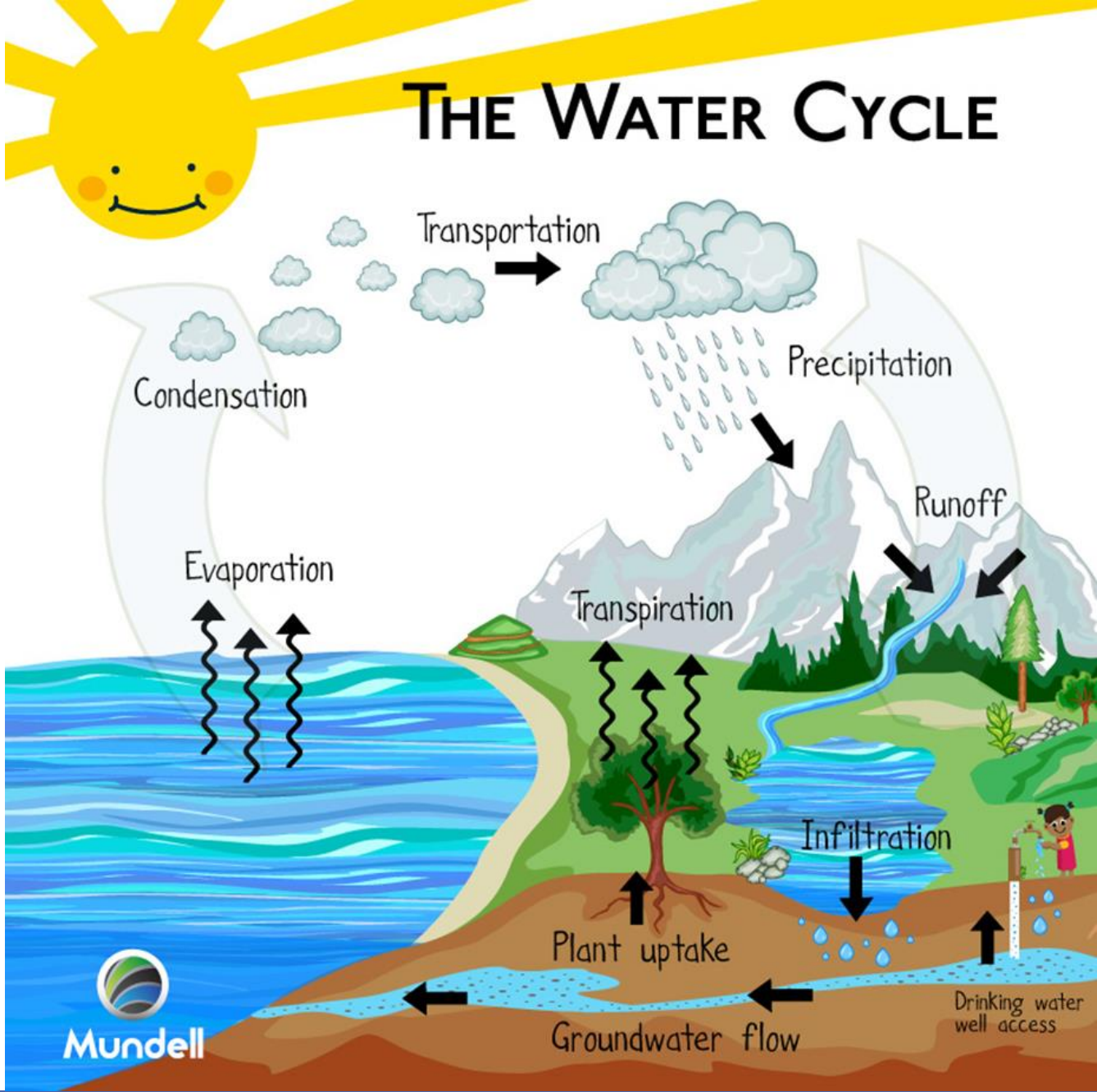
Special Town Council Workshop

Feb. 29, 2024

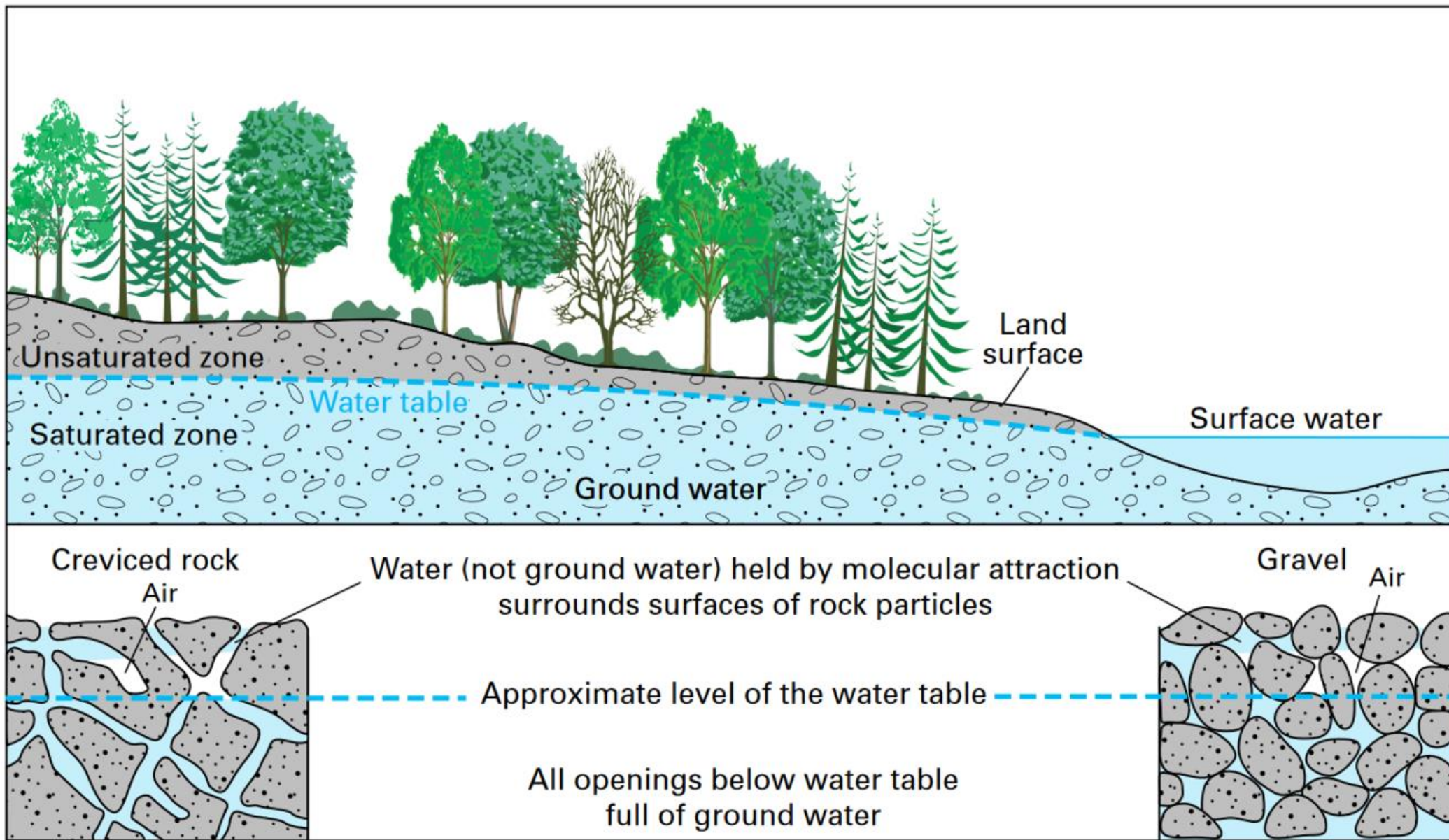


Town of Barnstable  
Department of Public Works

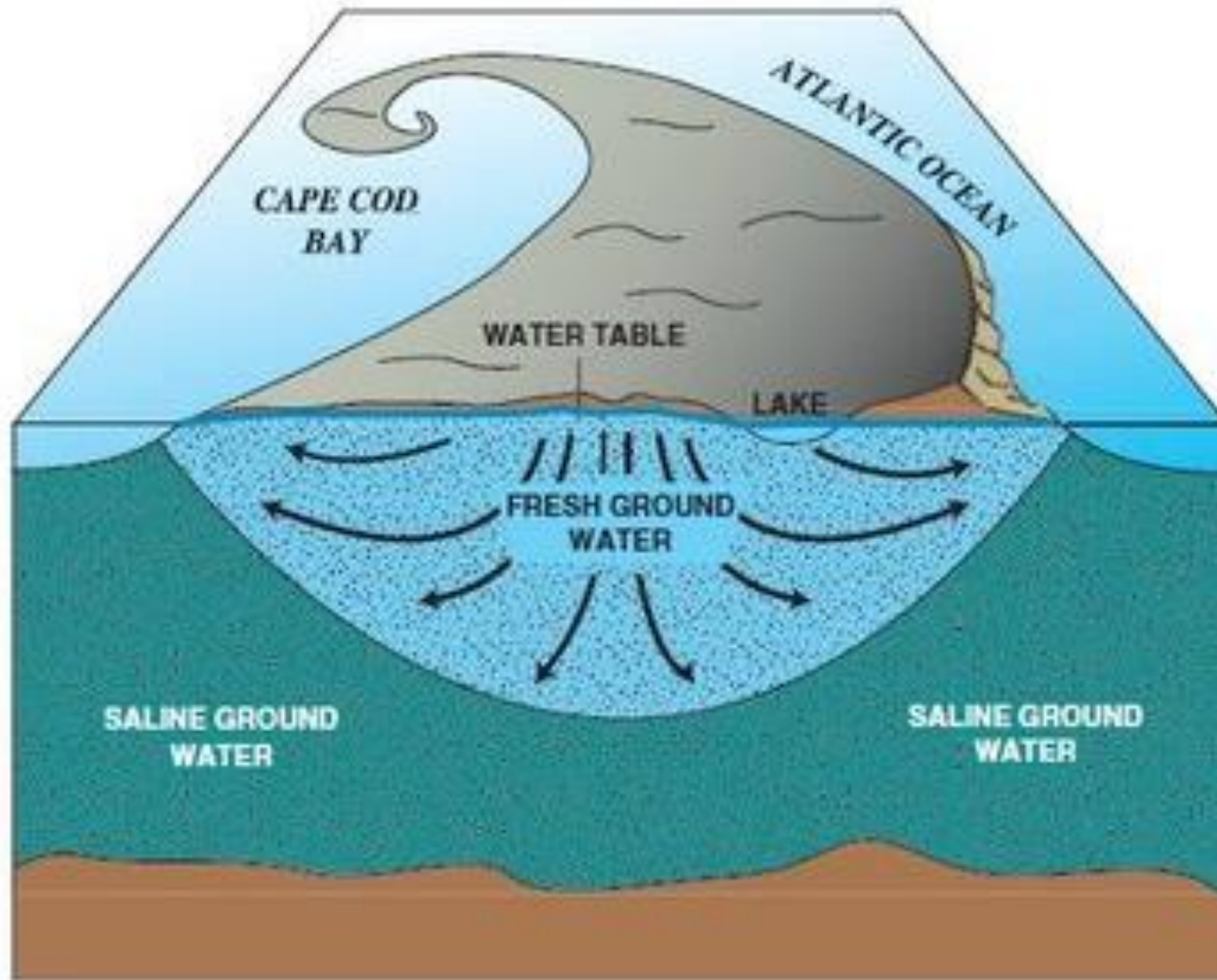




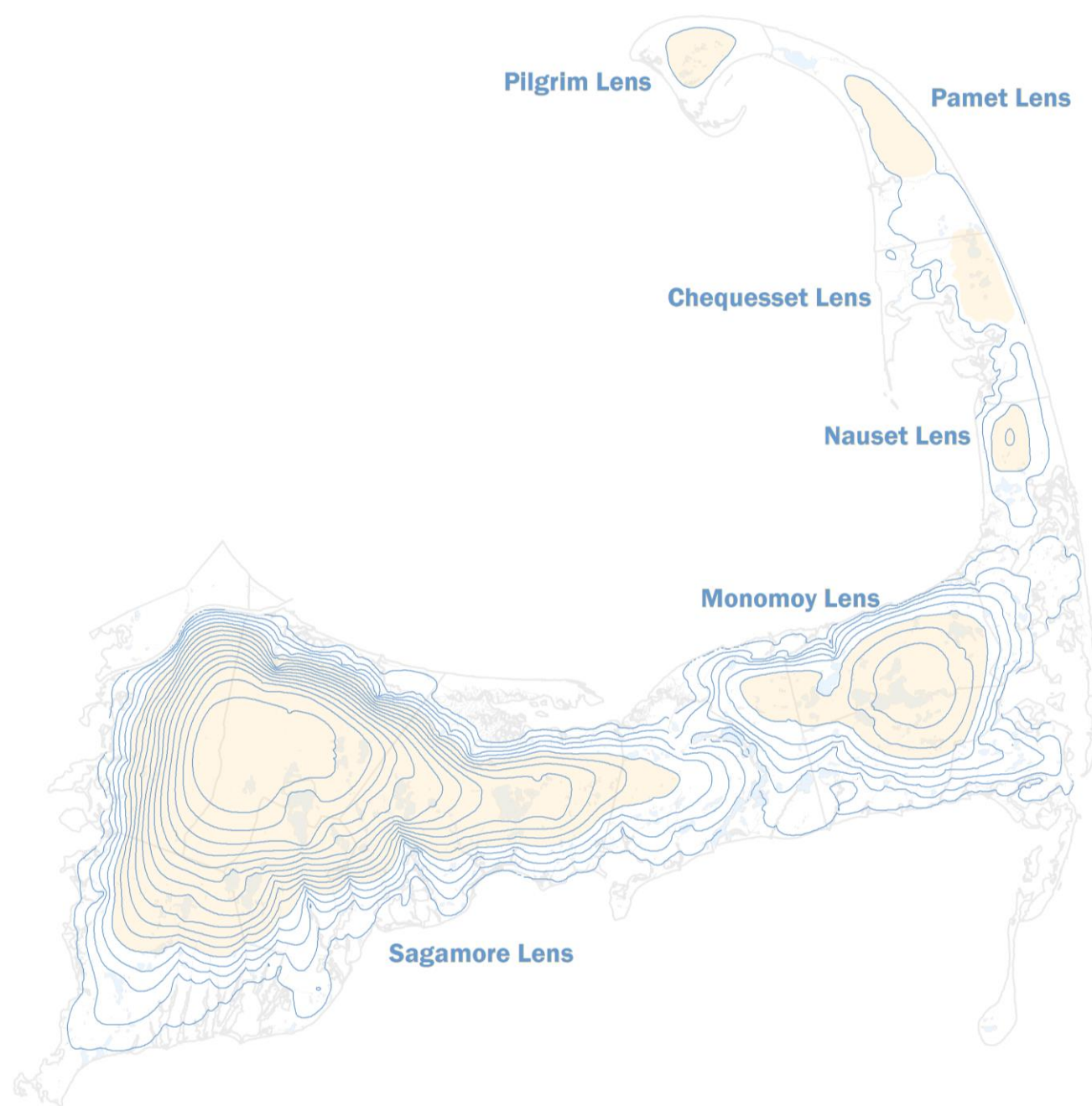


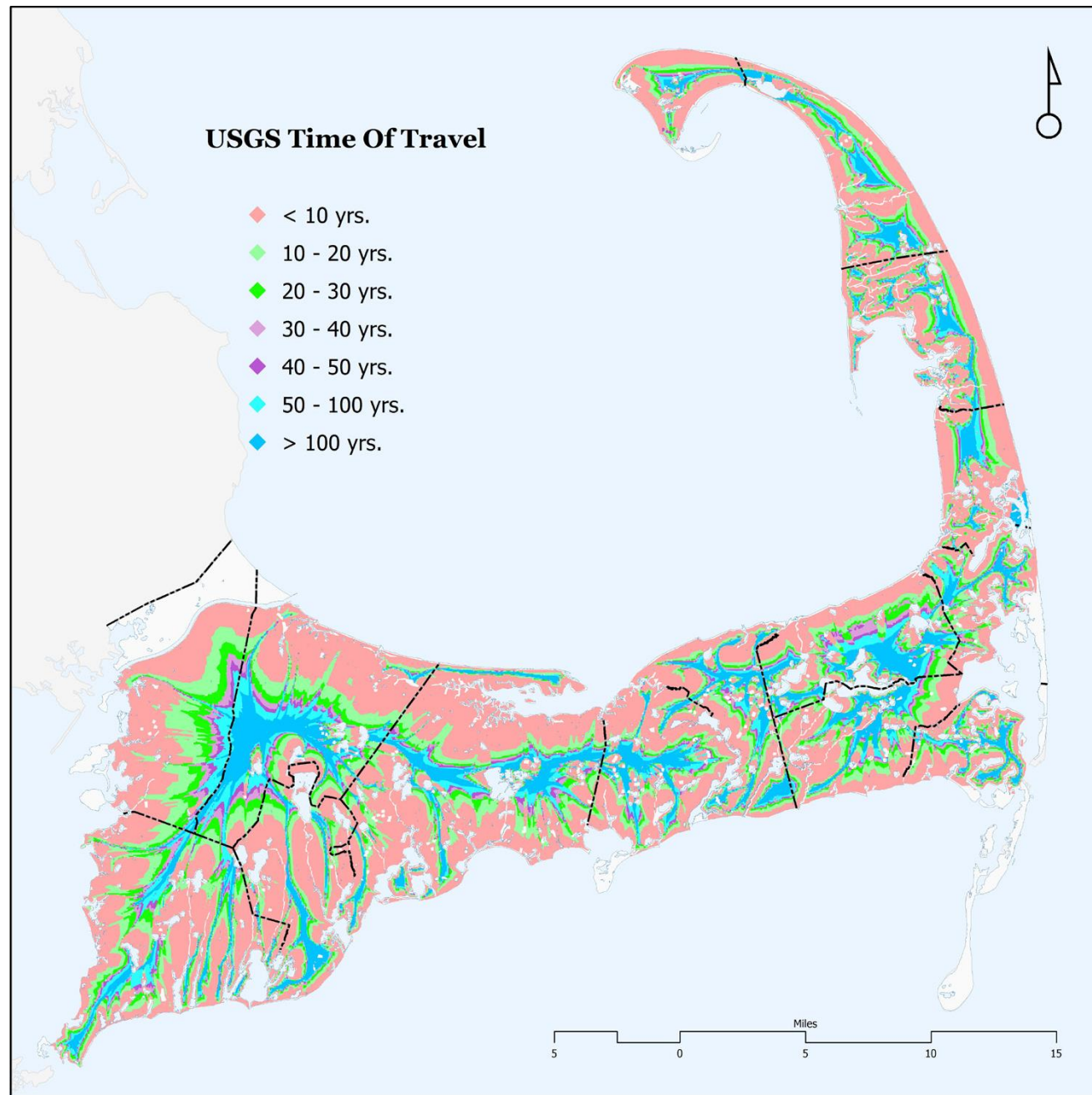


How ground water occurs in rocks.

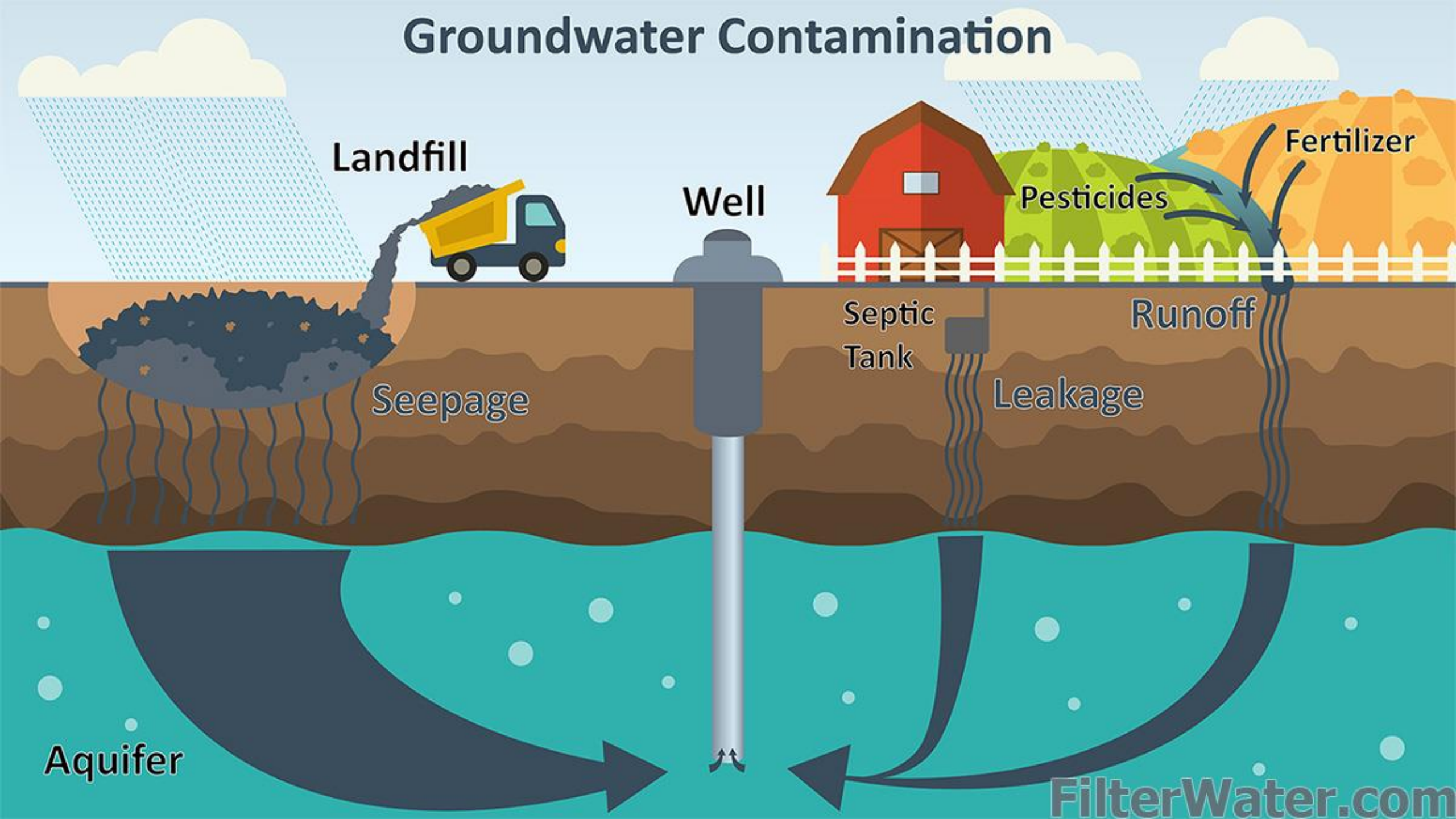








# Groundwater Contamination



Landfill



Well



Septic Tank



Pesticides



Fertilizer

Runoff

Leakage

Seepage

Aquifer



# Drinking Water Laws & Regulations



USEPA

MADEP

Town of  
Barnstable



# USEPA Law & Regulations

## Safe Drinking Water Act (SDWA) 1974, 1986, 1996

- Overseen by the Office of Groundwater and Drinking Water
- The Act authorizes EPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards.
- National Primary Drinking Water Regulations
- National Primary Drinking Water Regulations (NPDWR) are standards and treatment techniques that public water systems must follow. These regulations protect public health by limiting contaminant levels in drinking water.

## National Secondary Drinking Water Regulations

- National Secondary Drinking Water Regulations (NSDWR) are guidelines to help public water systems manage their drinking water for issues not related to health, such as taste, color, and smell.
- Water systems are not required to follow these water quality standards for the 15 contaminants listed. Although these contaminants may not be harmful to public health, if they are in water at levels above the standards, they can cause the water to look cloudy or colored, or to taste or smell bad.

# USEPA Law & Regulations

## Unregulated Contaminants

- The SDWA includes a process that EPA must follow to name unregulated contaminants that may require regulation in the future.
- EPA must publish this list of contaminants—called the “Contaminant Candidate List,” or CCL—every five years and decide whether to regulate at least five or more of the contaminants on the list (called “Regulatory Determinations”).

## Consumer Confidence Reports

- Every public water system or community water supplier must provide an annual report, sometimes called a Consumer Confidence Report (CCR), to its customers.
- The report provides information on local drinking water quality, including the water’s source, contaminants found in the water, and how consumers can help protect their drinking water.



## IRRIGATION REGULATIONS

To protect and conserve the public drinking water supply the Board of Water Commissioners (BOWC) have instituted the following policies:

- Effective 8/30/2021, the BOWC shall no longer allow any new automatic inground irrigation systems to be connected to the public water supply system.
- Existing customers with irrigation systems are encouraged to install private onsite irrigation wells.
- Monitoring and maintenance of irrigation system including smart sensors, sprinkler heads and water lines to mitigate the loss of water. Systems are subject to inspection by the Water Department.
- The BOWC reserves the right to institute and enforce reductions, restrictions or bans on all outside use in accordance with the District Bylaws and associated State Laws.
- The full policy can be found on the district website [www.cotuitfiredistrict.org/waterdepartment/](http://www.cotuitfiredistrict.org/waterdepartment/). Violations of this policy are subject to penalties and fines.

### SYSTEM MAINTENANCE AND IMPROVEMENTS

- ✦ Annual leak detection program was completed.
- ✦ All storage tanks and well pumps were inspected.
- ✦ Performed gate exercise program to ensure proper functionality.
- ✦ Performed annual water main flushing to remove naturally occurring debris and settlement

### CROSS CONNECTION

Cross connection is the interconnection of a potable (drinkable) water line with non-potable piece of equipment or piping. Examples of non-potable equipment may include fire protections systems, lawn irrigation systems, air conditioning or cooling systems as well as high pressure boilers.

Through the implementation of our cross connection program, commercial businesses have been surveyed and proper backflow devices have been installed. These devices are tested as regulated.

Check valves have been installed as part of meter installations in residential homes since the late 70's. The department highly recommends using a licensed plumber, as they are knowledgeable with check valve operation.

FREE HOSE BIBB VACUUM BREAKERS  
ARE AVAILABLE AT OUR OFFICE.

## Source Water Assessment and Protection (SWAP)

### What is a SWAP?

The Source Water Assessment Protection (SWAP) program assesses the susceptibility of public water supplies to potential contamination by microbiological pathogens and chemicals.

### What Is My System's Ranking?

A susceptibility ranking of high, was assigned to this system using the information collected during the assessment by the DEP. A source's susceptibility to contamination does not imply poor water quality.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to this report.

### Where Can I See The SWAP Report?

The complete SWAP report is available at the Water Department Office and Board of Health. For more information, call Superintendent Chris Wiseman at 508-428-2687.

### Residents Can Help Protect Sources By:

- practicing good septic system maintenance
- taking hazardous household chemicals to hazardous materials collection days at the Barnstable Transfer Station.
- limiting pesticide and fertilizer use, etc

### CRUSH IT - DON'T FLUSH IT

Medications that are flushed down the toilet can and do find their way into our aquifer every day.

Here are four safe steps toward proper disposal:

- 1- Pour medication into sealable bag. If medication is a solid, crush it or add water to dissolve it.
- 2- Add cat litter, sawdust or coffee grounds to the plastic bag.
- 3- Seal the plastic bag and put it in the trash.
- 4- Remove and destroy all identifying personal information from all medication containers before recycling them or throwing them in the trash.

### MEETING SCHEDULE

The Board of Water Commissioners meets on the third Wednesday of each month at 5:45 P.M. at Freedom Hall or via Zoom. Meetings are subject to change and are posted at the Town Hall, Freedom Hall and the District website ([www.cotuitfiredistrict.org](http://www.cotuitfiredistrict.org)).

### BOARD OF WATER COMMISSIONERS

Tom Hoppensteadt, Chairperson  
Mark Robinson, Commissioner  
Scott Horsley, Commissioner

# COTUIT WATER DEPARTMENT

## 2022 DRINKING WATER QUALITY REPORT



P.O. Box 451 • 4300 Falmouth Road  
Cotuit, MA  
508-428-2687 • Fax: 508-428-7517  
[www.cotuitfiredistrict.org](http://www.cotuitfiredistrict.org)

**SUPERINTENDENT**  
Chris Wiseman

Public Water  
Supplier ID # 4020003



This report contains very important information about your drinking water. Please translate it, or speak with someone who understands it.

### WHERE DOES COTUIT'S WATER COME FROM?

The Cotuit Water Department draws water from five groundwater wells located on 244 acres of District-owned land. Three stations are on Sampsons Mill Road, one is on Main Street and one is on Rte. 28.

### 2022 COTUIT WATER FACTS

Population Supplied: Winter:	3,296
Summer:	4,944

Accounts: 2,351

Total Pumpage: 202,236,000 Gallons

Largest Day: 08/05/2022 1,682,000 Gallons

Interconnections: 4 (No water was used from these sources in 2022)

3 with C-O-MM Water; 1 with Mashpee Water

Miles of water mains: 53

Storage Tanks: 2 (800,000 gallon total capacity)

No. of Hydrants: 444

The pH of water on Cape Cod is acidic and ranges from 4.7 to 6.5 (pH is the measure of acidity or alkalinity of a liquid). On the pH scale, the number 7 is neutral, less than 7 is acidic and more than 7 is alkaline. Due to the lower pH in our water, we add a harmless substance (hydrated lime) to the water to reduce corrosion in the distribution system and in your home.

### FLUSHING PROGRAM

The water mains are flushed every Spring as part of a preventive maintenance program to ensure that the water quality is not being compromised. Flushing notices are published in the Barnstable Patriot and posted on the District website. Daily flushing locations are also posted on the District website and on Facebook.

Prior to the designated flushing period, collect water for drinking, cooking or other consumption purposes. During the designated flushing period you may experience water discoloration or sediment. Using water during flushing may result in staining or sediment in laundry, ice machines, dishwasher, bath tubs or hot water tanks.

**FLUSH YOUR SYSTEM WITH COLD WATER BEFORE RETURNING TO NORMAL USE.**

# USEPA Regulations

## Sole Source Aquifer Program

- Aquifer supplies at least 50% of drinking water
- No alternatives

## EPA may review projects

- In review AREA
- Receive federal funding



# MADEP Regulations

Bureau of Water Resources

Drinking Water Program

## CMR 22.00 The Massachusetts Drinking Water Regulations

- 310 CMR 22.00 promotes the public health and general welfare by preventing the pollution and securing the sanitary protection of all such waters used as sources of water supply and ensuring that public water systems in Massachusetts provide to the users thereof water that is safe, fit and pure to drink.

# Public Water Systems

Permitting of Public Water Systems

Construction, operation, and maintenance of Public Water Systems

Maximum Contaminant Levels

Surface Water Supply Protection

Groundwater Supply Protection



# Groundwater Supply Protection

Guidelines and Policies

Sources >100,000 gallons per day

Achieve water quality standards

Determined Zone I, Zone II

Monitoring well program

Wellhead Protection zoning controls

Source Water Assessment and Protection Report (SWAP)



Massachusetts Department of Environmental Protection  
**Source Water Assessment and Protection (SWAP) Report**  
 for  
**Centerville Osterville Marston Mills Water Department**

**What is SWAP?**

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

**Susceptibility and Water Quality**

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does not imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

**Table 1: Public Water System Information**

<b>PWS Name</b>	Centerville Osterville Marston Mills Water Department
<b>PWS Address</b>	1138 Main Street
<b>City/Town</b>	Barnstable
<b>PWS ID Number</b>	4020002
<b>Local Contact</b>	Craig Crocker
<b>Phone Number</b>	(508) 428-6691

**Introduction**

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

**Purpose of this report:**

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

**This report includes the following sections:**

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

**Potential Source of Contamination vs. Actual Contamination**

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

**Table 2: Land Use in the Protection Areas (Zones I and II)**

For more information, refer to Appendix A: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
<b>Agricultural</b>				
Landscaping	numerous	M	All	Fertilizers and pesticides: leaks, spills, improper handling, or over-application
Nurseries	several	M	All	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	several	H	All	Pesticides: leaks, spills, improper handling, or over-application
<b>Commercial</b>				
Body Shops	1	H	#317	Vehicle paints, solvents, and primer products: improper management
Service Stations/ Auto Repair Shops	2	H	#305, #306, #307	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	1	M	#307	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	2	M	#297 through #302	Fertilizers or pesticides: over-application or improper handling
Photo Processors	1	H	#305, #307	Photographic chemicals: spills, leaks, or improper handling or storage
Sand And Gravel Mining/ Washing	1	M	#297	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
<b>Industrial</b>				
Industry/Industrial Parks	1	H	#305, #306, #307	Industrial chemicals and metals: spills, leaks, or improper handling or storage

**Table 2: Land Use in the Protection Areas (Zones I and II)**

For more information, refer to Appendix A: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
<b>Residential</b>				
Fuel Oil Storage (at residences)	200+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	200+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	200+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
<b>Miscellaneous</b>				
Aquatic Wildlife	Numerous	L	All	Microbial contaminants
Composting Facilities	1	L	#307	Organic material, animal waste, and runoff: storage and improper handling
Fishing/Boating	Several	L	All	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	1	H	#305, #306, #307	Seepage of leachate
Road And Maintenance Depots	1	M	#306, #307	Deicing materials, automotive fluids, fuel storage, and other chemicals: spills, leaks, or improper handling or storage
Schools, Colleges, and Universities	2	M	#305, #307	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	#300, #301, #304-#307	Corridor maintenance pesticides: over-application or improper handling; construction
Waste Transfer/Recycling Station	1	M	#305, #306, #307	Water contacting waste materials: improper management, seepage, and runoff

**Notes:**

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

\* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

# SWAP

## Inventory Land Uses

Assess susceptibility of drinking water resources to contamination from land uses

Publicize results

Looks at:

- Inappropriate activities in Zone I

- Residential land uses

- Transportation corridors

- Hazardous materials storage and use

- Oil or hazardous material contamination sites



# Wellhead Protection Planning

Protect drinking water quality at the source

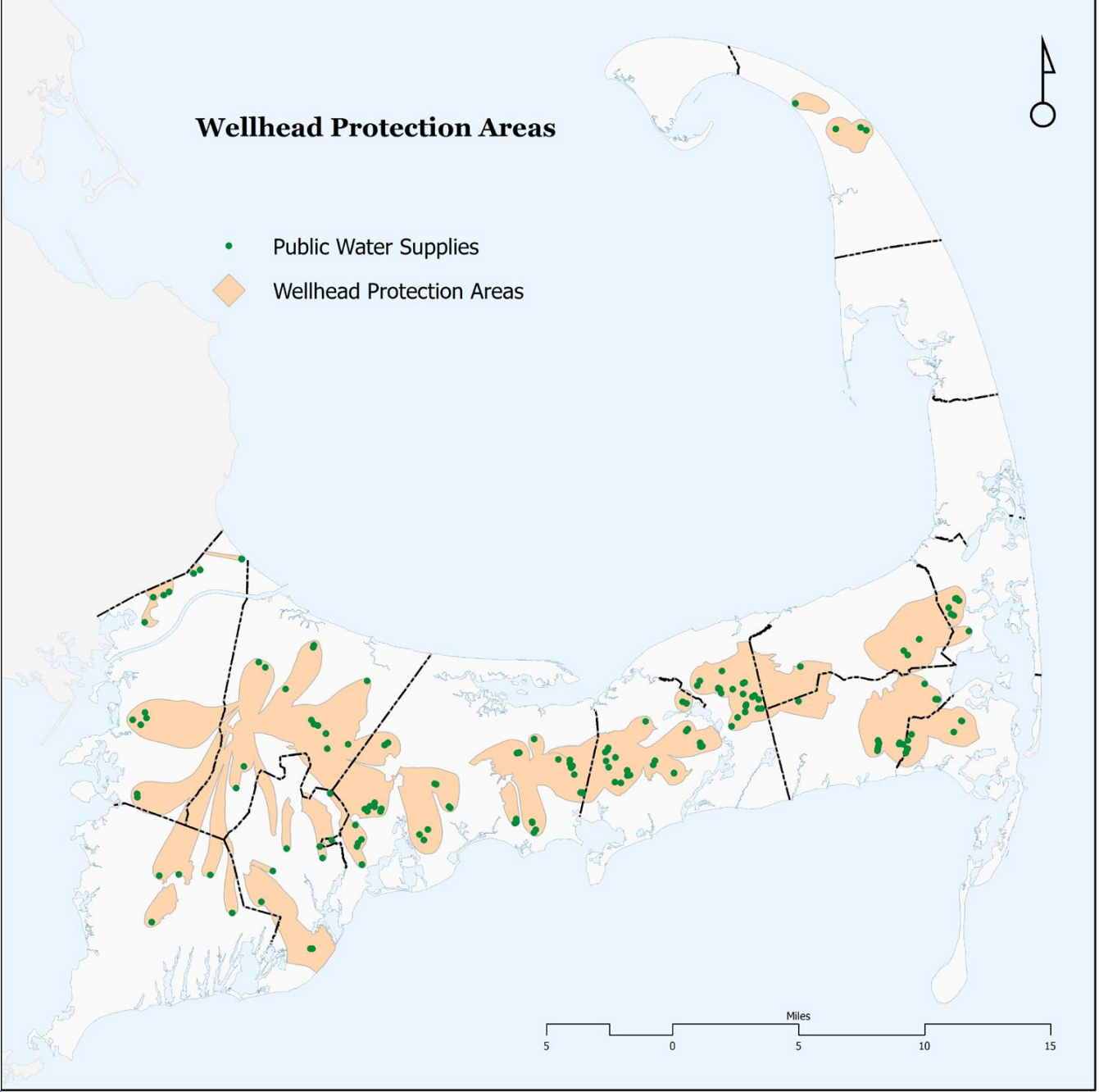
Reduces monitoring costs

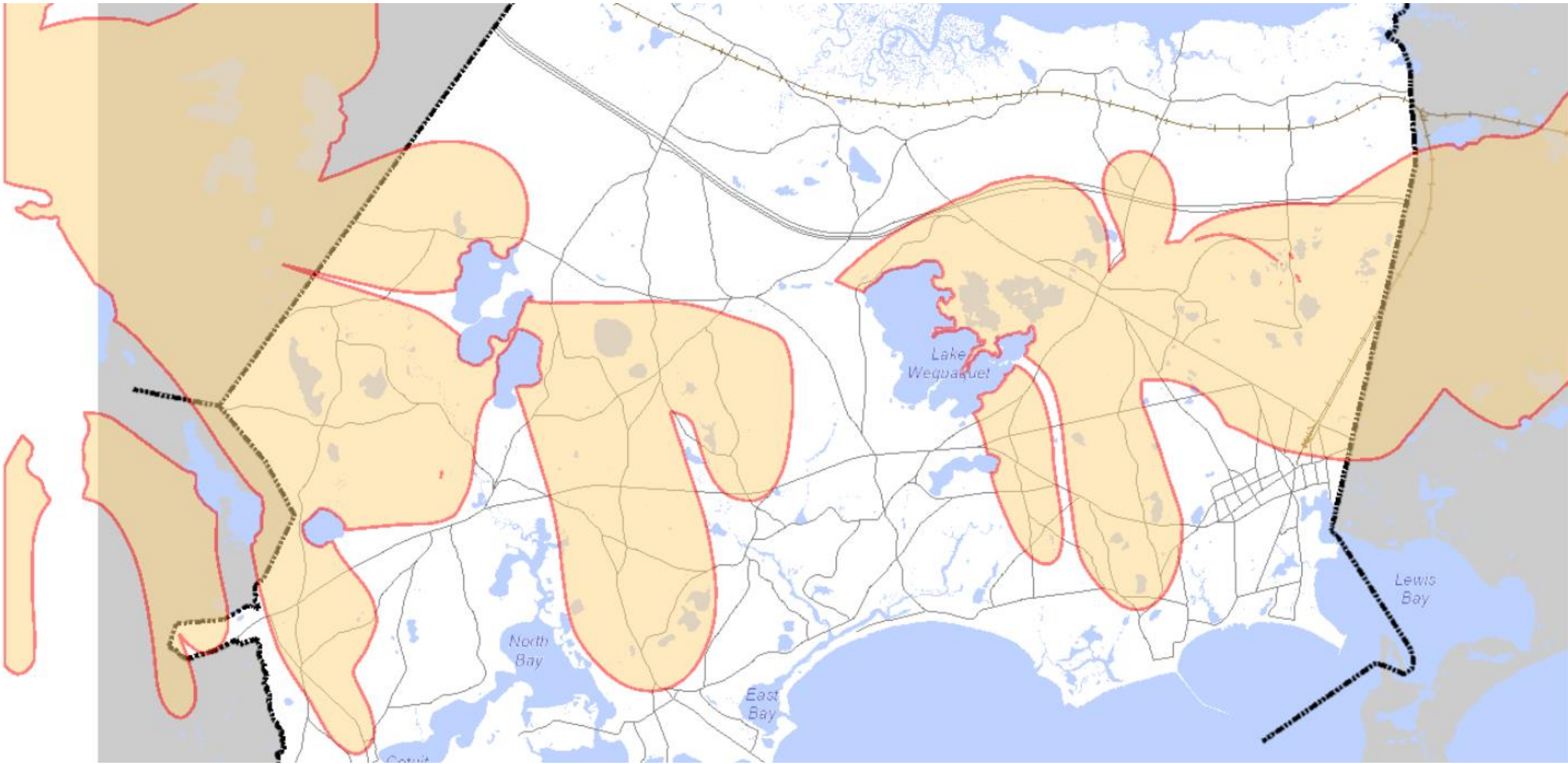
Treatment may be reduced or avoided

Prevents contamination cleanup

Saves on water purchases and new source development

Ensures clean drinking water supplies for future generations



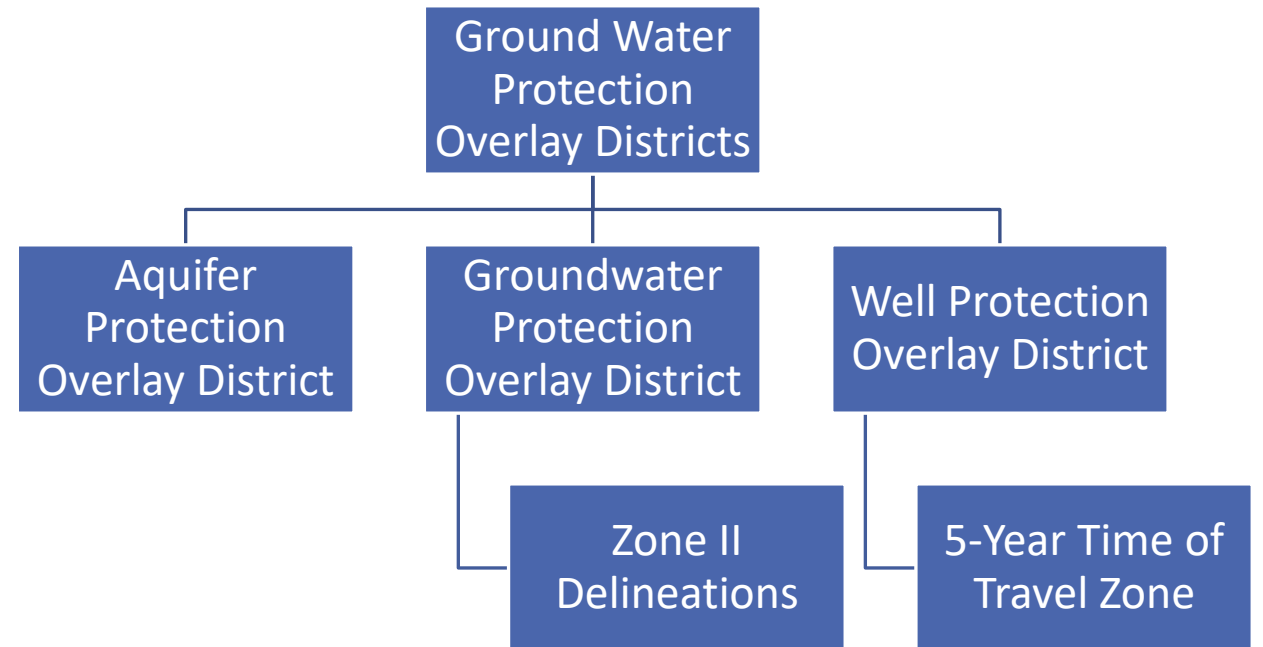




# Barnstable Water Supply Protection

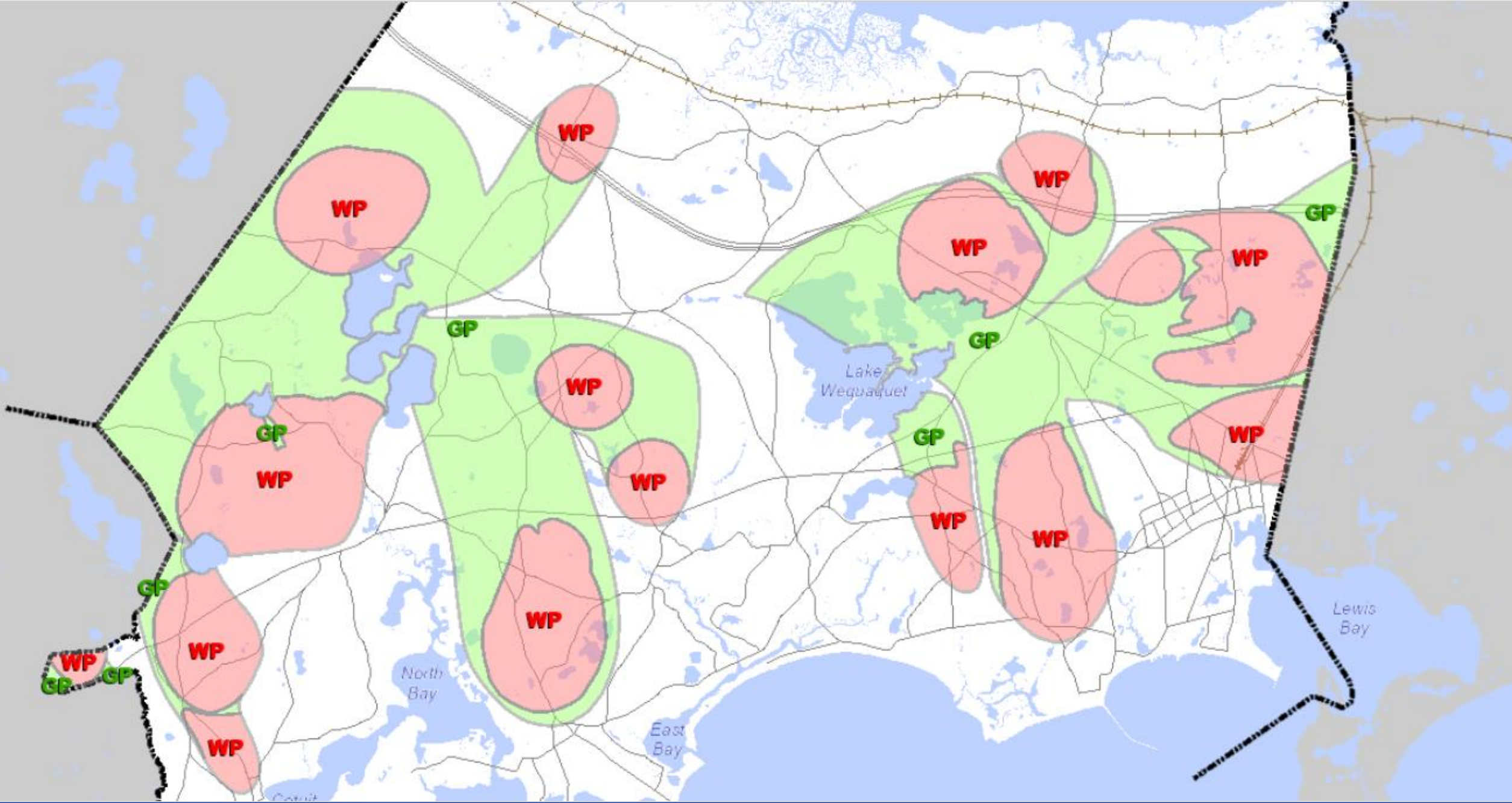
## Zoning

- Groundwater Protection Overlay Districts
  - Aquifer Protection Overlay District
  - Groundwater Protection Overlay District
    - Zone II Delineations
  - Well Protection Overlay District
  - 5-year Time of Travel Zone



Board of Health

Land Acquisition



# Groundwater Protection Overlay Districts Prohibited Uses

- Landfills & Dumps
- Junkyards & Salvage Yards
- Mining of land or other raw materials
- Removal of soil within 4 feet of high groundwater elevation
- Underground fuel storage tanks
- Sewage treatment plants or disposal works
- Commercial livestock
- Storage of road salt
- Storage of animal manures
- Stockpile of snow and ice
- Storage of liquid petroleum products
- Storage of commercial fertilizers
- Metal plating
- Chemical laboratories
- Boat, motor vehicle and aircraft cleaning service and repair
- Dry cleaning
- Furniture stripping, painting, refinishing
- Uses that generate, treat or store hazardous wastes
- Storage of sludge and septage
- Limitations on site clearing
- Limitations on lot coverage and impervious surfaces
- Stormwater management system oversight



# Land Acquisition for Groundwater Protection

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Land Bank 1999-2006

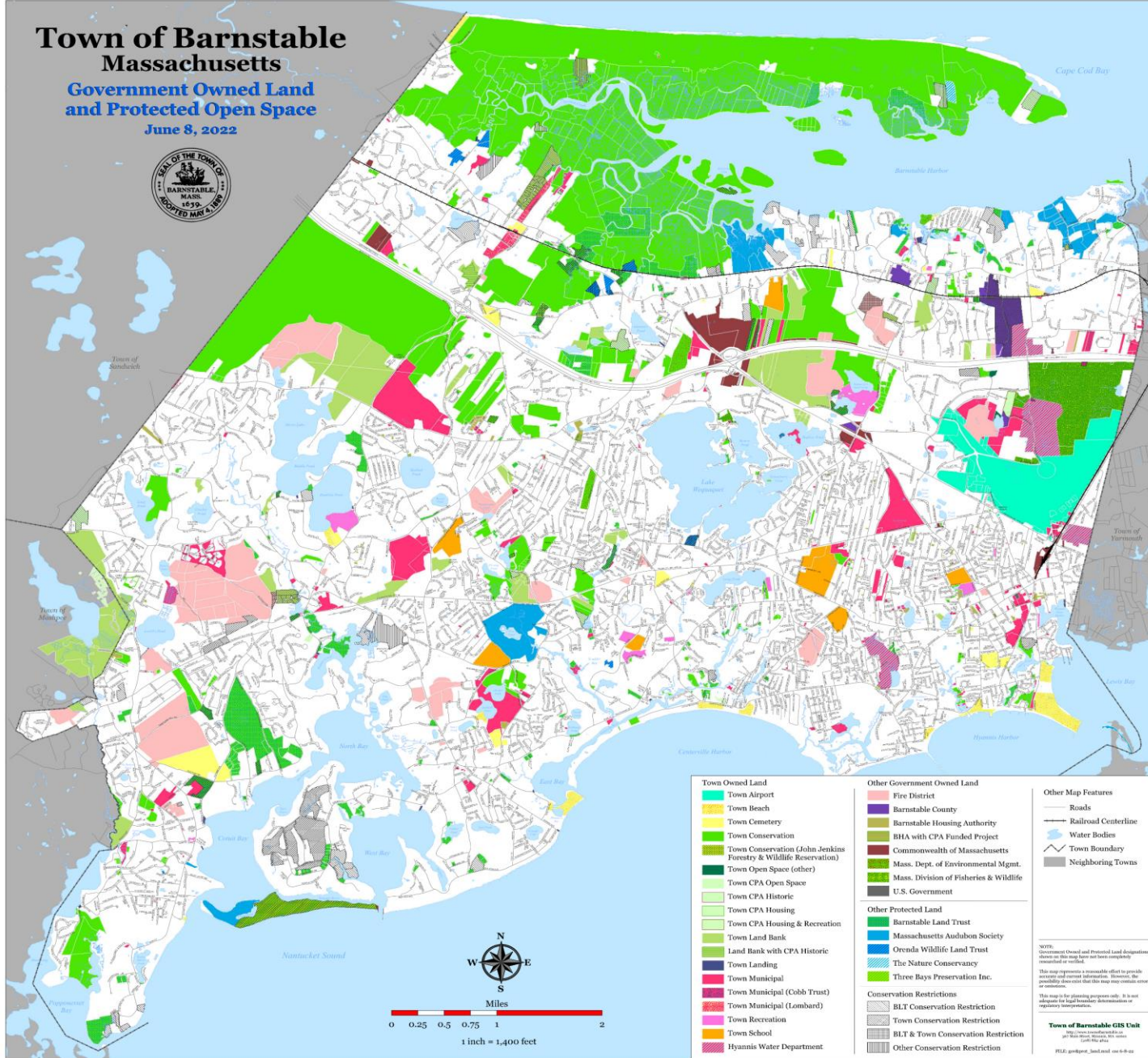
Community Preservation Act/Committee

963 acres in total protected

# Town of Barnstable Massachusetts

## Government Owned and Protected Open Space

June 8, 2022



- |  |  |                           |
|--|--|---------------------------|
| <b>Town Owned Land</b>   | <b>Other Government Owned Land</b>     | <b>Other Map Features</b> |
| Town Airport   | Fire District                          | Roads                     |
| Town Beach   | Barnstable County                      | Railroad Centerline       |
| Town Cemetery  | Barnstable Housing Authority           | Water Bodies              |
| Town Conservation  | BHA with CPA Funded Project            | Town Boundary             |
| Town Conservation (John Jenkins Forestry & Wildlife Reservation) | Commonwealth of Massachusetts          | Neighboring Towns         |
| Town Open Space (other)  | Mass. Dept. of Environmental Mgmt.     |                           |
| Town CPA Open Space  | Mass. Division of Fisheries & Wildlife |                           |
| Town CPA Historic  | U.S. Government                        |                           |
| Town CPA Housing   |  |                           |
| Town CPA Housing & Recreation                                    | <b>Other Protected Land</b>            |                           |
| Town Land Bank   | Barnstable Land Trust                  |                           |
| Land Bank with CPA Historic                                      | Massachusetts Audubon Society          |                           |
| Town Landing   | Orinda Wildlife Land Trust             |                           |
| Town Municipal   | The Nature Conservancy                 |                           |
| Town Municipal (Cobb Trust)                                      | Three Bays Preservation Inc.           |                           |
| Town Municipal (Lombard)   |  |                           |
| Town Recreation  | <b>Conservation Restrictions</b>       |                           |
| Town School  | BLT Conservation Restriction           |                           |
| Hyannis Water Department   | Town Conservation Restriction          |                           |
|  | BLT & Town Conservation Restriction    |                           |
|  | Other Conservation Restriction         |                           |

NOTE:  
Government Owned and Protected Land designations shown on this map have not been independently researched or verified.  
This map represents a reasonable effort to provide accurate and current information. However, the provider does not warrant that this map contains errors or omissions.  
This map is for planning purposes only. It is not adequate for legal boundary determination or regulatory interpretation.

**Town of Barnstable GIS Unit**  
2022, using geospatial data from various sources.  
Last file date: 06-08-22  
FILE: geopoint\_land.mxd, ver 6-8-22



# Questions?