

# Connecticut's Aquifer Protection Area Program - A Training Refresher

Presented on September 21, 2023  
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For NVCOG's Land Use Commissioner Training



Connecticut Department of Energy and Environmental Protection

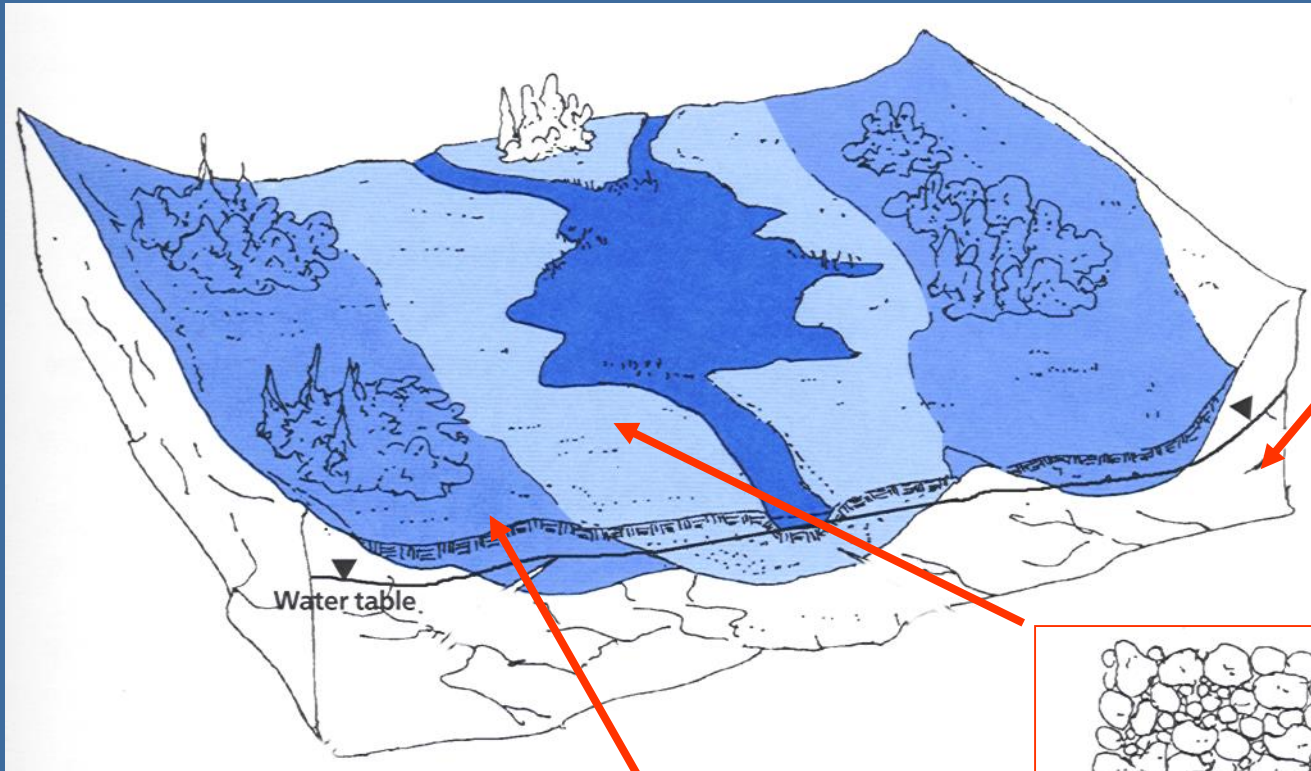
# Outline of Presentation

- Aquifer Basics
- History and an Overview of the Aquifer Protection Area Program
- Next Steps for Municipalities
- Training Opportunities
- Contact Information

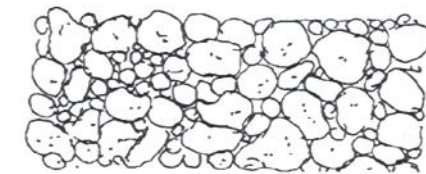
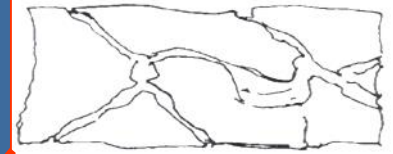


# Aquifer Basics - What is an Aquifer?

An aquifer is any geologic formation (rock or sediment) that can yield a usable amount of water.

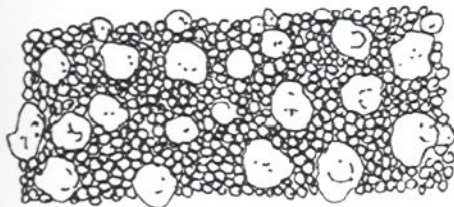


**BEDROCK** – High yield if large spaces or cracks; low yield if few interconnected cracks.



**STRATIFIED DRIFT** –

High yield if coarse-grained sand and gravel; low yield if fine sand, silt or clay.



**GLACIAL TILL** –  
Low yield due to insufficient, poorly connected pore spaces

# Types of Aquifers in Connecticut

## Stratified drift

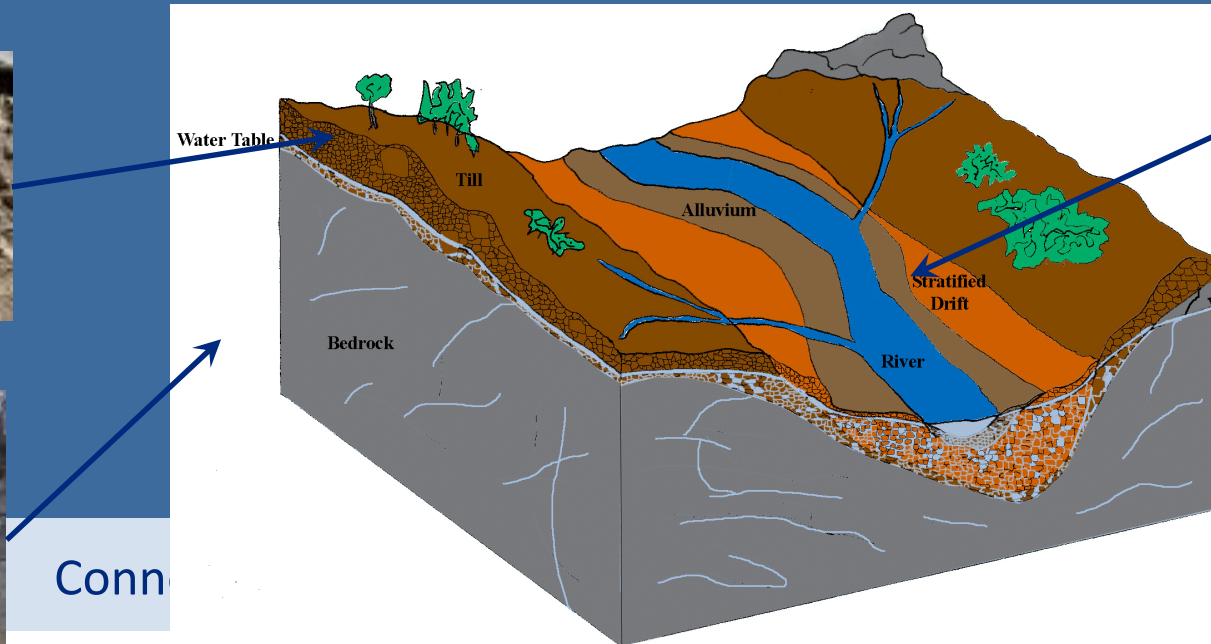
- Glacial sand & gravel deposits that fill the major river valleys
- Highest yielding aquifers

## Till

- Low yield due to insufficient, poorly connected pore spaces

## Bedrock

- High yield if many connected fractures, low yield if few connected fractures



Conn

Protection

# CT Aquifers: Importance & Vulnerability

## Importance of Aquifers:

- Significant source of existing public drinking water
- Primary source of future public drinking water

## Vulnerability of Aquifers:

- Shallow, unconfined and highly porous
- Pollution threats from some local land use activities

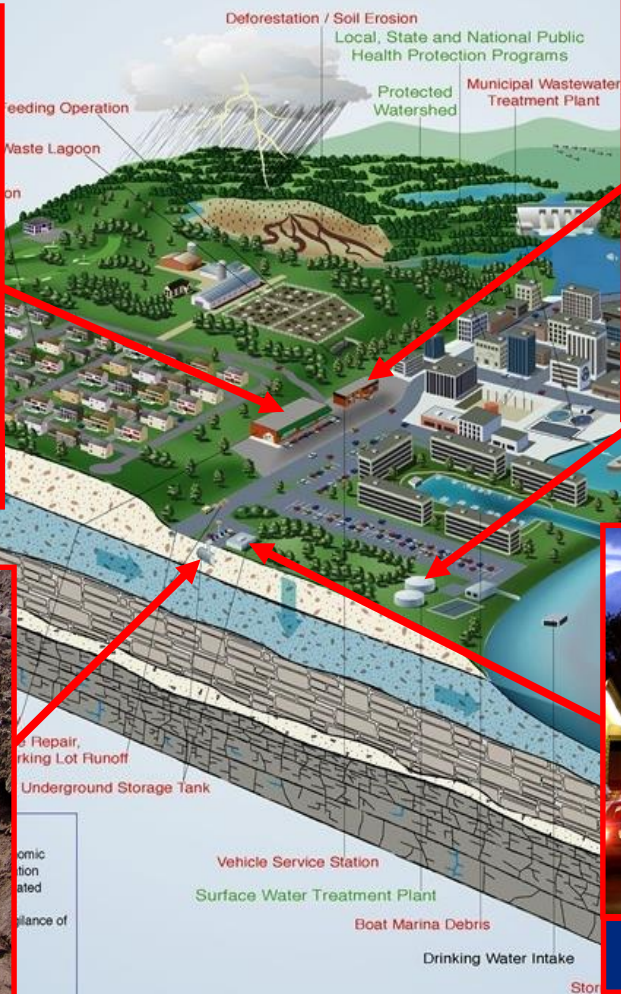




# Aquifer Pollution Threats



Industrial Operations



Handling/Storage of Chemicals



Underground Storage Tanks



Filling Stations

Risk Monitoring and Compliance Barrier  
Individual Action Barrier



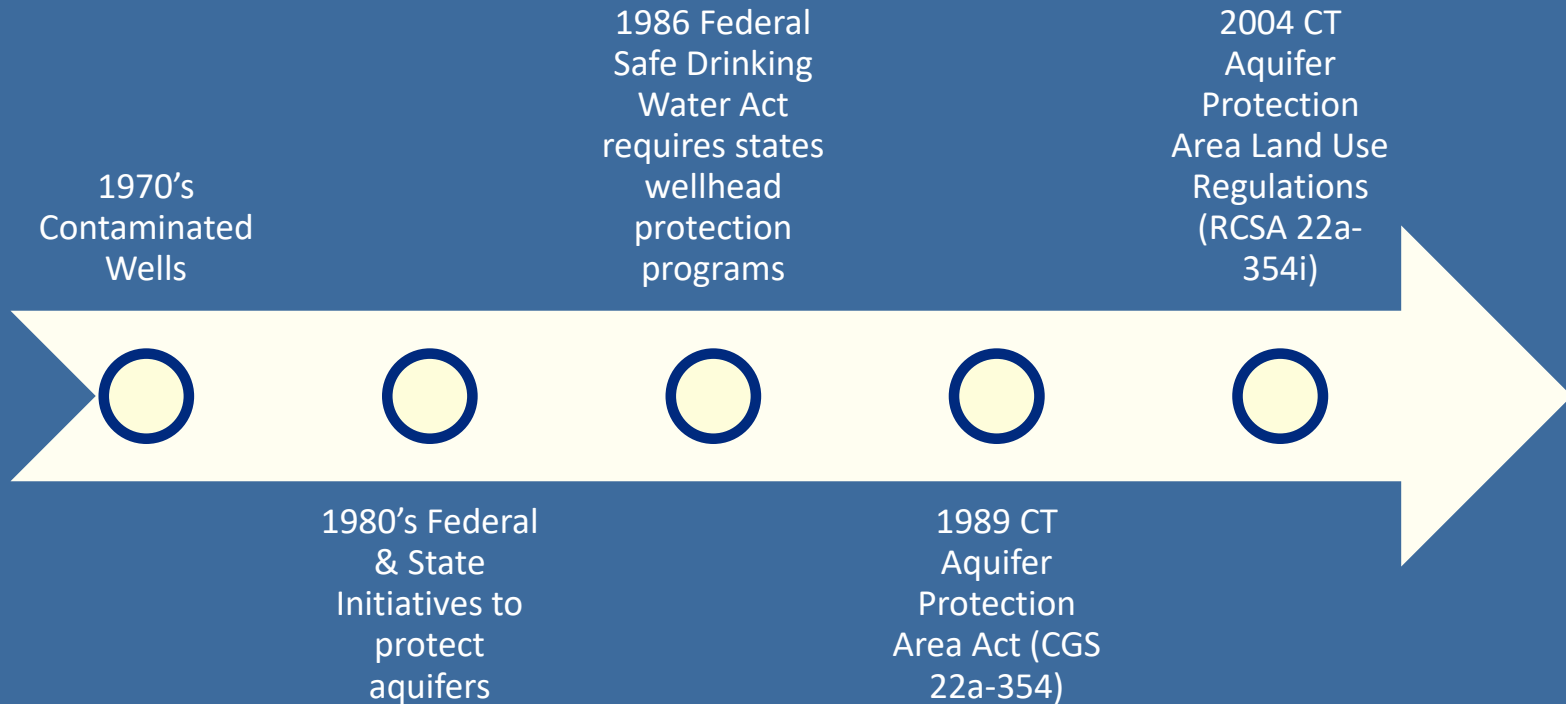
# History and an Overview of the Aquifer Protection Area Program



Connecticut Department of Energy and Environmental Protection

# Aquifer Protection History

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# Overview of the APA Program

The program's purpose is to identify major existing public water supply aquifers and to protect them from pollution by managing specific land use activities occurring nearby.



This was accomplished by:

- Establishing “aquifer protection areas” around major public water supply well fields in certain types of aquifers
- Establishing municipal Aquifer Protection Area Agencies to implement the program
- Requiring existing activities which involve the use, storage, handling, or disposal of hazardous materials or other potential aquifer contaminants to register with the municipality (or State) and follow best management practices or standards designed to minimize the possibility of polluting the aquifer

***The Aquifer Protection Area Program regulates activities that are conducted at businesses.***

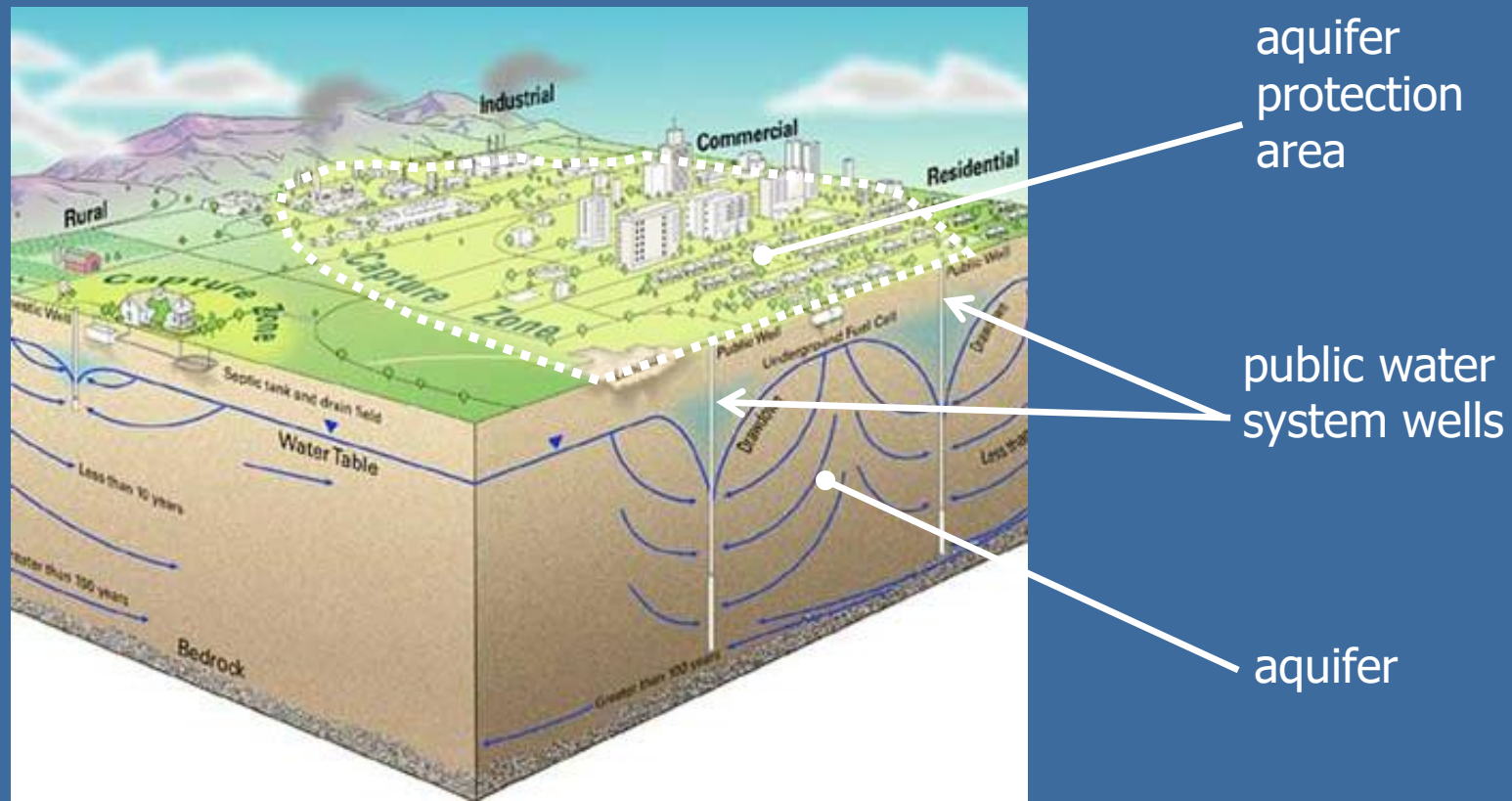
# What's an Aquifer Protection Area?

It's the critical portion of the aquifer which provides water to the well.

Aquifers protected under the program must meet the following criteria:

- the aquifer must be a stratified drift aquifer,
- the aquifer must contain an existing well used by a public water system, and
- the existing well must serve a population of 1,000 or more

## Example



# Statewide APA Overview

80 CT towns have Aquifer Protection Areas

127 Aquifer Protection Areas in CT making up about 2-3% of the state's land area

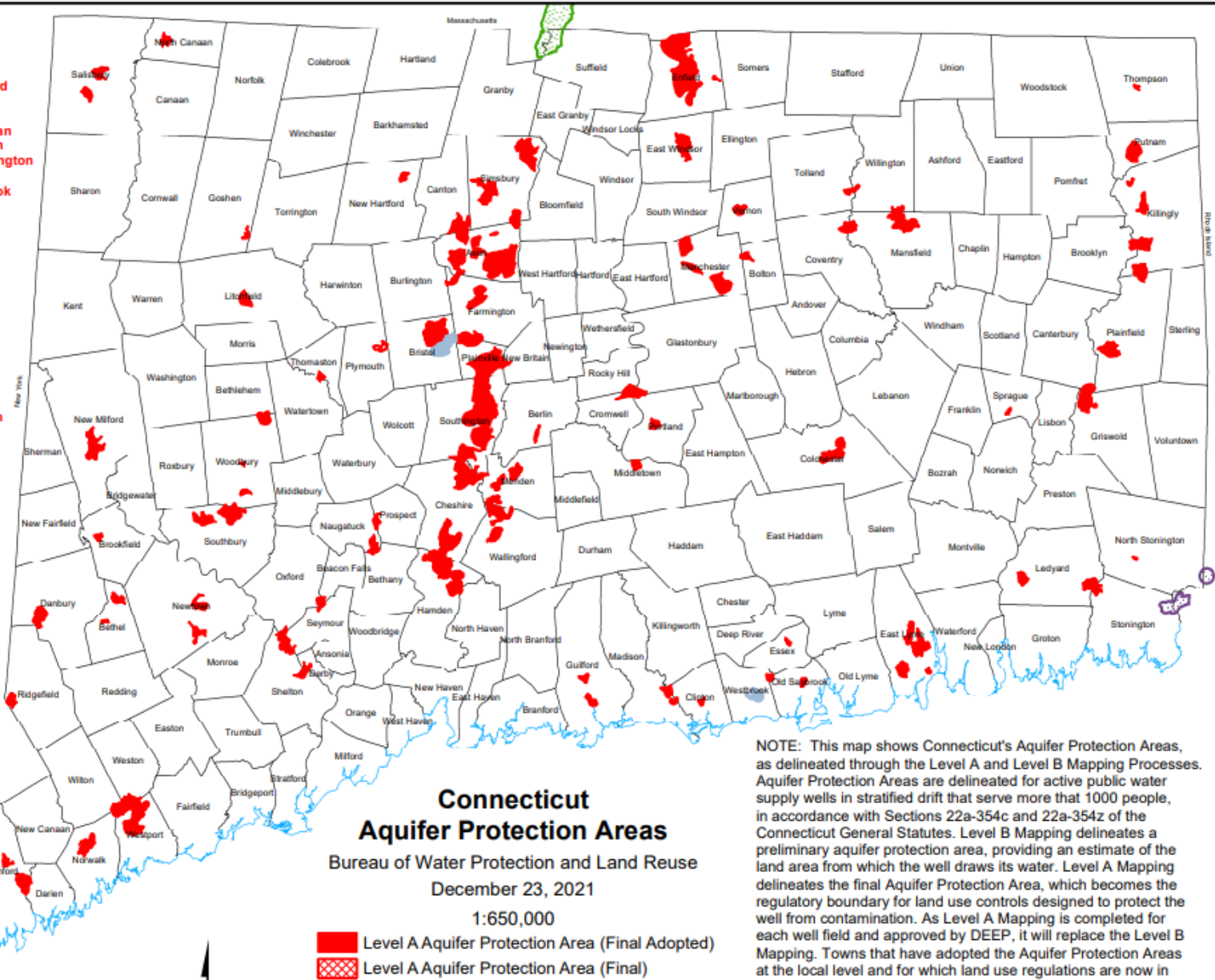
1,800 potentially regulated “facilities” in CT (a “facility” is a property where one or more activities regulated under the program is being conducted)



### Towns with Aquifer Protection Areas

- \* Avon
- \* Beacon Falls
- \* Berlin
- \* Bethany
- \* Bethel
- \* Bethlehem
- \* Bolton
- \* Bristol
- \* Brookfield
- \* Brooklyn
- \* Burlington
- \* Canterbury
- \* Canton
- \* Cheshire
- \* Clinton
- \* Colchester
- \* Coventry
- \* Cromwell
- \* Danbury
- \* Darien
- \* Derby
- \* East Lyme
- \* East Windsor
- \* Enfield
- \* Essex
- \* Farmington
- \* Glastonbury
- \* Goshen
- \* Griswold
- \* Guilford
- \* Hamden
- \* Killingly
- \* Ledyard
- \* Litchfield
- \* Madison
- \* Manchester
- \* Mansfield
- \* Meriden
- \* Middletown
- \* Naugatuck
- \* New Britain
- \* New Hartford
- \* New Milford
- \* Newtown
- \* North Canaan
- \* North Haven
- \* North Stonington
- \* Norwalk
- \* Old Saybrook
- \* Oxford
- \* Plainfield
- \* Plainville
- \* Plymouth
- \* Portland
- \* Prospect
- \* Putnam
- \* Ridgefield
- \* Rocky Hill
- \* Salisbury
- \* Seymour
- \* Shelton
- \* Simsbury
- \* Southbury
- \* Southington
- \* Sprague
- \* Stamford
- \* Stonington
- \* Thomaston
- \* Thompson
- \* Tolland
- \* Vernon
- \* Wallingford
- \* Watertown
- \* Westbrook
- \* Weston
- \* Westport
- \* Willington
- \* Wilton
- \* Woodbury

\* Towns in red have adopted the Final Aquifer Protection Areas



## Connecticut Aquifer Protection Areas

Bureau of Water Protection and Land Reuse

December 23, 2021

1:650,000

- Level A Aquifer Protection Area (Final Adopted)
- Level A Aquifer Protection Area (Final)
- Level B Aquifer Protection Area (Preliminary)
- Massachusetts Wellhead Protection Area
- Rhode Island Wellhead Protection Area

NOTE: This map shows Connecticut's Aquifer Protection Areas, as delineated through the Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it will replace the Level B Mapping. Towns that have adopted the Aquifer Protection Areas at the local level and for which land use regulations are now in place are designated by the solid red above and in red in the list of Towns with Aquifer Protection Areas. Wellhead protection areas in Massachusetts and Rhode Island are shown for informational purposes only.

[www.ct.gov/deep/aquiferprotection](http://www.ct.gov/deep/aquiferprotection)



Connecticut Department of  
Energy & Environmental Protection  
79 Elm Street  
Hartford, CT 06106



# Who's involved in implementing the APA Program?

## Water Companies/Public Water Utilities:

- Conduct mapping of aquifer protection areas
- Provide technical assistance to municipalities

## Municipalities:

- Designate an Aquifer Protection Agency, Adopt APA maps
- Adopt and implement APA regulations
- Register and permit regulated activities
- Ensure compliance with BMPs, conduct site inspections, enforcement

## CT DEEP:

- Administers APA program statewide
- Provides technical assistance, guidance and training to municipalities
- Registers and permits major facilities and State facilities (DEEP, DOT, DOE, DOC, DDS, DMHAS, CT Military Dept.)
- Ensure compliance with BMPs, conduct site inspections, enforcement



# What is regulated?

Generally, existing activities that involve the use, storage, handling, or disposal of hazardous materials or other potential contaminants of the aquifer will be subject to Aquifer Protection Area Regulations. These are called “regulated activities”.



# What are some examples of Regulated Activities?

Vehicle/engine repair and maintenance  
Oil or petroleum dispensing  
Underground storage tanks  
Metal production or fabrication  
Metal plating  
Metal or vehicle salvaging  
Degreasing of parts or equipment  
Use/storage of dry cleaning solvents  
Loading/mixing/storage of pesticides  
Warehousing/bulk storage of chemicals  
Finishing/stripping of furniture  
Production/refining of chemicals



# Are there any exceptions?

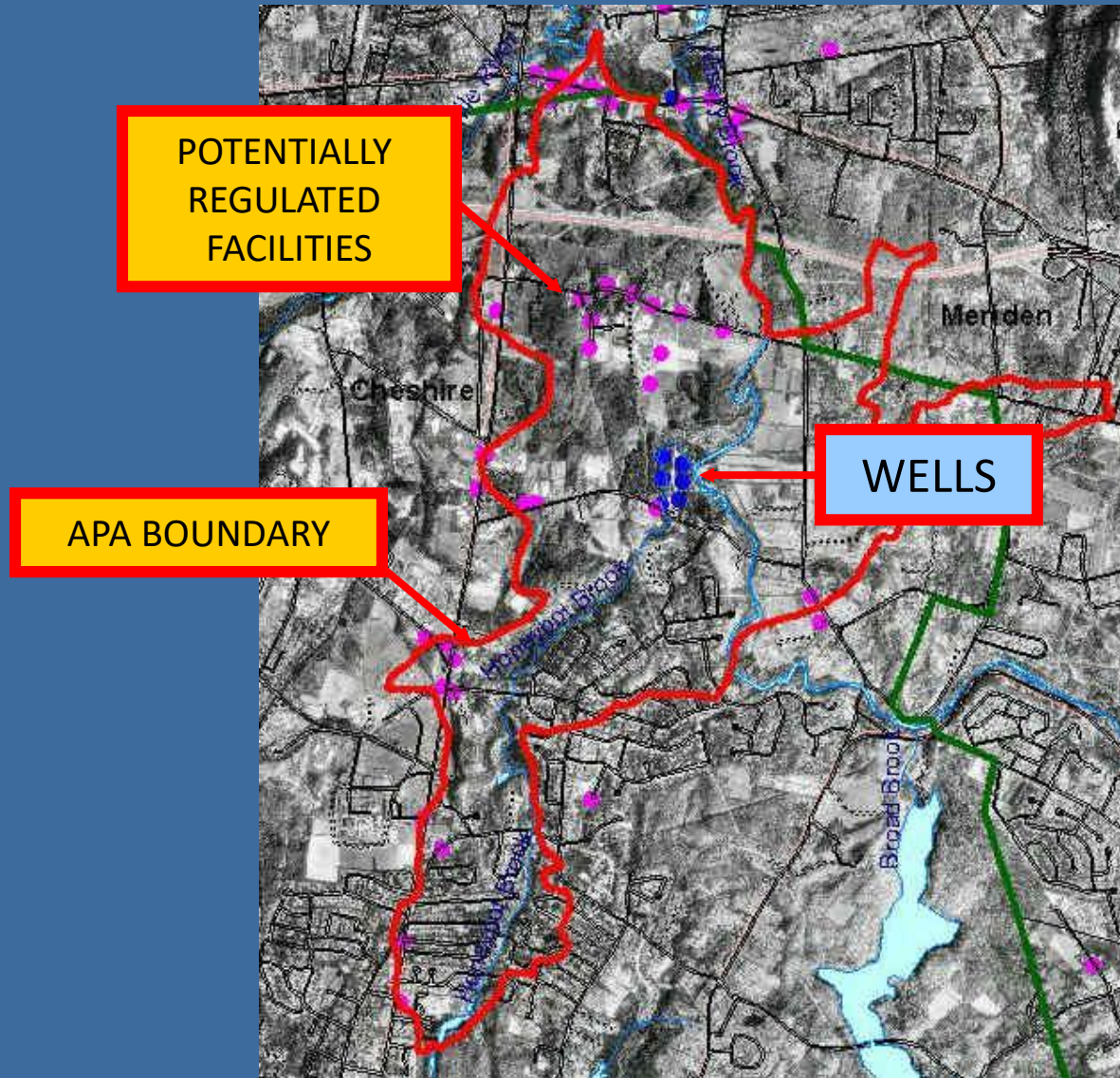
## Yes, possible exceptions include:

- certain activities allowed if connected to public sewer (e.g., car wash)
- certain "as-of-right" activities (e.g., residential, agricultural)
- conditional (i.e., volume thresholds)





# Delineation of Cheshire APA



# Is there a list of all regulated activities?

Yes, all 28 regulated activities are listed in the Aquifer Protection Area Regulations.

There is a table of regulated land use activities in Chapter 14 Appendices of the Connecticut's Aquifer Protection Area Program Municipal Manual prepared by CT DEEP.

## 14 | Appendices

14.1 Table of Regulated Land Uses<sup>1</sup>

REGULATED ACTIVITY	INCLUSIONS/ EXCEPTIONS	TYPICAL LAND USE <sup>2</sup>	ACTIVITY (A)/ CHEMICAL (C) OF CONCERN
<b>Underground Storage or Transmission of Oil, Petroleum or Hazardous Material</b> RCSA Sec. 22a-354i-1(34)(A)	Includes all except: 1. Activities preempted by federal law (pipelines, etc.) 2. An underground storage tank that contains #2 fuel oil and is located more than 500 feet from an APA well 3. Underground electrical facilities such as transformers, breakers, or cables containing oil for cooling or insulation purposes which are owned and operated by a public service company	Gas station, automotive or fleet garage, misc. businesses	<b>A</b> Tank, pipeline or joint leaks or breaks <b>C</b> Liquid fuel, hazardous material
<b>Oil or Petroleum Dispensing</b> RCSA Sec. 22a-354i-1(34)(B)	Includes all retail, wholesale or fleet use except above-ground storage of <2,000 gallons, subject to conditions—see RCSA Sec. 22a-354i-5(c)(6)	Gas station, automotive or fleet garage, fuel oil dealers, misc. businesses	<b>A</b> Leaks, drips, tank ruptures <b>C</b> Hydrocarbons, benzene and other contaminants
<b>Wholesale Hazardous Materials</b> RCSA Sec. 22a-354i-1(34)(C)	Includes all on-site storage of hazardous materials for the purpose of wholesale sale	Chemical warehouses, bulk storage facility, tank farm	Large volumes of various materials and products handled, stored and distributed that might contaminate groundwater as a result of accidents, poor management practices, flooding or fires. Solvents, organic and inorganic chemicals, and hydrocarbon contamination threats
<b>Vehicle Repair or Maintenance</b> RCSA Sec. 22a-354i-1(34)(D)	Includes all repair or maintenance of vehicles or internal combustion engines of vehicles, involving the use, storage or disposal of hazardous materials, including solvents, lubricants, paints, brake fluids, transmission fluids or the generation of hazardous wastes	Auto service, car dealers, auto body repair, aircraft repair, boat or marine dealer repair, fleet or municipal garage, marine, recreational, motorcycle dealer, construction equipment repair or rental, tractor and lawn mower repair, and related uses	<b>A</b> Fuel storage, use and storage of oils, paints, thinners, various solvents, brake and transmission fluids <b>C</b> Hydrocarbons, solvents, benzene
<b>Salvage Operations</b> RCSA Sec. 22a-354i-1(34)(E)	Includes all salvage operations of metal or vehicle parts	Junkyards, salvage yards	<b>A</b> Fuel storage, use and storage of oils, paints, thinners, various solvents, brake and transmission fluids <b>C</b> Hydrocarbons, solvents, benzene

<sup>1</sup> Please note that the intent of this table is to provide guidance, therefore the language of the regulation is simplified for ease of use. See Regulations of Connecticut State Agencies (RCSA) Sec. 22a-354i-1 for specific language.  
<sup>2</sup> This is not an exhaustive list of land uses, just examples of the types of land use to clarify categories.

# Who should register?

- Businesses located in the Aquifer Protection Area that are conducting regulated activities are required to register
- The Aquifer Protection Area Registration “grandfathers” the activity by allowing the business to continue to operate
- Registration renewals are every 5 years



# Next Steps for implementing the Aquifer Protection Area Program



Connecticut Department of Energy and Environmental Protection



# Next Steps

1. Hold regular meetings of the Aquifer Protection Agency
2. Create a new Aquifer Protection Agency webpage – list members and their terms, meeting agendas and minutes, zoning map with APA mapped boundary, APA regulations, registration forms, contact information, and link to DEEP's APA website
3. Amend Municipal Aquifer Protection Area Regulations to be consistent with State APA Regulations – 2010 Model APA Regulations

## Next Steps (Cont.)

4. Compile a list of businesses (an inventory) of all potential registrants – use tax assessor's list; check UCONN's website CT ECO; check fire marshal's list of businesses with haz mats – send letter, call and email to inform owners
5. Conduct site inspections to ensure compliance with Best Management Practices
6. Register businesses that are conducting regulated activities by issuing a cover letter and certificate (send copies to DEEP, DPH, Water Utility)

# CT DEEP Aquifer Protection Area Program Technical Training



**Take the training course today!**

To register,

visit [https://clear.uconn.edu/training/DEEP\\_APA\\_training.htm](https://clear.uconn.edu/training/DEEP_APA_training.htm)



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# For more information

DEEP's APA website :

<https://portal.ct.gov/DEEP/Aquifer-Protection-and-Groundwater/Aquifer-Protection/Aquifer-Protection-Program>

Email: [deep.aquiferprotection@ct.gov](mailto:deep.aquiferprotection@ct.gov)







## Contact information:

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