



# Connecticut Department of Public Health

## Connecticut's Approach to Public Drinking Water and Public Health Protection

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# Connecticut's Approach *Public Drinking Water*

- Rooted in our state's history
- Public health based
- Crafted to be protective of public health
- Conservative, Unique and Preventative



# Public Drinking Water & Public Health Presentation

- Public Drinking Water Regulation
- Department of Public Health (DPH) Drinking Water Section Responsibilities
- Why Public Health? historic concern
- Current Public Health Drinking Water Law
- Challenges of the Future



# Public Drinking Water Regulation



# Public Drinking Water Regulation

- History of Public Health & Drinking Water
- US Public Health Service – 1798 & 1912
- Connecticut Health Department - 1880s & 1917
- US Environmental Protection Agency - 1970
- Safe Drinking Water Act (SDWA) – 1974, '86 & '96
- CT DPH received primacy for the SDWA - 1976



# Environmental Protection Agency Public Water Systems

- What is a Public Water System?
- 155,700 Public Water Systems in United States
- 52,000 community systems – serves residential population
- 286 million people served
- 70% by surface water



# Connecticut Public Water Systems

- Over 2,500 Public Water Systems
- Largest number of systems of the New England states
- Considered a Medium Size State by the Environmental Protection Agency



# Department of Public Health Drinking Water Section

## Responsibilities





# DPH

## Drinking Water Section

- To protect the public health of Connecticut residents and visitors that consume public drinking water in Connecticut
- Responsible for purity and adequacy oversight statewide for all public water systems
- Work to proactively prevent impacts to health



# CT DPH Drinking Water Section

- Primacy of Safe Drinking Water Act - EPA
  - system engineering reviews
  - treatment/source review & approval
  - Drinking Water State Revolving Loan Fund
  - drinking water quality – oversight of monitoring and reporting for over 100 contaminants
  - Lead & Copper Rule, Radionuclides Rule, Ground Water Rule, Arsenic Rule, Revised Total Coliform Rule, etc
- State Statutory Oversight
  - purity and adequacy of public drinking water
  - water company land regulation
  - recreation permitting, sale of excess water, certified operators, enforcement
  - water supply planning and regional planning (WUCC)



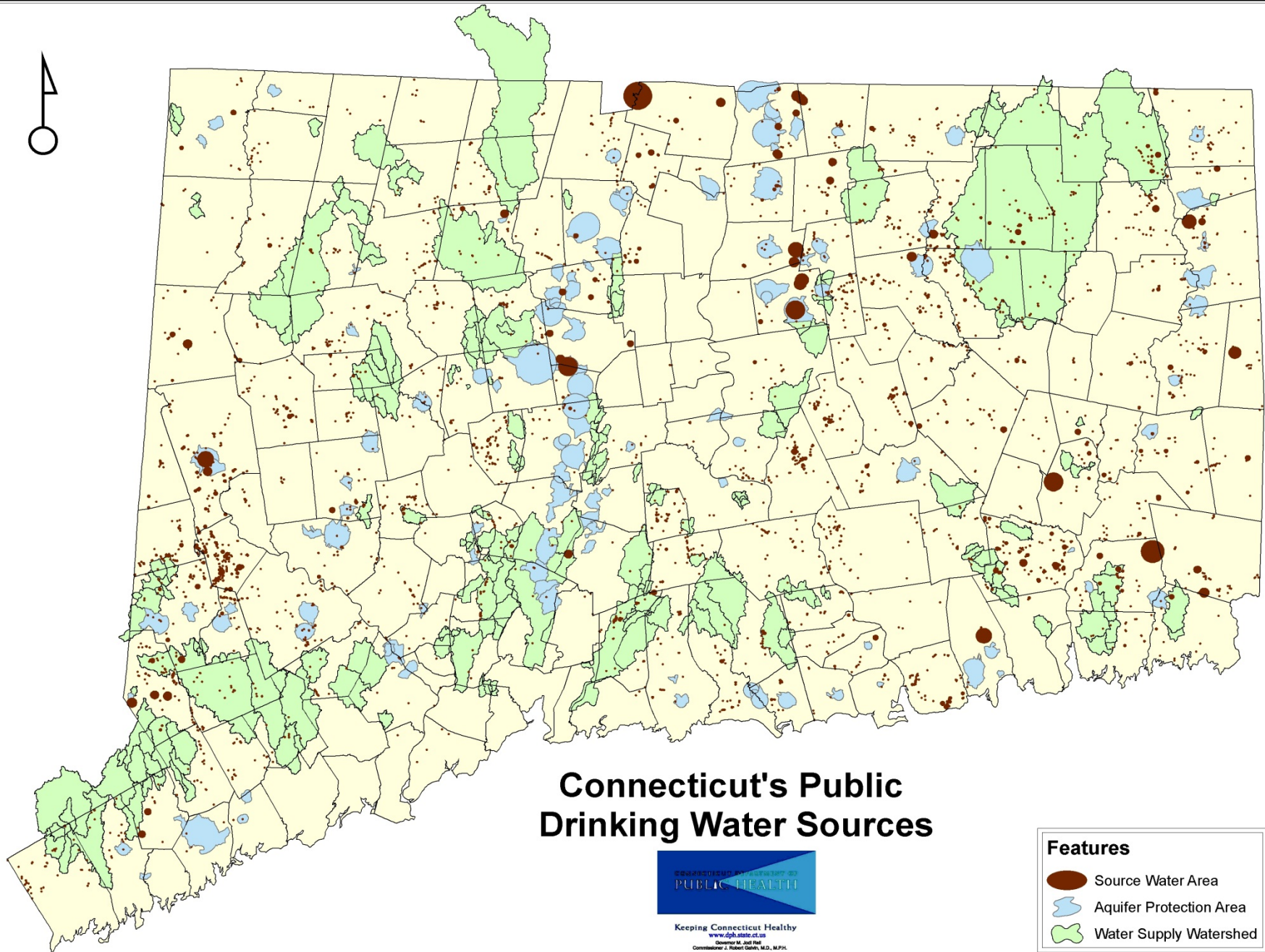
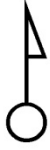
# CT DPH Drinking Water Section Responsibilities

- Regulate 2,550 Public Water Systems
- 2.8 million CT residents served – 3.5 million total population
- 550 community systems
- 2,000 non-community systems
- 150 reservoir systems, over 4,000 ground water sources












# Connecticut's Public Drinking Water Sources



Keeping Connecticut Healthy  
www.dph.state.ct.us  
Governor M. Jodi Rell  
Commissioner J. Robert Gresh, M.D., M.P.H.

**Features**

-  Source Water Area
-  Aquifer Protection Area
-  Water Supply Watershed





# Drinking Water Section Responsibilities – 50 Staff

- Administer drinking water protection laws
- SDWA, primacy since 1976
- Water quantity oversight – Margin of Safety
- Water quality review, over 500,000 samples per year
- Review and approve all significant improvements to public water systems
- Review and approve new treatment plants and systems
- Conduct sanitary engineering surveys, every 3 or 5 years
- Review and approve water supply plans and regional plans
- Responsive to all hazards, emergency preparedness
- Review of sale/use of 100,00 acres of water company land

# DWS Responsibilities

- Drinking Water State Revolving Loan Fund \$150 million since 1999, with another \$200 million moving forward, infrastructure projects, repair, replace upgrade, extend to pollution
- Proactively protect public drinking water sources
- Proactive enforcement of violations, follow-up with system owner, issue NOVs and Orders to assure system compliance
- System takeover if failure, system review, violations, etc.
- Tracking of SDWA compliance and reporting to EPA
- Sources of bottled water in CT and bulk water hauling
- 24/7 coverage and response concerning public water system emergencies
- Track and report program measures
- Administer EPA grants since 1980s
- Assure compliance for all 2500 public water systems

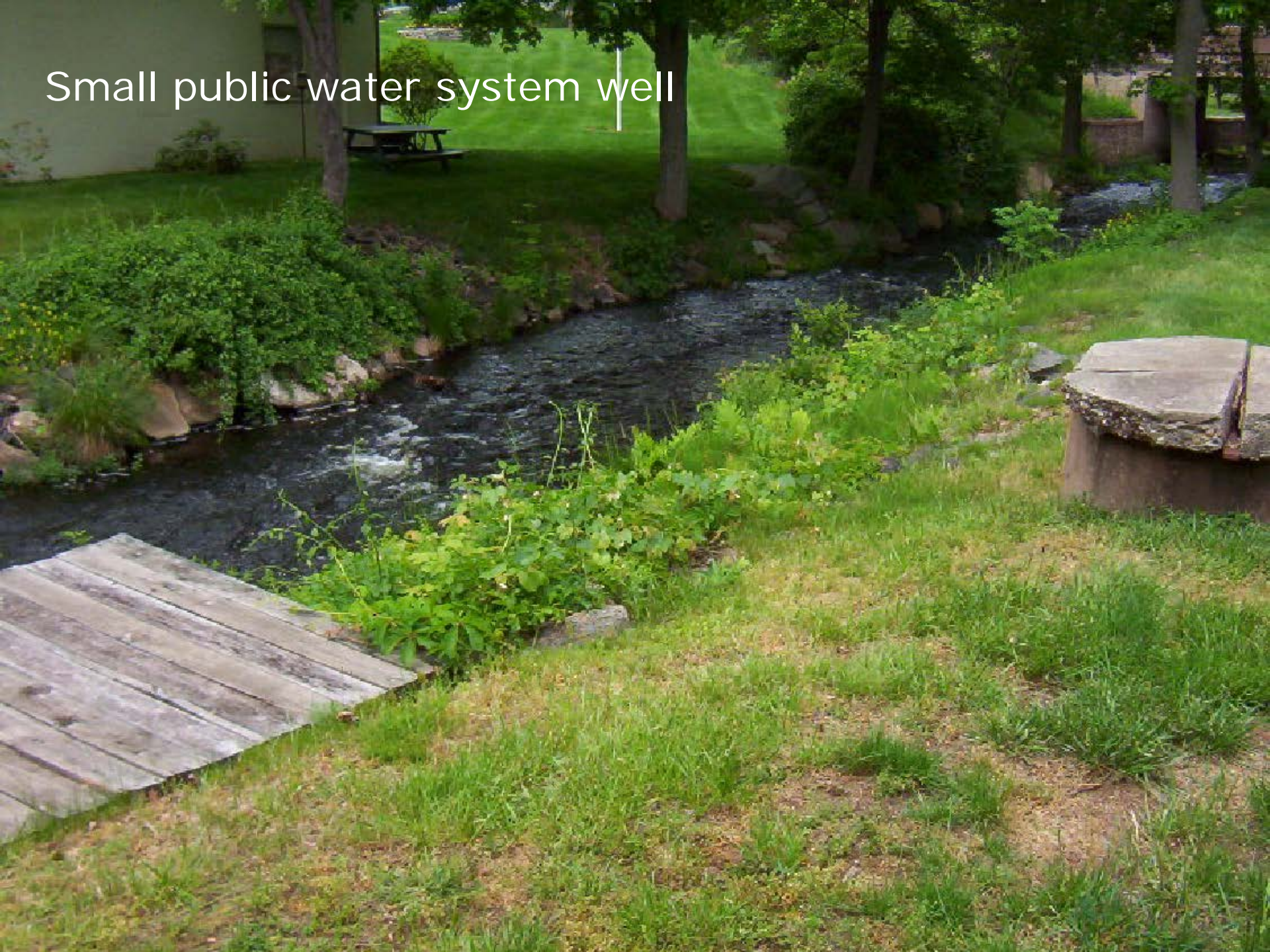


# Reservoir system in Connecticut





Small public water system well





# Why Public Health?



# Water Supply Problems – 19<sup>th</sup> century

- Industries need water for production, fire safety, consumption
- Population growth in Cities
- Water supply inadequate
- Unfiltered
- Untreated water
- Unprotected, poor distribution systems
- Unsanitary conditions, waste disposal
- 1878 CT State Agency Public Health oversight created

# Public Health Concerns Water Supply 19<sup>th</sup> Century

- Significant public health issue - consuming drinking water, ground water and surface water
- Waterborne disease
- Gastrointestinal infection
- Typhoid, cholera, dysentery were prevalent
- Microorganisms in 19<sup>th</sup> century,
- Beginning of 20<sup>th</sup> century filtration, build technology, disinfection, sanitary protections at source, protection of raw water quality

# Typhoid Fever & Cholera

- Bacterial disease
- Transmitted in water contaminated with feces of infected person
- Occurrence of the disease fell sharply in the developed world with the rise of 20<sup>th</sup> century sanitation techniques (chlorination) and antibiotics
- 2013 – 161,000 deaths from Typhoid worldwide



# Chance of dying from gastrointestinal infection before the age of 70

- 1900 – an American had a 1 in 20 chance
- 1940 – 1 in 3,333
- 1990 - 1 in 2,000,000
- 100,000 fold public health improvement in less than a century



# Current Public Health Drinking Water Law





# Abundant and Safe Water CT Laws – early 20<sup>th</sup> Century

- 25-32 purity and adequacy DPH to assure and responsible for oversight, broad authority
- 25-33 source approval
- 25-34 investigate and order to stop pollution or threat of pollution
- 25-43 no pollution, no one is allowed to pollute
- 19a assure sanitary conditions
- Regulation 19-13-B32

# Abundant & Safe Public Drinking Water – late 20<sup>th</sup> Century

- 25-32d water supply plans 1985
- 25-33c to n – Regional Plans and Coordinate water system plans
- 85 Water Supply Plans
- Updated plans periodically
- 25-32 & 25-37 – Water Company Lands
- 25-32b – Emergency Response
- 25-32 – Certified Operators



# Importance of an Abundant Supply of Safe and Pure Water for a Community

- Public health protection
- Preservation of public trust
- Allows for community growth
- Allows for a community to plan for future growth
- Assure sanitary conditions for multiple facilities, schools, nursing homes, restaurants, hospitals, town facilities
- Provides sustainability and viability for community
- Public safety, fire protection
- Economic growth
- Priceless



# Unique CT State Public Health Drinking Water Laws

- Multi-barrier approach
- Treatment and source water protection emphasized and required
- Use of high quality raw water sources, upland watersheds
- Aggressive and proactive laws to protect public health
- DPH Review of local development
- Prohibit sewage discharge in upland watershed areas
- Prohibit industrial waste discharge in upland areas



# Public Drinking Water Challenges of the Future



# 2015 Top Causes Public Drinking Water Outbreaks

- Giardia
- Legionella
- Norovirus
- Shigella
- Campylobacter
- Salmonella
- Hepatitis A
- Cryptosporidium
- E. Coli

# Threats Remain

- 1993 Milwaukee Cryptosporidium  
– 70 deaths, 400,000 sick
- 2012 West Virginia – chemical contamination
- 2014 Ohio – Harmful Algal Blooms cyanotoxins
- 2016 – Flint Michigan - Lead
- New potential emerging contaminants
- Drought/Climate Change/Extreme Weather
- 2015/2016 Perfluorinated Compounds



# Flint Michigan



# Current EPA Lead & Copper Rule

- History - 1991
- Compliance – testing, reporting, exceedance, 15 ppb action level, treatment
- 1,150 Community and NTNC systems required to test under the Lead and Copper Rule
- 170 non-transient non-community systems – schools
- 17 Public Water Systems out of compliance

# Flint MI

- Change of Source – April 2014 - water chemistry and public health impact
- State Responsible for City of Flint water system due to declared state of financial emergency, not traditional role
- Treatment System – April 2014 – October 2015 - using surface water treatment plant without corrosion inhibitor
- Complaints – start Spring 2014 – resident's concerned, public health issue
- October 13, 2014 – GM announces it will stop using the water at it Flint plant because it is corroding engine parts
- October 2015 Flint changes source of supply back to the Detroit supply
- January 2016 – EPA Headquarters issues Order to State of Michigan and City of Flint
- Significant public health issues continue

# Avoiding Flint MI

- Capable and Consistent State Agency DPH Oversight of the Safe Drinking Water Act
- Use only high quality sources of public drinking water
- Set clear public policy that humans deserve to consume high quality sources with an appropriate level of treatment
- Assure State DPH oversight of adequacy of public drinking water supply through existing planning mechanisms
- Assure strong public health policy in the protection of public health and the consumption of drinking water
- Assure Unique Laws that protect public drinking water in CT remain in effect
- Full fund the DPH concerning Public Drinking Water Oversight through appropriate levels of State and Federal funding

# Challenges of the Future

- Maintain high quality sources for human consumption
- Assure public health protection
- Minimize risk as watersheds are developed and climate change affects source water
- Maintain highly skilled technical staff
- Modernize for efficiency, use of technology
- Addressing new SDWA rules
- Keeping historic public health law current
- Informing the public of the proactive public health role in safe and adequate public drinking water
- Continuing infrastructure investment and upgrades
- Continuing to plan to meet future demands
- Addressing water conservation, water reuse, and use of the “purple pipe”



# CT Planning Initiatives

- WUCC – State Law 25-33c to 25-33n
  - 2 year process, initiated June 2016
  - Water Supply
  
- State Water Plan – State Law 22a-358
  - Water Planning Council, DEEP, OPM, DPH and PURA
  -



# Moving Forward: The Next 20 years

- Address water quality issues
- Address water quantity needs, plan for the future
- Proactively address and emphasize public health needs
- Stress High Quality drinking water for human consumption
- Emphasize system consolidation in identified areas of need
- Work to address identified system sustainability/resiliency issues



# Connecticut's Approach to Public Drinking Water and Public Health Protection

- Public Health Protection
- Minimize risk to public health
- Proactive & Preventative
- Regulatory
- High Quality Protected Raw Water Sources
- Adequate levels of treatment
- Responsive/adaptable/skilled/knowledgable technical staff
- 24/7



# Thank You

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