Connecticut Department of Public Health

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

Webinar

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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
- Department of Public Health (DPH)
  - Healthy Connecticut 2020/State Health Improvement Plan & Program Measures

Keeping Connecticut Healthy
DPH
Connecticut Department of Public Health

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

Healthy Connecticut 2020 State Health Improvement Plan

- Road map for promoting and advancing population health
- Improving health outcomes through prevention and risk reduction
- Goals are measureable
- Vision – key health system partners focus efforts to achieve measureable improvements in health outcomes
- DPH Dashboard – tracking measures on a periodic basis
- Link between EPA's Strategic Plan and drinking water national program measures

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

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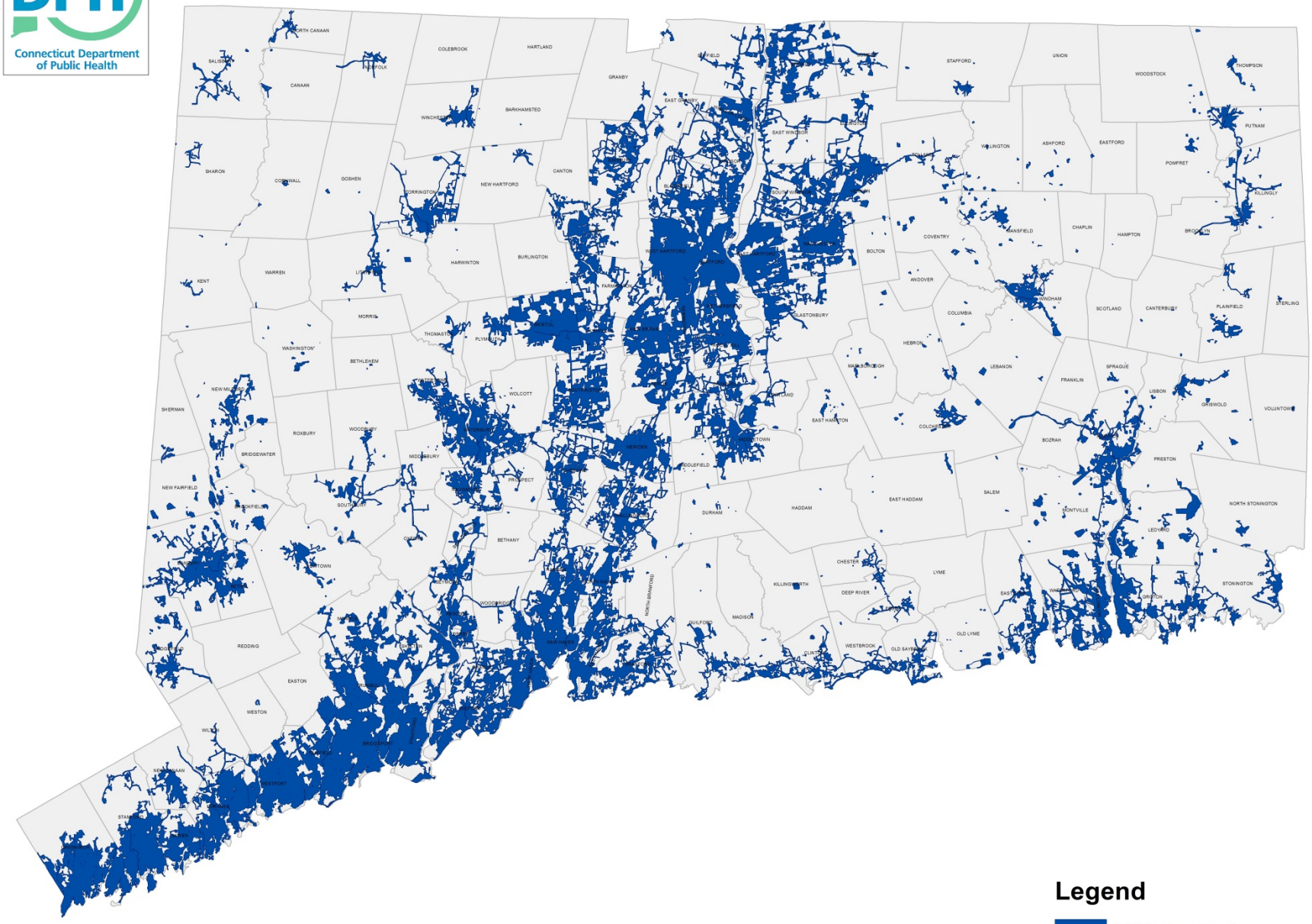
Public Water Supply Service Area



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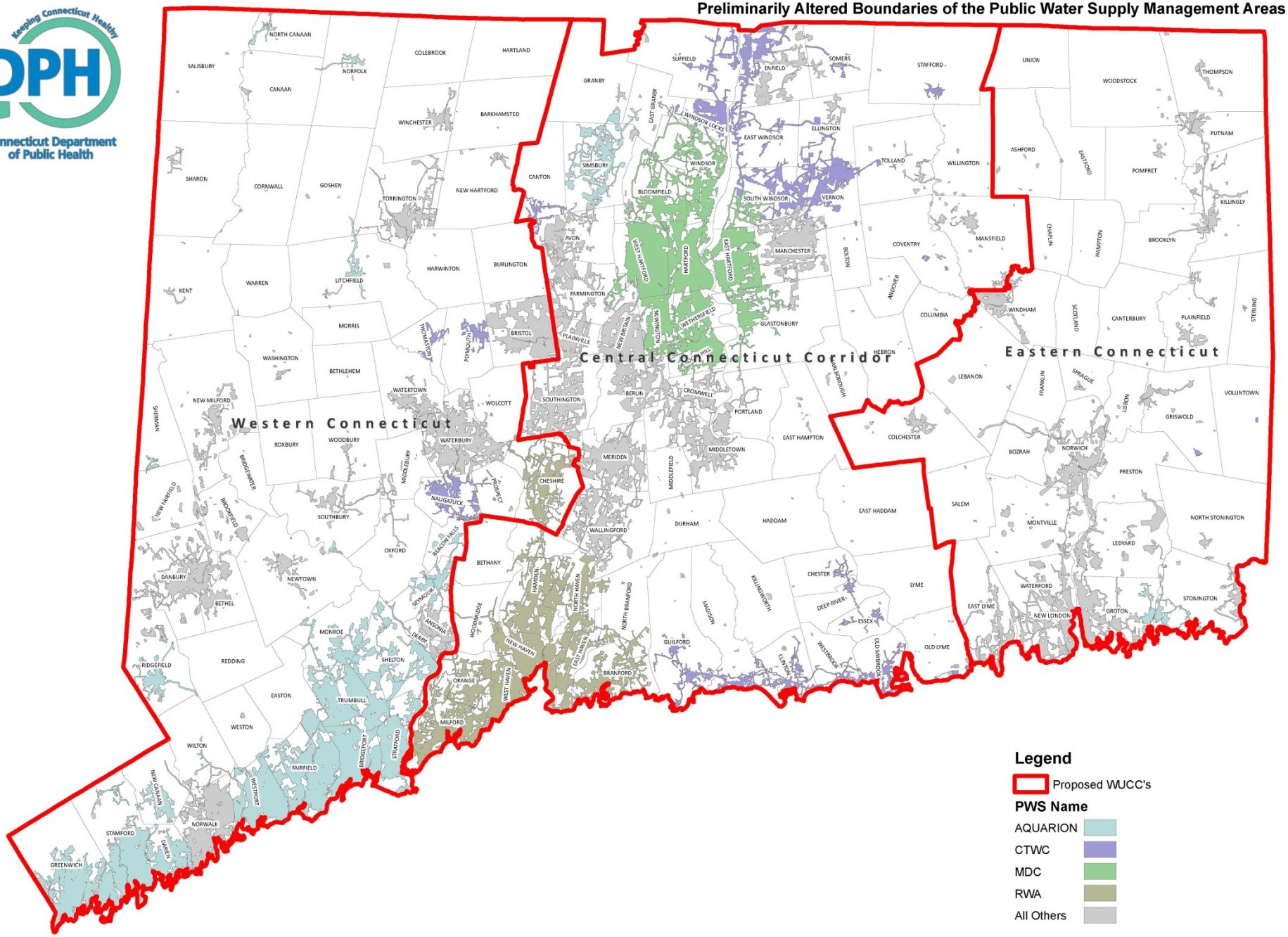
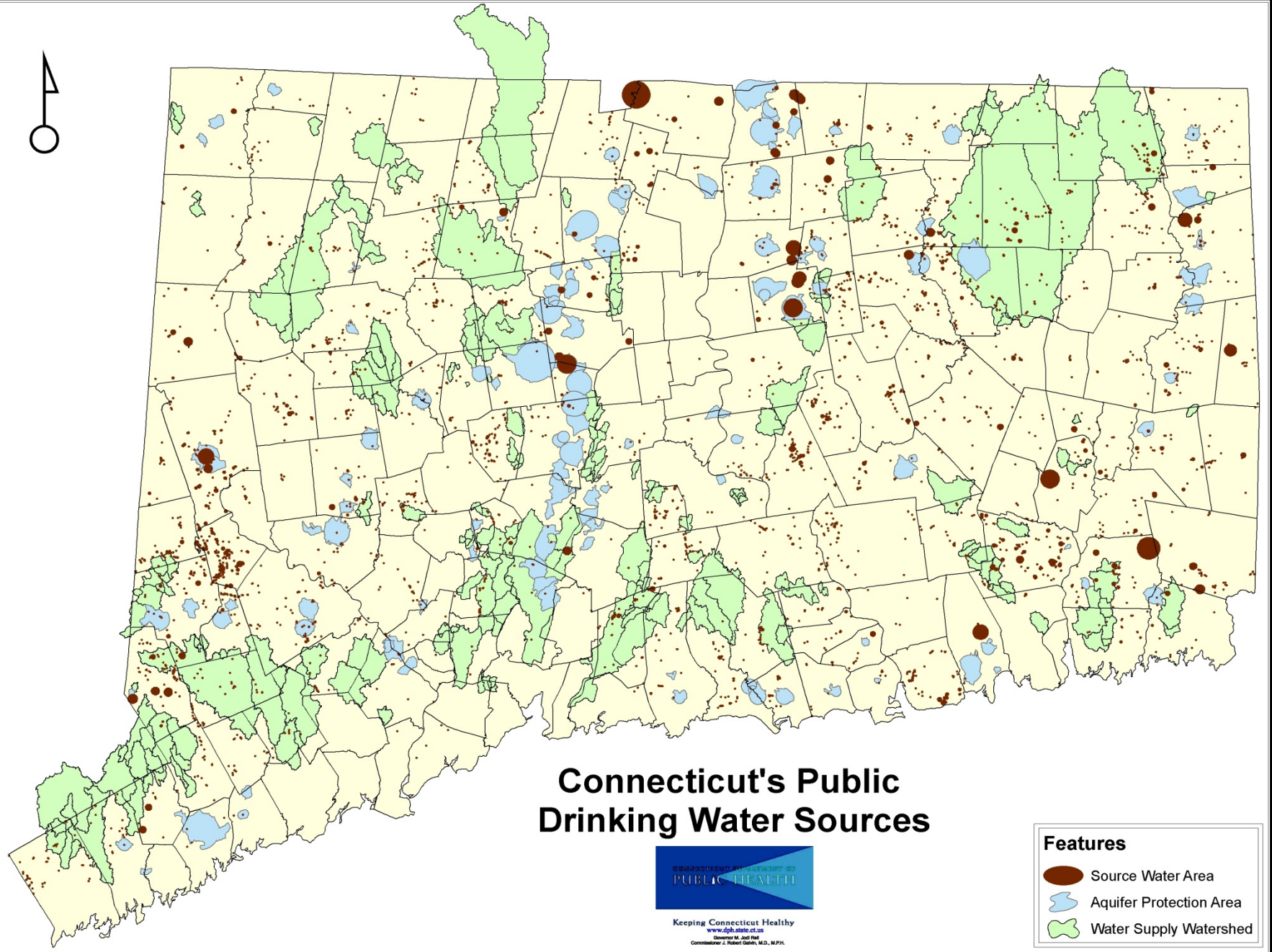
Preliminarily Altered Boundaries of the Public Water Supply Management Areas




Connecticut's Public
Drinking Water Sources
PUBLIC HEALTH
Keeping Connecticut Healthy
www.dph.state.ct.us
Governor M. Jodi Rell
Commissioner J. Robert Galvin, 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

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Why Public Health?

Water Supply Problems – 19th 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 19th Century

- Significant public health issue - consuming drinking water, ground water and surface water
- Waterborne disease
- Gastrointestinal infection
- Typhoid, cholera, dysentery were prevalent
- Microorganisms in 19th century,
- Beginning of 20th 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 20th 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

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Current Public Health Drinking Water Law

Abundant and Safe Water
CT Laws – early 20th 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

Abundant & Safe Public Drinking Water – late 20th 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 still 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 contaminates

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”

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

Public Health
Public Drinking Water
Program Measures

Healthy Connecticut 2020

Healthy Connecticut 2020 Performance Dashboard

Goal: Enhance public health by decreasing environmental risk factors.

- It is important to continuously monitor Connecticut's water supply for contaminants.
- Exposure to contaminants can have harmful effects on health.
- Performance based measures are used as an aid to achieve objectives.

Healthy Connecticut 2020 Performance Dashboard

- www.ct.gov/dph/dashboard
- Environmental Risk Factors and Health
  - Drinking Water Quality

P Public Drinking Water			Time Period	Actual Value	Current Trend	Baseline %Change
PM	Environment	Percentage of community water systems monitoring for all health-based standards	2013	92%	→ 0	0% →
PM	Environment	Percentage of sanitary surveys conducted at community water systems where no significant deficiencies were identified	2013	76.0%	→ 0	0% →
PM	Environment	Percentage of significant deficiencies identified at community water systems that were corrected	2013	65%	→ 0	0% →
PM	Environment	Percentage of water reports recieved on time	May 2015	81.0	↗ 2	7% ↗

Government Performance Results Act of 1993 (GPRA)

- Holds Federal agencies accountable for achieving program results.
- Measures program performance and reports publicly on progress.
- Improves program effectiveness and accountability.

GPRA Tracking Measures on Healthy CT 2020 dashboard

- The CT DWS is a primacy agency for the EPA
- Performance measures involve health based drinking water standards.
- Data from Safe Drinking Water Information System-Federal (SDWIS-FED).
- Important indicators for drinking water safety.

GPRA System and Population Percentage

- **GPRA System Percentage** - The percent of community water systems that meet all applicable health based drinking water standards.

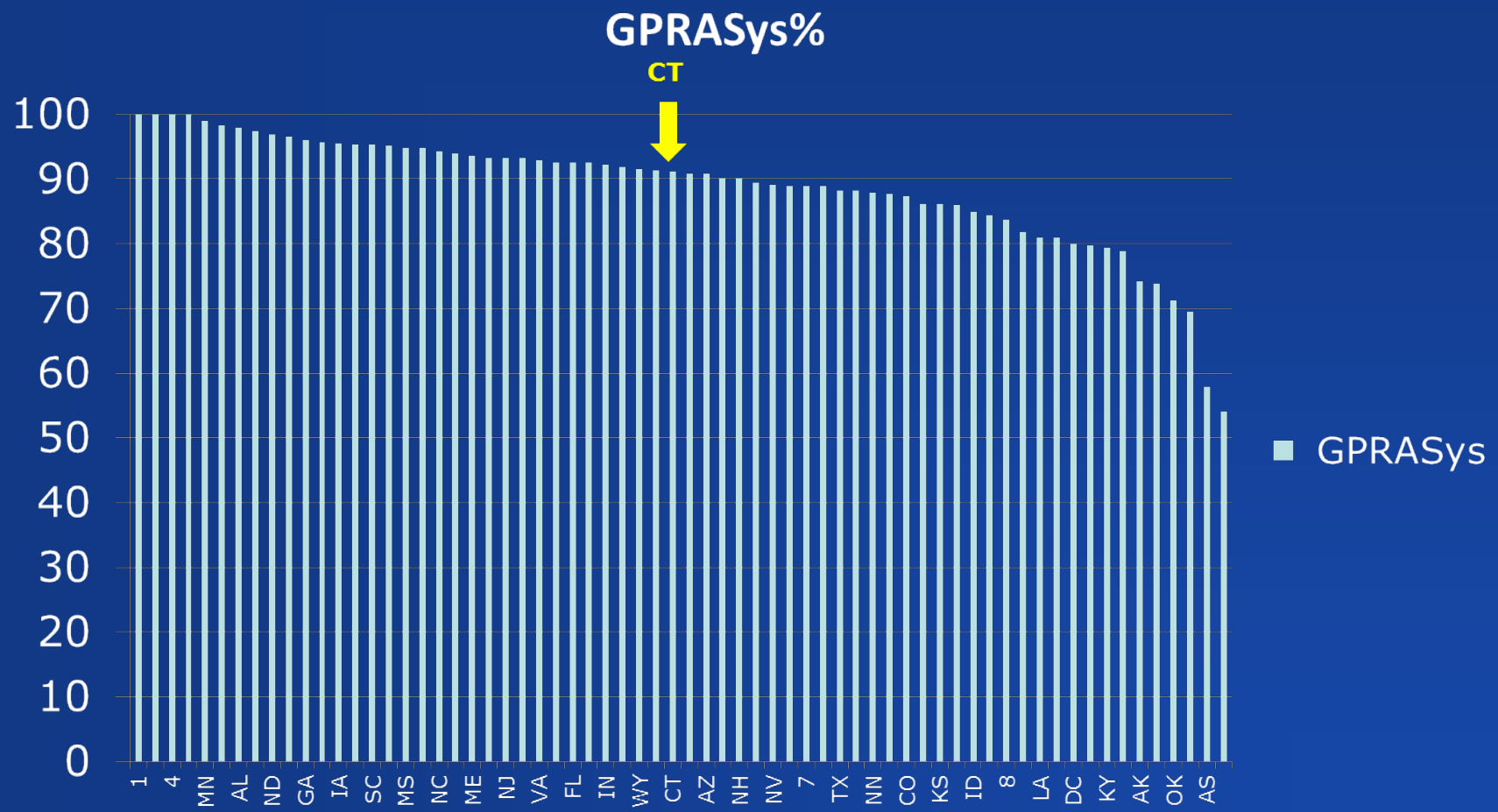
	GPRA-sys	GPRA-pop
‘15 National Target	90%	92%
‘15 Actual Region I	90.2%	95.9%
‘15 CT	91.2%	97.7%

GPRA System and Population Percentage

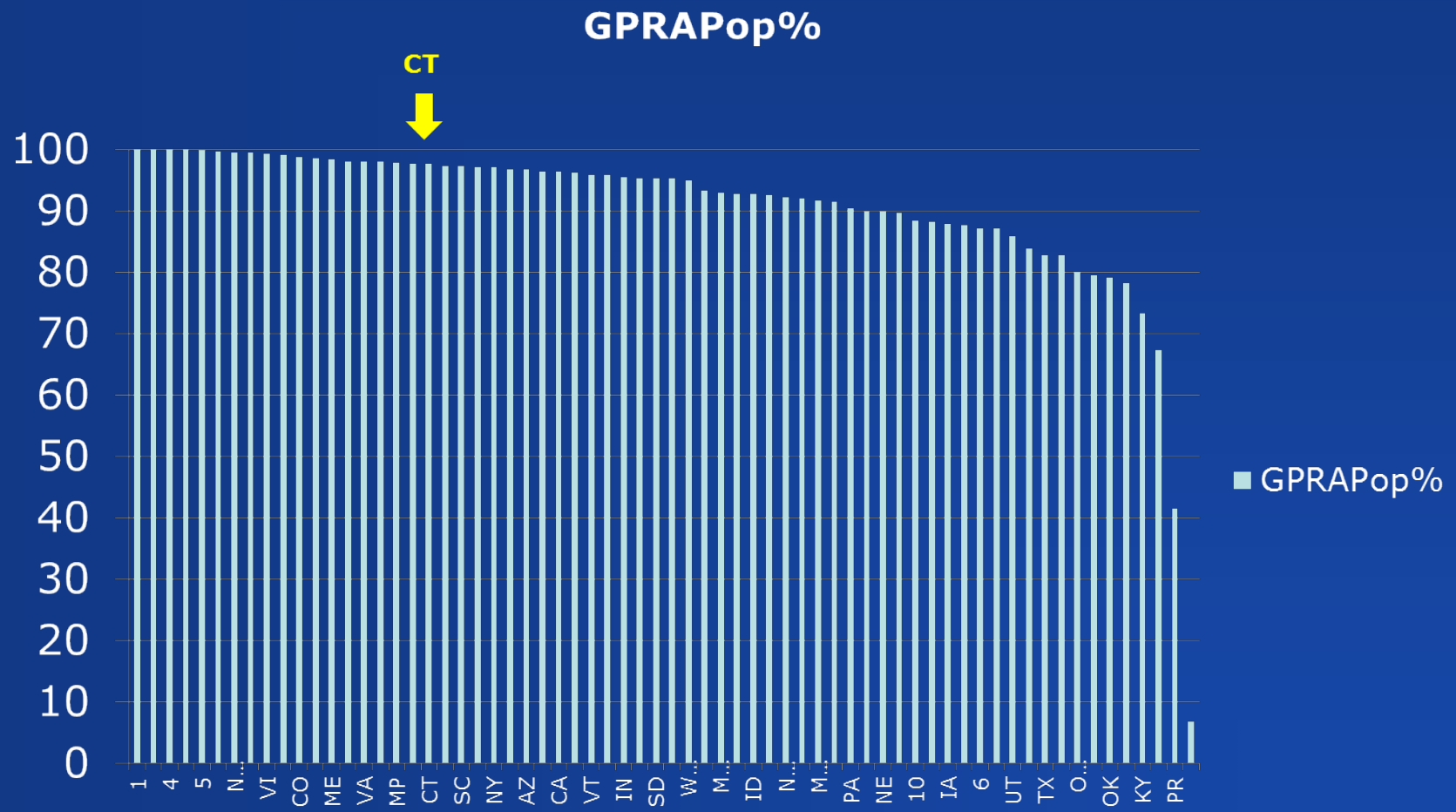
- **GPRA Population Percentage -** The percent of population served by community water systems that will receive drinking water that meets all applicable health based drinking water standards.

	GPRA-sys	GPRA-pop
‘15 National Target	90%	92%
‘15 Actual Region I	90.2%	95.9%
‘15 CT	91.2%	97.7%

National Ranking of System Percentage Among GPRA Systems



National Ranking of Population Percentage Among GPRA Systems



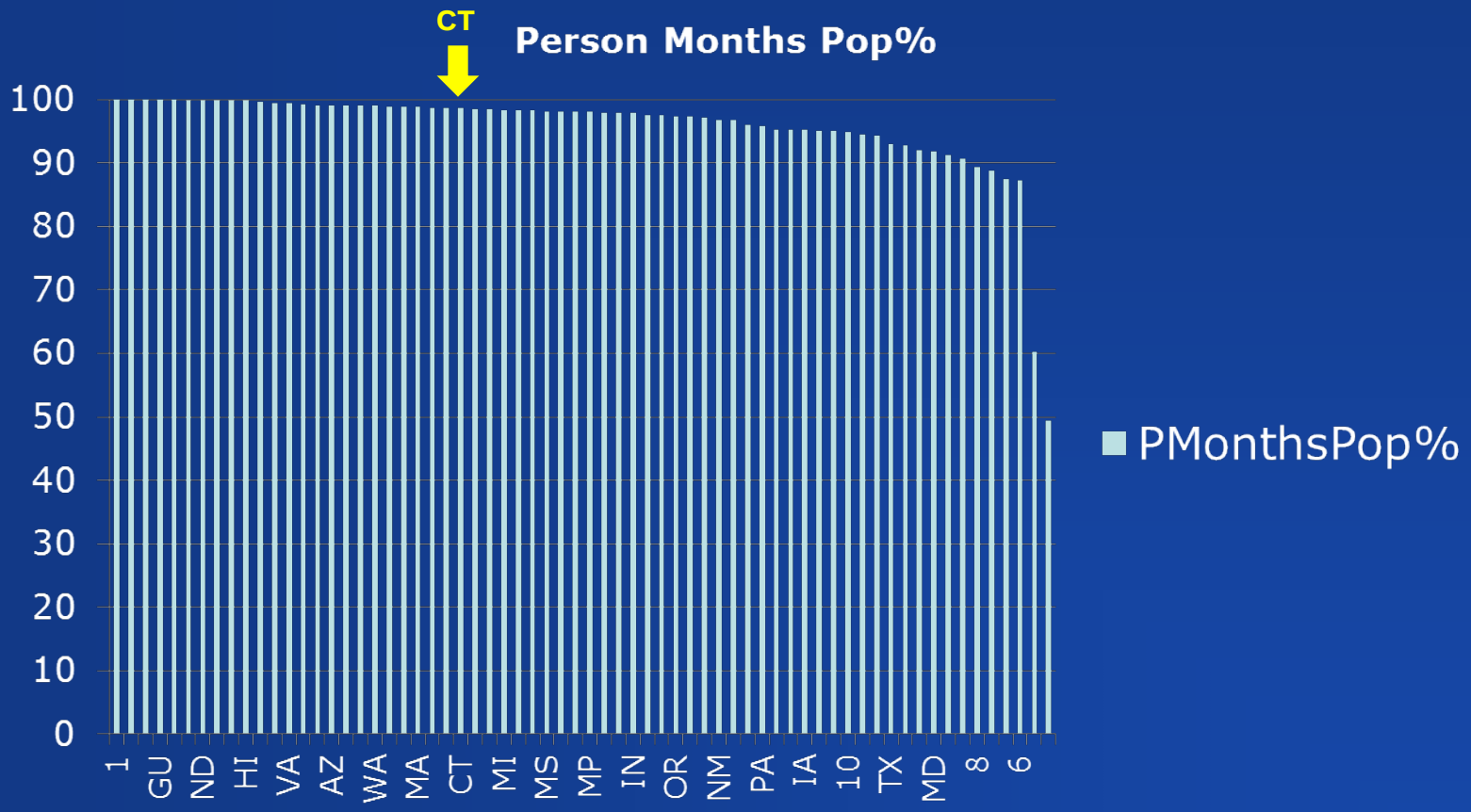
GPRA Person Months Percentage

- GPRA Person Months Percentage is the percent of person months (All persons served times 12 months) during which community water systems provide drinking water that meets all applicable health-based standards.

- Tracks the duration of a population's exposure to violations.

	% Person Months
'15 Target National	**95.0%**
'15 Actual National	**96.5%**
'15 Actual Region 1	**98.8%**
'15 Actual CT	**98.7%**

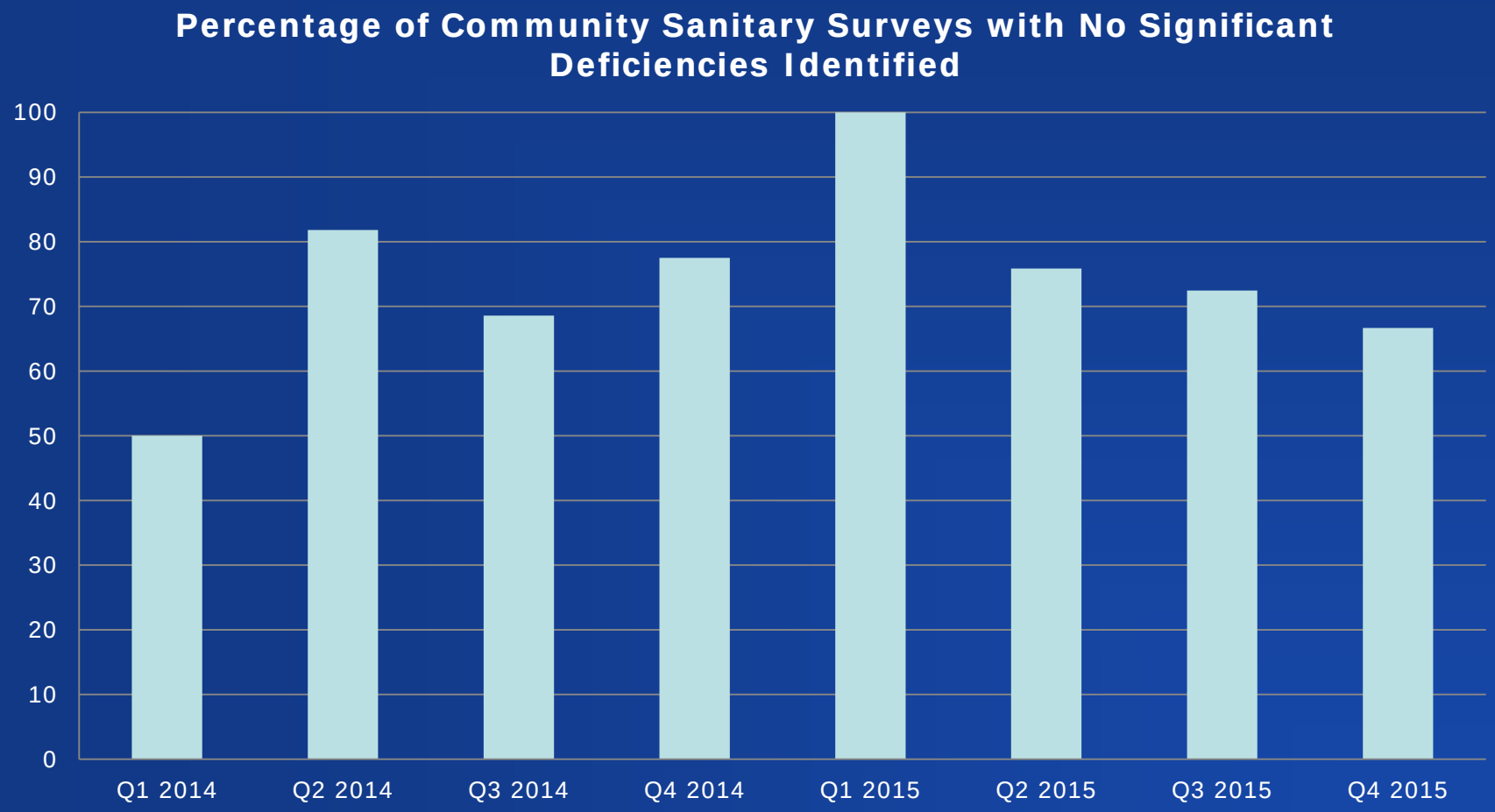
National Ranking of Person Months Percentage Among GPRA Systems



Percentage of sanitary surveys conducted at community water systems where no significant deficiencies were identified

- Healthy CT 2020 dashboard tracks the number of sanitary surveys performed with no significant deficiencies.
- Significant deficiencies are defects in the water system that cause or can cause water contamination.
- By tracking the percentage of surveys that have no significant deficiencies we can get an idea of the health of Connecticut's water systems.

Percentage of sanitary surveys conducted at community water systems where no significant deficiencies were identified



Percentage of sanitary surveys conducted at community water systems where no significant deficiencies were identified

- Average in 2013 = 76%
- Average in 2014 = 75%
- Average in 2015 = 73%

- Connecticut regulations regarding significant deficiencies went into effect in early 2014.

- Community water systems are surveyed on a three year cycle so it makes sense that these numbers will be similar. They are all different systems being surveyed for significant deficiencies for the first time.

- Once a full survey cycle passes these numbers should improve as significant deficiencies that were identified on the first cycle are eliminated.

Percentage of significant deficiencies identified at community water systems that were corrected

- Healthy CT 2020 dashboard also tracks significant deficiencies that were corrected
- Significant deficiency corrective action regulations went into effect in 2014
- Must perform a corrective action within 120 days
- Can correct all significant deficiencies, provide an alternate source, eliminate the source or contamination, or provide 4-log treatment

Percentage of significant deficiencies identified at community water systems that were corrected

- Percent corrected in 2013 = 67.5%
- Percent corrected in 2014 = 98.6%
- Current percent corrected in 2015 = 71.6%

- 12.3% of 2015 deficiencies still within 120 days for corrective action

- Percent corrected increased significantly because of the implementation of corrective action regulations

- Significant deficiencies are tracked on a weekly basis by DPH to ensure compliance in a timely manner.

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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**Drinking Water Section
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