

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

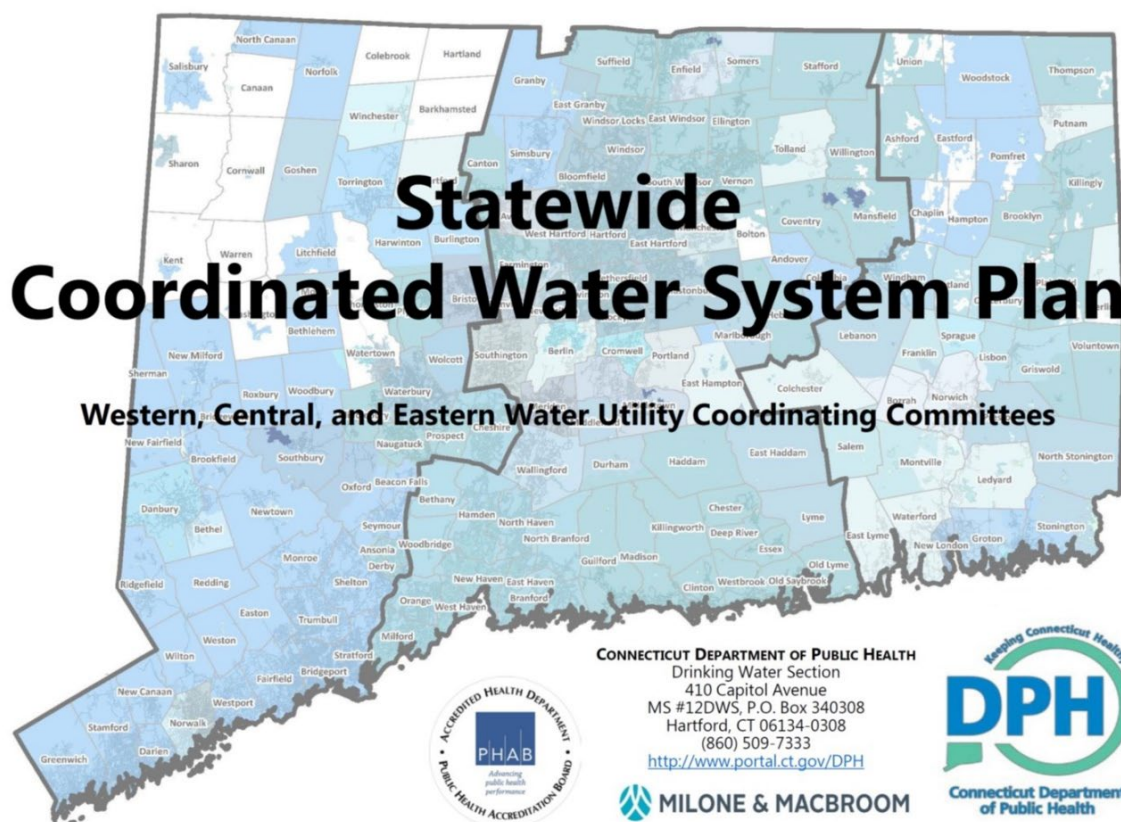
Manisha Juthani, MD
Commissioner



Ned Lamont
Governor
Susan Bysiewicz
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ANNUAL REPORT ON THE WATER UTILITY COORDINATING COMMITTEE (WUCC) PLANNING PROCESS FOR PUBLIC WATER SYSTEMS (PURSUANT TO CONNECTICUT GENERAL STATUTE § 25-33n)

Report Period: July 1, 2021 through June 30, 2022



January 11th, 2023

TABLE OF CONTENTS

	<u>Page Number</u>
I) <u>EXECUTIVE SUMMARY</u>	2
II) <u>WUCC PLANNING PROCESS</u>	2
III) <u>WUCC STATUS AND PROGRESS</u>	3
IV) <u>DPH PLAN TO COMPLETE THE WUCC PROCESS</u>	13
VI) <u>CONCLUSION</u>	13

APPENDIX A: Water Utility Coordinating Committee FAQ

APPENDIX B: Coordinated Plan Implementation Table 12.1

APPENDIX C: Public Water Supply Management Area Maps

APPENDIX D: Summary and Recommendations of the Coordinated Plans

APPENDIX E: Statewide and Regional Maps Showing WUCC Analyses

I) EXECUTIVE SUMMARY:

Pursuant to § 25-33n of the Connecticut General Statutes (*Conn. Gen. Stat.*), the Commissioner of Public Health (Commissioner) is required, on or before the second Wednesday after the convening of each regular session of the General Assembly, to submit a report to the joint standing committees of the General Assembly having cognizance of matters relating to the environment and public utilities, which describes the status of, for the year ending the preceding June thirtieth, the water planning process established under *Conn. Gen. Stat.* §§ 25-33g to 25-33j, inclusive, and efforts to expedite the process (WUCC Annual Report). This report, which is required to cover the period from July 1, 2021 through June 30, 2022, will describe the status of the water planning process established under *Conn. Gen. Stat.* §§ 25-33g to 25-33j, inclusive, and efforts to expedite the process. Traditionally and historically, the DPH has provided this report to the Public Health, Energy and Technology, Environment, and Planning & Development Legislative Committees.

Appendix C provides a map depicting boundaries of the three WUCCs.

II) WUCC PLANNING PROCESS

In advance of this report period, the WUCCs, the Department of Public Health (DPH), stakeholders and a technical consultant had compiled and analyzed information, pursuant to the defined regulatory process (RCSA Section 25-33h-1), to create three Public Water Supply Management Areas (PWSMAs) and draft comprehensive Coordinated Water System Plans for each PWSMA.

Concurrent to the development of the coordinated plans, the state was developing several important, related plans:

- Connecticut State Water Plan
The State Water Plan has been prepared to help planners, regulators, and lawmakers make decisions about managing Connecticut's water in a manner that is consistent throughout the state with stakeholder-defined principles and available scientific data. The Plan in and of itself is not the solution to Connecticut's water issues, but it is a collection of scientific information, policy recommendations, and forward-looking steps that should help frame future water management laws, regulations, and resolution of specific local issues. ([State Water Plan \(ct.gov\)](#))
- Connecticut Drought Preparedness and Response Plan
The Connecticut Drought Preparedness and Response Plan ("Drought Plan") provides state and local decisionmakers and public water suppliers with a set of formal operating procedures and administrative guidance for proactive drought planning and response. The Drought Plan is designated as a "support plan" within the State Response Framework, Connecticut's umbrella emergency management operations document. The State Interagency Drought Workgroup (IDW), consisting of representatives from five state agencies, is responsible for facilitating the planning and response activities of the Drought Plan. Subject matter experts from two federal agencies provide technical assistance to the IDW. ([CT State Drought Plan 2022-09-06.pdf](#))
- Drinking Water Vulnerability Assessment and Resilience Plan (DWVAR)

The State recognizes that future storms and hazards may cause severe damage to homes, businesses, infrastructure and public facilities across Connecticut. It is essential that our infrastructure and public facilities be hardened in anticipation of future events. The goal in developing a DWVAR Plan is to assess, identify, and address vulnerabilities for community water systems (CWS) in Connecticut's four coastal counties (Fairfield, New Haven, New London, and Middlesex). The DWVAR Plan will ensure preparedness and resiliency of CWS before, during, and after future storms and hazards, such as drought and climate change.
https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/drinking_water/pdf/DWVARP_Public.pdf

- Governors Council on Climate Change (GC3)

On September 3, 2019, Governor Ned Lamont issued [Executive Order No. 3](#), re-establishing and expanding the membership and responsibilities of the Governor's Council on Climate Change, also known as the GC3. The GC3 Phase 1 Report released January 2021 outlines progress and future GC3 initiatives including:

- Develop emergency interconnections between PWSs to ensure that multiple sources and interconnections are available for mutually beneficial sharing of water during emergencies and extreme weather events.
- Use source water protection and the Drinking Water Quality Management Plans to encourage resiliency and increase funding and support for investments in watershed protection.
- Incorporate resiliency into the consideration of new laws, regulations, and policies and promote greater education of PWS about the importance of resiliency.

A full list of water system preparation items can be found in section 53 of the Phase 1 Report:
https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3_Phase1_Report_Jan2021.pdf

The concurrent development of these four plans was beneficial to each of the planning efforts due to the exchange of data, ideas, risks and recommendations. The three WUCC coordinated plans are more comprehensive documents having been able to both glean and contribute ideas and information.

On December 20, 2018, DPH Commissioner approved the Western, Central and Eastern WUCC coordinated water system plans pursuant to Section 25-33h-1(g) of the Regulations of Connecticut State Agencies.

In early 2019, the three coordinated plans were published and distributed along with summary documents and a statewide plan that provides statewide data and planning initiatives for public drinking water on a statewide basis. The final approved plans along with these summary documents are available at:
<https://portal.ct.gov/DPH/Drinking-Water/WUCC/Water-Utility-Coordinating-Committee>.

The plans created pursuant to Connecticut General Statutes 25-33c to 25-33n now serve as a statewide plan for coordinated management and planning for public drinking water sources, supply and systems in Connecticut.

III) WUCC STATUS AND PROGRESS JULY 1, 2021 – JUNE 30, 2022:

During the reporting period of June 30, 2021 - July 1, 2022, meetings were held for each of the three WUCCs individually to handle ongoing business within the planning regions and discuss the implementation of the coordinated plans. During these meetings each WUCC evaluated development proposals and water supply requirements, worked through potential conflicts, and received public comment and concerns to identify priority areas for implementation.

Attendees included water utilities, environmentalists, local health departments, consultants, small water system operators, municipal officials, state agencies, and council of government representatives. Chairs and recording secretaries moderated and recorded the meetings. All attendees were invited to contribute; a public comment period is provided at each meeting. All meetings are publicly noticed, with agendas and minutes published on the WUCC section of the DPH web page.

One item agreed upon at previous WUCC meetings was that a statewide workgroup of WUCC members and stakeholders should be organized to prioritize and implement the recommendations of the three coordinated plans. These meetings, otherwise known as WUCC Implementation Meetings, have been occurring quarterly since their inception in November of 2020.

WUCC Implementation Meetings are currently hosted by DPH via Teams and attended by the Eastern, Central and Western Water Utility Coordinating Committees, municipal, state and regional officials, water utility operators, source water and distribution stakeholders, and members of the public.

There is a collaborative effort between the DPH, Municipal Planning Zoning Departments, Councils of Government and Local Health to verify that the WUCCs are effectively incorporating considerations at every level of planning while ensuring that non-governmental stakeholders and local perspectives are reflected in source water protection planning and water utility coordination initiatives.

Throughout this reporting period, WUCC Implementation Meetings convened to identify and prioritize State-wide areas of concern and addressed as noted below;

1) Enhancing Public Water Utility Interconnection Process and Permitting

The WUCCs worked closely with Public Water Systems, DPH and the Department of Energy and Environmental Protection, to assist public water utilities in establishing and maintaining interconnections between nearby water utilities. This guidance was developed to provide information and facilitation of beneficial water supply redundancy by outlining and providing the following:

Definitions & Purposes of Interconnections:

An Interconnection is *any physical, hydraulic connection between two or more public water systems* which may be further classified as:

- *Emergency Interconnections:* Established in anticipation of an emergency event, allowing one PWS to supply another with water for a temporary duration. Emergency interconnections may also include raw or finished water interconnections to replenish surface water supplies in a drought.
- *Active Interconnections:* Established for use on an as-needed, non-emergency basis, daily or periodically, so that a PWS may routinely supplement or fully supply another public water system's water.

Emergency	Active
<ul style="list-style-type: none"> • Excess supply is available. • PWSs are proximate. • Potential for durational water quantity issues exist with one or both PWSs. • Temporary disruptions are planned for one or both PWSs. • An interconnection will Improve system resilience to drought, climate change, and equipment failure. 	<ul style="list-style-type: none"> • Excess supply is available. • PWSs are proximate. • An interconnection will ensure an adequate or reliable water supply. • Finished water quality of the donor PWS is comparable to the receiving PWS. • An interconnection will improve system resilience to drought, climate change, and equipment failure.

Table 1: Conditions for Interconnection

The WUCCs created an Interconnection Roadmap to assist in clarifying the purpose and intent of interconnections, effectively address deterrents to interconnection, and provide guidance for planning, funding, permitting and maintenance of interconnections.

<u>What are some Common Deterrents to Interconnecting?</u>	
<ul style="list-style-type: none"> • Differences in finished water quality. • Difficulty navigating various permitting processes. • Environmental impacts (inter-basin transfers or increased source withdrawals). • Design, construction, and operating costs. • Pressure gradient issues. • Fire protection considerations. 	<ul style="list-style-type: none"> • Monitoring/logistical issues. • Political constraints and “turf” concerns amongst PWSs or customers. • Public concern over costs. • Concerns from the supplying PWS over dedicating water that may not be used or purchased.

Table 1.1: Common Deterrents for Interconnection

Planning an Interconnection

The Integrated Reports for the three PWSMAs discuss planning considerations and give guidance for cost estimates.

Routing Evaluation (Cost = up to \$100,000)
<ul style="list-style-type: none">• Evaluate routing alternatives.• Consider system needs at each potential interconnection point (eg: pump stations).• Investigate the site in greater detail to account for impediments (eg: shallow bedrock).
Permitting and Environmental Analysis (Cost = \$50,000 - \$500,000)
<ul style="list-style-type: none">• <i>See Sale of Excess Water Permit and Diversion Permit guidance.</i>• Local zoning and wetlands approvals may be required.• Connecticut Environmental Protection Act (CEPA) review may be required for State-funded projects.• Plans will also be reviewed by CT DPH to evaluate engineering design.
Engineering Design (Cost = \$100,000 - \$500,000, highly variable)
<ul style="list-style-type: none">• <i>See Sale of Excess Water Permit and Diversion Permit guidance.</i>• Local zoning and wetlands approvals may be required.• Connecticut Environmental Protection Act (CEPA) review may be required for State-funded projects.• Plans will also be reviewed by CT DPH to evaluate engineering design.
Construction (Cost = typically over \$1,000,000, but highly variable)
<ul style="list-style-type: none">• Informed by the project design but subject to change and unforeseen issues.• Purchase and installation of all piping, pumping stations, valves, meters, and other improvements and facilities necessary to complete the interconnection.• Includes required inspections, traffic control, etc., as well as land acquisition.
On-going Maintenance
<ul style="list-style-type: none">• Includes predictable costs such as property taxes (for investor-owned utilities), land leasing if necessary, electricity, water treatment, and regulatory compliance costs.• Also includes capital improvement costs such as replacing equipment and facilities.

Table 1.2: Planning and Budgeting for Interconnection

Guidelines for Use and Maintenance of Interconnections	
<ol style="list-style-type: none"> 1) Conduct hydraulic analysis of the two systems to determine pipe size that is adequate to transmit the water required at a predetermined differential pressure. 2) Equip the interconnection with a meter that is sized to properly measure the anticipated flow and that has isolating valves. 3) Provide a coupling to permit removal of the pipes or meter if required. 4) Provide a bypass for emergency use to allow the interconnection to be used at times when the meter is out of service. 5) Provide taps on each side of the meter isolating valves to check pressures prior to use and to empty pipes for dismantling for meter service and calibration. 6) Provide nearby hydrants for use in water sampling, flushing, and flow measurement. 7) Provide a meter pit, if possible, with manhole covers capable of being easily opened for purposes of meter reading, valve adjustment, and flushing. 	
<p>Agreements between Systems</p> <p>It is best to have a written agreement in place that defines the responsibilities of both parties to an interconnection. While some older interconnections may be based on a verbal or long-standing agreement, new interconnections should be clearly defined, since they are essentially a commitment against the supplying party's available water. A receiving utility may account purchased water as part of its available water, provided that the contract provides for reliable delivery. (<i>Integrated Reports</i>)</p> <p>Occasionally, interconnections between a small system and a large supplying system function as a normal metered connection, with the small system having all the rights and privileges of any other customer.</p> <p>The Integrated Reports of the three PWSMAs discuss common elements found in interconnection agreements:</p>	
Common Elements of Interconnection Agreements	
<ul style="list-style-type: none"> • Term of agreement. • Location and type of water (raw or finished). • Apportionment of cost of design and construction of the interconnection. • Apportionment of maintenance costs, testing, flushing, etc. • Quantity of water to be taken under a variety of conditions. • Time of day or time of year restrictions. 	<ul style="list-style-type: none"> • Metering devices required. • Price of water and mechanism for future price adjustments. • Frequency of payment. • Minimum purchases or standby charges. • Pressure range of water at point of transfer. • Factors mitigating the contract. • Notice required to terminate.

Table 1.3: Interconnection Maintenance and Systems Coordination

Appendix D provides statewide and regional maps depicting needs of service by population density, drinking watershed resources in CT, the proliferation and limitations of small public water systems and a model for interconnection between existing large public water systems

2) Establishing Safe Water Supply to New or Expanding Developments

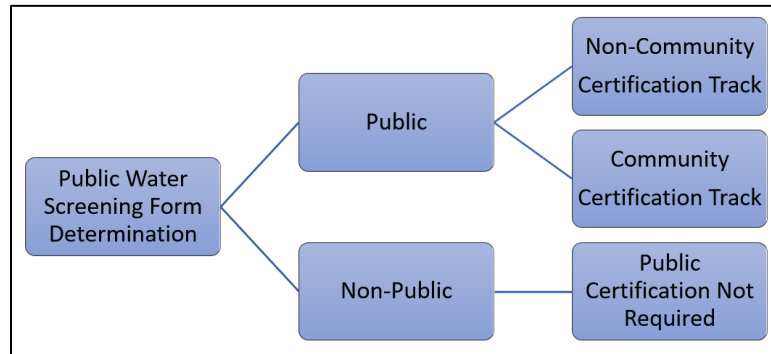
The WUCCs worked closely with DPH, Municipal Planning Zoning Departments and Local Health to provide comprehensive guidance in the interest of establishing safe and adequate water supplies to all new or expanding developments. This guidance will serve to assist any developer or applicant through the process of:

- Determining the water supply needs of the proposed project
- Identifying if service connection to an existing public water service is feasible
- Providing the forms and process necessary to facilitate either:

- *Connection* to existing public water service
- *Creation* of new on-site water service

I. Preliminary Water System Screening & Determination

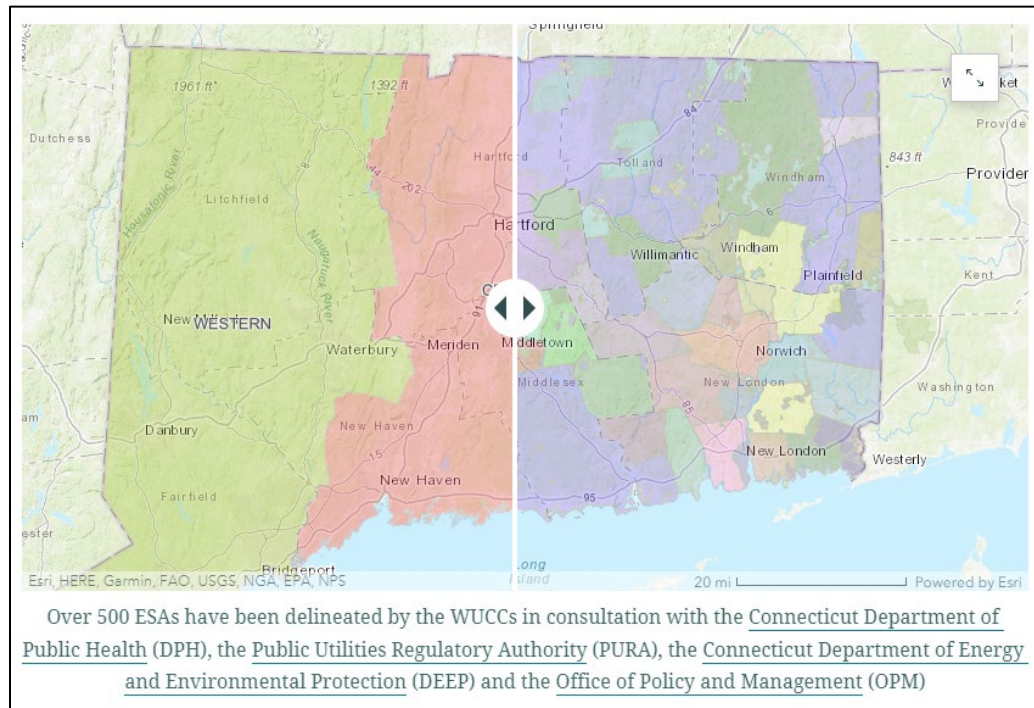
Visual aids, supplemental guidance and all required forms have been organized into an accessible, intuitive platform for an applicant to understand the process by which a development proposal is screened and classified as resulting in either a public or non-public water system.



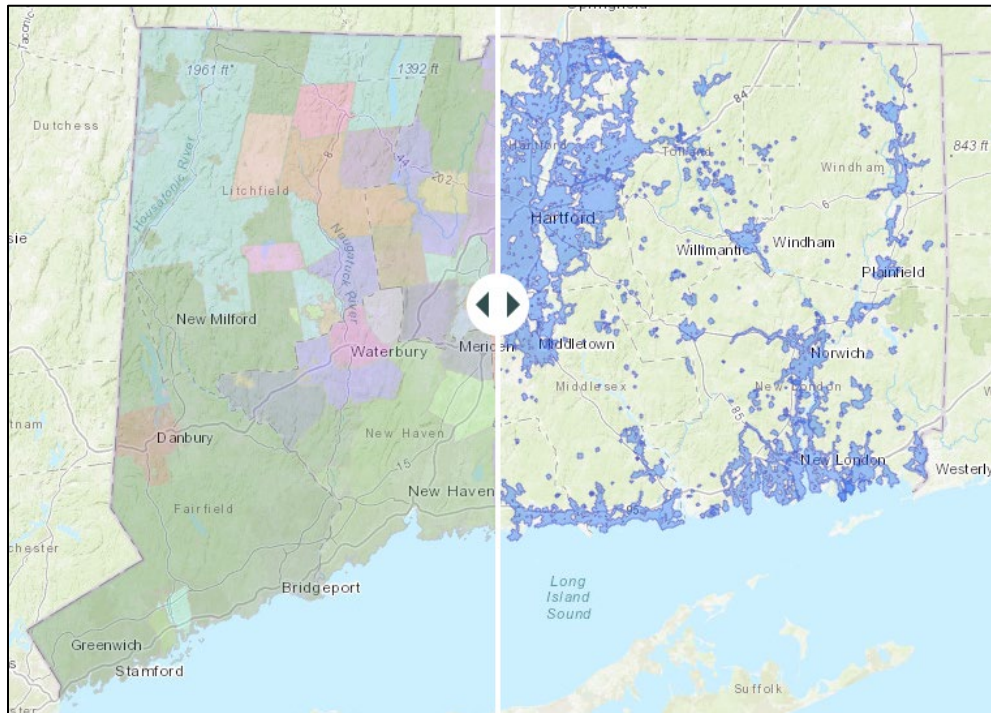
Graphic 1: Summary of Initial DPH PWS Screening and Subsequent Required Tract

II. Promote New Developments to Establish Drinking Water Supply Service Through Existing PWS

To prevent the proliferation of small PWS and mitigate the burden of regulatory standards for a regulated water utility, DPH worked with the WUCCs to draft guidance, including geospatial tools to identify where a project is in vicinity to ESAs or existing water utility distribution systems (water mains).



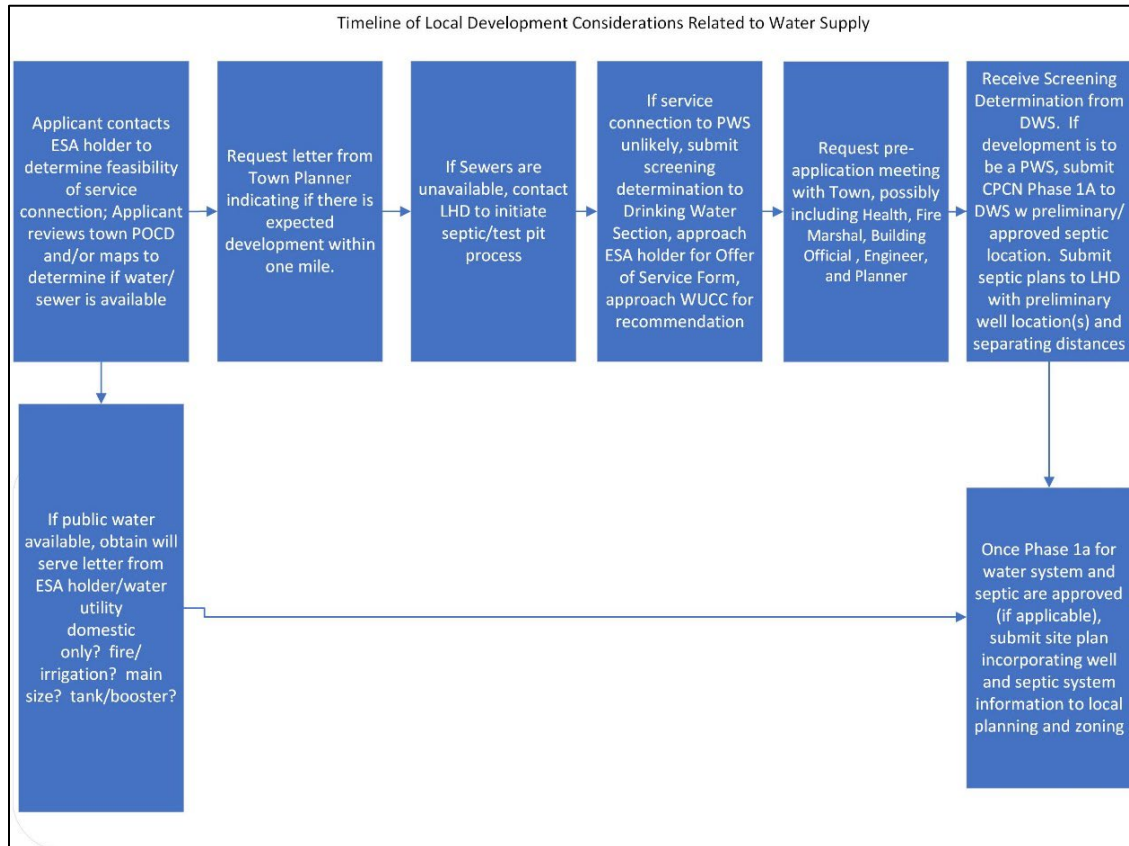
Graphic 1.2: Slider map inclusive of electronic guidance for securing water supply services through an existing utility. This navigable map can be utilized to geolocate a proposed project's location within the corresponding WUCC and any nearby ESA to submit an offer of service form.



Graphic 1.3: This can be utilized to identify if there is a distribution line (watermain) near the proposed project location, with which the applicant may submit an offer of service form to the corresponding water utility.

III. Concurrent Local and State PWS Certificate & Permitting Processes

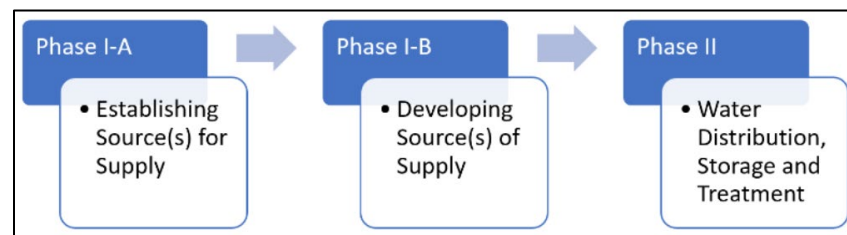
In the event service through an existing water utility is not available to a project's proposed location, applicants are guided through the comprehensive review process at the State and Local level, including determinations made by the project's municipality, WUCC, Local Health and DPH. DPH and the WUCCs worked with Municipal Officials and Local Health representatives to create a timeline organizing the concurrent review processes.



Graphic 1.4: Timeline of Local Development Considerations Related to Water Supply

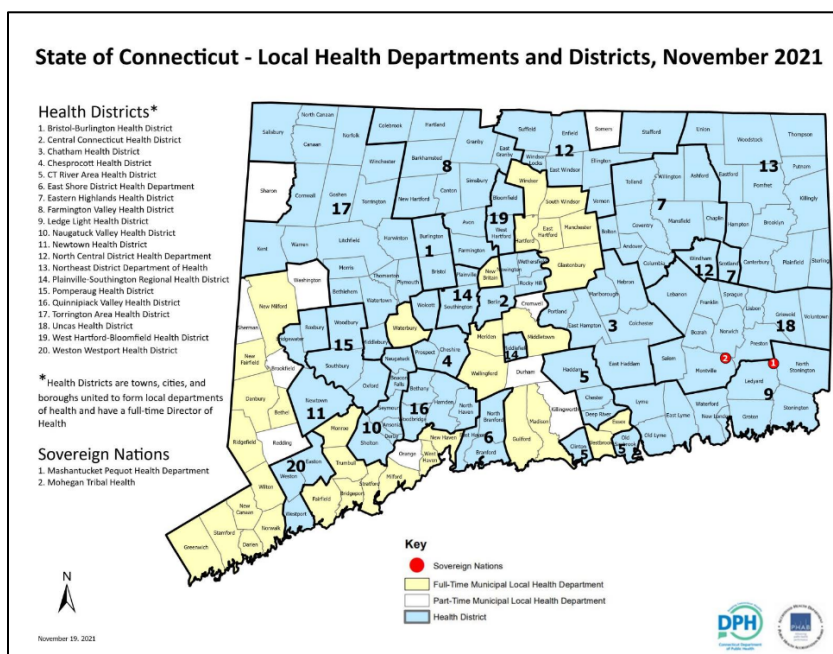
IV. CT State Certification of a New Public Water System

The certification process of becoming a new public water system is regulated by the DPH Drinking Water Section through the Certificate of Public Convenience and Necessity (CPCN). This is separated into three distinct phases. DPH is collaborating with the WUCCs to streamline and simplify this process, updating forms and submittal procedurals in conjunction with proposed updates to the DPH CPCN webpages.

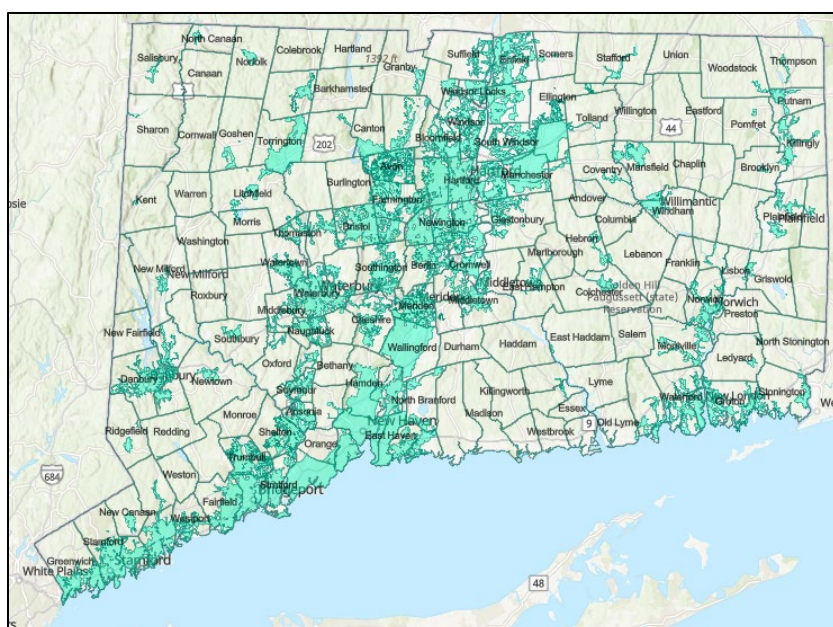


Graphic 1.5: Illustrating the three (3) phases of the CPCN certification process

- V. Considerations for Safe Non-Public Water and Wastewater System Establishment
DPH and WUCCs collaborated to develop guidance for those developments that would not result in the creation of a public water system, such as private or non-public well system that could utilize an onsite septic system or sanitary sewer connection, and the local permitting processes for this type of development.



Graphic 1.6: Local Health Departments to coordinate private well and/or on-site septic system

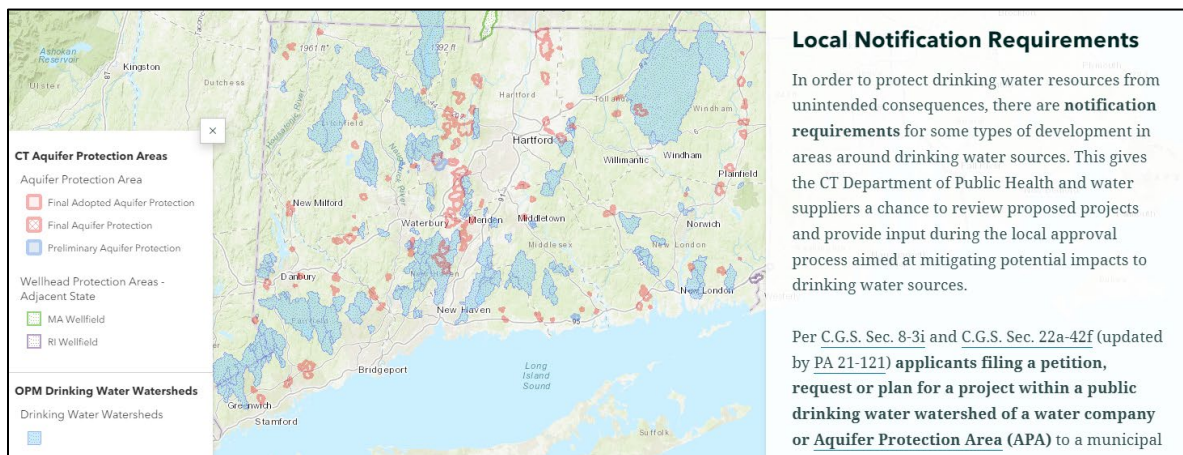


Graphic 1.7: Navigable interactive map of public wastewater utilities in CT potentially available to service new developments in proximity companion to instructions for requesting service

3) Municipal Planning and Drinking Water Resource Considerations

The WUCCs, Councils of Government, Public Water Utilities and Municipal Planning Departments coordinated efforts in creation of educational outreach concerning local development, smart water planning and optimized protection of drinking water sources. Inclusive to the guidance are considerations for:

- Coordinated water supply planning
- Land use impacts on water supply
- Local notification requirements
- FAQ compiled of identified areas of concern



Graphic 2.1: Excerpt from Draft Municipal Development and Drinking Water Document outlining regulated notification requirements, procedures and pursuant statutes



Graphic 2.2: Excerpt from Draft Development and Drinking Water Document describing the long-term impacts of land use practices on water supply resources

These documents are intended to be dynamic and adjust with the water supply, developmental, environmental and public health needs as appropriate as necessary to most effectively serve the current and future constituents of and patrons to Connecticut.

IV) DPH PLAN TO COMPLETE THE WUCC PROCESS:

The development of the three coordinated water system plans has been completed. The final approved plans are available at: [CT WUCC Coordinated Plans](#)

Appendix D provides two summaries of the Coordinated Plans and their prioritized recommendations.

Promoting Participation and Momentum of WUCC Initiatives

Following completion of the coordinated plans, the focus continues to be on implementing the recommendations of the plans. Outreach encouraging the incorporation of a broader range of participants, including representatives of small public water systems and recently hired water utility employees, is essential to maintaining the original intent, retaining legacy knowledge and promoting innovative approaches to resolving water infrastructure needs within CT

WUCC and Individual Water Supply Plans

Pursuant to Section 25-33h-1(i) of the Regulations of Connecticut State Agencies, Coordinated Water Plans are required to be updated by the WUCCs at least every 10 years. Initial planning has started on the next WUCC Coordinated Plans updates. Allocated funding secured through the recently passed Bilateral Infrastructure Law (BIL) has enabled DPH to secure additional staff who will be dedicated to Statewide and synchronized water supply planning, distribution, maintenance, and resiliency. This will include a comprehensive review of existing PWS Individual Water Supply Plans (WSPs) and the relationship these plans have with WUCC Coordinated Plans, the State Water Plan and the plans referenced in Section II. The capacity of small community public water systems will also be prioritized under this effort.

Organizing Data for Informed Planning Decisions

The next update will focus on improving the integration, organization and utilization of data contained within the WUCC Coordinated Water and PWS WSPs.

Appendix B provides a table outlining current progress and projected priority initiatives for implementation of the WUCC Coordinated Plans

V) CONCLUSION:

The completion and implementation of the three WUCC Coordinated Water System Plans provide a framework for individual, regional and statewide public water system planning. This will ensure that future development is provided the best option for safe and adequate drinking water and that Connecticut's environmental resources and rural areas are protected, and that existing drinking water supply is resilient. This plan will continue to move the state forward in assuring an adequate supply of potable water for domestic, commercial and industrial use which is vital to the health and well-being of the people of the state as is the stated finding by the 1985 legislature as memorialized under CGS section 25-33c. The current efforts to implement the recommendations of the coordinated plans can provide long-term benefits to the state's water supplies, economy and the environment.

The coordinated water system plans analyze, on a statewide and regional level: water conservation, water rates, interconnections and regionalization, droughts, small water system viability, protection of drinking water supply sources and other drinking water planning concepts. Water utilities, planners, local health directors, local and regional government, state and federal agencies and elected officials now have a resource available to them to assist in decision-making and planning.

Implementation of the coordinated plan recommendations, now underway, will improve Connecticut's drinking water resiliency and improve the coordination and education among all stakeholders and decision-makers.

APPENDIX A

Water Utility Coordinating Committees

What is a WUCC?

'WUCC' is an acronym for 'Water Utility Coordinating Committee'. WUCCs were created by statute in 1985 (Public Act 85-535, "An Act Concerning a Connecticut Plan for Public Water Supply Coordination"). They are intended to "maximize efficient and effective development of the state's public water supply systems and to promote public health, safety and welfare." WUCC members are public water systems and Councils of Government. WUCCs are split into management areas. There are three WUCCs in Connecticut: Western, Central Corridor, and Eastern.

What does a WUCC do?

WUCCs are initially charged with completing a planning document for public drinking water supply for their management area. The document development has several elements: a Water Supply Assessment, Exclusive Service Area Boundary delineations, an Integrated Report, and an Executive Summary. The three planning documents will also be compiled into a single, statewide water supply planning document.

Does a WUCC end when this document is done?

No. WUCCs will continue to exist and meet regularly after the plan is completed. The WUCCs are an important long-term and short-term planning tool. Responsibilities will include: future water supply needs, potential conflicts over future sources, competition for service areas, areas of growth where public water is currently not available, changing status of individual water systems, economic impacts on demographics, and environmental impacts on our drinking water supplies.

How do WUCCs protect public health?

The WUCCs will work to protect Connecticut's most important natural resource, our public drinking water sources, and simultaneously ensure that a safe and adequate water supply is provided to areas that need it. A critical planning component of the WUCCs will be to ensure that the land around present and future water supplies is protected (RCSA Sec. 25-33h-1(d)(C)(ii)).

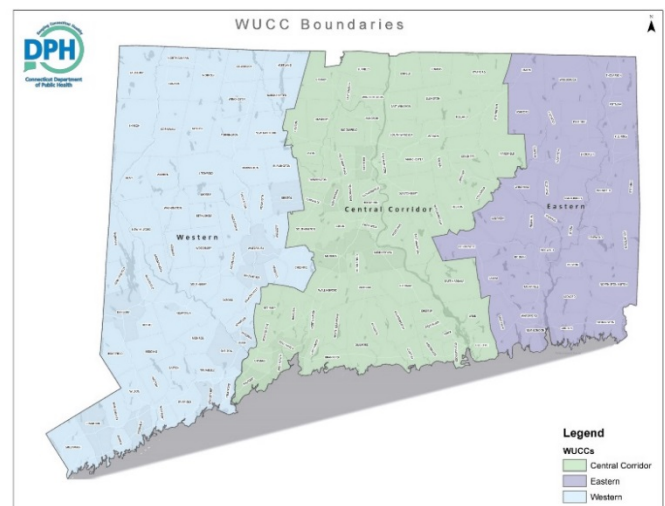
How do I know if I am a member?

If you represent a public water system of any classification or if you have been designated by a Council of Government, you are a member of a WUCC. Where your service area, water supply source, or Council of Government is located will determine which WUCC(s) you are a member of.

Can I get involved if I am not a member?

Yes. WUCC meetings are public meetings and anyone is free to attend. You will be given an opportunity to speak (at a designated time and duration) if you wish.

If you need additional information, please go to www.ct.gov/dph/wucc. To the right is a map of the three WUCC management areas:



APPENDIX B

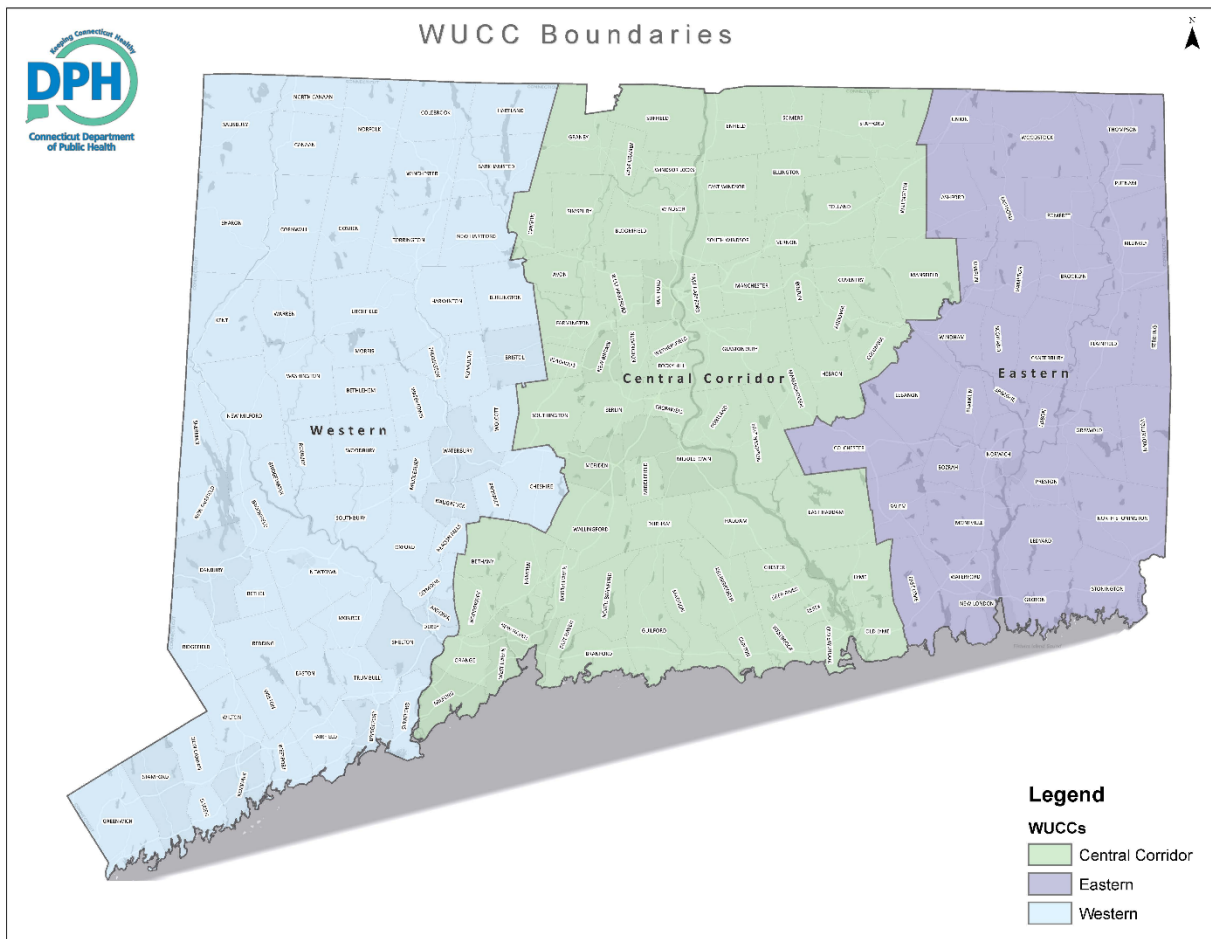
TABLE 12-1: Prioritization and Implementation of Non-Capital Improvement Recommendations

Topic Area	Goal	Recommended Strategies for Eastern WUCC	Lead(s)	Timeframe
Responsible Planning	Prevent proliferation of water systems when other options are available	1. Encourage WUCC members to petition the WUCC for revision of ESA boundaries where appropriate to prevent creation of unnecessary consecutive water systems across ESA boundaries	WUCC	Ongoing
		2. As part of the process for providing a recommendation on the development of new water systems, evaluate the proximity of other nearby water systems and the potential for consolidating the proposed water system with an existing water system	WUCC	Ongoing
		3. Encourage DPH and the Water Planning Council to address, through regulations and/or procedures, the proliferation of multiple water systems in close proximity to one another	WUCC	Future
	Work towards constructive changes to statutes and regulations	4. Explore and provide recommendations regarding appropriate modifications to the definition of available water to allow for reasonable additive factors (contract maximums, supplemental sources, demand ratios from safe yield models, etc.) to be included when calculating MOS for MMADD	WUCC, DPH	Future
		5. Explore and provide recommendations to streamline the sale of excess water permit process (such as a minimum threshold requirement) and eliminate the requirement in certain instances to foster regionalization	WUCC, DPH	Complete
		6. Review the state minimum design criteria for new public water systems every 5 years to ensure the development of reliable water systems with proper technical, managerial, and financial capacity	WUCC, DPH	Ongoing
		7. Support DPH's efforts to develop regulations to ensure the standardized and consistent development of new non-community water systems	DPH, WUCC	Ongoing
		8. Consider development of a streamlined CPCN process for small utilities desiring a minimal degree of expansion instead of the 5-percent rule	WUCC, DPH	Future
		9. Review data requirements for WSPs, CWSPs, and state water planning needs (e.g. basin-level withdrawal and return flow data) to determine if revisions to the data requirements are necessary to ensure submission of data that is useful for multiple planning purposes	WUCC, DPH, DEEP	Future
	Develop and use best-available data	10. Re-evaluate the timing of regional capital improvements as the results of system-specific safe yield revisions accounting for full implementation of the Streamflow Standards and Regulations become available	WUCC, Utilities	Future
		11. Update in the CWSP the projected demands as new individual WSPs are completed and incorporate into the regional projections including the refinement of the impacts of the Streamflow Regulations	WUCC, DPH	Ongoing
		12. Provide annual updates to the WUCC on the status of small systems based on the CAT	DPH, WUCC	Ongoing
		13. Keep WUCC informed regarding potentially regionally significant water supply sources	Utilities	Ongoing
		14. Revise water demand projections that may be out of date	Utilities	By 2023
		15. Encourage utilities utilizing local design standards to adopt such standards, provide them in written format to developers at the beginning of the CPCN process, and reference such standards in a development agreement	WUCC	Ongoing
		16. Provide Geographic Information System data appropriate for regional planning to COGs, including ESA boundaries and general public water system service locations (such as spatial data presented in the CWSP)	DPH	Ongoing
		17. Review and improve accuracy of spatial data regarding the locations of non-community water systems	DPH	Ongoing
		18. Consider requiring all public water systems to report water usage on an annual basis	DPH, WUCC	Ongoing
		19. Encourage DPH and PURA to develop a risk-based approach to be used to better evaluate the condition of systems and apply projected costs into takeover and ratemaking proceedings	WUCC	Future
	Improve education of small system owners	20. Require training in asset management and related recordkeeping for small water system owners	DPH	Ongoing
		21. Encourage small system owners to self-evaluate their status and consider implementation of one or more options based on the recommendations in Section 4.3 and have DPH annually report on the status of such actions to the WUCC	DPH, WUCC	Ongoing
		21. Work with small water systems owned and operated by voluntary associations to determine pathways for improving technical, managerial, and financial capacity and have DPH annually report on the status of such actions to the WUCC	DPH, WUCC	Ongoing
		23. Encourage small systems to work with nonprofit organizations such as RCAP solutions or the ASRWWA to increase managerial capacity such as for asset management and have DPH annually report on the status of such actions to the WUCC	DPH, WUCC	Ongoing
		24. Encourage ESA holders to coordinate and work with the small CWSs within their respective ESAs	WUCC, DPH	Ongoing
		25. Provide education and oversight regarding management of non-community systems	DPH	Ongoing
	Foster and support interagency planning between utilities, COGs, municipalities, and state government	26. Develop strategies to involve small CWSs and non-community water systems in the WUCC planning process	WUCC, DPH	Ongoing
		27. Encourage local municipalities to consider the following in POCDs: ESAs, future water service extension potential, desired public water service areas, and water management through zoning regulations	COGs, ESA Holders	Future
Drought Management	Consider methods to improve enforcement of water use restrictions	28. Work with agencies and committees considering drought management to evaluate the model ordinance and consider potential legislative authority for water utilities to enforce restrictions under certain conditions	WUCC	Ongoing
	Consider methods to improve timing of activation of drought triggers and water use restrictions	29. Work with agencies and committees considering drought management to evaluate trigger criteria, forecasting models, and other methods to coordinate drought planning and response	WUCC	Ongoing

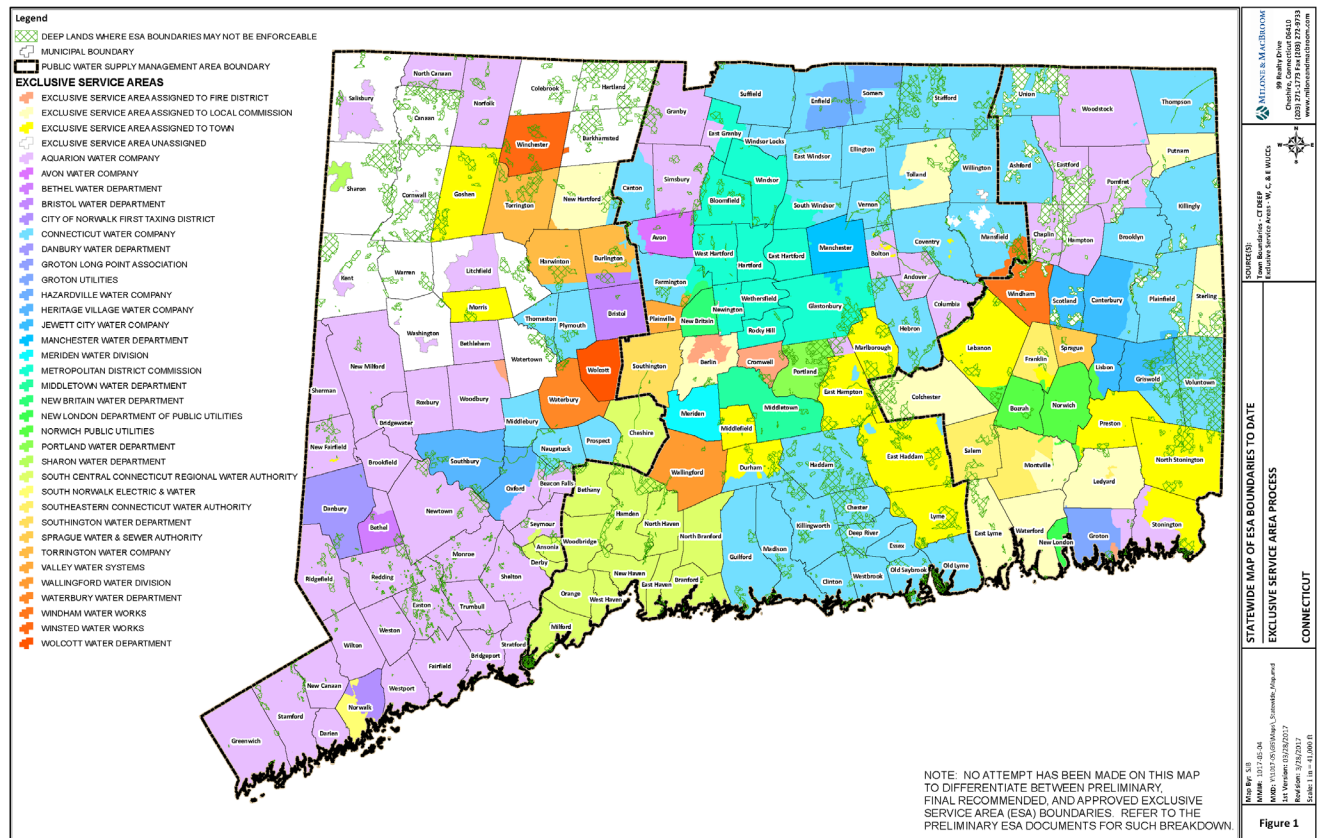
TABLE 12-1: Prioritization and Implementation of Non-Capital Improvement Recommendations

Topic Area	Goal	Recommended Strategies for Eastern WUCC	Lead(s)	Timeframe
Source Protection	Encourage prudent development and conservation of existing large, protected watersheds	30. Implement the DWQMP process (potential candidate utilities include NPU, New London Department of Public Utilities, Putnam WPCA, and WWW)	Utilities, DPH	Future
		31. Pursue modification of CGS 8-30g to more strongly consider source water protection concerns in reservoir watersheds and APAs	DPH	Future
		32. Coordinate with local planners during POCD updates to identify areas of development density that may be incompatible with reservoir watersheds and APAs and to coordinate with other watershed towns regarding source protection planning	Utilities, COGs	Priority Future
	Improve stormwater quality in watersheds and aquifer recharge areas	33. Promote the adoption of best management practices for the use of green infrastructure in stormwater management design and rainwater capture for landscaping	Utilities	Ongoing
		34. Improve collaboration with local plowing contractors, public works staff, and the State Department of Transportation to minimize chloride impacts to public water supply sources	Utilities	Ongoing
	Consider methods to improve enforcement capabilities	35. Evaluate and provide recommendations regarding methods of improving enforcement to prevent activities on private property that may lead to reservoir or aquifer contamination	WUCC	Ongoing
Water Conservation	Consider and encourage methods for water systems to utilize to enhance water efficiency	36. Explore and provide recommendations regarding various methods of reducing unaccounted-for water	WUCC	Ongoing
		37. Explore and provide recommendations regarding the use of alternative methods for tracking water usage, water loss, and waste	WUCC	Ongoing
		38. Explore and provide recommendations regarding the use of outdoor water use restrictions to be applied seasonally	WUCC	Ongoing
		39. Encourage utilities to modify rate structures to encourage water conservation and reduction of seasonal peaks while covering the full cost to provide water	WUCC	Ongoing
		40. Annually identify opportunities for the purchase and joint use of water-saving equipment, such as truck-mounted flushing systems which flush mains without blowing off water to waste	WUCC	Ongoing
		41. Develop and enact targeted water conservation and water efficiency programs	Utilities, DPH	Ongoing
	Consider alternative means to supply nonpotable uses	42. Encourage the use of Class B water for nonpotable uses within service area boundaries	WUCC, DPH	Ongoing
		43. Encourage the use of gray water reuse systems in new developments to reduce demands on potable water (e.g. include on local development review checklist)	WUCC, DPH	Ongoing
	Consider legislation to improve water conservation	44. Explore and provide recommendations regarding state and local legislation to further regulate demand-side water conservation	WUCC, DPH	Ongoing
	Encourage dissemination of water conservation information	45. Encourage local planners to include discussions in POCDs on the importance of water conservation	COGs, Utilities	Future
Climate Change	Ensure methods of calculating safe yield are consistent with climate change	46. Review safe yield regulations every 10 years to determine if data inputs (e.g. evaporation rate) and assumptions continue to be valid in light of the effects of climate change on rainfall and runoff patterns, and revise regulations if necessary	WUCC	Priority Future
		47. Encourage DEEP/USGS to monitor regional groundwater levels to detect trends that may impact safe yield	WUCC	Ongoing
	Correct disparities in existing regulations	48. Update the public health code to require new wells to be elevated to the 0.2% annual chance flood elevation	DPH	Future
	Improve resiliency of public water systems	49. Develop redundant infrastructure, backup power, and increase system storage and conduct more comprehensive emergency response planning to improve resiliency	Utilities	Ongoing
		50. Encourage small systems with the potential to develop emergency interconnections to do so	DPH, WUCC	Complete
		51. Initiate planning for development of interconnections for systems with only one source of supply (reservoir or wellfield)	WUCC, Utilities	Future
		52. Initiate planning for additional resiliency improvements for the regionally-interconnected water system in southeastern Connecticut, including between NPU and Ledyard WPCA in Preston, between the Ledyard WPCA systems, and others (Section 5.4.1)	WUCC, Utilities	Future
		53. Assist systems in conducting asset management planning and developing formal infrastructure replacement programs	DPH	Ongoing
	Develop and use best-available data	54. Re-evaluate reservoir release requirements in light of changing rainfall and runoff patterns as USGS <i>StreamStats</i> is updated	Utilities	Future
Funding	Improve availability of funding for desirable projects	55. Develop a dedicated source of grant funding to allow for the consolidation of small water systems located in close proximity	DPH	Future
		56. Develop a dedicated source of grant funding to allow for infrastructure projects to improve resiliency, such as allowing existing and new interconnections to operate in two directions where appropriate	DPH	Future
		57. Provide funding assistance for Councils of Government staff to monitor and inform local land use commissions regarding source water protection, ESA boundaries, and regional water supply challenges	DPH, OPM	Future
		58. Conduct regular seminars on financial management and the types of funding available for capital improvement projects	DPH	Ongoing
		59. Develop a dedicated source of grant funding for small system improvements	DPH	Future
		60. Develop a dedicated source of grant funding for regional water supply solutions	DPH	Future
		61. Improve the accessibility of DWSRF loans for small water systems, such as through a streamlined process for certain types of improvements	DPH	Ongoing
		62. Encourage DPH and the Water Planning Council to develop a dedicated source of funding to support periodic updates to the regional WUCC data to reflect updated safe yield calculations and individual utility projections	WUCC	Future
		63. Encourage the use of the Intertown Capital Equipment Purchase Incentive Program (for municipal systems) as well as other arrangements to share equipment, resources, and operational staff and increase purchasing power	WUCC	Future
	Encourage joint use arrangements to reduce costs			

APPENDIX C



Map I: Final Boundary Delineations of Connecticut's [Water Utility Coordinating Committees](#)



Map IA: In consultation with the Department of Energy and Environmental Protection (DEEP), the Office of Policy and Management (OPM) and the Public Utilities Regulatory Authority (PURA, the Department of Public Health assigned existing Water Utility Companies to Established Service Areas in each of the Eastern, Central and Western WUCCs

APPENDIX D

Statewide Coordinated Water System Plan

Western, Central, and Eastern Water Utility Coordinating Committees

Revised March 20, 2019

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH

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MILONE & MACBROOM



THE COORDINATED WATER SYSTEM PLANNING PROCESS

Connecticut's regional public water supply planning process was prompted by the state's extended drought in the early 1980s. During the 1985 legislative session, the Connecticut General Assembly passed Public Act 85-535, "An Act Concerning a Connecticut Plan for Public Water Supply Coordination," initiating the first statewide water supply planning program. The [Connecticut Department of Public Health](#) (DPH) in consultation with the [Public Utilities Regulatory Authority](#) (PURA), the [Connecticut Department of Energy and Environmental Protection](#) (DEEP), and the [Office of Policy and Management](#) (OPM) was given the charge of developing a coordinated approach to long-range water supply planning to assure future supplies. The legislative finding, as reflected in Connecticut General Statutes ([CGS](#)) [Section 25-33c](#), states the following: *"In order to maximize efficient and effective development of the state's public water supply systems and to promote public health, safety, and welfare, the DPH shall administer a procedure to coordinate the planning of public water supply systems,"* a charge that specifically states that water supply development be performed with *"a minimum of loss and waste."* The specific regional approach to water supply planning is contained in the [Coordinated Water System Plan \(CWSP\)](#) of the Eastern, Central, and Western [water utility coordinating committees \(WUCCs\)](#).

The Regulations of Connecticut State Agencies ([RCSA](#)) [Section 25-33h-1\(d\)](#) requires the following for each regional CWSP:

- Completion of a [Water Supply Assessment](#) of current regional public water supply conditions and problems;
- Establishment of [exclusive service area \(ESA\) boundaries](#) delineating each public water system's potential service area;
- Completion of an [Integrated Report](#) providing an overview of public water systems and addressing areawide water supply issues, concerns, and needs to promote cooperation among public water systems; and
- Completion of an [Executive Summary](#) to serve as an abbreviated overview of the CWSP.

Each of the three WUCCs was required by [RCSA Section 25-33h-1\(f\)](#) to submit each of the four components of the CWSP to DPH within a specified timeframe, resulting in a two-year planning process. The process began in June 2016 with completion of the regional *Water Supply Assessments* in December 2016, establishment of ESA boundaries in June 2017, and completion of regional *Integrated Reports* and *Executive Summaries* in May and June of 2018.

Although the two-year CWSP process has concluded, the WUCCs are continuing their efforts to facilitate regional water supply planning and implement the recommendations of the regional CWSPs.

THE TOP TEN NEEDS FOR PUBLIC WATER SYSTEMS

As envisioned in [CGS Section 25-33c](#), *"an adequate supply of potable water for domestic, commercial and industrial use is vital to the health and well-being of the people of the state."* This **vision statement** guided the CWSP process and requires constant vigilance by state agencies and public water systems to ensure adequate water quality and quantity is maintained. Each regional CWSP includes more than 60 specific recommendations in the [Integrated Report](#) for responsible planning, drought management, source protection, water conservation, resiliency, and funding to be pursued through 2030. These recommendations are reflected in the following top ten needs for public water systems statewide, each of which is discussed further on the following pages.

- 1. Regionalization and Interconnections**
Ensure redundant and environmentally responsible supplies.
- 2. Water Conservation and Water Efficiency**
Reduce future demands and unnecessary water use.
- 3. Reduction in Clustering of Small Water Systems**
Encourage system consolidations and ensure responsible planning to prevent proliferation of adjacent (but independent) small systems.
- 4. Assistance to Small Public Water Systems**
Ensure proper technical, managerial, and financial capacity of small public water systems.
- 5. Investment in Infrastructure**
Replace aging infrastructure, including century-old pipes.
- 6. Funding**
Provide grants and loans for planning, projects, and small systems in line with the above needs.
- 7. Drought Management and Resilience**
Increase awareness of drought impacts and standardize responses to the extent practicable.
- 8. Resiliency to Storms and Climate Change**
Reduce recovery time and adapt to future conditions.
- 9. Protection of Watersheds and Supplies**
Continue to ensure adequate water supplies with high water quality.
- 10. Planning for Water Demand & Drinking Water Quality Risks**
Ensuring that public water systems continue to maintain supply to meet projected demands and maintain the highest quality drinking water.

1. REGIONALIZATION AND INTERCONNECTIONS

A rigorous analysis was conducted for all large water utilities in Connecticut that currently serve greater than 250 customers or 1,000 people. Projected water demands were analyzed for the 5-, 20-, and 50-year planning horizons; forecasted deficits were determined; and vulnerable systems were identified where source redundancy may be lacking. Finally, areas that are not currently served but are/will be in need of service have been analyzed. Based on the collective findings in all three WUCC regions, the following specific needs are of paramount importance to water supply in Connecticut:

1A. Provision of a Regional Supply to East Hampton

East Hampton is currently served by 56 separate public water systems, including 13 community systems serving residential populations. Collectively, these systems struggle to meet current demands, and the lack of a cohesive water supply system is hindering economic development in East Hampton. The Town has envisioned an expanded municipal water system estimated at \$80 million, but [sufficient supply is not likely to be available within the town boundaries](#). An interconnection with Portland Water Department could meet the projected needs of East Hampton, with potential water sources including: the Portland Reservoir, a new wellfield along the Connecticut River, the MDC, or the Cromwell Fire District, all of which would need to be developed at additional cost.

1B. Provision of a Regional Supply to Old Lyme

Old Lyme is currently served by 43 separate public water systems, including 11 community systems. Many of these include shoreline neighborhoods and entities where providing public water is not the primary business of the water system. The Town of Old Lyme has indicated its desire to see several shoreline systems consolidated. [The Connecticut Water Company \(CWC\) has envisioned an extension of its Guilford system](#) (at a cost of more than \$8 million) to the east across the Connecticut River to meet this need. Such a project could also provide additional supply to East Lyme to meet projected demands.

1C. Provision of a Regional Supply to the Tylerville Section of Haddam from Chester

The Tylerville section of Haddam has long been identified as an area where [groundwater contamination](#) has occurred in private wells, with additional private wells being considered at risk. In December 2017 the Town of Haddam entered into a [Consent Order](#) with the DEEP and DPH to address the contamination. The proposed solution requires more than \$5 million in additional funding to extend a water main from the CWC-Chester system to service properties in the Tylerville area.

1D. Development of Regional Supplies in Southeastern Connecticut

[Water supply projections](#) in southeastern Connecticut suggest that 7.3 million gallons per day (mgd) of new supply will be needed through 2030, with most of this water projected to be needed by Norwich Public Utilities (NPU), New London, and East Lyme. While some of this projected demand may be reduced through implementation of strong water conservation and water efficiency programs, some new supply sources will likely be necessary. NPU, New London, and Groton Utilities have identified potential new sources of supply that could be developed as regional sources.

1E. Reactivate the Housatonic Wellfield in Shelton to Serve as a Regional Supply

[Water supply projections](#) in southwestern Connecticut suggest that a significant amount of additional supply is needed through 2030. Aquarion Water Company (AWC) proposes to reactivate its Housatonic Wellfield in Shelton (supply of 16.9 mgd) and increase the capacity of interconnections between its systems to meet most of this projected demand, with the remainder to be addressed through implementation of rigorous water conservation and water efficiency programs.

1F. Interconnection for the Purpose of Redundancy and Resiliency

Numerous systems throughout the state rely on a single source of supply or are otherwise vulnerable to temporary outages. The interconnection of individual and regional systems with two-way flow capability will provide greater reliability and resiliency while reducing risk. To the extent practical, regulations should be streamlined to encourage implementation of emergency interconnection of systems. Funding to support the following actions and others will be critical:

- Interconnect [Windham Water Works](#) with [redundant supply](#)
- Install [Housatonic River crossing](#) (AWC and SCCRWA)
- Interconnect [Ledyard to NPU](#) in Preston
- Interconnect AWC systems from [Monroe to Brookfield](#)
- Interconnect [SCCRWA, CWC–Central, and Waterbury](#)
- Interconnect [AWC systems with Danbury Water Department](#)
- Interconnect [Heritage Village with AWC - Valley and Woodbury](#)
- Interconnect [Torrington Water Company with Winsted](#) and [Bristol](#)
- Interconnect [Connecticut Valley Hospital and Middletown](#)
- Interconnect [multiple systems in Greater Hartford area](#)
- Interconnect [SCWA systems with Ledyard](#)
- Consolidate [CWC–Collinsville and Unionville](#)
- Consolidate [CWC–Crystal, Plainfield, and Gallup](#)

2. WATER CONSERVATION AND WATER EFFICIENCY

Although Connecticut's water utilities have had water conservation programs in place for several decades, recent innovations for supply and demand management provide opportunities to revitalize water conservation goals. Water conservation is one of the central themes in the final draft [State Water Plan](#) (January 2018), and the regional CWSPs benefited from the policy and pathways forward recommendations in the final draft *State Water Plan*.

Each CWSP utilized Scenario I (passive water conservation improvements) from the *State Water Plan* to modify utility projections in order to reduce the expected need for new water supply. In addition, all three CWSPs recommend development of targeted water conservation and water efficiency efforts in specific systems such as those envisioned under Scenario II (ultra-efficient indoor use) and Scenario III (ultra-efficient indoor use with a 20% decrease in outdoor water use) of the *State Water Plan*. The DPH has partnered with the [Alliance for Water Efficiency](#), a national nonprofit organization that advocates for water conservation and water efficiency, to educate and support public water systems in the development of targeted water conservation and water efficiency programs. Each program must be tailored to the public water system and be focused on cost-effective and attainable goals, including the following:

- Use of water conservation tracking tools by customers and the utility
- Work with municipal governments to adopt local efficiency standards, codes, and ordinances including those controlling outdoor water use
- Audits of major users and education for developers and engineers
- Active meter replacement and water usage tracking programs
- Installation of automatic meter reading and advanced meter infrastructure devices to continuously track system usage
- Using innovative technologies such as truck-mounted flushing systems that reduce or eliminate flushing to waste
- Participation in [EPA's Water Sense Program](#) and strong public outreach

As these targeted water conservation and water efficiency programs are enacted over the next decade, it is expected that per-capita water demands will correspondingly decline. Reduced demands should help prevent or delay the need for new source development as well as reduce demands on stressed water basins as identified in the analysis conducted for the *State Water Plan*.

3. REDUCE CLUSTERING OF SMALL WATER SYSTEMS

In many Connecticut communities, the lack of a centralized public water system has resulted in the proliferation of small public water systems, many of which are proximal but separate in every way. Interconnection, consolidation, and/or shared resources for these systems is a high priority, with the goal of increased system redundancy and/or enhancement of the ability to provide a pure and adequate water supply for customers. The establishment of Exclusive Service Areas (ESAs) is expected to optimize consolidation of community water systems, however, new small non-community systems continue to develop where community water systems do not exist.

3A. Identify Alternatives Before New Systems are Proposed

Each WUCC is required to [recommend](#) whether a new public water system should be developed within its management area. The WUCCs use this to discuss with town leaders and developers alternatives, such as interconnections and consolidations to new water systems.

Ideally, an assessment of public water supply needs would be performed locally through municipal [Plans of Conservation and Development](#), and local Zoning Regulations would require analysis of alternatives to prevent proliferation of small systems.

3B. Interconnection and/or Consolidation of Small Public Water Systems

Interconnecting small water systems increases source redundancy. Consolidations have the potential to reduce operational costs, increase redundancy and resiliency, and reduce risk through elimination of separate small systems. Many communities have clusters of small systems that could be consolidated.

Eliminating the proliferation of small systems may be possible in communities where public water system expansions have occurred and sizeable systems are now proximal to small systems. Examples include Brookfield, Durham, East Hampton, Mansfield, Marlborough, New Milford, and Ridgefield. Typical barriers to interconnecting or consolidating small systems include lack of funding and/or desire to make the investment, lack of interest from the small system, potential changes in water quality, potential changes in pressure, and limited mechanisms to provide communication, education, and guidance to these systems.



4. ASSISTANCE TO SMALL PUBLIC WATER SYSTEMS

While some small public water systems are owned and operated by utilities and municipalities with experience in public water supply, others are owned and operated by entities for whom providing public water supply is not their primary business. The CWSPs identified significant concerns about the technical, managerial, and financial capacity of such small systems.

- Technical: Suitability of source, treatment, monitoring requirements
- Managerial: Asset management, compliance with rules and regulations
- Financial: Annual costs, capital improvement budgeting, emergencies



*North Willington Village Emergency Generator Funded by
Emergency Power Generator Program Administered by DPH*

DPH has developed a Capacity Assessment Tool and a [Sanitary Survey Capacity Questionnaire](#) to better track capacity issues and understand small system needs. The recent asset and fiscal management legislation will close a major gap in financial and managerial capacity for small systems. Further, the CWSPs make recommendations to increase assistance to small systems including:

- Review of public water systems that have an association as a management structure, as the rapid turnover and lack of an enduring manager prevents consistent managerial and financial capacity
- Requiring training for small system owners in asset management and related recordkeeping
- Additional grant and loan programs for small system improvements and infrastructure replacement plans as many small systems are insufficiently maintained

5. INVESTMENT IN INFRASTRUCTURE

Connecticut's water supply infrastructure is aging. Many larger water systems were originally developed in the 19th century, while many smaller systems were originally developed in the 1950s and 1960s. Some water utilities and public water systems maintain robust asset management and corresponding capital improvement programs; others have struggled to demonstrate adequate managerial and financial capacity in this area. Some municipal systems rely heavily on municipal budgets to fund capital projects, with the timing of non-emergency infrastructure replacements sometimes extending well past the useful life of the infrastructure component. Many smaller public water systems have no asset management structure at all and capital improvements are only performed when there is an infrastructure failure. In addition, many systems will have changing water treatment needs as new rules and regulations to protect public health are promulgated by EPA.



*Tariffville Fire District New Storage Tank Funded by
Drinking Water State Revolving Fund Administered by DPH*

Asset and fiscal management plans are now required for small community water systems. Identified necessary improvements could be funded through the [Drinking Water State Revolving Fund](#). This approach has recently been successful in mandating emergency power for community water systems. Many types of infrastructure projects are prioritized under the Drinking Water State Revolving Fund at present, including tank replacements, replacement of lead service lines, and treatment upgrades. DPH will continue to hold training seminars to educate small systems in asset management techniques and capital improvement planning.

6. FUNDING

All public water systems should conduct proper asset management and capital improvement planning. As water conservation programs and changing land uses continue to drive revenue downwards, proper financial planning for water systems will be essential. DPH will continue to offer training programs for public water systems to improve financial capacity.

Access to adequate and dedicated funding will be key for many of the regional and individual water system projects envisioned in each CWSP. While municipal water systems have access to funding through municipal bonding, the availability of such bonding may be limited by other legitimately competing infrastructure and municipal service needs. The majority of public water systems rely on rates, grants, and/or loans to finance operations.

Although DPH provides low-interest loans for water system improvements through the [Drinking Water State Revolving Fund](#), many utilities have identified the need for a reliable source of funding for regionalization and small system consolidation. For example, where it would be desirable to consolidate areas of densely concentrated small systems into one larger system, there is no financial impetus for the small system to undertake this effort, particularly if their system is functional. The DPH DWSRF program will continue to work with municipalities to adapt to better meet these needs, as funding such projects is essential.



Eastern WUCC Meeting, June 2018

DPH Drinking Water Section has recently used the Drinking Water State Revolving Fund to great success in promulgating its [Emergency Power Generator Program](#) for small public water systems. Subsidized loans were provided to small systems along with technical assistance to prepare generator specifications required for the loan application. DPH plans to continue offering subsidized loan options through this

program to assist small systems needing other types of infrastructure upgrades.

7. DROUGHT MANAGEMENT AND RESILIENCE

The recent droughts in 2015 and 2016 reinforced the need to reconsider long-held notions regarding drought planning, tracking, and response. In particular, [Public Act 17-211](#) requires that drought planning and response procedures developed by public water systems be available to the public. Many of the plans presently in use by larger utilities were written more than a decade ago and do not take into account lessons learned during recent droughts.



Low Flow Conditions in the Willimantic River

The [Interagency Drought Work Group](#) and the [Water Planning Council](#) are among those who are considering this issue. Utilities have voiced several concerns that they wish to see addressed as part of this process, including the ability to be able to enforce mandatory water restrictions in some way, and to tie responses to the capability of the water system rather than to a general standard. A delicate balance must be achieved in choosing to activate drought response triggers. Prudent decision-making is important and should elicit conservation results rather than “trigger fatigue” among end users who become immune to frequent messages announcing water use restrictions. Utilities desire for DPH to provide guidance on how to set triggers rather than specifying exactly what the triggers should be.

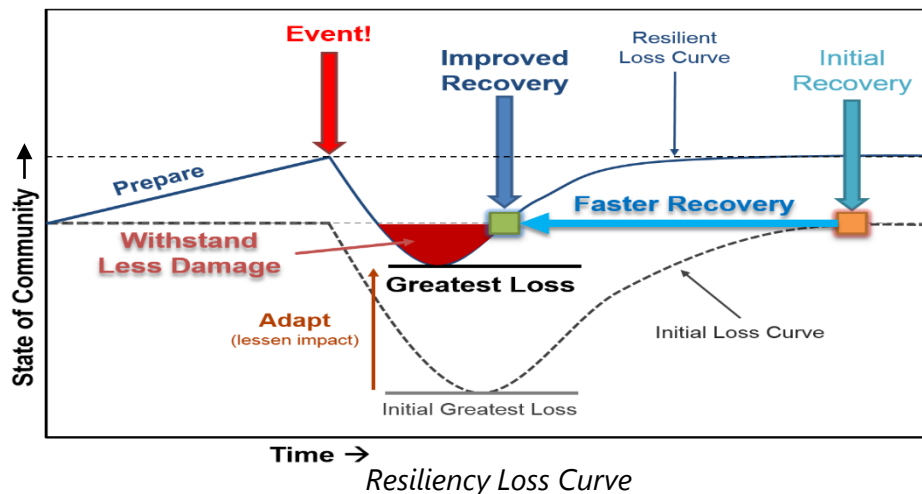
8. RESILIENCY TO STORMS AND CLIMATE CHANGE

As noted in the [DPH/CIRCA Drinking Water Resiliency Plan](#), climate change is both a present threat and a slow-onset disaster. Rising mean temperatures, increased ambient water temperatures, changes in precipitation patterns, and sea level rise are having and will continue to have a variety of impacts on public water systems, including altering treatment requirements and placing shoreline infrastructure at risk. Furthermore, the changing/extreme weather patterns (specifically more high-intensity rainfall events occurring as severe storms) increase runoff and pollutants into reservoirs and source water areas, and alter the timing and magnitude of discharge in streams.

As climate changes, many of the underlying scientific assumptions in our regulations may become outdated. For example, the methodology used to determine the safe yield of public water supply sources will need to be reviewed and potentially revised on a regular (perhaps decadal) basis to ensure that the assumptions are still valid, and [Ground Water Under the Direct Influence of surface water \(GWUDI\)](#) studies may need revisiting.

The increase in extreme storm events is expected to result in more risk to public water systems from the effects of such storms, including flooding, high winds, dam failure, and power outages. Utilities need to be prepared to mitigate these risks in order to reduce the magnitude of losses and potential downtime as shown by the Resiliency Loss Curve below. Funding will be necessary to support certain types of resiliency projects such as the construction of interconnections to provide redundant supply sources.

Public water systems should consider development of redundant infrastructure, backup power, increased system storage, and more comprehensive emergency response planning as part of their individual resiliency efforts.



9. PROTECTION OF WATERSHEDS AND SUPPLIES

Protection of water supply sources is mutually beneficial for public health and environmental protection, ensuring pure drinking water supplies. Connecticut has progressively implemented a number of programs and procedures to govern source water protection, including [DPH's Source Water Protection initiatives](#), protective sanitary radii for public water supply wells, use of only the highest quality source water (Class AA or A), an inventory of [high quality sources \(CGS Section 25-33q\)](#) and regulations protective of public water supply watersheds.

As Connecticut continues to grow, development will continue to encroach on public water supply source water areas. Many utilities have expressed concern over a variety of potential impacts to source water areas, including application of road salt each winter, higher density developments occurring in public water supply watersheds, and the relatively limited ability of public water systems to prevent activities occurring on private property that could lead to aquifer or reservoir contamination.



Mackenzie Reservoir, Wallingford

As many source water areas span multiple communities, additional emphasis on regional planning and protection for source water areas is necessary. DPH has piloted the [Drinking Water Quality Management Plan](#) process in southeastern Connecticut to address source water areas that cross municipal divides. Use of such planning by utilities and municipalities and via regional partnerships is encouraged, although funding will likely be necessary to guide the planning process for such plans. A 2019 project to improve water quality in the Farm River (a Regional Water Authority drinking water source) created a partnership with NRCS, DPH, a local health department, a conservation district, a municipality and a water utility.

10. PLANNING FOR WATER DEMAND & DRINKING WATER QUALITY RISKS

A significant effort was undertaken as part of the CWSP process to collect public water system demand data, with specific analyses of all community PWSs. The data were a critical component of both the [CWSP process](#) and the final draft [State Water Plan](#) as they were used to determine where water is being withdrawn, used, and needed.

Notably, the CWSPs have calculated demands and margins of safety for all of Connecticut's community public water supplies for the 5, 20 and 50 year planning periods (i.e. 2060). Water surpluses or deficits to 2060 are now identified and discussed within the CWSPs. The coordinated planning process identified the need to continually analyze, plan for and address projected deficits to available water.

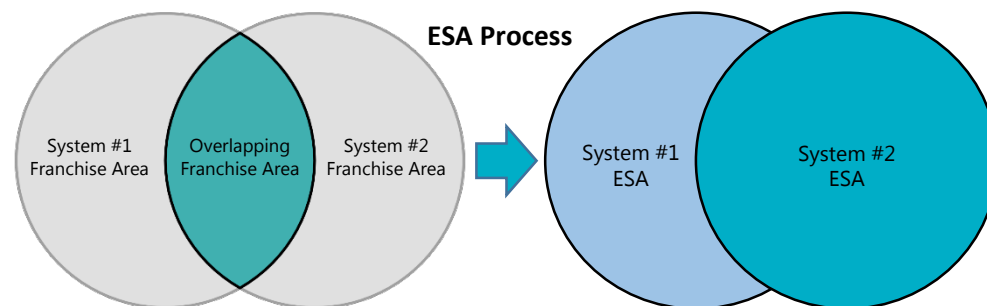
There is shared concern with regard to the maintaining of high quality drinking water. [Salt](#), chlorides, and emerging contaminants such as cyanotoxins and [per- and polyfluoroalkyl substances](#) (PFAS) will increasingly present challenges for drinking water supplies. Vigilance and care in monitoring source input locations and concentrations in drinking water is necessary to prevent public health impacts. This continued planning effort to address all potential impacts to source water will support Connecticut's dedication, as identified in the State Water Plan, to maintaining the highest standard for drinking water quality.

EXCLUSIVE SERVICE AREAS

ESA boundaries delineate existing and potential service areas for a public water system. Numerous water companies and utilities were granted charters or otherwise authorized by acts of the state legislature beginning in the late 18th century, resulting over time in areas where water service could be provided by more than one utility in the same area. ESA boundaries are designed to eliminate overlapping franchise and charter service areas, to prevent situations where more than one large public water system serves the same area (to avoid duplication of service), and to identify responsible service providers to meet future service needs. A statewide map of generalized ESA boundaries is presented on the following page.

Establishment of boundaries for ESA holders is intended to ensure that safe and adequate drinking water is available to areas of the state where public water supply is needed. ESA designations are established based

upon [regulatory criteria](#) as well as the agreement by a utility or municipality to serve, as necessary, previously identified unserved areas in accordance with applicable state statutes and regulations. Existing service areas (i.e., areas where service is currently being provided) were maintained and automatically received ESA designations via the delineation process. As part of this process, each public water system and municipality was provided the opportunity to request ESA designations beyond their existing system boundaries that cover areas currently unserved by public water supply.



Being an ESA holder is a commitment to ownership and service for newly constructed "community" (residential) public water supply needs and, in general, a right of first refusal for "non-community" (non-residential) public water supply needs. An ESA designation therefore conveys both a right and a responsibility to provide public water service pursuant to applicable state law.

Although an ESA provider is designated, actual development and service expansion should support the direction set by municipal land use and development goals while being cognizant of the impacts that such land use and development goals have on protecting water resources, timely water service, water quality, economically priced water, and strong professional management of water supplies. Municipalities retain their ability to control development within their borders through their local government structure and planning documents, such as municipal plans of development, ordinances, and zoning regulations. When a project is proposed at or near an ESA boundary, such boundary should be evaluated relative to the most appropriate supply solution, and if warranted, the ESA boundary should be adjusted.

STATEWIDE EXCLUSIVE SERVICE AREA BOUNDARIES

As of April 23, 2018

Legend

DEEP LANDS WHERE ESA BOUNDARIES MAY NOT BE ENFORCEABLE

MUNICIPAL BOUNDARY

PUBLIC WATER SUPPLY MANAGEMENT AREA BOUNDARY

STATE AGENCY EXISTING SERVICE AREA

EXCLUSIVE SERVICE AREAS

OTHER COMMUNITY WATER SYSTEM EXCLUSIVE SERVICE AREAS

EXCLUSIVE SERVICE AREA ASSIGNED TO TOWN

EXCLUSIVE SERVICE AREA ASSIGNED TO LOCAL COMMISSION

EXCLUSIVE SERVICE AREA ASSIGNED TO FIRE DISTRICT

EXCLUSIVE SERVICE AREA UNASSIGNED

AQUARION WATER COMPANY

AVON WATER COMPANY

BETHEL WATER DEPARTMENT

BRISTOL WATER DEPARTMENT

CITY OF NORWALK FIRST TAXING DISTRICT

CONNECTICUT WATER COMPANY

DANBURY WATER DEPARTMENT

GROTON LONG POINT ASSOCIATION

GROTON UTILITIES

HAZARDVILLE WATER COMPANY

HERITAGE VILLAGE WATER COMPANY

JEWETT CITY WATER COMPANY

MANCHESTER WATER DEPARTMENT

MERIDEN WATER DIVISION

METROPOLITAN DISTRICT COMMISSION

MIDDLETOWN WATER DEPARTMENT

NEW BRITAIN WATER DEPARTMENT

NEW LONDON DEPARTMENT OF PUBLIC UTILITIES

NORWICH PUBLIC UTILITIES

PORTLAND WATER DEPARTMENT

SHARON WATER DEPARTMENT

SOUTH CENTRAL CONNECTICUT REGIONAL WATER AUTHORITY

SOUTH NORWALK ELECTRIC & WATER

SOUTHEASTERN CONNECTICUT WATER AUTHORITY

SOUTHTON WATER DEPARTMENT

SPRAGUE WATER & SEWER AUTHORITY

TORRINGTON WATER COMPANY

VALLEY WATER SYSTEMS, INC

WALLINGFORD WATER DIVISION

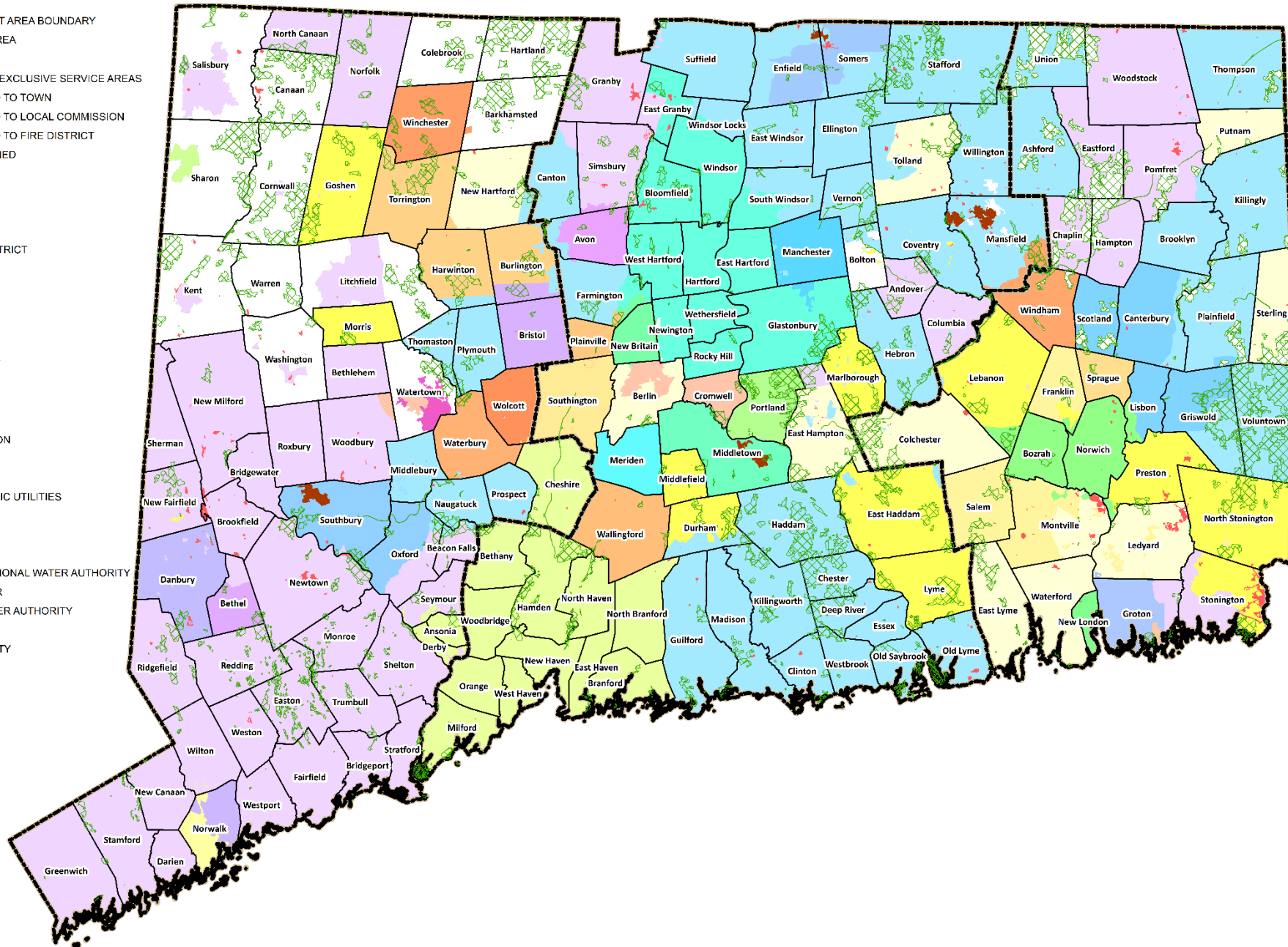
WATERBURY WATER DEPARTMENT

WATERTOWN WATER & SEWER

WINDHAM WATER WORKS

WINSTED WATER WORKS

WOLCOTT WATER DEPARTMENT



ACKNOWLEDGEMENTS

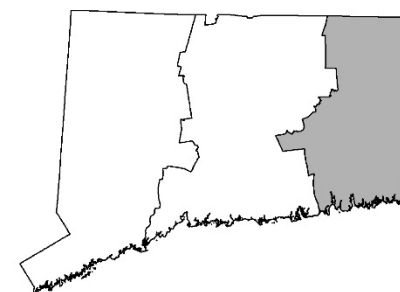
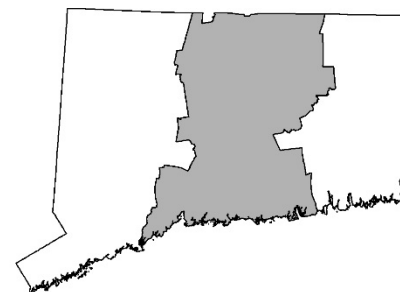
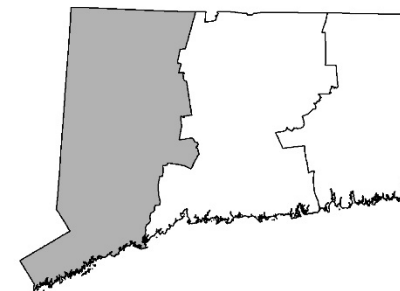
This document was created by a collaboration between Milone & MacBroom, Inc., the Connecticut Department of Public Health (DPH), and the members of the Western, Central, and Eastern Connecticut WUCCs. The assistance of the DPH and the WUCCs in data collection and discussion was invaluable and the desire of these entities to ensure people have safe and adequate drinking water is admirable.

We would like to thank the following entities for their assistance with data collection, review of the regional Coordinated Water System Plans (CWSPs), and interest in the findings of this effort:

Aquarion Water Company (AWC)
 Avon Water Company
 Berlin Water Control Commission
 Bethel Water Department
 Bristol Water Department
 Candlewood Springs Prop. Owners Assn.
 Capitol Region Council of Gov'ts (COG)
 Colchester Water & Sewer Comm.
 Connecticut DEEP
 Connecticut DPH
 Connecticut OPM
 Connecticut River Watershed Council
 Connecticut Rivers Council BSA
 Connecticut Water Company (CWC)
 Countryside Drive Association
 Cromwell Fire District
 Danbury Water Department
 East Hampton WPCA
 East Lyme Water & Sewer
 Farmington River Watershed Assn.
 Groton Long Point Association
 Groton Utilities
 Hazardville Water Company
 Hideaway Cove Family Campground
 Jewett City Water Company
 Laurel Loch Campground
 Ledyard WPCA
 Lord Thompson Manor
 Lower Connecticut River Valley COG
 Members of the Public
 Manchester Water & Sewer
 Meriden Water Division
 Metropolitan Connecticut COG
 Metropolitan District Commission
 Middletown Water & Sewer

Mohegan Tribal Utility Authority
 Montville WPCA
 Naugatuck Valley COG
 New Britain Water Department
 New London Dept. of Utilities
 Newport Academy
 Noank Fire District
 Northeastern Connecticut COG
 Northwest Hills COG
 Norwalk First Taxing District
 Norwich Public Utilities (NPU)
 Oxford WPCA
 Photonics, Inc.
 Pomperaug River Watershed Coalition
 Portland Water Department
 Putnam WPCA
 Quinnipiac River Watershed Association
 Rivers Alliance of Connecticut
 Rogers Corporation
 Rosalund Terrace Water Association
 Save Our Water – CT
 Sharon Water Department
 South Central CT Reg. Water Authority
 South Central Region COG
 South Norwalk Electric & Water
 Southbury Training School
 Southeastern Connecticut COG
 Southeastern CT Water Authority
 Southington Water Department
 Sterling Water Commission
 Tolland Water Commission
 Torrington Water Company
 Town of Barkhamsted
 Town of Bethlehem
 Town of Bolton

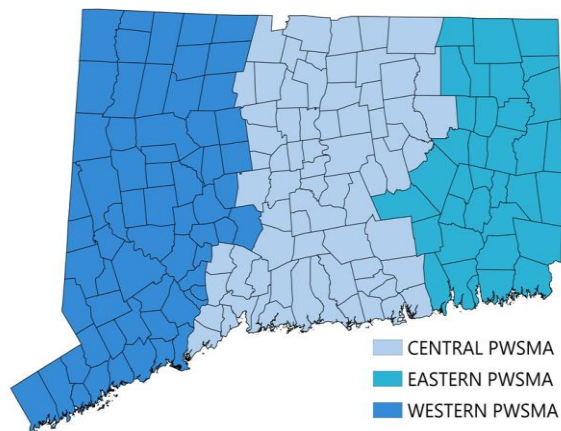
Town of Bozrah
 Town of Brookfield
 Town of Chaplin
 Town of Coventry
 Town of Durham
 Town of East Haddam
 Town of Franklin
 Town of Goshen
 Town of Hampton
 Town of Lebanon
 Town of Lisbon
 Town of Mansfield
 Town of Marlborough
 Town of New Fairfield
 Town of New Hartford
 Town of New Milford
 Town of Newtown
 Town of Pomfret
 Town of Preston
 Town of Scotland
 Town of Thompson
 Town of Weston
 Town of Woodstock
 University of Connecticut
 Valley Water Systems, Inc.
 Wallingford Water Division
 Waterbury Water Department
 Waterford Utility Commission
 Watertown Fire District
 Western Connecticut COG
 Willington Oaks
 Windham Water Works
 Winsted Water Works
 Wolcott Water Department
 Woodlake Tax District



Connecticut's Water Utility Coordinating Committee (WUCC) Process

A Coordinated Planning Approach for the State's Public Drinking Water Supply

WHAT ARE THE WUCCs? The Western, Central, and Eastern WUCCs are comprised of one representative from each public water system and one representative from each regional council of government (COG) within three Public Water Supply Management Areas (PWSMAs) established by the Department of Public Health (DPH) pursuant to CGS § 25-33f.



- Completion of an *Integrated Report* providing an overview of public water systems and addressing area-wide water supply issues, concerns, and needs to promote cooperation among public water systems; and
- Completion of an *Executive Summary* to serve as an abbreviated overview of the CWSP.

The WUCCs were required by RCSA § 25-33h-1(f) to submit each of the four components of its CWSP to the DPH within specified timeframes spanning a two-year planning process. Each WUCC held monthly meetings that were open to the public to facilitate this work. Efforts were made throughout this process to be inclusive of diverse viewpoints from water utilities, state and local government, stakeholders, and the public.

Each WUCC prepared its CWSP and submitted the plan to DPH in May (Western and Eastern regions) and June (Central region) of 2018. The CWSPs are required to be updated as necessary or at least every 10 years.

WHY DO THE WUCCs EXIST? Connecticut's regional public water supply planning process was prompted by the State's extended drought in the early 1980s. Public Act 85-535, "An Act Concerning a Connecticut Plan for Public Water Supply Coordination," directed the DPH to administer a procedure to coordinate the planning of public water supply systems in an effort to maximize their efficient and effective development and to promote public health, safety, and welfare. The legislative finding associated with this Public Act was codified in CGS § 25-33c.

WHAT ARE THE WUCCs DOING? In June 2016, the DPH convened the Water Utility Coordinating Committee (WUCC) for each PWSMA and directed each WUCC to implement the 2-year planning process established by CGS §§ 25-33g and 25-33h.

The Regulations of Connecticut State Agencies (RCSA) § 25-33h-1(d) requires each WUCC to prepare a CWSP consisting of the following elements in addition to the utilities' individual *Water Supply Plans* prepared for systems within the PWSMA:

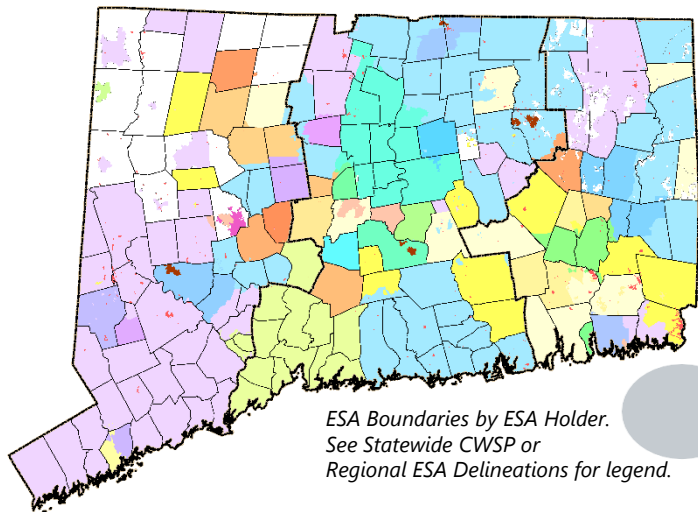
- Completion of a *Water Supply Assessment* of regional water supply conditions and problems;
- Establishment of exclusive service area (ESA) boundaries delineating each public water system's potential service area;



Eastern WUCC Meeting, June 2018

WHAT IS THE IMPACT OF THE WUCC PROCESS? Each of the three regional CWSPs evaluates current water supply conditions and problems in the PWSMA, establishes ESA boundaries assigning responsibility for providing future public water supply to areas where it may be needed, and presents current and projected water demands for public water systems.

WHAT IS THE VISION FOR THIS PLANNING PROCESS? As envisioned in Connecticut General Statute (CGS) § 25-33c, "an adequate supply of potable water for domestic, commercial and industrial use is vital to the health and well-being of the people of the state. Readily available water for use in public water systems is limited and should be developed with a minimum of loss and waste." This vision statement guided the Coordinated Water System Plan (CWSP) process and requires sustained vigilance by state agencies and public water systems to ensure adequate water quality and quantity is maintained. The CWSP prepared by each WUCC evaluates current public water supply conditions and future needs at a regional scale and provides guidance towards improving regional coordination and the technical, managerial, and financial capacity of public water supply systems.



ESA boundaries delineate existing and potential future service areas of public water systems, identify responsible parties to own and operate “community” (residential) public water systems developed through the Certificate of Public Convenience and Necessity process (CGS § 16-262m), and resolve competing future service area claims by public water systems resulting from the assignment of overlapping franchise areas over time by the state legislature. When municipal land use and development goals result in the need for the creation of a new public water system, the designated ESA provider will be part of that process.

The CWSPs identify potential regional projects to encourage system resiliency and redundancy, provide a desktop review of potential environmental impacts of new supply sources identified in water supply plans that may meet regional needs, and quantifies how water conservation may reduce projected water demands. The CWSPs identify regional needs as opposed to site-specific capital improvement projects, leaving such decisions to the individual utilities to evaluate with assistance from the respective WUCC. Several potential projects are identified in order to facilitate further discussion and possible funding.

Each CWSP contains more than 60 recommendations for the WUCC to pursue in order to improve public water supply conditions through the year 2030. These recommendations fall into the topic areas of responsible planning, drought management, source protection, water conservation, resiliency, and funding. Some recommendations will require action by DPH or other state agencies, while others will rely on action by COGs or by individual public water systems. These recommendations provide the basis for discussion and action by each WUCC and its members over the next 10 years.

WHAT IS THE OUTCOME OF THE WUCC PROCESS? The DPH has interpreted the primary messages of the each CWSP into the following top needs for public water systems in the state, which are intended to serve as guiding principles for future regulations, water planning, capital improvement projects, and funding goals. They are:

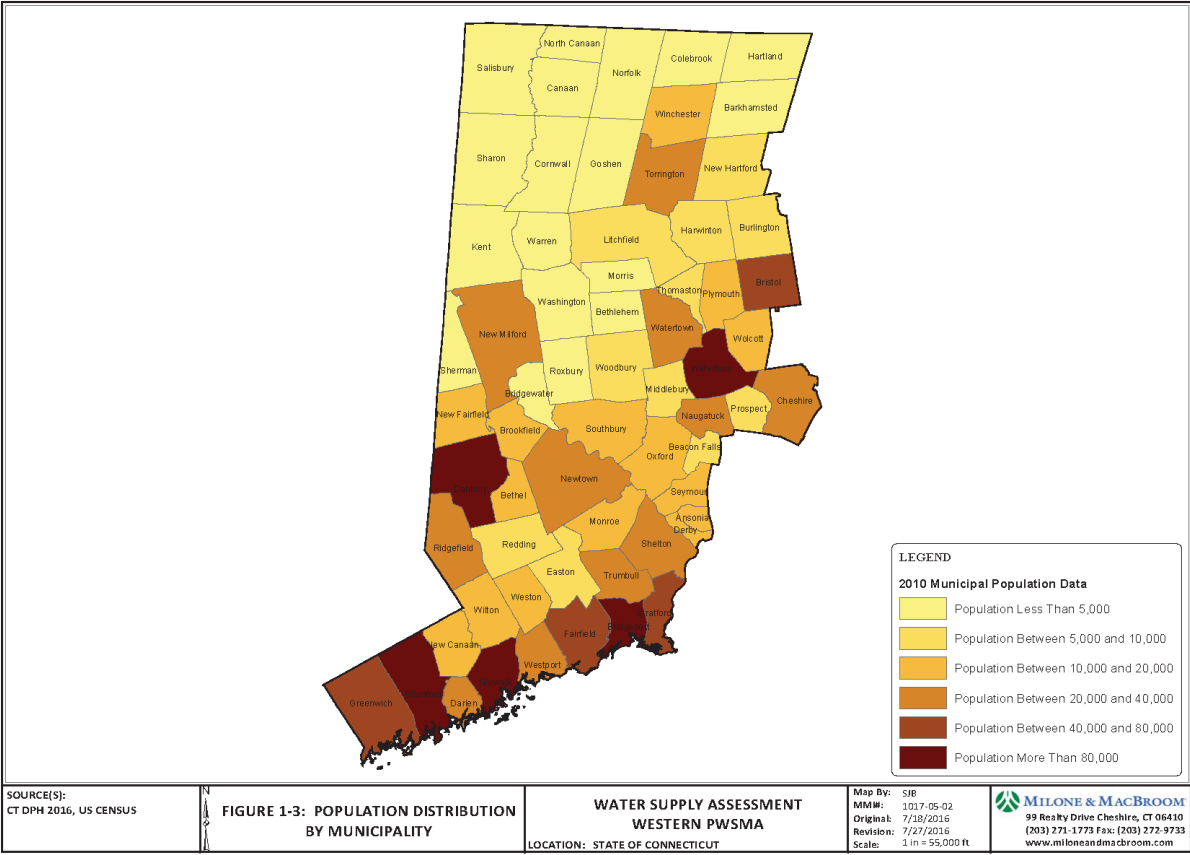
1. **Regionalization and Interconnections**
Ensure redundant and environmentally responsible supplies.
2. **Water Conservation and Water Efficiency**
Reduce future demands and unnecessary water use.
3. **Reduce Clustering of Small Water Systems**
Encourage consolidations and ensure responsible planning to mitigate proliferation of adjacent small systems.
4. **Assistance to Small Public Water Systems**
Ensure proper technical, managerial, and financial capacity of small public water systems.
5. **Investment in Infrastructure**
Replace aging infrastructure, including mains a century old.
6. **Funding**
Provide grants and loans for planning, projects, and small systems in line with the above needs.
7. **Drought Management and Resilience**
Increase awareness of drought impacts and standardize responses to the extent practicable.
8. **Resiliency to Storms and Climate Change**
Reduce recovery time and adapt to future conditions.
9. **Protection of Watersheds and Supplies**
Continue to ensure adequate water supplies with high water quality.
10. **Improvements to Water Demand and Water Quality Planning**
Avoid the development of unnecessary new sources and ensure proper consideration of regulated and unregulated contaminants.

WHAT ARE THE NEXT STEPS? Each WUCC will work to implement the recommendations of their CWSP, including ensuring that water demand and projection data in the CWSPs are updated sooner than is required to facilitate regional planning, and working with DPH to provide assistance to small water systems. DPH plans to hold workshops in 2019 to educate public water systems on the outcome of the planning process and to work towards implementation of regional and statewide public water supply projects.

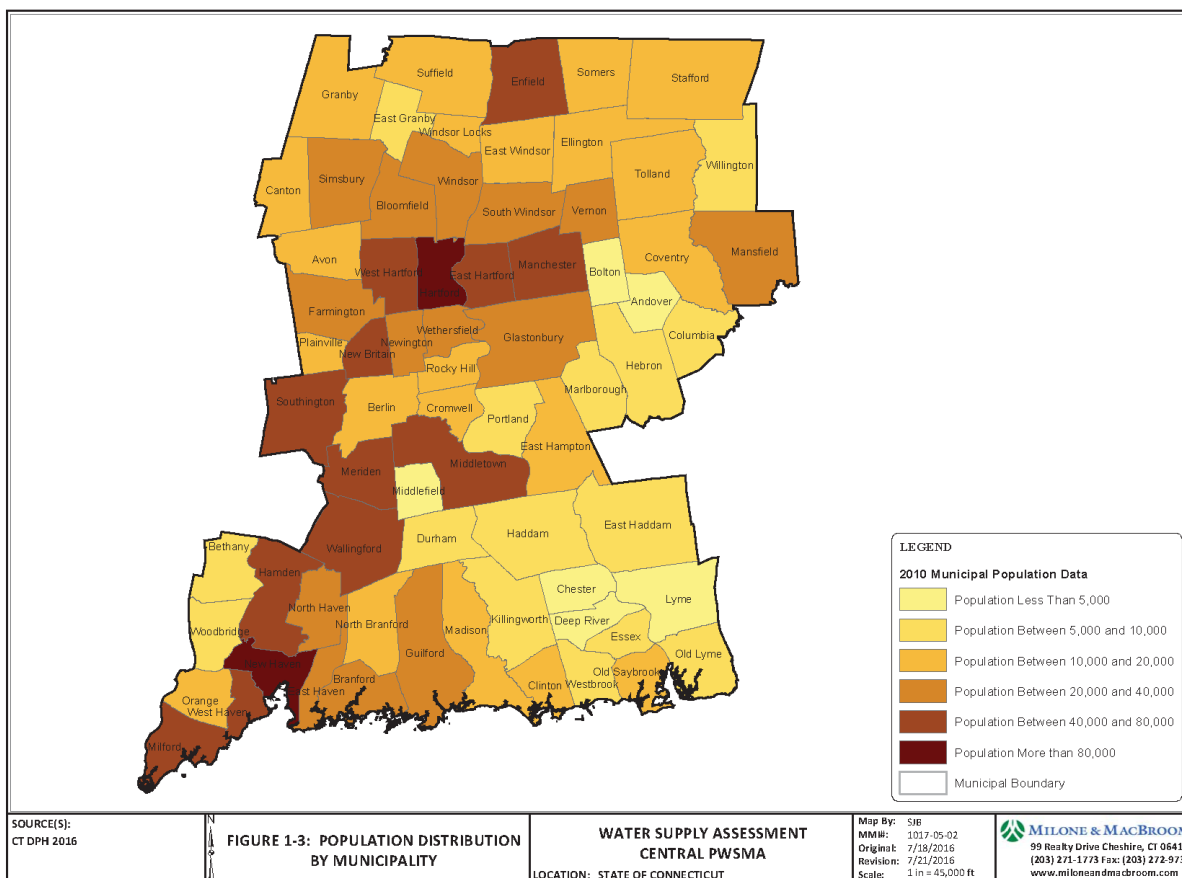
WHAT IF I WANT MORE INFORMATION? Visit the WUCC webpages located on the DPH website at <https://portal.ct.gov/DPH/Drinking-Water/WUCC/Water-Utility-Coordinating-Committee/>

APPENDIX E

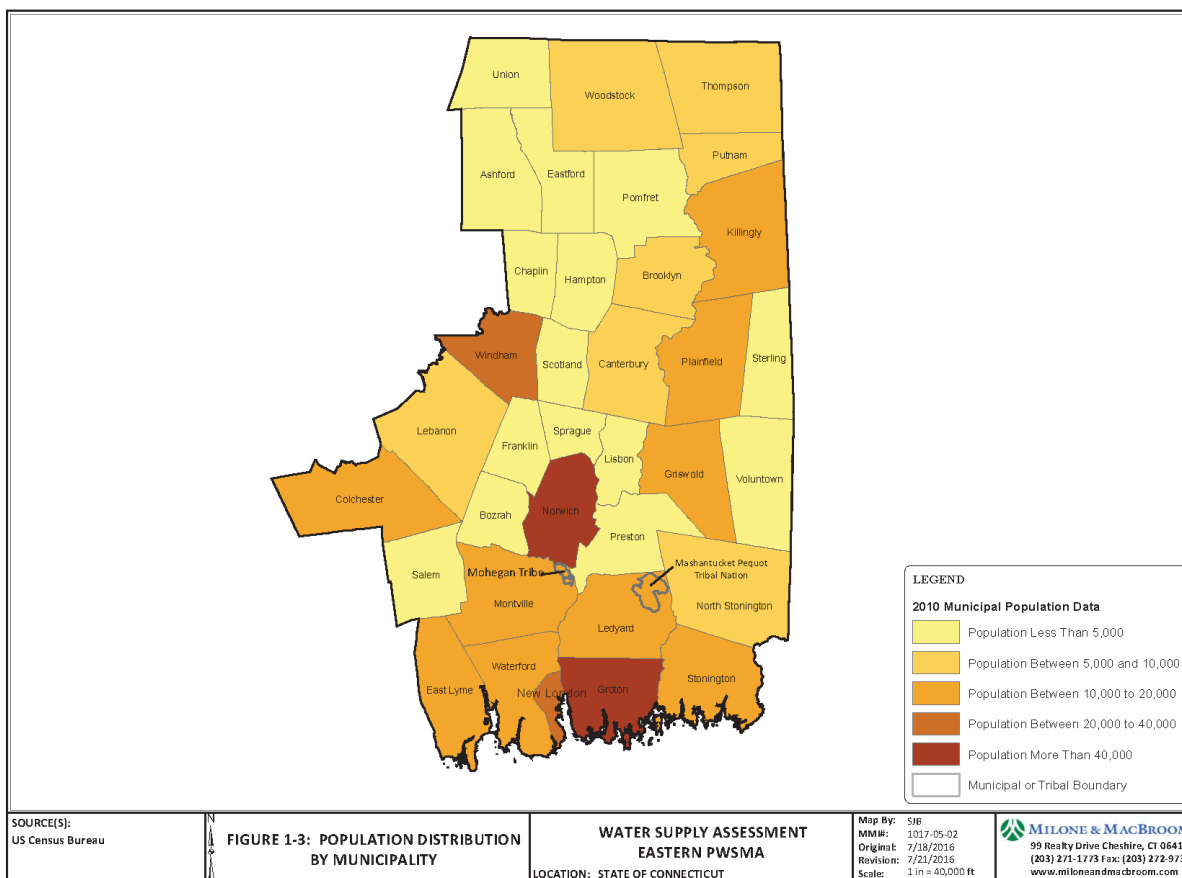
POPULATION DISTRIBUTION/PRIORITIZATION OF SERVICE



Map IIa: Western WUCC Municipal Population Density

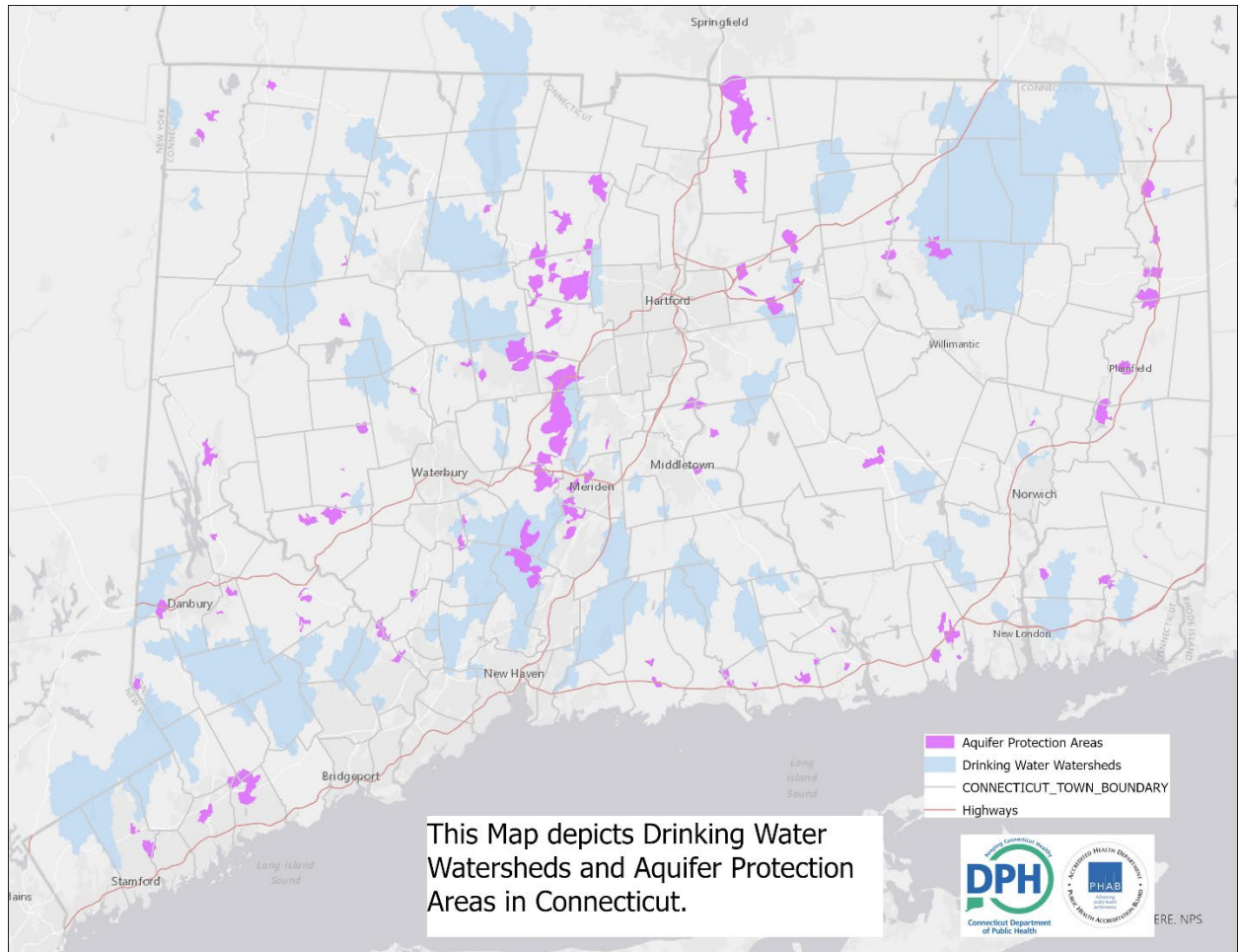


Map IIb: Central WUCC Municipal Population Density



Map IIc: Eastern WUCC Municipal Population Density

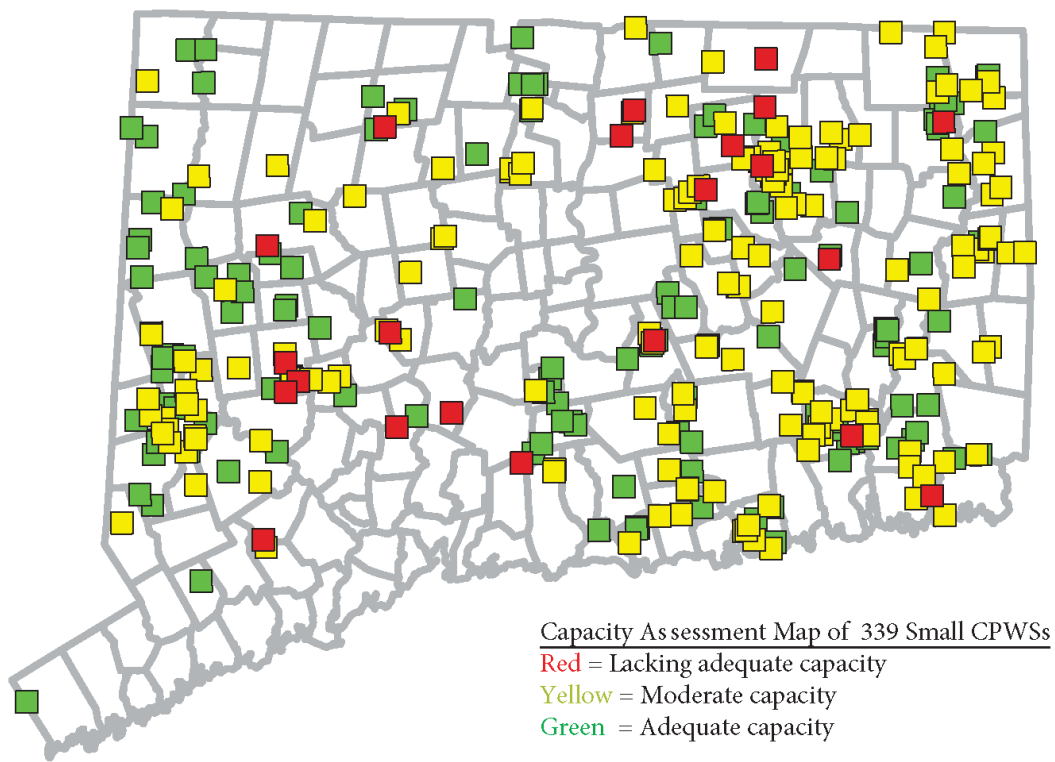
DRINKING WATER WATERSHEDS AND AQUIFER PROTECTION AREAS IN CT



Map III: Drinking Water Watersheds and Aquifer Protection Areas are Critical the Availability, Quality and Distribution of Connecticut's Potable Water.

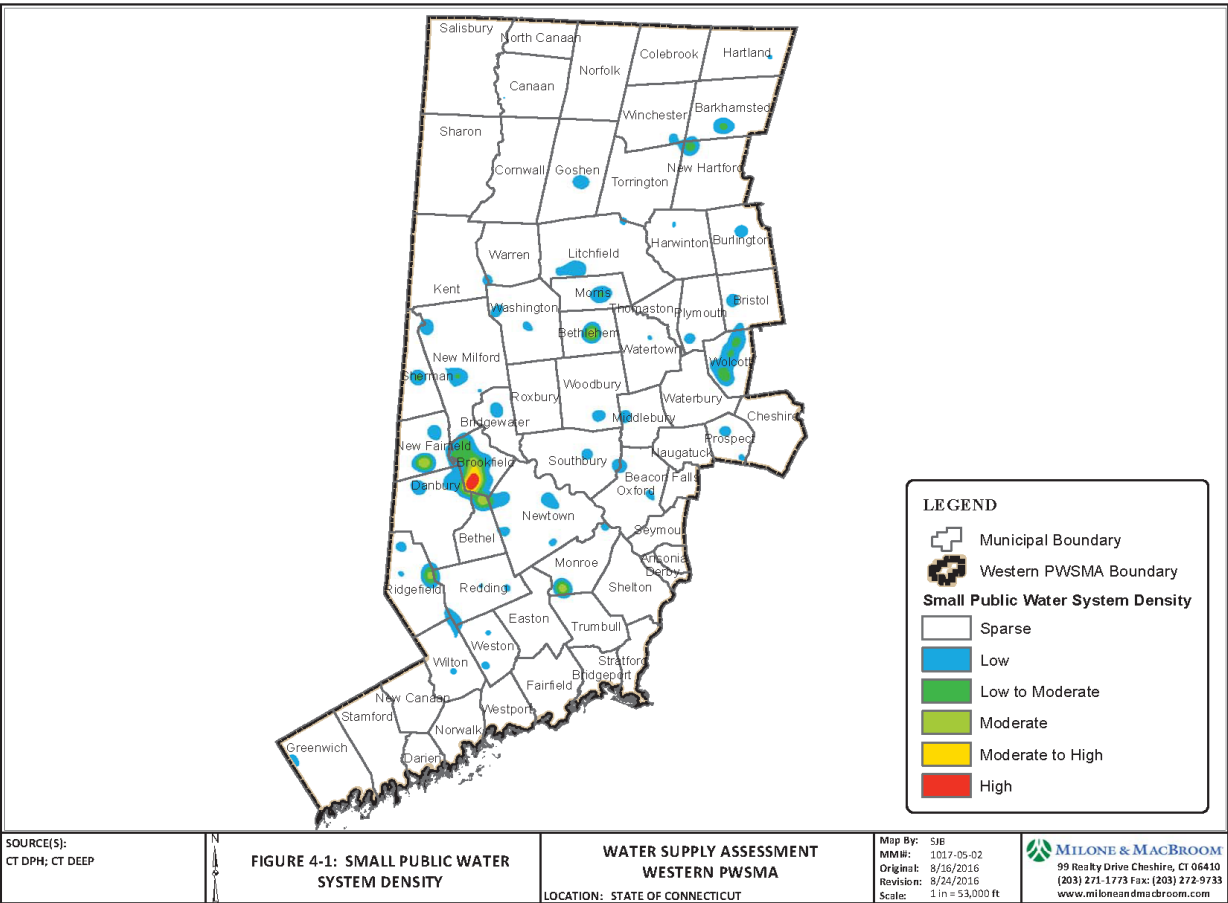
SMALL COMMUNITY PUBLIC WATER SYSTEMS

Figure 1: Small Community Public Water System Capacity Assessment Map

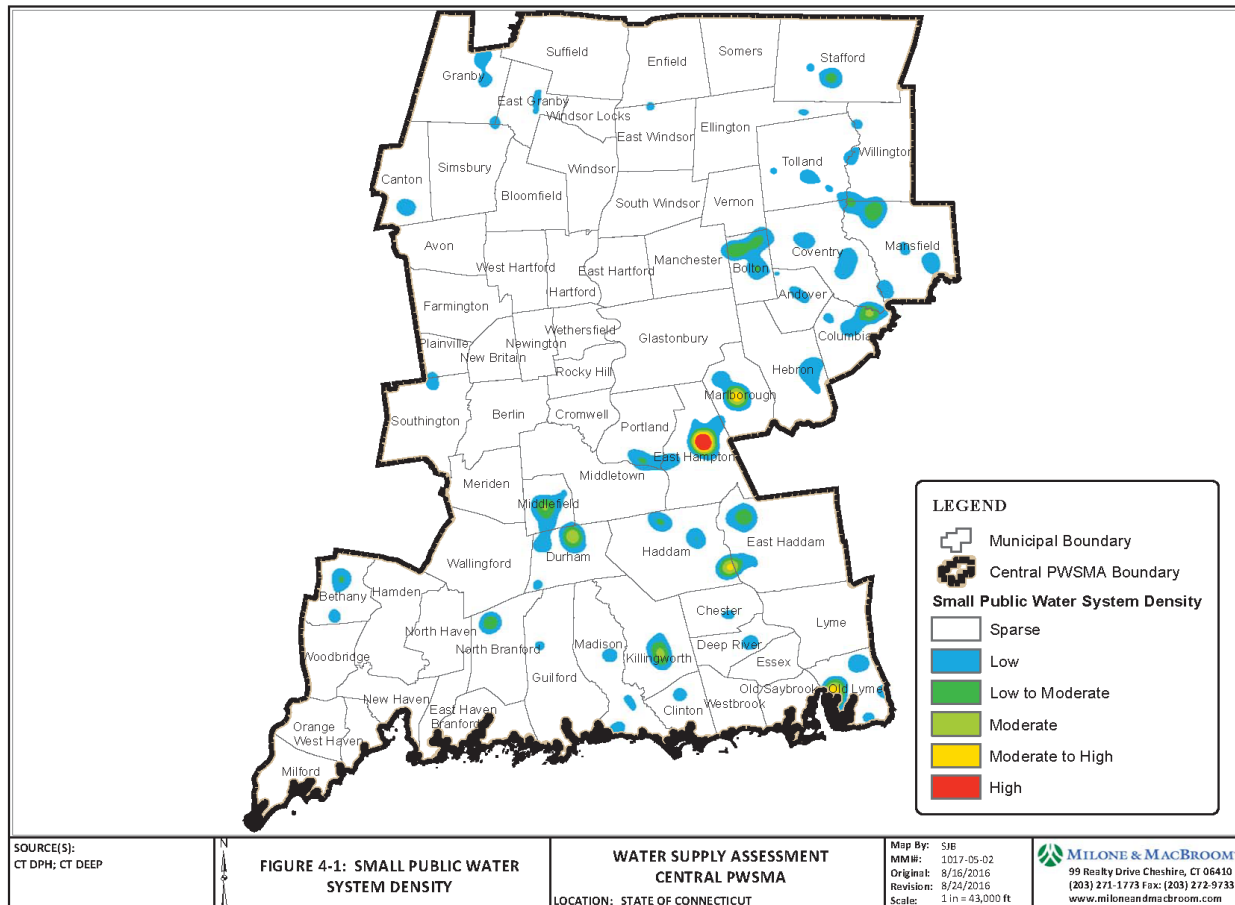


Map IV: Capacity Assessment of Connecticut's Small Public Water Systems

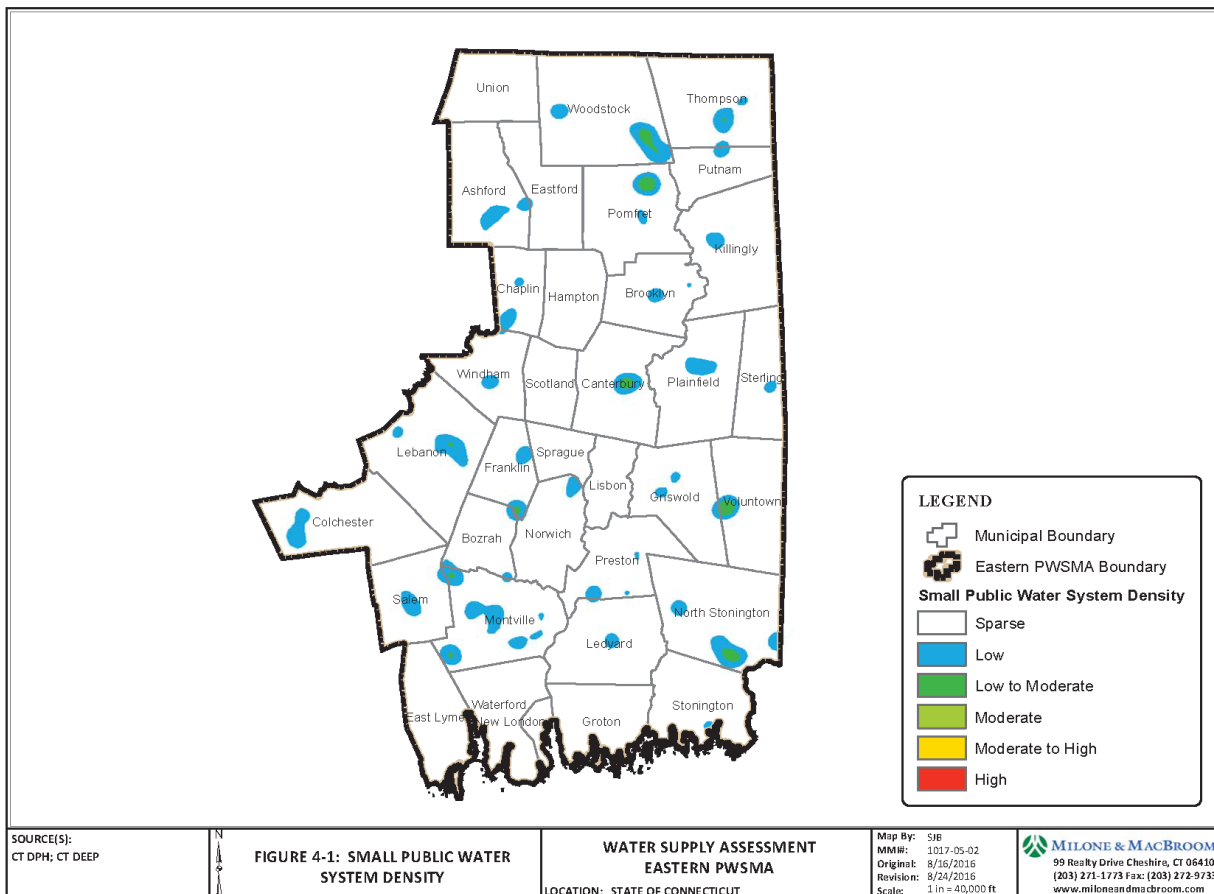
EXISTING SMALL PUBLIC WATER SYSTEM DENSITY BY REGION



Map V(a): Western WUCC Existing Small Public Water Supplies and Density

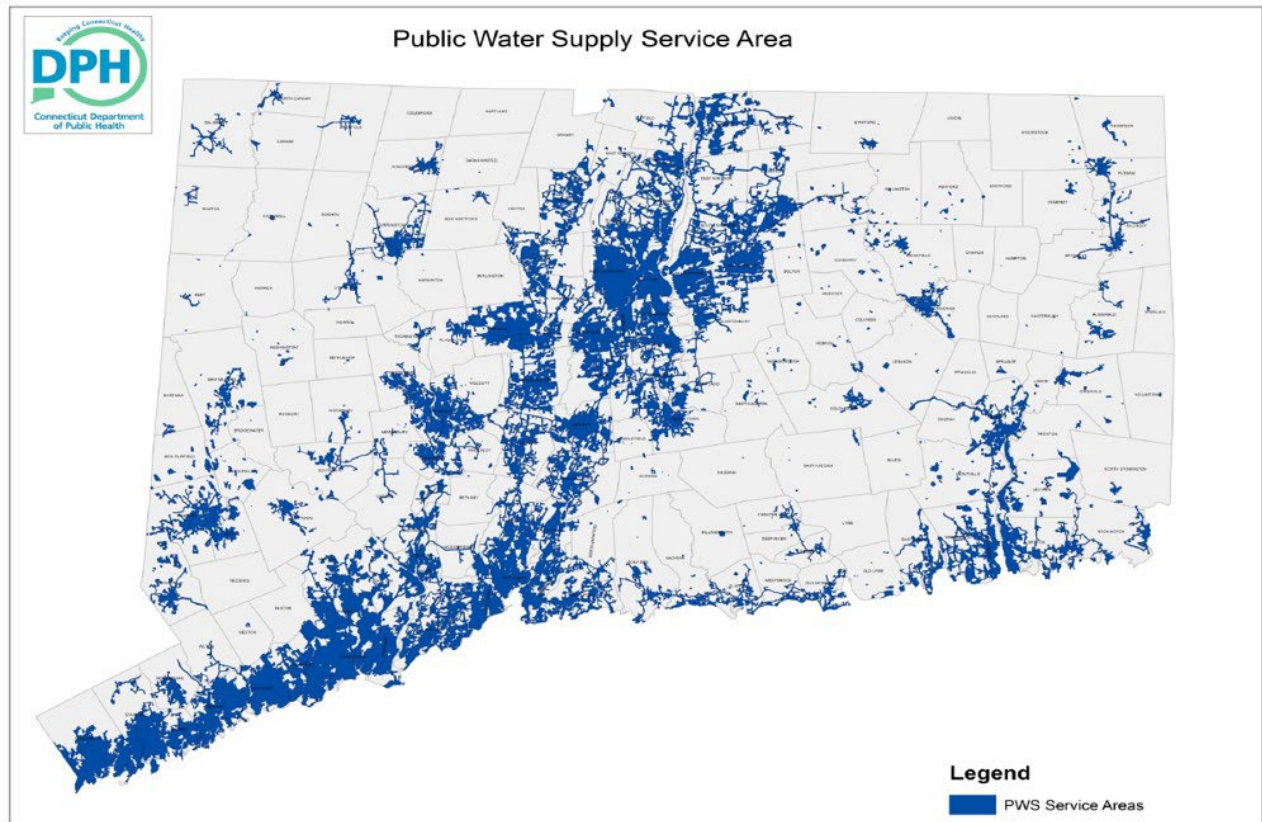


Map V(b): Central WUCC Existing Small Public Water Supplies and Density

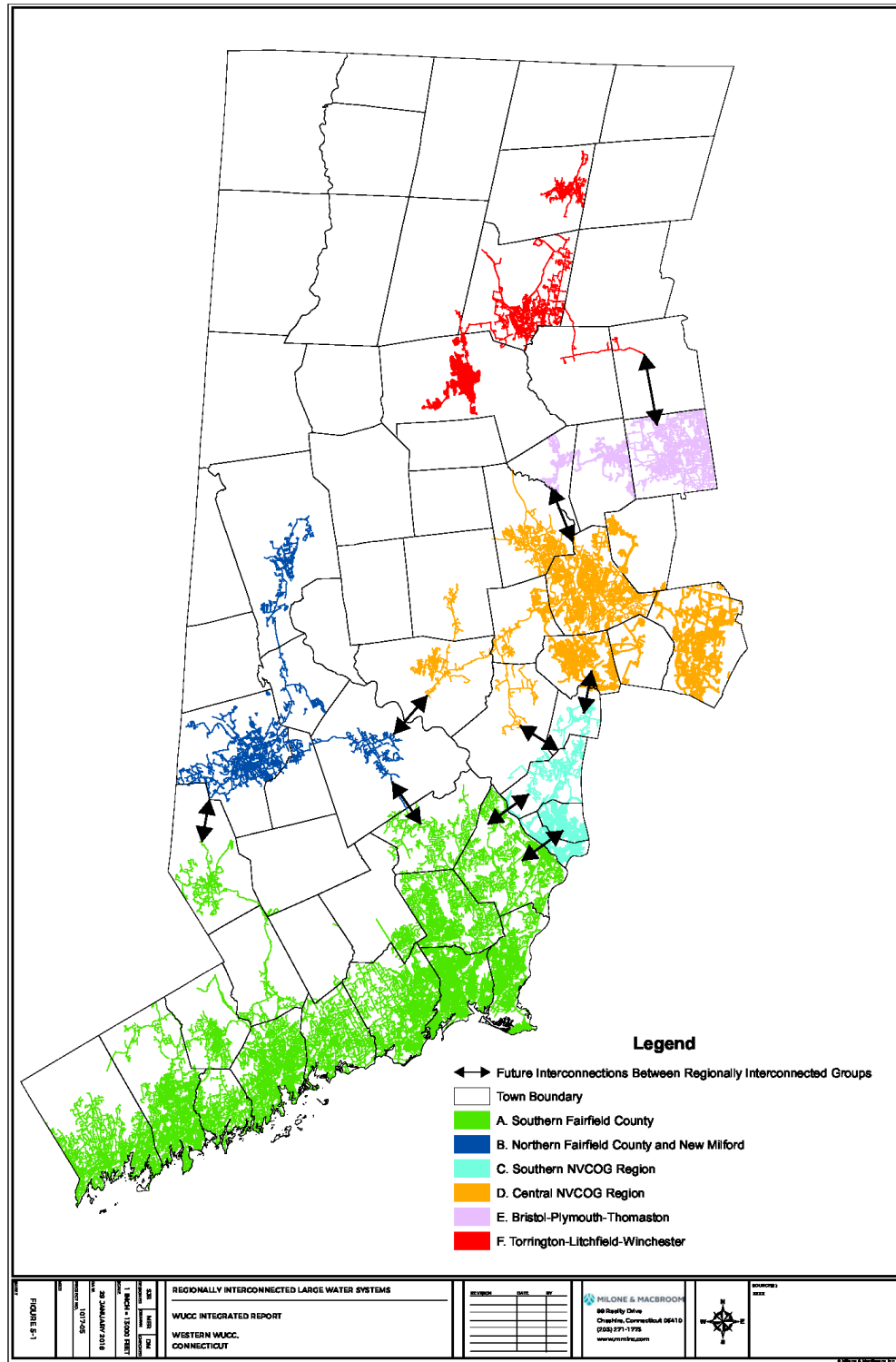


Map V(c): Eastern WUCC Existing Small Public Water Supplies and Density

CAPACITY FOR INTERCONNECTION WITH LARGE PUBLIC WATER SYSTEMS



Map VI: Existing Public Water Utility Mains Available for Interconnection in Connecticut



Map VII: A Model for Future Interconnection Between Existing Public Water Utilities as Illustrated in the Western WUCC. Interconnection promotes redundancy, consistency of reporting, compliance, quality and a reliable supply in the interest of health and public safety of Connecticut residents and visitors.