



Coordinated Water System Plan

Part III: Preliminary Integrated Report

Eastern Public Water Supply Management Area

March 14, 2018



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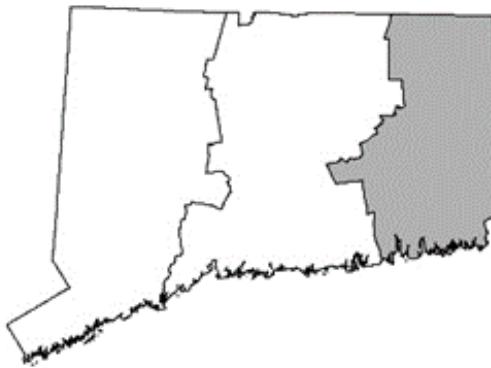
 **MILONE & MACBROOM**

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Eastern Public Water Supply Management Area

March 14, 2018



Prepared for:

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NOTICE TO READERS

This document was prepared under a grant from the United States Environmental Protection Agency (EPA) administered by the Connecticut Department of Public Health (DPH). Points of view or opinions expressed in this document are those of the Eastern Water Utility Coordinating Committee and do not necessarily represent the official position or policies of the EPA or the Connecticut DPH.

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This document could not be completed without the time and dedication of the Water Utility Coordinating Committee (WUCC) Officers and active WUCC membership, defined as those members who attended at least one Eastern WUCC meeting or provided written comments on the process.

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DEFINITIONS

Areawide Supplement – A part of a coordinated water system plan that addresses areawide water system concerns pertaining to the public water supply management area that are not otherwise included in each water company's individual water system plan. The supplement identifies the present and future water system concerns, analyzes alternatives, and sets forth means for meeting those concerns. An areawide supplement consists of a water supply assessment, exclusive service area boundaries, integrated report, and executive summary.

Available Water – Per RCSA Section 25-32d-1a(4), the maximum amount of water a company can dependably supply, taking into account the following reductions applied to safe yield: any limitations imposed by hydraulics, treatment, well pump capabilities, reductions of well yield due to clogging that can be corrected with redevelopment, transmission mains, permit conditions, source construction limitations, approval limitations, or operational considerations; and the safe yield of active sources and water supplied according to contract, provided that the contract is not subject to cancellation or suspension and assures the availability of water throughout a period of drought and that the supply is reliable.

Coordinated Water System Plan – The individual water system plans of each public water system within a public water supply management area, filed pursuant to Section 25-32d of the Connecticut General Statutes, and an areawide supplement to such plans developed pursuant to Connecticut General Statute 25-33h that addresses water system concerns pertaining to the public water supply management area as a whole.

Exclusive Service Area (ESA) – An area where public water is supplied, or will be supplied, by one system. ESA boundaries comprise Part II of the areawide supplement. As part of the ESA assignment process, all existing public water systems automatically receive an ESA designation for their existing service area, be it the parcel(s) they serve or the area around their existing water mains. Public water systems and municipalities were also requested to declare for the ESA for areas currently unserved by public water systems; this is described in more detail in the Coordinated Water System Plan, Part II document published in June 2017.

Exclusive Service Area (ESA) Designation – The combination of the ESA holder and associated ESA boundaries.

Exclusive Service Area (ESA) Holder – A utility or municipality who has been assigned or recommended an ESA which includes areas not presently served by its existing system.

Executive Summary – An abbreviated overview of the coordinated water system plan for the public water supply management area that summarizes the major elements of the coordinated water system plan. The Executive Summary comprises Part IV of the areawide supplement.

Integrated Report – An overview of individual public water systems within the management area that addresses areawide water supply issues, concerns, and needs and promotes cooperation among public water systems. The report comprises Part III of the areawide supplement.

DEFINITIONS (CONTINUED)

Public Water Supply Management Area (PWSMA) – An area for coordinated water supply planning determined by the Commissioner of the Department of Public Health to have similar water supply problems and characteristics.

Public Water System – Any private, municipal, or regional utility supplying water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serving an average of at least 25 people daily for at least 60 days per year. Types of regulated public water systems are discussed below:

Community Water System (CWS) – A public water system that regularly supplies water to at least 15 service connections or at least 25 of the same population year-round. Examples include residential subdivisions, cluster-housing projects, homeowners associations, municipalities, tax districts, apartment buildings or complexes, residential and office condominium developments, elderly housing projects, convalescent homes, and trailer or mobile home parks.

Non-Community Water System – A public water system that serves at least 25 persons at least 60 days per year and is not a Community or seasonal water system.

Non-Transient Non-Community (NTNC) Water System – A public water system that regularly supplies water to at least 25 of the same people (such as students or employees) over 6 months per year and is not a CWS. Some examples are schools, factories, office buildings, and hospitals that have their own water systems.

Transient Non-Community (TNC) Water System – Any non-community water system that does not meet the definition of a NTNC water system. It is a public water system that provides water in a place such as a gas station convenience store, small restaurant, or campground where people do not remain for long periods of time.

Seasonal Water System – A public water system that operates on a seasonal basis for 6 months of the year or fewer. These are typically regulated as NTNC Water Systems - unless sufficient service is available to meet the definition of a CWS - and often include campgrounds and shorefront communities.

Safe Yield – The maximum dependable quantity of water per unit of time that may flow or be pumped continuously from a source of supply during a critical dry period without consideration of available water limitations. The safe yield calculation for a source does not take into consideration any potential impacts to the environment.

Satellite Management – Management of a public water supply system by another public water system. Satellite management services may include operation, maintenance, administration, emergency and scheduled repairs, monitoring and reporting, billing, operator training, and the purchase of supplies and equipment.

Satellite System – A non-connected CWS of an existing system. Colloquially, a non-connected community or non-community public water system owned by a public water service provider.

DEFINITIONS (CONTINUED)

Water Supply Assessment (WSA) – An evaluation of water supply conditions and problems within the PWSMA. The evaluation is Part I of the areawide supplement.

Water Utility Coordinating Committee (WUCC) – A committee consisting of one representative from each public water system with a source of supply or service area within the PWSMA and one representative from each regional council of government within the PWSMA, elected by majority vote of the chief elected officials of the municipalities that are members of such regional council of government.

ABBREVIATIONS

A4WE	Alliance for Water Efficiency
ADD	Average Daily Demand
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
APA	Aquifer Protection Area
ASRWWA	Atlantic States Rural Water and Wastewater Association
AWC	Aquarion Water Company
CAT	Capacity Assessment Tool
CEPA	Connecticut Environmental Policy Act
CGS	Connecticut General Statute(s)
CIRCA	Connecticut Institute for Resilience and Climate Adaptation
CPCN	Certificate of Public Convenience and Necessity
CT SDC	Connecticut State Data Center
CWC or CTWC	Connecticut Water Company
CWS or CWSs	Community Water System(s)
DEEP	Department of Energy & Environmental Protection
DPH	Department of Public Health
DWQMP	Drinking Water Quality Management Plan
DWSRF	Drinking Water State Revolving Fund
EPA	Environmental Protection Agency
ESA or ESAs	Exclusive Service Area(s)
FEMA	Federal Emergency Management Agency
FOIA	Freedom of Information Act
GMP	Growth Management Principle
gpcd	gallons per capita per day
gpd	gallons per day
JCWC	Jewett City Water Company
MCL	Maximum Contaminant Level
mgd	million gallons per day
MMADD	Maximum Month Average Day Demand
MMI	Milone & MacBroom, Inc.
MOS	Margin of Safety
MPTN	Mashantucket Pequot Tribal Nation
NECCOG	Northeastern Connecticut Council of Governments
NPU	Norwich Public Utilities
NTNC	Non-Transient Non-Community
OPM	Office of Policy and Management
PDD	Peak Day Demand
POCD or POCDs	Plan(s) of Conservation and Development
PURA	Public Utilities Regulatory Authority
PWSMA	Public Water Supply Management Area
RCSA	Regulations of Connecticut State Agencies
RGQ80	Rearing and Growth 80% duration flow

ABBREVIATIONS (Continued)

SCCOG	Southeastern Connecticut Council of Governments
SCWA	Southeastern Connecticut Water Authority
STEAP	Small Town Economic Assistance Program
SWAP	Source Water Assessment Program
TNC	Transient Non-Community
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USED A	United States Economic Development Administration
USGS	United States Geological Survey
WICA	Water Infrastructure and Conservation Adjustment
WPCA	Water Pollution Control Authority
WSA	Water Supply Assessment
WSP or WSPs	Water Supply Plan(s)
WUCC or WUCCs	Water Utility Coordinating Committee(s)
WWW	Windham Water Works



1.0 INTRODUCTION

1.1 Overview of Integrated Report

The Coordinated Water System Plan (CWSP) for the Eastern Public Water Supply Management Area (PWSMA) in Connecticut is comprised of the individual water supply plans (WSPs) of the public water systems within the PWSMA that serve over 1,000 people or have 250 or more service connections, and an area-wide supplement that includes a Water Supply Assessment (WSA), delineation of Exclusive Service Area (ESA) boundaries, an Integrated Report, and an Executive Summary. The subject document, *Preliminary Integrated Report*, is the third of four components of the area-wide supplement and is intended to serve as a long-term planning tool for the Eastern PWSMA.

Section 25-33h-1 of the Regulations of Connecticut State Agencies (RCSA) requires each Water Utility Coordinating Committee (WUCC) to prepare an Integrated Report. Whereas the WSA process was an inventory of existing conditions and identification of issues, deficiencies and needs, and the ESA process delineated service area providers to meet potential future needs, the subject *Integrated Report* analyzes future conditions in recognition of the newly established and historical ESA boundaries.

The regulations define the 5-, 20-, and 50-year planning horizons. The 5-year horizon is projected from the time of the CWSP development (2018) or, in this case, the year 2023. The 20- and 50-year planning horizons are projected from the last U.S. census, or 2010. Accordingly, the 20- and 50-year planning horizons are 2030 and 2060, respectively.

Per the regulations, the Integrated Report must contain the following:

- Population and consumption projections for 5-, 20-, and 50-year planning periods for the PWSMA as a whole and for each town within the area;
- Projected population, historical and projected water demand by user category (e.g., residential) for 5-, 20-, and 50-year planning periods for each public water system's ESA and for the combined service areas (each PWSMA overseen by a WUCC);
- Sources of supply, safe yield, and amounts of purchased water available for 5, 20, and 50-year planning periods for each public water system's ESA and for the combined service areas (each PWSMA overseen by a WUCC);
- Determination of the amount and percentage of projected population within each town within the PWSMA to be serviced by public water supplies for 5-, 20-, and 50-year planning periods (effect of population growth, decline, etc. on public water supply need);
- Identification of areas not within ESA boundaries and discussion of water supply alternatives;
- Discussion of the relationship and compatibility of the coordinated water system plan with proposed or adopted land use plans and growth policies, as reflected in local, regional and state plans. Consideration should be given to both protection and development of public water supply sources and to availability of public water service;

- Evaluation and identification in priority order of alternative water sources recommended to supply future areawide water system needs. Include appropriate ground or surface water studies, safe yield estimates and arrangement for development (supply and treatment) and delivery of the water supply;
- Plans for any necessary interconnection of both raw and treated water between public water systems for both daily and emergency water supply use;
- A plan for joint use, management or ownership of services, equipment, or facilities (e.g., for emergency use);
- A plan for satellite management or transfer of ownership;
- Provisions for minimum design standards applicable to all water system improvements and all new public water systems within the management area (e.g., suggested technical standards and details);
- Presentation of financial data as related to areawide issues such as interconnections, shared or joint use facilities, regional projects, and information not included in individual water system plans; and
- Consideration of the potential impacts of the CWSP on other uses of water resources, including water quality, flood management, recreation, hydropower, and aquatic habitat issues.

In December 2016, the Eastern WUCC published its WSA, which identified the following issues, needs, and deficiencies to be addressed in the Integrated Report:

Sources of Supply

- Future Supply Sources
- Impacts of Climate Change
- Impacts of Current Streamflow Regulations
- Impact of Future Anticipated Regulations
- Source Water Protection
- Compromised Groundwater Quality
- Environmental Concerns Associated with Water Withdrawals

Planning

- Coordination of Water Utility Planning
- Coordination of Planning between Utilities and Communities
- Disjointed Service Areas
- Use of Current Data

Interconnections

- Development of New Interconnections
- Movement of Water through Interconnections

Small Water Systems

- Challenges of Operating Small Systems
- New Public Water Systems
- Viability of Small Water Systems

Water Usage

- High Water Usage by Agricultural, Industrial, and Power Generation Facilities
- Declining Revenue and Increasing Costs
- Increasing Ratio of Peak-Day Demands to Average-Day Demands
- Replacement of Infrastructure
- Lack of Fire Protection
- Lack of Funding
- Water Conservation
- Enactment of Voluntary and Mandatory Conservation Measures

The above issues are addressed in the following document is organized as follows:

- Section 1 presents an overview of the integrated planning process, the composition of the region, organization of the plan, and documents the public involvement process.
- Section 2 provides the context and coordination of planning within the region, explores existing and future water conservation practices, evaluates the potential impact of existing and future policies and regulations, and examines climate change and resiliency.
- Section 3 presents an areawide overview of the region, including town populations, populations served, existing and future demands, available water and forecasted deficits, and potential solutions of forecasted deficits.
- Section 4 evaluates satellite management and small system challenges.
- Section 5 presents an analysis of existing and potential system-specific and regional interconnections, including the manner in which interconnections are regulated and permitted.
- Section 6 explores the management and ownership of services, equipment, and facilities, including shared or joint use facilities and asset management.
- Section 7 presents a region-wide analysis of alternative future water supply sources, as well as a plan for potential land acquisition for the projection of stratified drift wells.
- Section 8 presents an analysis of the potential impact of the coordinated system plan on other uses of water resources.
- Section 9 presents a discussion of minimum design standards.
- Section 10 evaluates the compatibility of existing land uses and zoning with existing and potential future water supply source development.

- Section 11 presents a summary of planning cost estimates for plan implementation and evaluates potential funding sources.
- Section 12 presents a summary of recommendations and prioritization.

The Eastern PWSMA has inherited the Integrated Report for the former Southeastern Connecticut PWSMA developed under Connecticut General Statutes (CGS) Section 25-33h-1. The previous Integrated Report was finalized in March 2001 and ultimately approved by Connecticut DPH. This report was referenced as part of the current effort.

The subject document was prepared by Milone & MacBroom, Inc. (MMI) in coordination with the Eastern WUCC. For an overview of the full planning process, please refer to Section 1 of the *Final Water Supply Assessment* dated December 2016 for the Eastern PWSMA, , an electronic copy of which is hosted on the Connecticut Department of Public Health (DPH) website under the Eastern WUCC webpage. In addition, please refer to the *Final Exclusive Service Area Boundaries* document dated June 2016, also hosted on the Eastern WUCC webpage.

1.2 Overview of the Eastern Public Water Supply Management Area

The Eastern PWSMA encompasses all of the towns that are included in the Northeastern Connecticut Council of Governments (NECCOG) and Southeastern Connecticut Council of Governments (SCCOG) regional councils of government. The boundaries of the PWSMA are generally defined by the Massachusetts state boundary to the north, the Rhode Island state boundary to the east, the boundary of the Central PWSMA to the west, and Long Island Sound to the south. The towns within the Eastern PWSMA are listed in Table 1-1, with towns along the western boundary called out with an asterisk as these communities may coordinate on water supply issues with local governments or utilities in the Central PWSMA. In total, the Eastern PWSMA comprises 35 towns and two tribal governments (Mashantucket Pequot Tribal Nation [MPTN] and the Mohegan Tribe).

TABLE 1-1
Eastern PWSMA Towns and Tribal Governments

Eastern PWSMA Towns and Tribal Governments			
Ashford*	Groton	New London	Sprague
Bozrah	Hampton	North Stonington	Sterling
Brooklyn	Killingly	Norwich	Stonington
Canterbury	Lebanon*	Plainfield	Thompson
Chaplin*	Ledyard	Pomfret	Union*
Colchester*	Lisbon	Preston	Voluntown
Eastford	Mashantucket Pequot Tribal Nation	Putnam	Waterford
East Lyme*	Mohegan Tribe	Salem*	Windham*
Franklin	Montville	Scotland	Woodstock
Griswold			

*Denotes town that is on the border with the Central PWSMA

The Eastern Connecticut PWSMA consists of 613 public water systems as of September 20, 2017. Refer to Appended Figure 1 for a map depicting the general location of these systems. Of these:

- 139 are regulated as community water systems (CWSs).
- 112 are regulated as non-transient non-community (NTNC) water systems.
- 362 are regulated as transient non-community (TNC) water systems.

1.3 Public Comments

This Preliminary Integrated Report for the Eastern PWSMA is being issued for public comment, as required by statute. The list of comments received during the public comment period will be evaluated and considered in completing the Final Integrated Report for the Eastern region.



2.0 CONTEXT AND COORDINATION OF PLANNING

The purpose of the Coordinated Water System Plan, and therefore the WUCCs, is codified in CGS Section 25-33c as being *“to maximize efficient and effective development of the state’s public water supply systems,”* a charge that specifically includes such development be performed with *“a minimum of loss and waste.”* Similarly, the WUCCs are charged with conducting the required planning necessary to meet codified goals, with emphasis on water conservation and avoidance of duplication of service. This section provides a context for regional planning, describes existing and future anticipated planning challenges, evaluates water conservation, and offers recommendations for the region moving forward.

2.1 Coordination of Planning

2.1.1 Disjointed Service Areas

As identified in the Eastern region WSA, numerous communities are served by multiple public water systems (whether privately owned or municipal or regional), many of which are widely dispersed throughout each community. This in itself is not necessarily a problem that requires a solution, but it limits the options for assisting certain small, dispersed systems that may have challenges meeting their technical, managerial, and financial capacity needs.

In many cases, public water systems are located proximal to one another but not interconnected, which can result in higher cost of operation, lack of efficiency, lack of redundancy of supply, and nominal resilience to natural disasters and climate change. In some cases, the cost for a customer to purchase water can be significantly more expensive in one system than the other system despite the customers' proximity. This issue was discussed in the *Final Recommended Exclusive Service Area Boundaries* (June 2017), which provided a comparison of potential costs for water service across the region. The issue is largely an artifact of the fragmented nature of water service; many other types of utilities (e.g., electric, cable, gas) typically serve larger geographic areas such that the disparity in cost is not as apparent due to rate equalization. Regardless of rates, any system must cover its full costs of water service.

For large public water systems (i.e. those serving greater than 1,000 customers or 250 service connections), disjointed service areas are less of an issue. Rather, such a situation is more common in communities that are largely unserved by large systems, where proliferation of small community and non-community systems has occurred. There is no formal mechanism for coordination of planning among these systems beyond the WUCC process and the majority of small systems have not participated in the WUCC process in any meaningful way. This topic is evaluated further in Section 4.0, including recommendations for future initiatives.

2.1.2 Planning and Coordination among Public Water Systems

Coordination of planning activities has long been a challenge for water utilities, which in part led to Public Act 85-535 establishing the WUCC process. Significant efforts have been made since 1985 to encourage planning by water utilities, including regulatory measures (e.g. Water Supply Planning regulations and WUCC regulations), and assistance from professional organizations (e.g., Connecticut Water Works Association, the Connecticut Section of the American Water Works Association, the Atlantic States Rural Water & Wastewater Association (ASRWAA), etc.).

In the years since the Bioterrorism Act of 2002, and throughout the revision and updates to water utility Emergency Contingency Plans, many larger water utilities have made significant advancements in emergency planning in conjunction with other utilities and the communities they serve through memorializing mutual aid agreements and formalizing other forms of cooperation such as the CT WARN program. Additional coordination between CWSs with respect to various aspects of water supply, such as shared use of equipment and technical staff, is also desirable from a financial operational, and planning perspective. This topic is discussed in more detail in Section 6.0.

It is important to remember that ESA boundaries in the region, while final, are not necessarily permanent. Procedures exist for the modification of such boundaries, and such modification should be encouraged by the WUCC when it is sensible to do so from a water supply planning perspective. See Section 5.2.1 for an example.

Improved coordination has the potential to greatly benefit smaller systems that may not have the financial ability to purchase equipment, such as that required for spill response or emergency power. With the assignment of ESAs to the majority of the state, the previous uncertainty regarding the maximum extent of future service areas has been mitigated, and ESA holders are now aware of their responsibilities and appropriate procedures when a project is proposed in the region. Finally, a key benefit of improved coordination among water utilities is the potential to establish a more organized and holistic approach to the exploration of future water supplies and interconnections. For example, creation of small consecutive water systems may be able to be avoided through modification of ESA boundaries. Regular WUCC meetings will continue to provide an opportunity for such regional discussions to occur.

2.1.3 Planning Between Local Governments and Public Water Systems

Water systems typically approach planning in a nuanced way. When it comes to sources of supply, many utilities have historically been very proactive in securing supply sources or potential supply locations that they may not need for many decades in the future. This stance has carried over into water supply planning, where projections performed by water utilities may be conservatively high in relation to development potential in a community. This is done in order to ensure that proper planning is being conducted to secure additional supply in advance of potential demand occurring.

However, when it comes to providing service to new customers, water utilities are generally reactive, despite the planning that was devoted to the water supply planning process. This is due in large part to the cost-intensive nature of new utility plant additions and regulatory concerns over speculative investments. As a consequence, ESA holders generally rely on local planners and regulators to determine when a development may be built, and typically rely on developers or other agencies to fund the design, permitting, and construction of water main extensions or new satellite systems. However, utilities also occasionally fund their own projects to consolidate satellite systems, eliminate dead-end pipes that reduce water quality, and interconnect with other systems to increase system redundancy. Such projects may be coordinated with local planning agencies.

The disjointed planning processes between water supply planning and local and regional land use planning efforts has long been recognized. Utilities review local plans of conservation and development (POCDs) and historically, WSPs were available for review at each water utility office and at the offices of the DPH. However, the Bioterrorism Act of 2002 resulted in access to such plans being greatly limited

for security purposes. While regional planners largely continued to have access to WSPs, and some utilities continue to make plans available to municipal planners and local health directors upon request, the practice is not universal and some local planners have not typically had access to such plans over the last 15 years. In addition, accessing any information from such plans from DPH required a request under the Freedom of Information Act (FOIA), and much of the information eventually provided was heavily redacted out of an abundance of caution.

Public Act 17-211 became effective on July 1, 2017 and encourages public access to water supply planning information. To accomplish this goal, any WSP submitted after July 1, 2017 is required to be accompanied by a redacted version of such plan that omits any information related to the following topics that are considered confidential and not subject to disclosure under the FOIA. Such confidential information includes:

- Security-related documentation and training procedures;
- Emergency contingency plans and preparedness plans; incident management, mitigation, and recovery plans, and the like, except for drought management and response plans which must be disclosed;
- Design drawings and maps showing the specific location of infrastructure, provided the general location of water mains, wells, and interconnections is disclosed;
- Dam specifications, construction details, and emergency action plans related to dam failure response;
- Building floor or structural plans;
- Network topology maps;
- Specific locations of or specifications regarding electrical power, standby generators, and fuel systems, except that general information regarding such may be disclosed;
- Operational specifications, schematics and procedures related to water and sewage treatment plant processes and the use of chemicals, except that a general description of such treatment plant may be disclosed;
- Logs detailing movement or assignment of personnel;
- Distribution system hydraulic models; and
- Any other record if there are reasonable grounds to believe that the disclosure of such record may result in a safety risk, as determined by the Connecticut Department of Administrative Services.

An additional issue identified by DPH concerns small water systems. While large water systems and utilities typically communicate and coordinate with local emergency personnel on a routine basis (particularly fire departments in regard to hydrant use), small privately-owned systems typically do not have that same level of communication. As a result, while the large system may be identified as critical infrastructure for local emergency response planning, and prioritized for power restoration during outages, the smaller isolated systems are not typically prioritized for such response. This is of particular significance, as many small public water systems do not have backup power. Small public water systems are encouraged to reach out to municipal staff and electrical providers to ensure that their systems are prioritized for power restoration. This topic is revisited in Section 4.4.

It is the intent of the WUCC that this Coordinated Water System Plan will help to assist and inform local planners as to the status of water supply planning in their communities, the parties responsible for conducting such planning at the WUCC level, the responsible public water systems and local governments assigned to provide new public water supply to residents where needed, and the regional

goals for public water systems moving forward. As WSPs are updated and submitted over the next decade, water planning information related to water use and movement for each large public water system will become more accessible. This will help inform local and regional planners understand current system extents and enhance the ability of local planners to work with public water systems to ensure that water service is provided to areas of need, including areas where fire protection is desired or needs improvement, and to foster appropriate economic development. The increased availability of data available to local and regional planners is expected, in turn, to improve working relationships between utility and municipal staff and help to increase utility knowledge of potential future projects being considered by developers.

2.1.4 Source Water Protection

Many environmental groups have urged the WUCC to protect Connecticut's environment and maintain pure drinking water supplies. Protection of the environment and protection of water supply sources in many ways are mutually beneficial. Source protection and environmental conservation, for instance, are harmonious throughout many drinking water supply watersheds and aquifers used for water supply. Wellhead and watershed protection for both existing and future supply sources has made significant progress in the past 15 to 20 years with completion of the Source Water Assessment Program (SWAP), completion of the majority of the Level A mapping, and full implementation of the Aquifer Protection Area (APA) regulations.

The WUCC promotes the adoption of best management practices for the use of green infrastructure in stormwater management design by local communities.

Nevertheless, continued land development and the need to address issues that cross-jurisdictional boundaries are of particular interest regarding watershed lands, especially for systems with contributing watershed areas that span more than one community. In particular, the WUCC is concerned with the potential impact of development on stormwater quality in reservoir watersheds. While DPH has promoted a program to assess systems that cross town boundaries (known as the Drinking Water Quality Management

Planning (DWQMP) process) and address protection of drinking water supplies on a regional scale, there has been little traction for using this unique collaborative approach in the state with only one such plan completed to date.

In some areas, it is recognized that source water protection goals may be counter to a community's economic goals, particularly when development is desired within a reservoir watershed. Moving forward, the WUCC should encourage use of the DWQMP process for those systems with reservoir watersheds spanning multiple communities with limited utility ownership. In the Eastern region, this includes Norwich Public Utilities (NPU), New London Department of Utilities, Putnam Water Pollution Control Authority (WPCA), and Windham Water Works (WWW). The DWQMP plan developed for Groton Utilities resulted in proposed zoning changes in Groton and Ledyard in order to provide land use controls which were protective of the reservoir watersheds. The DWQMP process would further help achieve recommendations of the State Water Plan relative to land protection for preserving water quality.

The protection of watersheds is critical for source protection but is challenging when land is not owned by the utility or held by others for conservation purposes. Encouraging low amounts of development and conservation of existing large protected watersheds is a regional goal, with the DWQMP process as a potential solution.

Better collaboration between utilities and local plowing contractors, public works staff, and State Department of Transportation staff is necessary to minimize chloride impacts to public water supply sources.

In addition to local land use controls, WUCC members are concerned with the impacts of plowing and application of road salt and sand. The use of road salt has become more prevalent in recent winters for pre-treatment and in-storm treatment of roadways, raising the concentration of chlorides running off into streams tributary to reservoirs and within recharge areas for public water supply aquifers.

States such as New Hampshire have developed programs to certify plowing staff as using environmentally friendly winter maintenance practices in return for limited liability protection, and a similar program may be of interest in Connecticut.

A specific issue related to watershed development identified by WUCC members includes the State's Affordable Housing Appeals Procedure (CGS 8-30g). The concern is that the law as written does not give consideration to source water protection, as it allows for higher density development to occur in watershed areas that may be zoned for lower density uses.

There are also concerns regarding the limited ability of public water systems to prevent activities on private property that could lead to reservoir or aquifer contamination. While utilities are authorized to enter and inspect premises within public water supply source areas per CGS 25-51, they have no enforcement power and must appeal to DPH to investigate and issue a state order, to the superior court and request a court order, or to the local director of health in order to eliminate any nuisance likely to pollute such water. Each method is potentially lengthy and potentially costly to the utility. It is noted, for example, that local land use commissions are heavily involved in enforcing groundwater APA regulations but do little in the way of enforcing watershed protection or source water areas for public wells not mapped under the APA program. The WUCC will continue to be a forum where potential regulatory changes to alleviate these issues may be discussed.

2.1.5 Drought Planning and Response

As noted above, Public Act 17-211 requires that drought planning and response procedures developed by public water systems be available to the public. Large public water systems that are required to undertake water supply planning have developed drought planning and response plans as part of their emergency contingency plans, which will need to be decoupled from those plans moving forward. Currently, the drought planning and response plans developed by public water systems are either based on the WSP regulations (RCSA Section 25-32d-3) or the parameters identified in the 2003 *Connecticut Drought Preparedness and Response Plan* prepared by the Interagency Drought Work Group, although some drought response plans appear to rely on parameters and the five-stage response protocols that predate the 2003 document and the current edition of the WSP regulations.

For public water systems primarily reliant on reservoir sources, the volume of storage in the reservoir is typically utilized to define the criteria for each drought stage. Public water systems primarily reliant on groundwater sources typically use the amount of storage in a primary storage tank over a period of days, or a combination of precipitation and groundwater levels, to define the criteria for each drought stage.

The four drought stages in the water supply planning regulations with water conservation goals from the 2003 *Connecticut Drought Preparedness and Response Plan* include:

- “Advisory” with a voluntary 10% reduction goal for residents and organizations;
- “Watch” with a voluntary 15% reduction goal for residents and organizations;
- “Warning” with a voluntary 20% reduction goal for residents, organizations, and state agencies; and
- “Emergency” with a Governor-mandated 25% reduction in water use by residents, businesses, and state agencies.

Utilities have strengthened these goals where appropriate. For example, many utilities identify the 20% reduction goal under Drought Warning to be mandatory, as utilities have found that a better reduction in demand is realized when mandatory conservation measures are enacted. In addition, some utilities also define and utilize an “Alert” cautionary stage to prepare internally for implementation of voluntary and mandatory water conservation measures. The Interagency Drought Work Group has been working on an update to the 2003 Plan. The current draft of the update is dated June 29, 2016, and includes the following drought stages (in increasing severity): “Heightened Awareness”; “Below Normal Conditions”; “Moderate Drought”; “Severe Drought”; and “Extreme Drought”. These proposed classifications are intended to align more closely with US Drought Monitor terminology and limit confusion with any individual utility drought statuses.

As noted above, many water utilities still utilize the older five-stage method with the following water conservation criteria:

- “Alert” which does not include a reduction goal;
- “Advisory” with a voluntary 10% reduction goal;
- “Emergency Phase I” with a voluntary 15% reduction goal;
- “Emergency Phase II” with a voluntary 20% reduction goal; and
- “Emergency Phase III” with water rationing.

In the Eastern PWSMA, there are 13 large utilities that currently utilize the older five-stage drought method (Colchester Water & Sewer, East Lyme Water & Sewer, Groton Long Point Association, Groton Utilities, Jewett City Water Company (JCWC), Ledyard WPCA, Montville WPCA, New London Department of Public Utilities, Noank Fire District, Putnam WPCA, Southeastern Connecticut Water Authority (SCWA), Waterford Utilities Commission, and WWW).

The drought of 2015-2016 raised public awareness of voluntary and mandatory water conservation measures, which are enacted by many utilities to reduce demands during a drought. Typically, such reductions are requested on a percentage basis for each customer. One issue raised by the public as part of the recent widely reported and protested commercial bottling plant in Bloomfield was whether commercial/industrial users should be completely shut off prior to limiting water for residential customers. Utilities typically request reductions from all users concurrently. Many utilities have Emergency Contingency Plans which focus water conservation enforcement on high-volume users by recommending more frequent (weekly) meter readings of high-volume customers when conservation measures are requested or mandated, and requiring large customers to file a water conservation “plan of action” with the utility to demonstrate how that customer will reduce its water usage to the requested percentage.

It has long been recognized that water utilities, particularly non-municipal (regional and investor-owned) utilities, have limited methods to enforce voluntary and mandatory conservation measures. Several utilities have noted that high volume accounts sometimes have no interest in conserving water; some

residential accounts are simply willing to pay for irrigation water regardless of water conservation surcharges and voluntary or mandatory conservation requests. In some cases, residential developments have requirements to maintain green lawns as part of the ownership contract, and homeowners feel that compliance with the local requirement is more important than the restrictions put in place by a utility.

As noted in the 2003 *Connecticut Drought Preparedness and Response Plan*, municipal authority may be necessary to locally enforce any measures, but many municipalities do not have local ordinances in place to ensure proper implementation of water conservation measures during droughts and other emergencies. To that end, a model ordinance was developed to encourage adoption of these policies at the local level, but few municipalities have adopted the model ordinance. The model ordinance includes examples of banned uses, the procedures for announcing the need for conservation measures, and procedures for issuing fines or even curtailment of service. Because of concerns over the administrative procedures needed to enact such ordinances and potential inconsistency between local ordinances when served by a single utility, legislative authority for water utilities to enforce restrictions may be warranted. In addition, specific language prohibiting enforcement of “green lawn” requirements during declared droughts may be necessary.

For reservoir systems, the number of days of supply remaining has been suggested by some water utilities as a method which could potentially be used for determining drought stage criteria in conjunction with the percentage of storage remaining. For the purposes of an Emergency Contingency Plan, the number of days of supply remaining utilized should be tied to a relatively predictable withdrawal number for a reservoir system, such as maximum month average day demand (MMADD) or MMADD from a year with a similar drought (although it is recommended that a utility consider different scenarios of water usage during an actual event). There are several reasons for this suggestion:

- For some storage-rich systems, a Drought Emergency could be issued under the current plans despite the system having more than 300 days of supply remaining, and there is concern that this could result in increased political pressure to not request or mandate “emergency” water conservation measures given the amount of supply available.
- The use of MMADD provides a condition where water would be withdrawn faster than would be expected given implementation of conservation measures. As such, it provides a baseline against which users in a system could be encouraged for their conservation efforts. Projecting that a system has 90 days of supply remaining, but then still having 80 days of supply remaining a month later despite minimal rainfall, can provide quantitative reinforcement to a community of the positive effects being developed.
- Furthermore, such a procedure could standardize the drought triggers between utilities utilizing reservoirs. The volume of reservoir storage between utilities vastly differs, but a method based on the days of supply remaining would provide consistency for state agencies attempting to understand the status of multiple public water systems across the state. For example, DPH would immediately understand that a utility entering a Drought Warning was projecting a certain amount of days of supply remaining, regardless of the size of the system or storage available. One challenge to overcome for some systems would be developing appropriate triggers in light of potential reductions in streamflow releases required under the Streamflow Standards and Regulations (see Section 2.3). Mass-balance or other predictive modeling may be required to set triggers under this method.

While there are some benefits to this suggestion, it may not be applicable or appropriate for the majority of water systems across the state which rely upon groundwater supplies. Furthermore, given the unpredictable nature of drought (in terms of timing, duration, and severity), use of a risk-based approach may be appropriate based on historical drought data and the projected frequency of hitting drought triggers. A variety of approaches along this vein are presently under consideration by utilities.

At this time, the WUCC defers to the agencies and organizations working on drought response planning, such as the Connecticut Section of the American Water Works Association, the Connecticut Water Works Association, the Interagency Drought Workgroup, the Water Planning Council, and others for further consideration of this issue. A delicate balance must be achieved where activating drought triggers can ensure that water is properly conserved, but where activation does not result trigger “fatigue” among end users who become immune to constant announcements of rapidly changing levels of requested and mandatory conservation. The WUCC meetings will continue to be an excellent place for utilities, planners, and others to come together to discuss and debate this topic. Ideally, DPH will provide guidance to water utilities regarding *how* to set triggers, rather than specifying what the triggers should be.

2.2 Water Conservation

Connecticut’s water utilities have been planning for and successfully accomplishing water conservation since the 1980s. Large water utilities have now prepared at least three or four editions of water conservation plans in their Individual WSPs, focusing on supply management and demand management as stipulated in the regulations. Likewise, the previous coordinated water system plans completed by the four previous WUCCs (Upper Connecticut, South Central, Housatonic, and Southeast) focused on supply side management and demand side management, citing many of the same conservation tools as the Individual WSPs.

In the last 15 years, water utilities have made great strides in supply conservation, with advances in source metering, filter backwash recycling, leak detection, and water main replacement. Unaccounted-for water figures have decreased in many public water systems as noted in Table 2-5 of the WSA report. Many utilities have reduced unaccounted-for water to less than 15% and some have reached levels below 10%.

Some large systems with low per-capita demands have relatively high non-revenue figures while some systems with high per-capita demands have relatively low non-revenue figures. This presents a challenge for those systems, as they must strive to correctly account for consumed and lost water while reducing both.

Significant gains have been made in demand management as well. Residential retrofit programs were helpful in the 1980s and 1990s, with new plumbing fixtures and appliances are much more water-efficient than the older equivalents, leading to some remarkably low per-capita figures as presented in Table 2-5 of the WSA report. Many water systems are experiencing demands in the range of 40 to 60 gallons per capita per day (gpcd). Customer meters have been replaced in many systems, and utilities such as MDC are moving to monthly billing to better demonstrate use trends and patterns to its customers.

Despite these successes, further improvements to the methods and practices for promoting and achieving the conservation of water are believed necessary. The WSA report identified three pressing issues related to water conservation in the Eastern PWSMA and statewide:

- Significant conservation measures have been enacted over the years, such that additional top-down water conservation efforts by a utility may have a minimal return. While all of the larger utilities practice water conservation, many smaller systems limit conservation to end-user controls such as low-flow toilets, faucets, and showers. Continuing education is necessary to inform users of conservation methods, and additional education is needed for the general public regarding the amount water being saved today that may have been wasted in the past.
- Additionally, many smaller systems have minimal metering capabilities, and the amount of lost or wasted water is often unknown. Continuing education is necessary to educate small systems in proper water auditing to determine loss and waste and to develop a conservation and efficiency program tailored for their small system. Furthermore, continued diligence is necessary for all systems currently tracking water usage to ensure that accounted-for non-revenue water (such as main flushing and fire-fighting usage) is appropriately tracked.
- Some water systems are experiencing a trend of decreasing average day demand (ADD) along with an increase in peak-day demands (PDD). This negatively impacts the ability to manage sources and treatment facilities in some systems and points to a need for conservation during peak-day conditions. This is often the case during the summer months coincident with irrigation and water intensive recreational activities, and the overuse of water for such activities needs to be addressed to preserve water supply. Although reservoir systems are typically better able to handle increased peak-day demands as compared to groundwater systems from a supply perspective (provided adequate treatment capacity exists), increased peak-day usage by reservoir systems is of concern to DPH as overuse of surface water sources can result in taste and odor complaints, elevated levels of cyanotoxins, and other water quality concerns.

Water conservation is one of the central themes of the *State Water Plan* (January 2018). Section 5.2.3.3 of the State Water Plan includes a set of *policy recommendations* for water conservation while Section 5.3.2.1 includes a *pathway forward* for additional water conservation consensus-building:

- The *policy recommendations* address education, review of existing water conservation plans and metrics, adoption of conservation incentives, tracking of water savings, support of water management through training and technical support, incentives for reducing outdoor water use, enacting local water conservation ordinances, evaluation of barriers to green building, advancing water-efficient landscapes, and strengthening partnerships with entities such as homebuilders and non-governmental organizations.
- The *pathway forward* recommends gathering information about successful incentives and case studies, studying new actions and ongoing trends such as increased billing frequency and decreasing per-capita water demands, and forging partnerships with the Alliance for Water Efficiency¹ (A4WE) and the newly launched (in late 2017) Sustainable CT initiative.

The *State Water Plan* lists water conservation as one of its “five most important messages.” Accordingly, water conservation is embedded in three of the “top ten consensus-based policy priorities” (innovation in agricultural practices, consideration of Class B waters for non-potable uses, and developing an education strategy about water conservation).

¹ www.a4we.org

The WUCCs are an ideal platform for helping to implement water conservation recommendations of the State Water Plan while determining what the next generation of water conservation practices in the State should be focused on, given the implementation of the standard supply and demand management tools articulated in Individual WSPs. Ideally, the WUCCs could develop specific tools for public water systems to utilize, including the following:

- More effective methods of addressing systems that still exceed 15% unaccounted-for non-revenue water;
- Discussion of alternative methods for tracking water usage, loss, and waste;
- Outdoor water use restrictions (through town ordinances and State regulations) modeled after the restrictions applied in Greenwich, Stamford, Darien, and New Canaan in 2016, which included restrictions on both time of day and the number of days each week (e.g. two) that irrigation was allowed;
- Innovative billing structures such as the structure used by the Town of East Hampton, which covers the full cost of providing water by the utility through the basic rate before billing usage and will encourage water conservation (similar to water budget-based rates per household typical in the western United States);
- Seasonal or other water conservation surcharges such as the one used by SCWA, which significantly increases water rates for usage above a certain threshold; and
- Encouraging joint use of certain water saving equipment, such as truck-mounted flushing systems which flush sections of pipe between hydrants and filter dislodged debris, allowing for flushing to occur without blowing off water to waste.

The A4WE is a national non-profit organization who advocates for a variety of water efficiency strategies which can reduce water demand. Their goal is to educate utilities and consumers in the areas of policy advocacy, technical tools, research, and education. In a presentation to the Water Planning Council on May 26, 2017, the A4WE noted the myriad benefits of water conservation and water efficiency, including the following:

- Creation of supply solutions are costly and slow to develop, and have more environmental impacts;
- Conserving water allows more customers to be served without increasing production;
- Conservation can help flatten peaks which drive need for additional supply;
- Helps to leave more water in reservoirs (more frequent spillage) and streams;
- Reduces discharge volume of wastewater; and
- Helps to delay or avoid infrastructure improvements.

For some systems, targeted water conservation and water efficiency efforts may be required in order to reduce overall water use. Such efforts would only be applicable in systems where demand hardening has not already occurred (i.e. where customers are not already practicing sound water conservation practices). The A4WE notes that such programs must be system specific and focused on cost-effective and attainable goals, and such programs should demonstrate that the utility is also holding themselves to the standards expected of customers (such as through a targeted capital improvement program to reduce leakage). The Handbook for Water Use & Conservation by Amy Vickers was suggested by A4WE as a resource for developing a water conservation and water efficiency program. Such a targeted water conservation and water efficiency program may include elements such as:

- Use of water conservation tracking tools by both customers and the utility to evaluate benefits;
- Adoption of local efficiency standards, codes, and ordinances;
- Audits of major users and commercial kitchens with an educational component for developers and engineers on reducing water usage at new facilities (such as by reducing the maximum flow rate through private water piping);
- An active meter replacement and water usage tracking program;
- Installation of automatic meter reading (AMR) and advanced metering infrastructure (AMI) devices to continually track system usage and detect leaks; and
- Participation in the EPA's WaterSense Program, and encouraging customers to participate through a strong public outreach effort.

As an alternative to developing new water supply sources (or at least to prolong the ability of existing supplies to meet demands), various long term planning objectives have been identified, including the use of non-potable supply sources for non-potable uses and water reuse described below.

Certain types of industrial, commercial, and agricultural users consume potable water in processes that do not require potable water. It may be possible to convert some of these users (e.g. golf course irrigation) to partially or fully rely on non-potable supply sources through the use of techniques such as rain harvesting. Other high volume users should also be evaluated for their potential to use non-potable water. For example, East Lyme Water & Sewer Commission requires new cluster style sub-divisions and new commercial customers to install private irrigation wells under the building permit approval process to reduce outdoor non-potable demands.

There are many Class B water users who have developed private sources and transmission systems. Examples of Class B users include farms, industrial cooling and wash water, nurseries, golf courses, quarries, and power plants. Public water companies may be able to either directly provide Class B water or help major water users to develop Class B sources as an alternative to potable water.

In order for a public water company to develop and provide Class B water, there would need to be sufficient demand from one or more customers. Ideally, local land use controls could be used to consolidate such users spatially and make development of non-potable water systems more cost-effective. Coordination with DPH with regard to regulatory issues would be necessary, as would multiple controls to avoid cross connections with potable public water systems. Some industries will have limitations on the quality of non-potable water that they can accept (e.g. food processing or pharmaceutical manufacturers). Specific concerns could include pH, dissolved or suspended solids, trace metals, salinity, and algae causing nutrients.

If non-potable waters are returned to the source stream near the withdrawal point, there may be minimal aquatic impact. However, if the water is consumed (e.g., irrigation, evaporative cooling) or returned elsewhere, then there will be concern about the diversion. In such a case, it would be preferable to obtain the water from one of the larger rivers to minimize flow diminution.

Finally, water reuse is a viable alternative to development of new water supplies. As an example of this, the shopping outlets at Clinton Crossing are equipped with a gray water reuse system. This type of technology reduces potable water demands and lessens the burden on subsurface disposal systems. Consideration of similar systems on future developments should be given.

As a follow-up to the discussion in Section 2.1.5, many utilities believe that certain demand-side elements of water conservation should be legislated by the state and local entities, but with drought restrictions able to be enforced in some manner by water utilities. The exact nature of this legislation and potential enforcement is still in debate and will need further consideration in the coming years. The WUCC will be one forum in which these ideas may be discussed.

2.3 Impacts of Existing and Future Policies and Regulations

Regulations that affect public water systems will remain an issue for this region as well as for water systems statewide. These and other as-of-yet unknown future regulations can be costly to implement and maintain, and can significantly affect the logistics of operating a public water system. This was noted as an issue of concern in the WSA report.

Available Water Calculations

In 2016, DPH issued forms for calculation of available water and recommended utilities use them when preparing WSPs. Previously, informal guidance was utilized by public water systems regarding available water to meet MMADD and PDD. The current DPH forms to be utilized for available water calculation follow a strict interpretation of the regulations and do not allow available water to meet MMADD or PDD to exceed the available water to meet ADD, as the calculation is based on safe yield or some more limiting factor. This has resulted in the computed available water for surface water sources in some systems as well as some groundwater sources and interconnections being greatly reduced from earlier versions of written planning documentation such as WSPs. Further explanation is provided below:

- For those systems with groundwater sources, the available water for MMADD was the same as the available water to meet ADD, and for most systems this continues to be the case. For systems with sources used for (and specifically permitted for) peaking, the required use of an annual average withdrawal rate based on the peaking rate (instead of the peaking withdrawal rate) for the calculation of available water prevents the effective use of such sources for planning purposes despite their actual use in such a manner.
- For those systems with surface water sources, the treatment capacity of the water treatment plant was previously allowed to be used in calculation of available water with one filter (or other redundant primary treatment component) offline. Alternatively, a MMADD available supply was calculated based on the peak monthly demand ratio used in the safe yield calculation. As water treatment plant capacities typically exceed safe yield (e.g., in order to meet PDD), available water to meet MMADD and PDD were often greater than available water to meet ADD.
- For those systems reliant upon interconnections, many have contracts stipulating an annual average flow limitation which includes a higher maximum transfer to meet MMADD or seasonal summertime demands. The reliance on the annual average artificially generates an available water deficit under MMADD conditions despite the water being contractually available.

Although many WSPs written prior to the new forms being issued do not demonstrate margin of safety (MOS) deficits, this *Integrated Report* incorporates the current process in order to best demonstrate where new sources of supply may be necessary based on the regulations, and includes an analysis of a potential pathway forward to demonstrate how alternative guidance could lower the potential volume of water needed from new sources of supply. Refer to Section 3.5.4 for a description of available water in

the region compared to MMADD, and Section 3.7 for the potential resolution. Note that though some systems may project a deficit to meet MMADD, this does not mean that new sources will be needed in all instances as evaluated in Sections 5.0 and 7.0.

Streamflow Regulations

Several of the CWSs in the region may experience impactful reductions in reservoir safe yields upon full implementation of the Streamflow Standards and Regulations (RCSA Section 26-141b) beginning in 2024. Several systems in the region, such as NPU and New London Department of Utilities, rely on surface water supplies that are not exempt from the Streamflow Regulations. Future water supply sources may be needed to offset reductions in safe yield. Therefore, implementation of the Streamflow Regulations has been believed to be a primary driver for determining the need for future interconnections and new source development across the state, and one goal of this report is to evaluate, to the extent possible given presently available data, current and projected water supply need.

Utilities may also choose to develop and enter into flow management plans with multiple parties as a method to comply with the Streamflow Regulations, although some release of water would still be likely under such a management plan. The effect of the Streamflow Standards and Regulations on safe yield and available water, to the extent known or estimated, is discussed in Section 3.6.

Well Water Quality

Raw well water utilized for public drinking water in the region tends to be variable with respect to quality and quantity. Elevated concentrations of arsenic, radioactive elements, and/or iron and manganese are prevalent in public water system well supplies, and treatment can be costly. This may present a disproportionate burden on small CWSs and Non-Community water systems, and it may necessitate extending public water systems into areas presently served by private wells or creation of new public water systems as noted below. Examples include Montville, Pomfret, and Sprague, which have small systems that have dealt with recent water quality challenges related to arsenic, uranium, and other constituents. If permissible levels of these naturally-occurring contaminants are lowered, the effect could be increased cost of compliance and solutions such as interconnections to share water of a higher quality.

The United States Geological Survey (USGS) published Open File Report 2017-1046 in May 2017 entitled “Arsenic and Uranium in Private Wells in Connecticut, 2013-15”. Nearly seven percent of water samples from 674 private wells tested across Connecticut contained either arsenic or uranium at concentrations that exceed the United States Environmental Protection Agency (EPA) maximum contaminant level (MCL) enforceable for drinking water supplies. Private wells containing levels of arsenic above the MCL were identified in southeastern Lebanon, northeastern Plainfield, and southeastern Woodstock; and concentrations of private wells with elevated arsenic levels below the MCL were identified in northeastern Pomfret, and northeastern Woodstock.

In addition, private wells containing levels of uranium above the MCL were identified in northwestern Thompson; and concentrations of private wells with elevated levels of uranium below the MCL were identified in central Lebanon, Plainfield, northern Pomfret, Thompson, and Woodstock. According to the USGS, high concentrations of arsenic in drinking water have been linked to increased risk certain types of cancer, and high concentrations of uranium have been linked to adverse effects to kidney function.

Similar to public wells, changes in the permissible levels of naturally-occurring contaminants in private well water supplies could render some private well water undrinkable without treatment. This could lead to the extension of water mains and proliferation of new small water systems to replace lost private water supplies. The designation of ESAs will help address this challenge, since specific water utilities have been identified who may be able to help solve groundwater quality problems.

Emerging Contaminants

Emerging contaminants are a concern for the EPA as well as DPH. While many emerging contaminants have been in the news over the last 15 years, contaminants such as salt from winter deicing have the potential to increase significantly in the next decade as road sanding during winter storms is phased out. Emerging contaminants can affect public water supply sources and private wells, leading to increased cost of compliance, solutions such as interconnections to share water of a higher quality, extension of water mains, and proliferation of new small water systems to replace lost private well water supplies. As noted above, the designation of ESAs will help address this challenge relative to private well impacts, since specific water utilities and other ESA holders have been identified who may be able to help address groundwater quality problems.

2.4 Climate Change and Resiliency

2.4.1 Climate Change and Effect on Safe Yield

As the full effect of climate change cannot be fully predetermined, public water systems can only prepare to address the effects of climate change based on current prediction models. As noted in the *State Water Plan* (January 2018), “runoff is likely to be significantly higher in the future in winter months” and may be “modestly lower in summer months”. These models generally suggest that Connecticut will experience more total rainfall than before, but that the rainfall will occur more frequently in high volume, temporally limited events rather than moderate volume events occurring over a longer storm period.

While such a scenario may be beneficial for refilling certain reservoir supplies during the winter season, the *State Water Plan* cautions that future flood risks could increase, and potentially drier summer conditions could occur with longer gaps between summer rain events. In the latter case, such conditions could result in greater fluctuations in the water level in reservoir supplies. This, coupled with warmer temperatures, could result in degraded water quality at the water treatment plant intakes which in turn could require additional treatment efforts. For example, WWW’s treatment efforts are already more intensive and costly every summer due to higher temperatures in the Willimantic Reservoir.

Analysis of system safe yield² is critical to determining the amount of available water supply. The calculation methodology for safe yield differs between reservoir sources and groundwater sources.

- The calculation of safe yield for a reservoir or reservoir system is based on a mathematical mass-balance methodology using a 99% dry year or a critical dry period with a 1 in 100 occurrence

² “Safe yield” is defined in RCSA 25-32d-1a(a)(33) as “the maximum dependable quantity of water per unit of time which may flow or be pumped continuously from a source of supply during a critical dry period”.

frequency. The majority of reservoir safe yield studies were conducted using the multi-year 1960's drought period, a critical dry period considered drier than the 1 in 100 occurrence frequency. One of the inputs to the safe yield model are evaporation rates which are specified in the regulations. Many climate change models predict that the earth will continue to experience warmer temperatures over time, which in turn would affect the evaporation rate. Any revision to the safe yield regulations for surface water supplies should include consideration of new evaporation rates to be used in the calculation of safe yield.

- The calculation of safe yield for a groundwater source typically includes a simultaneous pumping test of all sources at the wellfield. During warmer periods, the water table is typically lower which provides less head in a well between the water surface and a pump. If summers are expected to be warmer and drier in the future, and punctuated with high volume, short duration rain events that result in high volumes of runoff and little infiltration, then lower summertime water tables would not be unreasonable to expect. Should the lowering of the water table be significant enough, the previously recorded pumping test drawdown used to calculate safe yield could now intersect or fall below the pump, indicating that expected yield would not be available when the well was pumped at the safe yield rate. While most safe yield tests include some measure of safety factor above the pump level to account for seasonal variations, such a safety factor is not explicitly called for in the regulations. Continued monitoring of water levels at groundwater wellfields is encouraged by WUCC members to determine any long term trends which could reduce safe yield.

Ultimately, safe yield is not always the limiting factor in determining available water³. However, it is an important and required component of the available water calculation. As available water is typically more limiting for a public water supply system, available water is utilized in Section 3.0 to determine future water needs in the region.

While the above discussion provides the WUCC with a starting point, future planning both within and outside of the WUCC will be necessary to prepare for and respond to climate change. Interconnections and new supply sources may become more important as part of these efforts.

2.4.2 Resiliency

Resilience is typically defined as the ability of a system, population, or community to prepare for, withstand, recover from, and adapt to stresses like natural disasters and climate change. Resilience can be measured different ways, but one common method of measuring resilience is the number of days or months to recover from an event. A more resilient community can recover more quickly. In the case of a PWS, heightened resiliency shortens the recovery time.

The resiliency of water systems to climate change and natural hazards is a significant concern, particularly given the extensive power outages that occurred throughout the state during Tropical Storm

³ "Available water" is defined in RCSA 25-32d-1a(a)(4) to mean "the maximum amount of water a company can dependably supply, taking into account the following reductions to safe yield: any limitations imposed by hydraulics, treatment, well pump capabilities, reductions of well yield due to clogging that can be corrected with redevelopment, transmission mains, permit conditions, source construction limitations, approval limitations, or operational considerations; and the safe yield of active sources and water supplied according to contract, provided that the contract is not subject to cancellation or suspension and assures the availability of water throughout a period of drought and that the supply is reliable.

Irene, Winter Storm Alfred, and Hurricane Sandy. Many smaller systems do not have standby power facilities, and numerous small systems issued boil water notices during the power outages associated with these events.

Resiliency is not a one-time effort. It must be continuously maintained and improved over time due to the risks associated with climate change. In the context of natural hazards such as flooding and severe wind storms, risk is commonly defined as the product or the sum of vulnerability and frequency (risk = vulnerability X frequency or risk = vulnerability + frequency). Thus, if an event has a low frequency and infrastructure is not vulnerable to the effects of that event, then the risk is assumed to be low. If an event has a high frequency and infrastructure is vulnerable to the effects of that event, then the risk is assumed to be high. Either low frequency coupled with high vulnerability or high frequency coupled with low vulnerability will produce moderate risk.

In the context of flood, wind, snow, and ice hazards and the need for developing climate resilience, risk will change over time because the frequency will increase. Certain storms are believed to be increasing in frequency, bringing more intense precipitation, winds, and heavier snow; and flooding will increase in frequency as sea level rises and more intense precipitation runs off. Thus, even if water system infrastructure vulnerabilities remain static by doing nothing, risks will increase.

Therefore, public water systems are at a crossroads with regard to reducing risk. Vulnerabilities can remain static and risk can increase, or vulnerabilities can be reduced to hold risk at bay. If vulnerabilities can be reduced even further, then risks could be lowered in the face of climate change, leading to increased resilience. The least desired combination of all would be the development of increased vulnerabilities while frequencies increase, because risks could rise faster than expected; this is the possible outcome if public water systems do not maintain and harden infrastructure.

The Resilience Loss Recovery Curve (below) helps explain how community or system function is affected by an acute disturbance such as a hurricane, and depicts response and recovery curves. Community functions decline (blue and pink areas) as communities respond to a disaster. A more resilient community can more quickly restart local services (utilities, businesses, schools) and chart a path to a “new normal.” The more resilient community incurs some losses (blue) but avoids additional losses (pink), because it has taken informed measures (anticipating threats, developing disaster response plans and recovery strategies, longer-term land use policies) in advance to minimize the impact of the disturbance (i.e., planning and mitigation).

Resilient communities and systems may find opportunities to transform themselves and grow. Thus, a resilient water system’s “new normal” may be a higher level of function (solid blue, upper line) or it may be able to return to a level of function existing before the disturbance (dashed gray, lower line). Ultimately, this cycle repeats itself both before and after each disturbance resulting in opportunities to incrementally increase resilience.

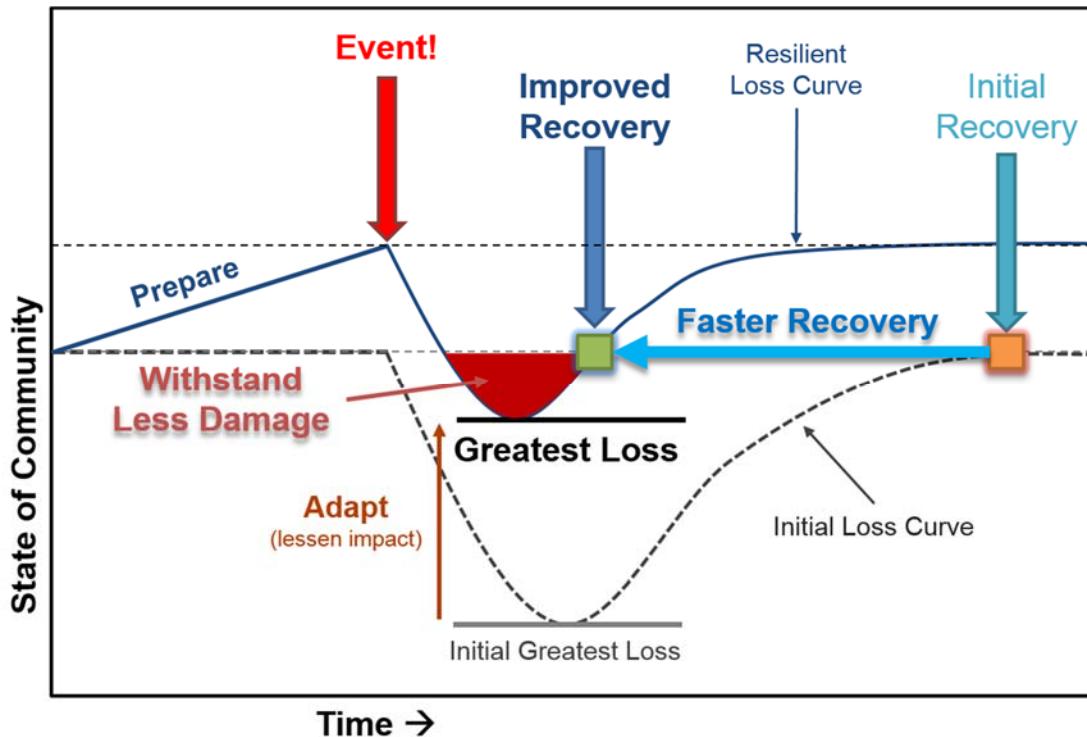


Figure 2-1. Resiliency Loss Curve

Relative to floods, the State of Connecticut adopted a set of standards several decades ago that was forward-thinking and has helped make many state-funded projects resilient. Critical facilities must be designed according to the elevation of the 0.2% annual chance flood (500-year flood) rather than the 1% annual chance (100-year flood), the elevations of which are typically developed for regulatory purposes by the Federal Emergency Management Agency (FEMA). The Federal Flood Risk Management Standard was issued by the Obama administration in 2015 and adopted a similar approach to be used for federally-funded facilities, but the standard was rescinded in 2017 by the Trump administration. The Connecticut Public Health Code does not require that water system components or water supply wells be resistant to flooding from the 0.2% event, but water supply wells must be elevated above the 1% annual chance flood elevation. This creates a disparity among State laws because many public water system projects are partly funded by the State (or by federal funds passed through the State, which are subject to State requirements) and would therefore be subject to the more conservative standards. The WUCCs and DPH should work together to correct the disparity.

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

A study is being conducted by the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) and UConn, concurrent with the WUCC planning process, to develop a Drinking Water System Vulnerability Assessment and Resiliency Plan for Connecticut. The study will consider the impacts of flooding, winds, and heavy snow from extreme weather, drought, and other impacts of climate change on public and private water

systems, and include the results of research and interviews regarding how other states are responding to the heightened need for resiliency. The report is due by the end of 2018. Initial tasks have included

interviews with DPH personnel; interviews with CWS owners and operators; a review of all available vulnerability assessments and Emergency Contingency Plans filed with WSPs; creation of a database of critical CWS components; and an analysis of potential interconnections to achieve resilience. Some of the results of the initial tasks are incorporated into this report.

2.4.3 *Incorporation of Climate Change and Resiliency into Future Projects*

Consideration of climate change and resiliency is included in the evaluation of projects discussed in Section 5.0. For the purposes of this report, it is assumed that sea level rise will not result in reduced public water system demands along low-lying shoreline areas, even though some climate models predict the possibility of some level of shoreline retreat being possible over the 50-year planning period. At this point, the WUCC is best served evaluating the potential effects of climate change on future regional projects, and evaluating how each project promotes resiliency when considering prioritization of projects. The following questions should be applied to each potential regional project:

- Does the proposed regional project build resiliency?
- Is the source of water for the project prudent to use in light of climate change?
- If the project is a new source of supply, will the source be resilient?
- Overall, is the project prudent in light of climate change?



3.0 POPULATION, CONSUMPTION, AND AVAILABLE WATER PROJECTIONS

3.1 Introduction

This section integrates projected town growth, individual public water system WSPs, service populations, and water system demand projections in comparison to presently calculated available water to meet future public water supply demands. Projections are provided in the following subsections by town and are based on data for the ESA of each ESA holder, such that each ESA holder may understand the total public water supply use within its ESA boundary. All projections are based on the final approved or final recommended ESAs developed during the former Southeastern Connecticut WUCC planning process and the present Eastern WUCC planning process, and are not limited to the existing service areas of the providers.

During this process, each public water system was invited to provide information regarding existing and projected service area populations and residential and non-residential ADD, along with available water to meet ADD. The data collection was supplemented with individual system WSPs and the appropriate regional planning documents, with ADD estimated for the smaller systems that do not submit WSPs when other information was not available. See Appendix B for a discussion of how water demand projections were developed. The planning horizons for these projections correspond to the 5-, 20-, and 50-year planning horizons. The 5-year planning horizon is projected from the time of the CWSP development (2018). The 20- and 50-year planning horizons are projected from the last available census data (2010). Existing conditions are based on year 2015 data or 2016 data (where available), and the planning horizons correspond to the years 2023, 2030, and 2060.

The regulations corresponding to the Integrated Report require analysis based on safe yield. "Available Water" is used herein in place of safe yield because available water represents the most limiting available supply between the safe yield of each source, registered or permitted capacity, pumping and hydraulic capacity, or contractual limitations. In addition, available water is used in water supply planning to determine system MOS. Existing ADD and MMADD of each system were compared to the yield of existing supplies to identify any surplus or deficit in available water. Note that information is either unavailable or limited regarding available water for non-community systems.

Recall from the *Final Recommended Exclusive Service Area Boundaries* (June 2017) that in many cases, ESA holders expect to serve new developments with satellite CWSs developed under the Certificate of Public Convenience and Necessity (CPCN) process, and not through an extension of water mains. Furthermore, ESA holders have expressed minimal interest in operating new NTNC and TNC water systems – the exception being new NTNC systems (such as new schools) in Town-controlled ESAs. It is difficult to predict exactly where such new systems will be developed, but such systems would not be approved by DPH without a demonstration of sufficient available supply to meet demands. Estimates for growth of new satellite CWSs, as well as non-community water systems, are included herein as discussed in Appendix B.

Table 3-1 provides a summary of the projected ADD, available water surplus or deficits, and MOS for CWSs the Eastern PWSMA through the 5-year, 20-year, and 50-year planning horizons. The information presented in this table is developed in Section 3.5 of this document.

TABLE 3-1
Summary of Community Water System ADD Projections, Available Water, and MOS

Planning Horizon	Existing and Projected System ADD (mgd)	Existing Available Water to Meet System ADD (mgd)	Existing and Projected Surplus or (Deficit) (mgd)	Existing/Projected Margin of Safety
Existing Conditions	27.842	46.253	18.411	1.66
5-Year (2023)	29.596	46.253	16.657	1.56
20-Year (2030)	32.893	46.253	13.360	1.41
50-Year (2060)	35.935	46.253	10.318	1.29

Notes: Figures in Table 3-1 only include demands within Eastern PWSMA. Potential available water reductions for future streamflow releases are not considered for this table.

Table 3-1 focuses on community public water systems in the Eastern PWSMA and not non-community systems for several reasons. First, the larger community systems are required to provide WSPs to DPH, such that information is available regarding existing and projected ADD for these systems. Second, the majority of small community and non-community systems have not claimed expanded ESAs and therefore have limited growth potential. The vast majority will only ever serve their existing parcels. As identified in the *Final Water Supply Assessment* (December 2016), many of these systems serve less than 100 people and are likely to experience only small to modest increases in ADD, if any. As a group, these systems serve a minor percentage of the population within the Eastern PWSMA and are expected to have increased ADD in the future.

While the information in Table 3-1 suggests that the region has sufficient public water supply to meet ADD throughout the 50-year planning period, the water is not necessarily in the location of need. As seen in the subsequent sections, individual systems are projecting supply deficits that will need to be addressed in the coming years, while some systems are projecting surplus water available.

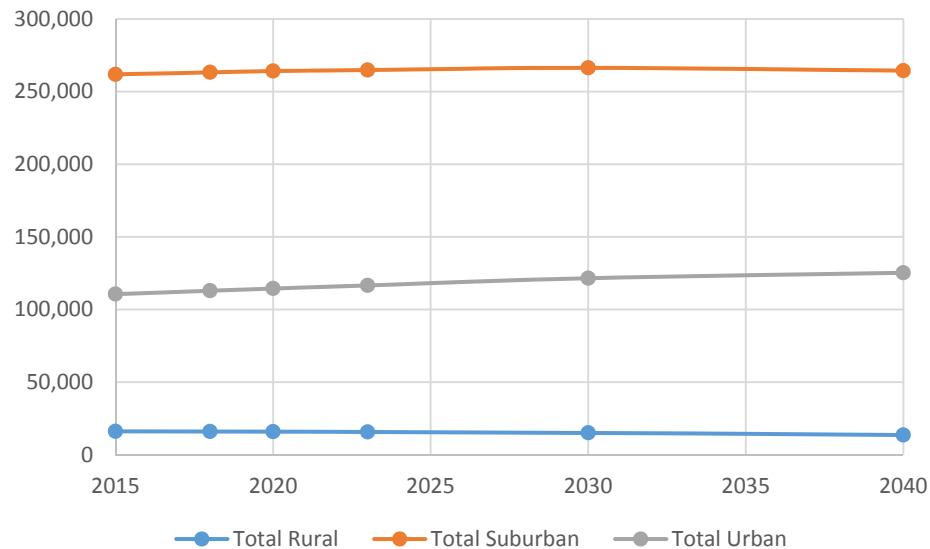
3.2 Town Population and Demand Projections

Projections of regional residential water supply demand presented in Section 3.2 and Section 3.3 are based on population projections for each town. This evaluation uses future population projections developed by the Connecticut State Data Center (CT SDC) in 2017, which include data for the years 2015, 2020, 2025, 2030, 2035, and 2040. Use of the CT SDC projections assures consistency with the *State Water Plan* (January 2018) which prepared water demand estimates based on the CT SDC projections. A discussion of how the population projections were interpolated to represent the 5-year planning horizon (2023) and extended to 2060 for the 50-year planning horizon is provided in Appendix C.

Town Population Projections

The overall regional population projection indicates steady, but not dramatic growth in eastern Connecticut. Overall, the population of the Eastern PWSMA is anticipated to increase by approximately 15,000 people by 2040. Figure 3-1 presents the population projections by urban, suburban, and rural communities in the Eastern PWSMA through 2040. Overall, urban areas are projected to gain population consistently through the year 2040, suburban areas are expected to increase population through 2030 and then begin to decline through 2040, and rural populations are expected to decline consistently through 2040.

FIGURE 3-1
2017 CT SDC Population Projections for Eastern PWSMA by Community Type



Based on the above, growth in the three urban communities (Groton, New London, and Norwich) will outpace declines in suburban and rural communities. Population growth in the individual towns is projected to vary across the region throughout the planning period, with 24 of the 35 communities losing population through 2040. Table 3-2 presents these projections by town for the region. Note that actual population growth and decline over these planning periods may be more diffuse in some areas and more concentrated in other areas than presented in this report.

TABLE 3-2
Population Projections by Town for the Eastern PWSMA

Town	Classification	2010 Pop.	CT SDC 2015 Pop.	2023 Pop. Proj.	CT SDC 2030 Pop. Proj.	CT SDC 2040 Pop. Proj.	2060 Pop. Proj.
Ashford	Suburban	4,317	4,376	4,399	4,377	4,159	4,159
Bozrah	Suburban	2,627	2,714	2,855	2,983	3,089	3,198
Brooklyn	Suburban	8,210	8,581	9,135	9,562	10,033	10,435
Canterbury	Suburban	5,132	5,225	5,215	5,132	4,835	4,835
Chaplin	Suburban	2,305	2,285	2,175	2,052	1,782	1,782
Colchester	Suburban	16,068	16,195	16,207	16,237	15,925	15,925
East Lyme	Suburban	19,159	19,233	19,069	18,825	18,225	18,225
Eastford	Rural	1,749	1,775	1,787	1,781	1,700	1,700
Franklin	Rural	1,922	1,921	1,870	1,803	1,661	1,661
Griswold	Suburban	11,951	12,381	13,026	13,540	13,900	13,900
Groton	Urban	40,115	39,899	40,325	40,332	38,622	38,622
Hampton	Rural	1,863	1,853	1,782	1,697	1,485	1,485
Killingly	Suburban	17,370	17,695	18,067	18,266	17,948	17,948
Lebanon	Suburban	7,308	7,289	7,057	6,808	6,317	6,317
Ledyard	Suburban	15,051	14,889	14,546	14,167	13,315	13,315
Lisbon	Suburban	4,338	4,302	4,190	4,051	3,730	3,730
Montville	Suburban	19,571	19,576	19,434	19,168	18,356	18,356

TABLE 3-2
Population Projections by Town for the Eastern PWSMA

Town	Classification	2010 Pop.	CT SDC 2015 Pop.	2023 Pop. Proj.	CT SDC 2030 Pop. Proj.	CT SDC 2040 Pop. Proj.	2060 Pop. Proj.
New London	Urban	27,620	28,025	29,581	30,885	31,875	32,094
North Stonington	Rural	5,297	5,288	5,097	4,845	4,250	4,250
Norwich	Urban	40,493	42,632	46,640	50,312	54,765	63,231
Plainfield	Suburban	15,405	15,440	15,361	15,183	14,645	14,645
Pomfret	Suburban	4,247	4,400	4,604	4,764	4,906	4,949
Preston	Suburban	4,726	4,656	4,456	4,262	3,898	3,898
Putnam	Suburban	9,584	9,917	10,422	10,815	11,038	11,038
Salem	Suburban	4,151	4,157	4,014	3,826	3,454	3,454
Scotland	Rural	1,726	1,767	1,772	1,754	1,642	1,642
Sprague	Suburban	2,984	2,988	2,999	3,007	2,928	2,928
Sterling	Suburban	3,830	4,142	4,568	4,890	5,197	5,285
Stonington	Suburban	18,545	18,301	17,458	16,598	15,224	15,224
Thompson	Suburban	9,458	9,556	9,599	9,595	9,390	9,390
Union	Rural	854	889	921	936	944	944
Voluntown	Rural	2,603	2,586	2,429	2,260	1,875	1,875
Waterford	Suburban	19,517	19,341	18,522	17,621	15,996	15,996
Windham	Suburban	25,268	26,086	29,219	32,463	38,255	45,906
Woodstock	Suburban	7,964	8,125	8,193	8,164	7,860	7,860
Totals	All	383,328	388,485	396,994	402,961	403,224	420,204
	Rural	16,014	16,079	15,657	15,076	13,557	13,557
	Suburban	259,086	261,850	264,791	266,356	264,405	272,699
	Urban	108,228	110,556	116,546	121,529	125,262	133,948

Source: U.S. Census Bureau 2010; Population Projections published in 2017 by CT SDC

Notes: See Appendix C for interpolation and extrapolation of CT SDC projections.

Urban Area Population Projections

The urban towns of Groton, New London and Norwich are projected to continue gaining population through the year 2030, with only Groton beginning to decline thereafter. Projections through the year 2040 show the population of Groton decreasing by 3% or 1,277 people; New London increasing by 14% or 3,850 people, and Norwich increasing by 28% or 12,133 people. Overall, the urban communities are projected to gain 14,706 people though 2040.

Suburban Area Population Projections

Windham and Sterling are projected to have the highest percentage increase in population compared to the rest of the towns in the suburban areas. Projected growth for Windham is 47% from 2015 through the year 2040, or an average of almost 350 persons per year. Population in Sterling is projected to increase by 25%, or approximately 50 people per year. Other communities projecting population increases of more than 10% through 2040 include Bozrah (14%), Brooklyn (17%), Griswold (12%), Pomfret (12%), and Putnam (11%).

Chaplin is projected to have the highest percentage decrease in population compared to the rest of the towns in the suburban areas. The projected decline for Chaplin is -22% from 2015 through the year 2040, or an average of approximately 14 people per year. Other communities projecting population decreases of more than 10% through 2040 include Lebanon (-13%), Ledyard (-11%), Lisbon (-13%),

Preston (-16%), Salem (-17%), and Waterford (-17%). Overall, the suburban communities are projected to gain 2,555 people through 2040.

Rural Area Population Projections

Projections indicate that Union will be the only rural community in the Eastern PWSMA to gain population through 2040 (6%). Hampton, North Stonington, and Voluntown are projected to have the largest decreases in population through 2040. The projected decline for Hampton is -20% from the 2015 population, or a decrease of approximately 11 persons per year. The projected decline for North Stonington is also -20%, or a decrease of approximately 30 people per year. The projected decline for Voluntown is -27%, or a decrease of approximately 20 people per year. Franklin is also projecting a significant population decrease through 2040 of -14%. Overall, the rural communities are projected to lose 2,522 people through 2040.

Town Demand Projections

The population estimates presented in Table 3-2 were used to estimate the total residential water demands for the region. These demands are based on the CPCN regulatory design standard consumption figure of 75 gpcd (a figure that may be either higher or lower than actual usage in certain towns) and reflect the population served by individual wells as well as those served by public water systems. Table 3-3 presents the residential demand projections for the region by town. In many instances, most of the demand will be met by private water supply wells serving individual residences. The total demand is not expected to be met solely by the public water supply systems of the region.

TABLE 3-3
Estimated Residential ADD for Total Population by Town for the Eastern PWSMA

Town	2015-2016 Estimated Demand (mgd)	2023 Projected Demand (mgd)	2030 Projected Demand (mgd)	2060 Projected Demand (mgd)
Ashford	0.328	0.330	0.328	0.312
Bozrah	0.204	0.214	0.224	0.240
Brooklyn	0.644	0.685	0.717	0.783
Canterbury	0.392	0.391	0.385	0.363
Chaplin	0.171	0.163	0.154	0.134
Colchester	1.215	1.216	1.218	1.194
East Lyme	1.442	1.430	1.412	1.367
Eastford	0.133	0.134	0.134	0.128
Franklin	0.144	0.140	0.135	0.125
Griswold	0.929	0.977	1.016	1.043
Groton	2.992	3.024	3.025	2.897
Hampton	0.139	0.134	0.127	0.111
Killingly	1.327	1.355	1.370	1.346
Lebanon	0.547	0.529	0.511	0.474
Ledyard	1.117	1.091	1.063	0.999
Lisbon	0.323	0.314	0.304	0.280
Montville	1.468	1.458	1.438	1.377
New London	2.102	2.219	2.316	2.407
North Stonington	0.397	0.382	0.363	0.319
Norwich	3.197	3.498	3.773	4.742
Plainfield	1.158	1.152	1.139	1.098
Pomfret	0.330	0.345	0.357	0.371

TABLE 3-3
Estimated Residential ADD for Total Population by Town for the Eastern PWSMA

Town	2015-2016 Estimated Demand (mgd)	2023 Projected Demand (mgd)	2030 Projected Demand (mgd)	2060 Projected Demand (mgd)
Preston	0.349	0.334	0.320	0.292
Putnam	0.744	0.782	0.811	0.828
Salem	0.312	0.301	0.287	0.259
Scotland	0.133	0.133	0.132	0.123
Sprague	0.224	0.225	0.226	0.220
Sterling	0.311	0.343	0.367	0.396
Stonington	1.373	1.309	1.245	1.142
Thompson	0.717	0.720	0.720	0.704
Union	0.067	0.069	0.070	0.071
Voluntown	0.194	0.182	0.170	0.141
Waterford	1.451	1.389	1.322	1.200
Windham	1.956	2.191	2.435	3.443
Woodstock	0.609	0.615	0.612	0.590
TOTAL	29.136	29.775	30.222	31.515

Notes: Demands represent total residential water demand for town and NOT demands on public water systems only.

Consumption projections are based on the state design standard 75 gallons per person per day. Actual consumption may be significantly higher or lower in each community.

Overall, the population of the region is projected to increase by approximately 8.2% through the 50-year planning period from 388,485 in 2015 to 420,204 in 2060. Correspondingly, the current total estimated residential water demand is projected to increase from 29.1 million gallons per day (mgd) to an estimated 31.515 mgd over the same period, discounting water conservation measures.

3.3 Town Public Water Service Population and Average Day Demand Projections

The existing residential public water service population and projected residential public water service population for each town in the Eastern PWSMA are presented in Table 3-4. These projections include only the residential population who are currently served by public water systems, and incorporates the analysis for the growth of new CWSs in Appendix B.

At present, approximately 60% of the population in the region is served by public water. This estimate is based on service area population data supplied by each water utility and CT SDC projections of the regional population. Within the 5-year planning period, 62% of the population is projected to be served by public water. This is forecast to increase to 64% and 67% within the 20- and 50-year planning periods, respectively. New London is the only community that is 100% served by public water supply.

Table 3-4: Projected Town Population versus Residential Water Service Population

Town	2015-2016			2023			2030			2060		
	CT SDC Total Population	Residential Service Population	Service Ratio	Projected Total Population	Residential Service Population	Service Ratio	Projected Total Population	Residential Service Population	Service Ratio	Projected Total Population	Residential Service Population	Service Ratio
Ashford	4,376	966	22.1%	4,399	971	22.1%	4,377	971	22.2%	4,159	971	23.3%
Bozrah	2,714	563	20.7%	2,855	591	20.7%	2,983	591	19.8%	3,198	601	18.8%
Brooklyn	8,581	2,096	24.4%	9,135	2,226	24.4%	9,562	2,296	24.0%	10,435	2,454	23.5%
Canterbury	5,225	153	2.9%	5,215	153	2.9%	5,132	153	3.0%	4,835	153	3.2%
Chaplin	2,285	154	6.7%	2,175	154	7.1%	2,052	154	7.5%	1,782	154	8.6%
Colchester	16,195	5,945	36.7%	16,207	6,126	37.8%	16,237	6,644	40.9%	15,925	7,671	48.2%
East Lyme	19,233	15,245	79.3%	19,069	15,567	81.6%	18,825	16,020	85.1%	18,225	20,503	112.5%
Eastford	1,775	42	2.4%	1,787	42	2.4%	1,781	42	2.4%	1,700	42	2.5%
Franklin	1,921	0	0.0%	1,870	1,862	99.6%	1,803	1,862	103.3%	1,661	1,862	112.1%
Griswold	12,381	7,548	61.0%	13,026	7,922	60.8%	13,540	7,922	58.5%	13,900	7,922	57.0%
Groton	39,899	37,910	95.0%	40,325	38,498	95.5%	40,332	39,420	97.7%	38,622	41,005	106.2%
Hampton	1,853	0	0.0%	1,782	0	0.0%	1,697	0	0.0%	1,485	0	0.0%
Killingly	17,695	5,824	32.9%	18,067	5,978	33.1%	18,266	6,169	33.8%	17,948	6,602	36.8%
Lebanon	7,289	935	12.8%	7,057	935	13.2%	6,808	951	14.0%	6,317	951	15.1%
Ledyard	14,889	7,487	50.3%	14,546	8,001	55.0%	14,167	8,257	58.3%	13,315	8,257	62.0%
Lisbon	4,302	695	16.2%	4,190	1,140	27.2%	4,051	1,140	28.1%	3,730	1,351	36.2%
Montville	19,576	11,601	59.3%	19,434	11,734	60.4%	19,168	12,401	64.7%	18,356	17,338	94.5%
New London	28,025	28,025	100.0%	29,581	29,581	100.0%	30,885	30,885	100.0%	32,094	32,094	100.0%
North Stonington	5,288	2,309	43.7%	5,097	2,309	45.3%	4,845	2,309	47.7%	4,250	2,309	54.3%
Norwich	42,632	38,143	89.5%	46,640	41,739	89.5%	50,312	44,888	89.2%	63,231	50,788	80.3%
Plainfield	15,440	5,601	36.3%	15,361	5,762	37.5%	15,183	5,926	39.0%	14,645	6,188	42.3%
Pomfret	4,400	850	19.3%	4,604	888	19.3%	4,764	888	18.6%	4,949	888	17.9%
Preston	4,656	1,638	35.2%	4,456	1,648	37.0%	4,262	1,765	41.4%	3,898	1,765	45.3%
Putnam	9,917	7,444	75.1%	10,422	7,811	74.9%	10,815	8,023	74.2%	11,038	8,189	74.2%
Salem	4,157	241	5.8%	4,014	241	6.0%	3,826	241	6.3%	3,454	241	7.0%
Scotland	1,767	0	0.0%	1,772	0	0.0%	1,754	0	0.0%	1,642	0	0.0%
Sprague	2,988	1,058	35.4%	2,999	1,042	34.7%	3,007	1,060	35.3%	2,928	1,114	38.0%
Sterling	4,142	448	10.8%	4,568	490	10.7%	4,890	490	10.0%	5,285	490	9.3%
Stonington	18,301	11,882	64.9%	17,458	12,204	69.9%	16,598	12,477	75.2%	15,224	13,191	86.6%
Thompson	9,556	1,893	19.8%	9,599	1,902	19.8%	9,595	1,923	20.0%	9,390	1,992	21.2%
Union	889	0	0.0%	921	0	0.0%	936	0	0.0%	944	0	0.0%
Voluntown	2,586	258	10.0%	2,429	258	10.6%	2,260	258	11.4%	1,875	258	13.8%
Waterford	19,341	17,042	88.1%	18,522	16,980	91.7%	17,621	17,180	97.5%	15,996	17,180	107.4%
Windham	26,086	19,224	73.7%	29,219	21,356	73.1%	32,463	23,726	73.1%	45,906	26,866	58.5%
Woodstock	8,125	1,437	17.7%	8,193	1,449	17.7%	8,164	1,449	17.7%	7,860	1,449	18.4%
TOTAL	388,485	234,657	60.4%	396,994	247,560	62.4%	402,961	258,481	64.1%	420,204	282,839	67.3%

Total Population from CT SDC as interpolated or extrapolated per discussion in Appendix C.

Residential Service Population provided by water utilities, water supply plans, or DPH records, as applied per discussion in Appendix B, and is based on most recent data.

In some cases, the projected service ratio in Table 3-4 exceeds 100%. For current (2015 or 2016) service ratios, these are in some cases above 100% because the service ratios in WSPs were calculated using occupancy rates and population from the 2010 census (or, in rare cases, the 2000 census) and are out of date for the current CT SDC population projections. Similarly, the utility projections in WSPs were in most cases performed using previous versions of the CT SDC population projections, and in some cases included specific knowledge of significant projects not considered in CT SDC projections. As an example of the former case, a 112.5% service ratio is shown in East Lyme for 2060 based on residential needs from earlier population projections. For an example of the latter case, a proposed development in Franklin included in NPU's projections has the potential to essentially double the Town's population. These demands are maintained herein as they are conservative and therefore appropriate for long-range planning.

Existing and projected public water system demands for residential, non-residential, unaccounted-for water, and ADD for each town in the Eastern PWSMA are presented in Table 3-5. These include ADD for all community, NTNC, and TNC systems within the borders of each town, with data for systems serving multiple towns apportioned per the discussion in Appendix B. Note that sales of water to other utilities are included in non-residential demands. Total ADD is the sum of all demands within such systems along with demands for sales of water to other utilities. System ADD represents the water that is actually used within the boundary without counting the sales. Removing the sales to calculate system ADD is necessary to avoid double-counting the sales, which would otherwise be counted by both the seller (as demand) and the purchaser (as consumption).

The service ratios in Table 3-4 highlight the dynamic nature of water supply planning and need for consistent updates to such planning. Although residential service ratios of above 100% are not technically possible, in many cases they occur because the water utility projections assumed that population in a town would continue to increase (and such population would require public water service), but the new CT SDC population projections (and the supplemental projections in Appendix C) predict otherwise. Such demands and service ratios from utility projections are maintained herein as they are conservative and therefore appropriate for long-range planning, with the expectation that individual utilities will adjust their projections in their next WSP update.

The projections in Table 3-5 are based on existing utility planning efforts and do not necessarily take into account any future connections which could be gained by potential projects identified in this report, with the exception that they include the residential and non-residential demands for the growth of new community and non-community water systems in Appendix B. The total public water system demand in the region for all public water systems is currently estimated at 28.573 mgd, and is projected to increase to 30.582 mgd, 34.018 mgd, and 37.468 mgd in the 5-year, 20-year, and 50-year planning horizons.

3.4 ESA Holder Public Water Service Population and Average Day Demand Projections

The existing residential public water service population and projected residential public water service population for each ESA holder in the Eastern PWSMA are presented in Table 3-6. ESA holders have been assigned responsibility for providing future public water service to residents outside of existing service areas, and have the right of first refusal to own and operate new non-community water systems. See the *Final Recommended Exclusive Service Area Boundaries* (June 2017) for more details.

Table 3-5: Existing and Projected ADD for Public Water Systems by Town (mgd)

Town	Current Demands (2015-2016)						5-Year Projected Demands (2023)						20-Year Projected Demands (2030)						50-Year Projected Demands (2060)					
	Residential Demand	Non-Residential Demand	Unaccounted-for Water	Water Sold to			Residential Demand	Non-Residential Demand	Unaccounted-for Water	Water Sold to			Residential Demand	Non-Residential Demand	Unaccounted-for Water	Water Sold to			Residential Demand	Non-Residential Demand	Unaccounted-for Water	Water Sold to		
				Total ADD	Other Systems	System ADD				Total ADD	Other Systems	System ADD				Total ADD	Other Systems	System ADD				Total ADD	Other Systems	System ADD
Ashford	0.062	0.054	0.003	0.119	-	0.119	0.066	0.054	-	0.121	-	0.121	0.066	0.054	-	0.121	-	0.121	0.066	0.054	-	0.121	-	0.121
Bozrah	0.039	0.141	0.015	0.195	-	0.195	0.041	0.287	0.022	0.349	-	0.349	0.041	0.675	0.056	0.772	-	0.772	0.041	0.651	0.060	0.753	-	0.753
Brooklyn	0.148	0.154	0.033	0.336	-	0.336	0.156	0.151	0.032	0.340	-	0.340	0.161	0.155	0.033	0.350	-	0.350	0.172	0.167	0.036	0.375	-	0.375
Canterbury	0.013	0.011	-	0.025	-	0.025	0.013	0.011	-	0.025	-	0.025	0.013	0.011	-	0.025	-	0.025	0.013	0.011	-	0.025	-	0.025
Chaplin	0.008	0.014	-	0.021	-	0.021	0.008	0.014	-	0.021	-	0.021	0.008	0.014	-	0.021	-	0.021	0.008	0.014	-	0.021	-	0.021
Colchester	0.275	0.131	0.003	0.409	-	0.409	0.287	0.202	0.038	0.527	-	0.527	0.311	0.279	0.057	0.647	-	0.647	0.357	0.491	0.104	0.952	-	0.952
East Lyme	0.786	0.762	0.272	1.819	-	1.819	0.895	0.762	0.222	1.879	-	1.879	1.050	0.972	0.272	2.293	-	2.293	1.333	1.412	0.369	3.114	-	3.114
Eastford	0.003	0.014	-	0.017	-	0.017	0.003	0.014	-	0.017	-	0.017	0.003	0.014	-	0.017	-	0.017	0.003	0.014	-	0.017	-	0.017
Franklin	-	0.012	0.000	0.012	-	0.012	0.127	0.058	0.016	0.201	-	0.201	0.127	0.387	0.045	0.559	-	0.559	0.127	0.387	0.045	0.559	-	0.559
Griswold	0.265	0.153	0.092	0.510	-	0.510	0.299	0.154	0.050	0.503	-	0.503	0.299	0.154	0.050	0.503	-	0.503	0.299	0.155	0.050	0.504	-	0.504
Groton	1.520	5.062	0.111	6.693	1.399	5.294	1.545	5.350	0.106	7.001	1.927	5.074	1.593	5.739	0.110	7.442	2.268	5.174	1.683	6.472	0.120	8.275	2.967	5.308
Hampton	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004	-	0.004
Killingly	0.412	0.475	0.087	0.974	0.001	0.973	0.418	0.469	0.085	0.972	-	0.972	0.431	0.481	0.088	1.000	-	1.000	0.462	0.510	0.094	1.066	-	1.066
Lebanon	0.031	0.052	0.001	0.084	-	0.084	0.032	0.052	0.001	0.085	-	0.085	0.033	0.052	0.001	0.086	-	0.086	0.033	0.171	0.012	0.216	-	0.216
Ledyard	0.400	1.191	0.169	1.760	0.018	1.742	0.436	1.284	0.194	1.914	0.050	1.864	0.462	1.592	0.241	2.296	0.050	2.246	0.474	1.592	0.242	2.309	0.050	2.259
Lisbon	0.039	0.108	0.015	0.162	-	0.162	0.070	0.108	0.014	0.192	-	0.192	0.070	0.184	0.021	0.275	-	0.275	0.084	0.184	0.022	0.291	-	0.291
Montville	0.769	1.610	0.148	2.527	0.645	1.882	0.788	1.890	0.156	2.834	0.695	2.139	0.842	2.119	0.183	3.144	0.717	2.427	1.077	2.442	0.319	3.838	0.767	3.071
New London	0.676	3.967	0.806	5.449	1.900	3.549	0.887	4.213	0.886	5.986	3.100	2.886	0.927	4.173	0.886	5.986	3.320	2.666	0.963	4.587	0.964	6.514	3.770	2.744
North Stonington	0.046	0.096	0.009	0.151	-	0.151	0.046	0.120	0.011	0.177	-	0.177	0.046	0.120	0.011	0.177	-	0.177	0.046	0.120	0.011	0.177	-	0.177
Norwich	1.939	1.239	0.275	3.454	-	3.454	2.120	1.359	0.305	3.783	-	3.783	2.321	1.537	0.327	4.185	-	4.185	2.736	1.557	0.334	4.627	-	4.627
Plainfield	0.281	0.187	0.094	0.562	-	0.562	0.288	0.158	0.078	0.524	-	0.524	0.302	0.160	0.071	0.534	-	0.534	0.314	0.165	0.060	0.540	-	0.540
Pomfret	0.070	0.022	-	0.092	-	0.092	0.073	0.023	-	0.096	-	0.096	0.073	0.023	-	0.096	-	0.096	0.073	0.024	-	0.097	-	0.097
Preston	0.108	0.339	0.031	0.478	-	0.478	0.109	0.568	0.052	0.729	-	0.729	0.116	0.942	0.086	1.144	-	1.144	0.116	0.989	0.091	1.196	-	1.196
Putnam	0.424	0.469	0.074	0.967	-	0.967	0.446	0.473	0.076	0.995	-	0.995	0.459	0.489	0.077	1.025	-	1.025	0.450	0.480	0.075	1.005	-	1.005
Salem	0.018	0.049	-	0.067	-	0.067	0.018	0.049	-	0.067	-	0.067	0.018	0.049	-	0.067	-	0.067	0.018	0.049	-	0.067	-	0.067
Scotland	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005
Sprague	0.035	0.025	0.006	0.066	-	0.066	0.048	0.015	0.006	0.070	-	0.070	0.049	0.015	0.006	0.071	-	0.071	0.052	0.015	0.006	0.074	-	0.074
Sterling	0.031	0.179	-	0.210	-	0.210	0.034	0.150	0.029	0.214	-	0.214	0.											

Table 3-6: Existing and Projected Residential Service Population by ESA Holder

ESA Holder	2015-2016 Total Residential Service Population	2023 Total Residential Service Population	2030 Total Residential Service Population	2060 Total Residential Service Population
Aquarion Water Company	14,249	14,886	15,381	16,680
Colchester Sewer & Water Commission	5,945	6,126	6,644	7,671
Connecticut Water Company	17,901	18,360	18,806	19,728
East Lyme Water & Sewer Commission	15,245	15,567	16,020	20,503
ESA Unassigned	-	-	-	-
Groton Long Point Association	2,400	2,400	2,400	2,400
Groton Utilities	28,385	28,685	29,385	30,385
Jewett City Water Company	7,306	7,680	7,680	7,680
Ledyard WPCA	6,831	7,306	7,481	7,481
Montville WPCA	6,215	6,348	7,015	11,952
New London Dept. of Public Utilities	28,025	29,581	30,885	32,094
Noank Fire District	1,947	1,970	1,970	1,970
Norwich Public Utilities	39,842	45,773	49,006	55,127
Putnam WPCA	7,444	7,811	8,023	8,189
Southeastern Connecticut Water Authority	5,732	5,771	5,852	5,852
Sprague Water & Sewer Authority	1,058	1,042	1,060	1,114
Sterling WPCA	448	490	490	490
Town of Franklin	-	-	-	-
Town of Lebanon	913	913	929	929
Town of North Stonington	2,309	2,309	2,309	2,309
Town of Preston	1,324	1,334	1,367	1,367
Town of Stonington	4,872	4,872	4,872	4,872
Waterford Utilities Commission	17,042	16,980	17,180	17,180
Windham Water Works	19,224	21,356	23,726	26,866
TOTAL	234,657	247,560	258,481	282,839

Notes: Residential Service Population in table are for only those areas in Eastern PWSMA.

Data summarized from Tables B-3 through B-6 in Appendix B with additions from Tables B-1 and B-2 in Appendix B and represents the most current data available from water utilities, WSPs, or DPH records

As ESA holders are likely to be responsible for providing water service to residents should a smaller satellite system not operated by the ESA holder be unable to provide adequate technical, managerial, and financial capacity, these projections include all systems within the outermost ESA boundary or boundaries of the ESA holder and may include satellite systems owned and operated by another ESA holder. For example, the total residential service population figure of 2,309 for the Town of North Stonington includes the SCWA satellite systems and other community systems within North Stonington which are within the outermost boundary of the Town of North Stonington ESA. In addition, these projections incorporate the analysis for the growth of new CWSs in Appendix B.

Existing and projected demands for residential, non-residential, unaccounted-for water, and ADD for each recommended or approved ESA holder are presented in Table 3-7. These include all community, NTNC, and TNC systems within each ESA boundary. Similar to Table 3-6, this table is specific to the outermost ESA boundary or boundaries of the ESA holder and may include satellite systems owned and operated by another ESA holder. For example, the total current system demand of 0.151 mgd within the outermost ESA of the Town of North Stonington includes the demands for all of the SCWA satellite systems, other community systems, and non-community water systems within the ESA boundary. Similar to Table 3-5, this table also includes the total sales to other utilities that occur within that ESA boundary in order to avoid double-counting the sales of water which occur. For example, sales by Groton Utilities to other systems (in other ESAs) currently total 1.399 mgd.

These projections are based on existing utility planning efforts and do not necessarily take into account any future connections which could be gained by potential projects identified in this report, with the exception that they include the residential and non-residential demands for the growth of new community and non-community water systems in Appendix B.

3.5 Public Water System Population and Demand Projections

Public water system demand projections are presented in Section 3.5 in comparison to existing available water. Such comparison is performed in order to provide a baseline for determination of future water supply needs in the region. Potential subtractions to available water are discussed beginning in Section 3.6.

3.5.1 Existing and Projected Service Population, Demands, and Available Water to Meet ADD

Existing and projected population; demands for residential, non-residential, unaccounted-for water, and ADD; and available water for each CWS are presented in Appended Tables 1, 2, 3, and 4 for current conditions, the 5-year planning horizon, the 20-year planning horizon, and the 50-year planning horizon, respectively. These projections are based on existing utility planning efforts and do not necessarily take into account any future service connections which could be gained by potential interconnection projects identified in this report.

Projections for non-community water systems are not presented herein, although they can be found in the tables in Appendix B. Note however that the vast majority, if not all, of non-community systems in the Eastern PWSMA are not anticipated to have increased water demands over the 50-year planning period.

Table 3-7: Existing and Projected ADD for Exclusive Service Areas by ESA Holder (mgd)

ESA Holder	Current Demands (2015-2016)						5-Year Projected Demands (2023)						20-Year Projected Demands (2030)						50-Year Projected Demands (2060)					
	Residential Demand	Non-Residential Demand	Unaccounted-for Water	Total ADD	Water Sold to Other Systems	System ADD	Residential Demand	Non-Residential Demand	Unaccounted-for Water	Total ADD	Water Sold to Other Systems	System ADD	Residential Demand	Non-Residential Demand	Unaccounted-for Water	Total ADD	Water Sold to Other Systems	System ADD	Residential Demand	Non-Residential Demand	Unaccounted-for Water	Total ADD	Water Sold to Other Systems	System ADD
Aquarion Water Company	0.790	0.697	0.216	1.703	0.050	1.653	0.801	0.714	0.203	1.718	0.050	1.668	0.831	0.734	0.212	1.777	0.050	1.727	0.909	0.786	0.234	1.929	0.050	1.879
Colchester Sewer & Water Commission	0.275	0.131	0.003	0.409	-	0.409	0.287	0.202	0.038	0.527	-	0.527	0.311	0.279	0.057	0.647	-	0.647	0.357	0.491	0.104	0.952	-	0.952
Connecticut Water Company	1.093	0.957	0.241	2.291	0.001	2.290	1.135	0.917	0.207	2.260	-	2.260	1.170	0.936	0.205	2.311	-	2.311	1.227	0.983	0.203	2.413	-	2.413
East Lyme Water & Sewer Commission	0.786	0.762	0.272	1.819	-	1.819	0.895	0.762	0.222	1.879	-	1.879	1.050	0.972	0.272	2.293	-	2.293	1.333	1.412	0.369	3.114	-	3.114
ESI Unassigned	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005	-	0.005
Groton Long Point Association	0.100	0.020	-	0.120	-	0.120	0.110	0.020	-	0.130	-	0.130	0.115	0.020	-	0.135	-	0.135	0.120	0.020	-	0.140	-	0.140
Groton Utilities	0.964	4.791	0.010	5.765	1.399	4.366	0.974	5.073	0.010	6.057	1.927	4.130	1.004	5.453	0.010	6.467	2.268	4.199	1.054	6.163	0.010	7.227	2.967	4.260
Jewett City Water Company	0.264	0.190	0.096	0.550	-	0.550	0.292	0.191	0.054	0.537	-	0.537	0.292	0.192	0.054	0.538	-	0.538	0.292	0.192	0.054	0.539	-	0.539
Ledyard WPCA	0.376	1.189	0.165	1.730	0.018	1.713	0.409	1.278	0.188	1.876	0.050	1.826	0.433	1.582	0.234	2.250	0.050	2.200	0.445	1.582	0.236	2.263	0.050	2.213
Montville WPCA	0.495	1.127	0.099	1.721	0.195	1.526	0.515	1.406	0.107	2.028	0.245	1.783	0.568	1.636	0.134	2.338	0.267	2.071	0.804	1.958	0.270	3.032	0.317	2.715
New London Dept. of Public Utilities	0.676	3.967	0.806	5.449	1.900	3.549	0.887	4.213	0.886	5.986	3.100	2.886	0.927	4.173	0.886	5.986	3.320	2.666	0.963	4.587	0.964	6.514	3.770	2.744
Noank Fire District	0.168	0.025	0.005	0.198	-	0.198	0.170	0.025	0.005	0.200	-	0.200	0.170	0.025	0.005	0.200	-	0.200	0.170	0.025	0.005	0.200	-	0.200
Norwich Public Utilities	2.056	2.227	0.371	4.655	0.450	4.205	2.397	2.749	0.444	5.590	0.450	5.140	2.605	4.070	0.568	7.242	0.450	6.792	3.034	4.186	0.591	7.811	0.450	7.361
Putnam WPCA	0.424	0.469	0.074	0.967	-	0.967	0.446	0.473	0.076	0.995	-	0.995	0.459	0.489	0.077	1.025	-	1.025	0.450	0.480	0.075	1.005	-	1.005
Southeastern Connecticut Water Authority	0.277	0.092	0.010	0.379	-	0.379	0.280	0.096	0.011	0.387	-	0.387	0.283	0.100	0.012	0.395	-	0.395	0.283	0.100	0.012	0.395	-	0.395
Sprague Water & Sewer Authority	0.035	0.025	0.006	0.066	-	0.066	0.048	0.015	0.006	0.070	-	0.070	0.049	0.015	0.006	0.071	-	0.071	0.052	0.015	0.006	0.074	-	0.074
Sterling WPCA	0.031	0.179	-	0.210	-	0.210	0.034	0.150	0.029	0.214	-	0.214	0.034	0.151	0.029	0.214	-	0.214	0.034	0.152	0.029	0.215	-	0.215
Town of Franklin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Town of Lebanon	0.030	0.051	0.001	0.082	-	0.082	0.031	0.051	0.001	0.083	-	0.083	0.032	0.051	0.001	0.084	-	0.084	0.032	0.051	0.001	0.084	-	0.084
Town of North Stonington	0.046	0.096	0.009	0.151	-	0.151	0.046	0.120	0.011	0.177	-	0.177	0.046	0.120	0.011	0.177	-	0.177	0.046	0.120	0.011	0.177	-	0.177
Town of Preston	0.090	0.019	0.002	0.110	-	0.110	0.090	0.038	0.004	0.132	-	0.132	0.092	0.062	0.006	0.160	-	0.160	0.092	0.109	0.010	0.211	-	0.211
Town of Stonington	0.369	0.102	0.046	0.517	-	0.517	0.369	0.102	0.046	0.517	-	0.517	0.369	0.102	0.046	0.517	-	0.517	0.369	0.102	0.046	0.517	-	0.517
Waterford Utilities Commission	0.995	0.723	0.257	1.974	-	1.974	1.022	1.464	0.429	2.915	-	2.915	1.034	1.640	0.462	3.135	-	3.135	1.034	2.023	0.528	3.585	-	3.585
Windham Water Works	1.084	0.380	0.252	1.715	-	1.715	1.139	0.721	0.261	2.122	-	2.122	1.261	0.890	0.306	2.456	-	2.456	1.458	0.894	0.318	2.670	-	2.670
TOTAL	11.425	18.223	2.938	32.586	4.013	28.573	12.379	20.785	3.240	36.404	5.822	30.582	13.134	23.697	3.592	40.423	6.405	34.018	14.558	26.436	4.079	45.072	7.604	37.468

Notes: Demands in table are for only those areas in Eastern PWSMA.

Data summarized from Tables B-3 through B-6 in Appendix B with additions from Tables B-1 and B-2 in Appendix B and represents the most current data available from water utilities, water supply plans, or DPH records

Total public water supply demand for CWSs is expected to increase 29% over existing conditions from current demands of 27.842 mgd to 35.935 mgd in 2060. Residential water demand is projected to increase by 21% from current demands of 11.425 mgd to 13.783 mgd in 2060. Non-residential demands (excluding sales) on CWSs are expected to increase 48% over existing conditions from current demands of 14.554 mgd to 21.598 mgd in 2060.

3.5.2 Deficits in Available Water to Meet ADD

Current and 5-Year Planning Horizon Deficits in Available Water to Meet ADD

Two systems are currently listed as having an existing deficit of available water to meet ADD in Appended Table 1. These include the following systems, with the reason for the deficit provided:

- Classee Water System – Latimer Point (Stonington): Deficit of 0.005 mgd; available water from AWC does not appear to be sufficient as sale of excess water permit is only for 0.006 mgd; and
- Fall Brook Mobile Home Park (Killingly): Deficit of 0.002 mgd; reported available water from wells insufficient for 75 gpcd usage estimate.

Out of the two systems showing deficits, one is for a consecutive system where sufficient water does not appear to be guaranteed by contract, and the other is for a well system where the reported available water was less than ADD. It is recognized that the data utilized in this report may be out of date for these small community systems. Neither system is expected to expand, so the same deficits are carried in each planning horizon.

A variety of water conservation methods may be utilized to reduce water demand as discussed in Section 2.4. The *State Water Plan* (January 2018) suggests that current regulations and passive phasing out of less efficient household fixtures could reduce residential demand by 10 gpcd, and even up to 20 gpcd if active water conservation and water efficiency efforts are pursued. For the purposes of this planning document, passive water conservation measures are applied to CWSs to demonstrate the expected effect of passive conservation measures in the region, along with active measures conducted by certain utilities. CWSs have the greatest chance of conducting trackable water conservation and water efficiency measures, as limited data is available for non-community water systems. The following assumptions were made to determine the potential water conservation benefits to each system:

- For systems where residential gpcd was above 50 gpcd, it was assumed that additional water conservation savings was possible. A residential water savings of 2 gpcd was assigned for the 5-year planning horizon, 6 gpcd for the 20-year planning horizon, and 10 gpcd for the 50-year planning horizon to represent passive water conservation savings.
- For systems where residential gpcd was above (but close to) 50 gpcd, a pro-rated water conservation savings was applied such that the residential gpcd did not fall below 50 gpcd.
- For systems where unaccounted for water is above 15%, it was assumed that utilities will be performing improvements (meter replacement, leak detection and main replacement, improved water auditing, etc.) to reduce unaccounted-for water. Unaccounted-for water was reduced to 15% of system demand (demands not including sales to other utilities). No adjustment to unaccounted-for water was made for systems with unaccounted-for water percentages of 15% or below.

Overall, the water conservation measures above are relatively modest compared to the types of measures that could be performed to greatly curtail use, and it is recognized that for some systems additional water conservation measures would be appropriate. Nevertheless, when these water conservation measures were assigned to the projections for the 5-year, 20-year, and 50-year planning horizons, the result was reduced water demand projections for several systems. The following sections discuss the projections for each planning horizon and the potential reduction in demand that could potentially be achieved by the water conservation measures discussed above.

No additional systems are identified as having a projected deficit in available water to meet ADD in the 5-year planning horizon (Appended Table 2). As noted on Appended Table 2, the regional ADD for the community systems totals 29.596 mgd for the 5-year planning horizon. Future water conservation efforts described above would reduce this demand to 29.257 mgd, a savings of 0.339 mgd region-wide or 1.1% through 2023.

20-Year Planning Horizon Deficits in Available Water to Meet ADD

The following systems are identified as having a projected deficit in available water to meet ADD in the 20-year planning horizon (Appended Table 3). These include the following systems, with the reason for the deficit provided:

- Classe Water System – Latimer Point (Stonington): Deficit of 0.005 mgd; available water from AWC does not appear to be sufficient as sale of excess water permit is only for 0.006 mgd;
- Fall Brook Mobile Home Park (Killingly): Deficit of 0.002 mgd; reported available water from wells insufficient for 75 gpcd usage estimate;
- NPU (Bozrah, Franklin, Lebanon, Lisbon, Montville, Norwich, Preston): Deficit of 0.630 mgd; available water not sufficient to meet projected demands; and
- Preston Plains Water Company (Preston): Deficit of 0.026 mgd; available water not sufficient to meet projected demands.

In addition to the two systems described above, two additional systems have projected ADD which will exceed currently available water in the 20-year planning horizon. Each of these systems has prepared a WSP which includes an analysis of potential future sources of supply.

As noted on Appended Table 3, the regional ADD for the community systems totals 32.893 mgd for the 20-year planning horizon. Future water conservation efforts described above would reduce this demand to 32.233 mgd, a savings of 0.660 mgd region-wide or 2.0% through 2030.

50-Year Planning Horizon Deficits in Available Water to Meet ADD

The following systems are identified as having a projected deficit in available water to meet ADD in the 50-year planning horizon (Appended Table 4). These include the following systems, with the reason for the deficit provided:

- Classe Water System – Latimer Point (Stonington): Deficit of 0.005 mgd; available water from AWC does not appear to be sufficient as sale of excess water permit is only for 0.006 mgd;
- Colchester Water & Sewer Commission (Colchester): Deficit of 0.133 mgd; available water not sufficient to meet projected demands;
- East Lyme Water & Sewer Commission (East Lyme): Deficit of 0.604 mgd; available water not sufficient to meet projected demands;

- Fall Brook Mobile Home Park (Killingly): Deficit of 0.002 mgd; reported available water from wells insufficient for 75 gpcd usage estimate;
- NPU (Bozrah, Franklin, Lebanon, Lisbon, Montville, Norwich, Preston): Deficit of 0.912 mgd; available water not sufficient to meet projected demands; and
- Preston Plains Water Company (Preston): Deficit of 0.078 mgd; available water not sufficient to meet projected demands.

In addition to the four systems described for the 20-year planning horizon, the projected ADD for two additional systems will exceed currently available water in the 50-year planning horizon. These systems have also prepared a WSP which includes an analysis of potential future sources of supply.

As noted on Appended Table 4, the regional ADD for the community systems totals 35.935 mgd for the 50-year planning horizon. Future water conservation efforts described above would reduce this demand to 34.909 mgd, a savings of 1.026 mgd region-wide or 2.9% through 2060. Methods to address the deficits identified in the 5-year, 20-year and 50-year planning horizons are discussed in Section 3.7.

3.5.3 Existing and Projected Service Population, Demands, and Available Water to Meet MMADD

MMADD, or the highest ADD demand during any one calendar month of the year, is typically calculated and published for larger systems which submit WSPs. Table 3-8 presents a summary of existing and projected MMADD for the large CWSs, based on both the standard projections above as well as the projections adjusted for water conservation measures. On average, the existing and projected peaking factor for MMADD (the MMADD divided by ADD) for the large CWSs in the region is 1.3, and ranges from 1.1 to 1.8 for most large systems. Projected available water supply deficits for meeting MMADD are discussed in the following section.

3.5.4 Deficits in Available Water to Meet MMADD

Currently available water is compared to existing and projected MMADD for large CWSs in Table 3-9a. Recall from Section 2.3 that CT DPH recently developed forms to be utilized for calculation of available water that no longer allow previous guidance regarding water treatment plant capacity or peaking ratios from safe yield studies to be utilized. Therefore, several systems which are reliant on surface water supplies are shown (on paper) as having low margins of safety to meet MMADD, even though water is accessible by the system.

For the purposes of the remaining discussion:

- Tables with the suffix “a” represent unaltered projections provided by utilities, taken from WSPs, or otherwise developed per Appendix B;
- Tables with the suffix “b” alter the projections with passive water conservation measures described in Section 3.5.2; and
- Tables with the suffix “c” include both the passive water conservation measures and adjustments to available water for meeting MMADD described in this section.

Table 3-8: Existing and Projected MMADD (mgd)

Large Community Water System	2015-2016			2015-2016			Peaking Factor			2023 Total			2023		2030 Total			2030		2060 Total		
	Total ADD	MMADD		Total ADD	Projected Peaking Factor	2023 MMADD	ADD with Water Conservation	MMADD with Water Conservation		2030 Total ADD	Projected Peaking Factor	2030 MMADD	ADD with Water Conservation	MMADD with Water Conservation		2060 Total ADD	Projected Peaking Factor	2060 MMADD	ADD with Water Conservation	MMADD with Water Conservation		
Aquarion Water Co of CT-Mystic	1.336	2.062	1.54	1.344	1.43	1.922	1.320	1.888		1.403	1.43	2.006	1.361	1.946		1.554	1.43	2.223	1.499	2.144		
Colchester Sewer & Water Commission	0.337	0.374	1.11	0.455	1.10	0.500	0.455	0.500		0.575	1.10	0.632	0.575	0.632		0.880	1.10	0.968	0.880	0.968		
CTWC - Crystal System	1.181	1.544	1.31	1.174	1.21	1.421	1.159	1.403		1.211	1.21	1.465	1.164	1.408		1.302	1.21	1.576	1.218	1.473		
CTWC - Gallup System	0.388	0.447	1.15	0.357	1.14	0.407	0.341	0.388		0.361	1.14	0.411	0.352	0.401		0.362	1.14	0.412	0.362	0.412		
CTWC - Plainfield System	0.135	0.172	1.27	0.129	1.11	0.143	0.129	0.143		0.135	1.11	0.149	0.135	0.149		0.140	1.11	0.155	0.140	0.155		
CTWC - Thompson System	0.129	0.153	1.19	0.128	1.12	0.144	0.126	0.141		0.132	1.12	0.148	0.124	0.139		0.137	1.12	0.154	0.126	0.141		
East Lyme Water & Sewer Commission	1.810	2.290	1.27	1.871	1.23	2.301	1.839	2.263		2.284	1.23	2.810	2.188	2.691		3.105	1.23	3.819	2.900	3.567		
Groton Long Point Association	0.120	0.220	1.83	0.130	1.83	0.238	0.130	0.238		0.135	1.83	0.247	0.135	0.247		0.140	1.83	0.256	0.140	0.256		
Groton Utilities	5.758	7.520	1.31	6.050	1.24	7.502	6.050	7.502		6.460	1.24	8.010	6.460	8.010		7.220	1.24	8.953	7.220	8.953		
Jewett City Water Company	0.470	0.532	1.13	0.430	1.17	0.503	0.430	0.503		0.430	1.17	0.503	0.430	0.503		0.430	1.17	0.503	0.430	0.503		
Ledyard WPCA - Ledyard Center	0.135	0.267	1.98	0.137	1.24	0.169	0.137	0.169		0.149	1.24	0.185	0.149	0.185		0.149	1.24	0.185	0.149	0.185		
Ledyard WPCA, Gales Ferry System	0.166	0.218	1.32	0.178	1.24	0.220	0.178	0.220		0.191	1.24	0.237	0.191	0.237		0.191	1.24	0.237	0.191	0.237		
Mashantucket Pequot Tribal Nation	1.188	1.620	1.36	1.346	1.37	1.844	1.345	1.843		1.694	1.37	2.321	1.692	2.318		1.707	1.37	2.339	1.704	2.334		
Mohegan Tribal Utility Authority	0.643	0.831	1.29	0.693	1.31	0.908	0.693	0.908		0.715	1.31	0.936	0.714	0.935		0.765	1.31	1.002	0.764	1.000		
Montville Water Supply	0.667	0.963	1.44	0.924	1.15	1.066	0.918	1.059		1.212	1.22	1.485	1.190	1.458		1.856	1.30	2.417	1.770	2.305		
New London Dept. of Public Utilities	5.449	6.970	1.28	5.986	1.31	7.842	5.986	7.842		5.986	1.31	7.842	5.986	7.842		6.514	1.31	8.533	6.514	8.533		
Noank Fire District	0.198	0.372	1.88	0.200	1.81	0.362	0.196	0.355		0.200	1.81	0.362	0.188	0.341		0.200	1.81	0.362	0.180	0.326		
Norwich Public Utilities	4.584	5.570	1.22	5.442	1.30	7.070	5.352	6.954		6.960	1.30	9.020	6.865	8.896		7.242	1.30	9.390	7.142	9.260		
Putnam Water Pollution Control Authority	0.960	1.140	1.19	0.970	1.06	1.030	0.955	1.014		1.000	1.06	1.060	0.954	1.011		0.980	1.10	1.080	0.941	1.037		
SCWA, Mohegan Division	0.070	0.083	1.19	0.070	1.19	0.083	0.070	0.083		0.070	1.19	0.083	0.070	0.083		0.070	1.19	0.083	0.070	0.083		
SCWA, Montville Division (Mtv)	0.088	0.109	1.24	0.088	1.24	0.109	0.088	0.109		0.088	1.24	0.109	0.088	0.109		0.088	1.24	0.109	0.088	0.109		
SCWA, North Stonington Division (Nst)	0.049	0.056	1.14	0.049	1.58	0.077	0.049	0.077		0.049	1.58	0.077	0.049	0.077		0.049	1.58	0.077	0.049	0.077		
SCWA, Tower-Ferry View Division	0.265	0.348	1.31	0.265	1.31	0.347	0.223	0.292		0.265	1.31	0.347	0.212	0.278		0.265	1.31	0.347	0.202	0.265		
Sprague Water & Sewer Authority	0.061	0.072	1.18	0.064	1.29	0.082	0.064	0.082		0.065	1.29	0.084	0.065	0.084		0.068	1.29	0.088	0.068	0.088		
Waterford Utilities Commission	1.900	2.430	1.28	3.100	1.25	3.880	3.066	3.838		3.320	1.25	4.150	3.218	4.023		3.770	1.25	4.710	3.600	4.498		
Westerly Water Department	0.482	NR	NR	0.482	NR	NR	0.473	NR		0.482	NR	NR	0.455	NR		0.482	NR	NR	0.437	NR		
Windham Water Works	1.929	2.226	1.15	1.965	1.19	2.338	1.942	2.311		2.298	1.19	2.735	2.272	2.704		2.393	1.19	2.848	2.365	2.814		
AVERAGE				1.33			1.29					1.29					1.29				-	

Note: Peaking factor data not available for MMADD for Westerly Water Department.

Windham Water Works demands only for areas in Eastern PWSMA.

Data represents the most current data available from water utilities or water supply plans, projected forward if necessary per discussion in Appendix B.

The combined MOS (MMADD divided by available water) for large CWSs in the region is expected to decline from the current value of 1.22 to being less than the recommended value of 1.15 in 2023, and slightly less than 1.00 in 2030. The regional available water deficit for large CWSs to meet MMADD is 0.154 mgd in 2030 and 5.564 mgd in 2060. Several systems are showing deficits in available water which are regionally significant sooner than 2060. Some of these systems are reservoir systems wherein available water may be further reduced by releases required by the Streamflow Standards and Regulations, but one (Noank Fire District) is a consecutive system affected by the strict interpretation of available water. These reductions are discussed in Section 3.6.

Table 3-9b depicts existing and projected MMADD for large CWSs after adjusting for the water conservation measures discussed in Section 3.5.2. The water conservation measures greatly improve MOS in the region, with the current value of 1.22 declining to less than 1.15 (but still above 1.00) in 2023, declining to slightly above 1.00 in 2030, and declining to 0.90 in 2060. Several large community systems continue to show regionally-significant deficits sooner than 2060, but the overall need is mitigated by the water conservation measures. The projected deficit of available water to meet MMADD is only 4.464 mgd in 2060 for the large community systems, a significant improvement over the 5.564 mgd projected for 2060 above. The use of targeted water conservation and water efficiency measures is expected to further reduce the projected deficits in the region.

Additionally, a review was conducted of available water calculations to determine how many systems in the Eastern region would be affected by DPH's formalized available water calculation. Based on a review of water supply planning data, it appears that only available water in the AWC – Mystic System are immediately affected in the region, as that utility was previously using 2.43 mgd (0.43 mgd higher than available water for ADD representing a measure of treatment plant capacity) as available water to calculate MOS for MMADD.

One potential pathway forward for addressing the loss of available water to meet MMADD for reservoir systems is to utilize the maximum month peaking factor for withdrawals in the surface water safe yield model. The variation in monthly withdrawals is required to be modeled as part of the safe yield methodology for reservoir systems, such that the resulting safe yield value determined by the iterative modeling is inherently linked to a peaking factor for modeled withdrawals. For other systems, available water to meet MMADD may be increased because of seasonal wells which are activated, or because interconnection contracts allow for a higher volume to be delivered during the maximum month as long as the annual average is below a certain threshold. Each of these are suggested pathways forward towards generating guidance which would resolve the difference (on paper) between water actually available to be used versus the water available as defined by a strict interpretation of the regulations. It is recognized that other solutions may also be appropriate for use, and the WUCC should continue to work with DPH on this issue.

Table 3-9c depicts existing and projected MMADD for large CWSs reliant on reservoir supplies after adjusting for water conservation measures discussed above. In addition, the potential total available water to meet MMADD is increased based on the potential guidance discussed above, as appropriate. After accounting for potential available water guidance, the projected deficits for New London Department of Public Utilities and NPU are greatly reduced from the values in Table 3-9a and Table 3-9b. Based on the reduction in the projected deficits, further consideration of the applicability of the available water calculation to MOS for MMADD appears warranted.

Table 3-9a: System Margin of Safety to Meet MMADD

Large Community Water System	2015-2016				2015-2016				2023				2030				2060			
	Total Available Water	2015 MMADD	2016 MMADD	2015 MOS for MMADD	2016 MOS for MMADD	Surplus / Deficit of Available Water	2023 Total Available Water	2023 MMADD	2023 MOS for MMADD	Surplus / Deficit of Available Water	2030 Total Available Water	2030 MMADD	2030 MOS for MMADD	Surplus / Deficit of Available Water	2060 Total Available Water	2060 MMADD	2060 MOS for MMADD	Surplus / Deficit of Available Water		
Aquarion Water Co of CT-Mystic	2.108	2.062	1.02	0.046	2.108	1.922	1.10	0.186	2.108	2.006	1.05	0.102	2.108	2.223	0.95	(0.115)				
Colchester Sewer & Water Commission	0.746	0.374	2.00	0.373	0.746	0.500	1.49	0.246	0.746	0.632	1.18	0.114	0.746	0.968	0.77	(0.221)				
CTWC - Crystal System	2.490	1.544	1.61	0.946	2.490	1.421	1.75	1.069	2.490	1.465	1.70	1.025	2.490	1.576	1.58	0.914				
CTWC - Gallup System	0.862	0.447	1.93	0.415	0.862	0.407	2.12	0.455	0.862	0.411	2.10	0.451	0.862	0.412	2.09	0.450				
CTWC - Plainfield System	0.750	0.172	4.36	0.578	0.750	0.143	5.24	0.607	0.750	0.149	5.02	0.601	0.750	0.155	4.84	0.595				
CTWC - Thompson System	0.387	0.153	2.53	0.234	0.387	0.144	2.69	0.244	0.387	0.148	2.62	0.240	0.387	0.154	2.52	0.233				
East Lyme Water & Sewer Commission	2.501	2.290	1.09	0.211	2.501	2.301	1.09	0.200	2.501	2.810	0.89	(0.309)	2.501	3.819	0.65	(1.318)				
Groton Long Point Association	0.345	0.220	1.57	0.125	0.345	0.238	1.45	0.107	0.345	0.247	1.40	0.098	0.345	0.256	1.35	0.089				
Groton Utilities	12.600	7.520	1.68	5.080	12.600	7.502	1.68	5.098	12.600	8.010	1.57	4.590	12.600	8.953	1.41	3.647				
Jewett City Water Company	0.913	0.532	1.71	0.381	0.913	0.503	1.81	0.410	0.913	0.503	1.81	0.410	0.913	0.503	1.81	0.410				
Ledyard WPCA - Ledyard Center	0.350	0.267	1.31	0.083	0.350	0.169	2.07	0.181	0.350	0.185	1.89	0.165	0.350	0.185	1.89	0.165				
Ledyard WPCA, Gales Ferry System	0.250	0.218	1.15	0.032	0.250	0.220	1.13	0.030	0.250	0.237	1.05	0.013	0.250	0.237	1.05	0.013				
Mashantucket Pequot Tribal Nation	2.530	1.620	1.56	0.910	2.530	1.844	1.37	0.686	2.530	2.321	1.09	0.209	2.530	2.339	1.08	0.191				
Mohegan Tribal Utility Authority	1.450	0.831	1.74	0.619	1.450	0.908	1.60	0.542	1.450	0.936	1.55	0.514	1.450	1.002	1.45	0.448				
Montville Water Supply	1.930	0.963	2.00	0.967	1.930	1.066	1.81	0.864	1.930	1.485	1.30	0.445	1.930	2.417	0.80	(0.487)				
New London Dept. of Public Utilities	6.980	6.970	1.00	0.010	6.980	7.842	0.89	(0.862)	6.980	7.842	0.89	(0.862)	6.980	8.533	0.82	(1.553)				
Noank Fire District	0.250	0.372	0.67	(0.122)	0.250	0.362	0.69	(0.112)	0.250	0.362	0.69	(0.112)	0.250	0.362	0.69	(0.112)				
Norwich Public Utilities	6.330	5.570	1.14	0.760	6.330	7.070	0.90	(0.740)	6.330	9.020	0.70	(2.690)	6.330	9.390	0.67	(3.060)				
Putnam Water Pollution Control Authority	1.800	1.140	1.58	0.660	1.800	1.030	1.75	0.770	1.800	1.060	1.70	0.740	1.800	1.080	1.67	0.720				
SCWA, Mohegan Division	0.228	0.083	2.75	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145				
SCWA, Montville Division (Mtv)	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111				
SCWA, North Stonington Division (Nst)	0.180	0.056	3.21	0.124	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103				
SCWA, Tower-Ferry View Division	0.881	0.348	2.53	0.533	0.881	0.347	2.54	0.534	0.881	0.347	2.54	0.534	0.881	0.347	2.54	0.534				
Sprague Water & Sewer Authority	0.180	0.072	2.50	0.108	0.180	0.082	2.18	0.098	0.180	0.084	2.15	0.096	0.180	0.088	2.06	0.092				
Waterford Utilities Commission	-	2.430	-	-	-	3.880	-	-	-	4.150	-	-	-	4.710	-	-				
Westerly Water Department	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-				
Windham Water Works	-	2.226	-	-	-	2.338	-	-	-	2.735	-	-	-	2.848	-	-				
TOTAL	47.262	38.589	1.22	8.672	47.262	42.511	1.11	4.751	47.262	47.416	1.00	(0.154)	47.262	52.826	0.89	(5.564)				

Note: "Total Available Water" does not include any subtractions for commitments to other water systems, as those demands are included in the MMADD demand numbers above.

Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Westerly Water Department demands in Eastern PWSMA provided for by sources in Rhode Island. Available water is assumed to be sufficient to meet demands.

Windham Water Works demands in Eastern PWSMA provided for by sources in Central PWSMA.

Data represents the most current data available from water utilities or water supply plans, projected forward if necessary per discussion in Appendix B.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Table 3-9b: System Margin of Safety to Meet MMADD with Water Conservation

Large Community Water System	2015-2016				2015-2016				2023				2030				2060			
	2015-2016 Total Available Water	2015-2016 MMADD Water	2015-2016 MOS for MMADD	Surplus / Deficit of Available Water	2015-2016 Total Available Water	2015-2016 MMADD Water	2015-2016 MOS for MMADD	Surplus / Deficit of Available Water	2023 Total Available Water	2023 MMADD with Water Conservation	2023 MOS for MMADD	Surplus / Deficit of Available Water	2030 Total Available Water	2030 MMADD with Water Conservation	2030 MOS for MMADD	Surplus / Deficit of Available Water	2060 Total Available Water	2060 MMADD with Water Conservation	2060 MOS for MMADD	Surplus / Deficit of Available Water
Aquarion Water Co of CT-Mystic	2.108	2.062	1.02	0.046	2.108	1.888	1.12	0.220	2.108	1.946	1.08	0.162	2.108	2.144	0.98	(0.036)				
Colchester Sewer & Water Commission	0.746	0.374	2.00	0.373	0.746	0.500	1.49	0.246	0.746	0.632	1.18	0.114	0.746	0.968	0.77	(0.221)				
CTWC - Crystal System	2.490	1.544	1.61	0.946	2.490	1.403	1.78	1.087	2.490	1.408	1.77	1.082	2.490	1.473	1.69	1.017				
CTWC - Gallup System	0.862	0.447	1.93	0.415	0.862	0.388	2.22	0.474	0.862	0.401	2.15	0.461	0.862	0.412	2.09	0.450				
CTWC - Plainfield System	0.750	0.172	4.36	0.578	0.750	0.143	5.24	0.607	0.750	0.149	5.02	0.601	0.750	0.155	4.84	0.595				
CTWC - Thompson System	0.387	0.153	2.53	0.234	0.387	0.141	2.75	0.247	0.387	0.139	2.79	0.249	0.387	0.141	2.74	0.246				
East Lyme Water & Sewer Commission	2.501	2.290	1.09	0.211	2.501	2.263	1.11	0.238	2.501	2.691	0.93	(0.190)	2.501	3.567	0.70	(1.066)				
Groton Long Point Association	0.345	0.220	1.57	0.125	0.345	0.238	1.45	0.107	0.345	0.247	1.40	0.098	0.345	0.256	1.35	0.089				
Groton Utilities	12.600	7.520	1.68	5.080	12.600	7.502	1.68	5.098	12.600	8.010	1.57	4.590	12.600	8.953	1.41	3.647				
Jewett City Water Company	0.913	0.532	1.71	0.381	0.913	0.503	1.81	0.410	0.913	0.503	1.81	0.410	0.913	0.503	1.81	0.410				
Ledyard WPCA - Ledyard Center	0.350	0.267	1.31	0.083	0.350	0.169	2.07	0.181	0.350	0.185	1.89	0.165	0.350	0.185	1.89	0.165				
Ledyard WPCA, Gales Ferry System	0.250	0.218	1.15	0.032	0.250	0.220	1.13	0.030	0.250	0.237	1.05	0.013	0.250	0.237	1.05	0.013				
Mashantucket Pequot Tribal Nation	2.530	1.620	1.56	0.910	2.530	1.843	1.37	0.687	2.530	2.318	1.09	0.212	2.530	2.334	1.08	0.196				
Mohegan Tribal Utility Authority	1.450	0.831	1.74	0.619	1.450	0.908	1.60	0.542	1.450	0.935	1.55	0.515	1.450	1.000	1.45	0.450				
Montville Water Supply	1.930	0.963	2.00	0.967	1.930	1.059	1.82	0.871	1.930	1.458	1.32	0.472	1.930	2.305	0.84	(0.375)				
New London Dept. of Public Utilities	6.980	6.970	1.00	0.010	6.980	7.842	0.89	(0.862)	6.980	7.842	0.89	(0.862)	6.980	8.533	0.82	(1.553)				
Noank Fire District	0.250	0.372	0.67	(0.122)	0.250	0.355	0.70	(0.105)	0.250	0.341	0.73	(0.091)	0.250	0.326	0.77	(0.076)				
Norwich Public Utilities	6.330	5.570	1.14	0.760	6.330	6.954	0.91	(0.624)	6.330	8.896	0.71	(2.566)	6.330	9.260	0.68	(2.930)				
Putnam Water Pollution Control Authority	1.800	1.140	1.58	0.660	1.800	1.014	1.77	0.786	1.800	1.011	1.78	0.789	1.800	1.037	1.74	0.763				
SCWA, Mohegan Division	0.228	0.083	2.75	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145				
SCWA, Montville Division (Mtv)	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111				
SCWA, North Stonington Division (Nst)	0.180	0.056	3.21	0.124	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103				
SCWA, Tower-Ferry View Division	0.881	0.348	2.53	0.533	0.881	0.292	3.02	0.589	0.881	0.278	3.16	0.603	0.881	0.265	3.33	0.616				
Sprague Water & Sewer Authority	0.180	0.072	2.50	0.108	0.180	0.082	2.18	0.098	0.180	0.084	2.15	0.096	0.180	0.088	2.06	0.092				
Waterford Utilities Commission	-	2.430	-	-	-	3.838	-	-	-	4.023	-	-	-	4.498	-	-				
Westerly Water Department	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-				
Windham Water Works	-	2.226	-	-	-	2.311	-	-	-	2.704	-	-	-	2.814	-	-				
TOTAL	47.262	38.589	1.22	8.672	47.262	42.125	1.12	5.137	47.262	46.709	1.01	0.553	47.262	51.725	0.91	(4.464)				

Note: "Total Available Water" does not include any subtractions for commitments to other water systems, as those demands are included in the MMADD demand numbers above.

Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Westerly Water Department demands in Eastern PWSMA provided for by sources in Rhode Island. Available water is assumed to be sufficient to meet demands.

Windham Water Works demands in Eastern PWSMA provided for by sources in Central PWSMA.

Data represents the most current data available from water utilities or water supply plans, projected forward if necessary per discussion in Appendix B.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Table 3-9c: System Margin of Safety to Meet MMADD with Water Conservation and Available Water Guidance

Large Community Water System	Total Available Water for MMADD with Guidance	2015-2016 MMADD	2015-2016 MOS for MMADD	2015-2016 Surplus / Deficit of Available Water	2023 Total Available Water for MMADD with Guidance	2023 MMADD with Water Conservation	2023 MOS for MMADD	2023 Surplus / Deficit of Available Water	2030 Total Available Water for MMADD with Guidance	2030 MMADD with Water Conservation	2030 MOS for MMADD	2030 Surplus / Deficit of Available Water	2060 Total Available Water for MMADD with Guidance	2060 MMADD with Water Conservation	2060 MOS for MMADD	2060 Surplus / Deficit of Available Water
	2015-2016 MMADD	2015-2016 MOS for MMADD	2015-2016 Surplus / Deficit of Available Water	2023 Total Available Water for MMADD with Guidance	2023 MMADD with Water Conservation	2023 MOS for MMADD	2023 Surplus / Deficit of Available Water	2030 Total Available Water for MMADD with Guidance	2030 MMADD with Water Conservation	2030 MOS for MMADD	2030 Surplus / Deficit of Available Water	2060 Total Available Water for MMADD with Guidance	2060 MMADD with Water Conservation	2060 MOS for MMADD	2060 Surplus / Deficit of Available Water	
Aquarion Water Co of CT-Mystic	2.354	2.062	1.14	0.292	2.354	1.888	1.25	0.466	2.354	1.946	1.21	0.408	2.354	2.144	1.10	0.210
Colchester Sewer & Water Commission	0.746	0.374	2.00	0.373	0.746	0.500	1.49	0.246	0.746	0.632	1.18	0.114	0.746	0.968	0.77	(0.221)
CTWC - Crystal System	2.490	1.544	1.61	0.946	2.490	1.403	1.78	1.087	2.490	1.408	1.77	1.082	2.490	1.473	1.69	1.017
CTWC - Gallup System	0.862	0.447	1.93	0.415	0.862	0.388	2.22	0.474	0.862	0.401	2.15	0.461	0.862	0.412	2.09	0.450
CTWC - Plainfield System	0.750	0.172	4.36	0.578	0.750	0.143	5.24	0.607	0.750	0.149	5.02	0.601	0.750	0.155	4.84	0.595
CTWC - Thompson System	0.387	0.153	2.53	0.234	0.387	0.141	2.75	0.247	0.387	0.139	2.79	0.249	0.387	0.141	2.74	0.246
East Lyme Water & Sewer Commission	2.501	2.290	1.09	0.211	2.501	2.263	1.11	0.238	2.501	2.691	0.93	(0.190)	2.501	3.567	0.70	(1.066)
Groton Long Point Association	0.345	0.220	1.57	0.125	0.345	0.238	1.45	0.107	0.345	0.247	1.40	0.098	0.345	0.256	1.35	0.089
Groton Utilities	12.600	7.520	1.68	5.080	12.600	7.502	1.68	5.098	12.600	8.010	1.57	4.590	12.600	8.953	1.41	3.647
Jewett City Water Company	0.973	0.532	1.83	0.440	0.973	0.503	1.93	0.469	0.973	0.503	1.93	0.469	0.973	0.503	1.93	0.469
Ledyard WPCA - Ledyard Center	0.350	0.267	1.31	0.083	0.350	0.169	2.07	0.181	0.350	0.185	1.89	0.165	0.350	0.185	1.89	0.165
Ledyard WPCA, Gales Ferry System	0.250	0.218	1.15	0.032	0.250	0.220	1.13	0.030	0.250	0.237	1.05	0.013	0.250	0.237	1.05	0.013
Mashantucket Pequot Tribal Nation	2.530	1.620	1.56	0.910	2.530	1.843	1.37	0.687	2.530	2.318	1.09	0.212	2.530	2.334	1.08	0.196
Mohegan Tribal Utility Authority	1.450	0.831	1.74	0.619	1.450	0.908	1.60	0.542	1.450	0.935	1.55	0.515	1.450	1.000	1.45	0.450
Montville Water Supply	1.930	0.963	2.00	0.967	1.930	1.059	1.82	0.871	1.930	1.458	1.32	0.472	1.930	2.305	0.84	(0.375)
New London Dept. of Public Utilities	8.132	6.970	1.17	1.162	8.132	7.842	1.04	0.290	8.132	7.842	1.04	0.290	8.132	8.533	0.95	(0.402)
Noank Fire District	0.450	0.372	1.21	0.078	0.450	0.355	1.27	0.095	0.450	0.341	1.32	0.109	0.450	0.326	1.38	0.124
Norwich Public Utilities	6.659	5.570	1.20	1.089	6.659	6.954	0.96	(0.294)	6.659	8.896	0.75	(2.236)	6.659	9.260	0.72	(2.600)
Putnam Water Pollution Control Authority	1.800	1.140	1.58	0.660	1.800	1.014	1.77	0.786	1.800	1.011	1.78	0.789	1.800	1.037	1.74	0.763
SCWA, Mohegan Division	0.228	0.083	2.75	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145	0.228	0.083	2.74	0.145
SCWA, Montville Division (Mtv)	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111	0.220	0.109	2.02	0.111
SCWA, North Stonington Division (Nst)	0.180	0.056	3.21	0.124	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103	0.180	0.077	2.32	0.103
SCWA, Tower-Ferry View Division	0.881	0.348	2.53	0.533	0.881	0.292	3.02	0.589	0.881	0.278	3.16	0.603	0.881	0.265	3.33	0.616
Sprague Water & Sewer Authority	0.180	0.072	2.50	0.108	0.180	0.082	2.18	0.098	0.180	0.084	2.15	0.096	0.180	0.088	2.06	0.092
Waterford Utilities Commission	-	2.430	-	-	-	3.838	-	-	-	4.023	-	-	-	4.498	-	-
Westerly Water Department	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-	-	NR	NR	-
Windham Water Works	-	2.226	-	-	-	2.311	-	-	-	2.704	-	-	-	2.814	-	-
TOTAL	49.248	38.589	1.28	10.659	49.248	42.125	1.17	7.123	49.248	46.709	1.05	2.539	49.248	51.725	0.95	(2.477)

Note: "Total Available Water" does not include any subtractions for commitments to other water systems, as those demands are included in the MMADD demand numbers above.

Guidance adjustment to Total Available Water includes peaking factor for maximum month variation in safe yield studies for reservoir sources.

Groton Utilities, JCWC, and New London did not previously calculate MOS for MMADD based on treatment plant capacity with one filter being offline.

Noank Fire District contract allows up to 0.45 mgd to be purchased from Groton Utilities during the months of July through September.

Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Windham Water Works demands in Eastern PWSMA provided for by sources in Central PWSMA.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

3.6 Effect of Streamflow Standards and Regulations on Surface Water Supplies

The Streamflow Standards and Regulations became effective December 2011. The stream classification process is currently underway by the Connecticut Department of Energy and Environmental Protection (DEEP). In general, it is expected that stream segments immediately downstream of public water supply reservoirs will be classified as Class 3, requiring variable downstream releases depending upon the aquatic bioperiod. Depending on the size of the watershed that is impounded, reservoirs will need to release a different amount of water each bioperiod of the year, release a constant rate of water, or will not need to perform releases.

Stream segments in the Southeast Coastal, Pawcatuck, and Thames River major basins were finalized on October 7, 2014, and so public water supply reservoirs in these areas with a registration for withdrawals from CT DEEP will need to make releases in compliance with the Streamflow Standards and Regulations by October 7, 2024. For those systems with diversion permits, it is generally expected that any permit renewal will include, at a minimum, streamflow releases in accordance with the Streamflow Standards and Regulations.

As noted in the *Final Water Supply Assessment* (December 2016), the following systems rely partially or fully on public water supply reservoirs for public water supply, and may therefore need to make releases in accordance with the Streamflow Standards and Regulations:

- Aquarion Water Company – Mystic System;
- Groton Utilities;
- Jewett City Water Company;
- New London Department of Utilities & Waterford Utilities Commission;
- Norwich Public Utilities;
- Putnam WPCA; and
- Windham Water Works.

In addition to the above utilities, public water systems with active interconnections with any of the above utilities are also considered to be partially or fully reliant on reservoirs for their sources of supply. See Table 5-1 for a list of active interconnections in the Eastern PWSMA.

As the Streamflow Standards and Regulations include requirements for flow releases, it is expected that the safe yield calculations for reservoir systems owned and operated by the above utilities will need to be recalculated and resubmitted to DPH for approval. Reservoir safe yield calculations utilize a mass balance methodology based on a 99% or drier period of record (usually, the data from the 1960s Connecticut drought is utilized which is drier than the 99% dry period of record), but this may vary depending on the location of the system in the state. The Streamflow Standards and Regulations also include rules for reducing releases based on certain drought triggers specified in RCSA 26-141b-6 which should be incorporated into the new safe yield calculation.

To date, most utilities have not yet quantified the potential impact of the Streamflow Standards and Regulations on safe yield and available water, as the required releases will not take effect until late 2024 at the earliest in the Eastern PWSMA, and later in other areas of the state. A few utilities have quantified the impact, and some others have performed preliminary analyses downstream of their dams to determine the amount of releases that may be required above and beyond the natural flow in the

stream. Where the results of these analyses have been made available, they have been incorporated herein.

Table 3-10ab presents a brief synopsis of the above utilities and how they may be affected by the Streamflow Standards and Regulations in relation to their need for additional supply sources.

Table 3-10c provides the same analysis for MMADD assuming available water guidance becomes available in the near future. The analysis herein estimates the potential impact to safe yield (and therefore available water) for each reservoir system and is based on the following assumptions:

- For non-exempt reservoirs where analysis has not been conducted by the water utility, a safe yield decrease of 15% was assumed.
- For all non-exempt AWC reservoirs in the Mystic system, a safe yield decrease of 20% was used based on a preliminary analysis completed by AWC.
- For exempt reservoirs, no decrease in safe yield was assumed.
- For the Rearing and Growth 80% duration flow (RGQ80) between 0.10 and 0.15 cubic feet per second (cfs), inclusive, zero decrease in safe yield was assumed based on preliminary work by some water utilities with conditionally exempt reservoirs.
- For RGQ80 between 0.16 and 0.20 (inclusive), a 10% decrease in safe yield was assumed to be conservative with a figure between 0% and 15%; however, some of these may ultimately be exempt.
- For reservoir *systems*, this report assumes that the total safe yield decrease for the system equals the highest decrease of any individual reservoir (feeder or terminal). In most cases, this is 15% even if some feeder reservoirs are exempt.
- For Groton Utilities, a safe yield decrease of 5% was assumed to account for the fact that required releases from feeder reservoirs will be captured in the terminal reservoir, but that upstream releases may affect optimization of safe yield.

The Coordinated Water System Plan is a planning tool that can be used by the WUCCs to make regional decisions. It is not a detailed study of the impacts of the Streamflow Standards and Regulations, nor should it be interpreted as such. Assumptions based on best-available data are necessary to neither under-predict nor over-predict the effect of the regulations on safe yield and available water, and to set a starting point for future evaluation of releases in regards to the need for developing new sources of supply. The WUCCs encourage potentially affected water utilities to conduct system-specific studies of the impacts within the five-year planning horizon, which will facilitate future revisions of this plan.

Table 3-11a presents the adjusted surplus or deficit of available water for each public water system partially or fully reliant on reservoirs which will need to release water in accordance with the Streamflow Standards and Regulations. The AWC – Mystic, New London Department of Public Utilities, and NPU systems are all expected to have available water deficits exacerbated by the required releases. Groton Utilities will likely only have a minimal reduction in available water due to releases from upstream supply reservoirs and appears to have sufficient supply to meet ADD, MMADD, and required releases for all planning horizons.

Table 3-10ab: Reservoir Systems and Potential Available Water Reductions Due to Required Streamflow Releases (mgd)

Community Water System	Current Available Water from Surface Water Sources	Available Water from Groundwater Sources	Available Water from Interconnections	Total Available Water	Committed Water to Others	Available Water for System	Estimated Percent Decrease in Available Water from Surface Water	Estimated Percent Decrease in Available Water from Surface Water	Estimated Percent Decrease in Available Water from Surface Water	Total Available Water (2023)	Total Available Water (2030)	Total Available Water (2060)	Estimated Available Water Reduction	Potential Plan to Offset Impact
Aquarion Water Company - Mystic	1.000	1.008	0.100	2.108	0.056	2.052	0%	20%	20%	2.108	1.908	1.908	0.200	Additional use of interconnection, new source development, additional water conservation efforts
Groton Utilities	12.600	-	-	12.600	3.325	9.275	0%	5%	5%	12.600	11.970	11.970	0.630	New surface water diversions
Jewett City Water Company	0.459	0.454	-	0.913	-	0.913	0%	0%	0%	0.913	0.913	0.913	-	No expected impact
New London Department of Public Utilities & Waterford Utilities Commission	6.980	-	-	6.980	-	6.980	0%	15%	15%	6.980	5.933	5.933	1.047	New surface water diversions, dam and reservoir modifications, convert emergency interconnection to active use, additional water conservation efforts
Norwich Public Utilities	6.330	-	-	6.330	0.450	5.880	0%	15%	15%	6.330	5.381	5.381	0.950	Develop new groundwater sources, new interconnections, additional water conservation efforts
Putnam WPCA	0.539	1.261	-	1.800	-	1.800	0%	0%	0%	1.800	1.800	1.800	-	No expected impact
Windham Water Works	4.100	-	-	4.100	-	4.100	0%	0%	0%	4.100	4.100	4.100	-	No expected impact
TOTAL	27.369	1.462	0.100	28.931	3.831	25.100				34.831	32.005	32.005	2.827	

Available water from water supply plans as updated with recent utility-provided information.

Estimated percent decrease in available water due to flow releases estimated by MMI unless estimate provided by utility.

Table 3-10c: Reservoir Systems and Potential Available Water Reductions Due to Required Streamflow Releases with Available Water Guidance for MMADD (mgd)

Community Water System	Current Total Available Water from Surface Water Sources with Guidance	Available Water from Groundwater Sources	Available Water from Interconnections	Total Available Water for MMADD	Committed Water to Others	Available Water for System for MMADD	Estimated Percent Decrease in Available Water from Surface Water (2023)	Estimated Percent Decrease in Available Water from Surface Water (2030)	Estimated Percent Decrease in Available Water from Surface Water (2060)	Total Available Water for MMADD (2023)	Total Available Water for MMADD (2030)	Total Available Water for MMADD (2060)	Estimated Available Water Reduction	Potential Plan to Offset Impact
Aquarion Water Company - Mystic	1.246	1.008	0.100	2.354	0.056	2.298	0%	20%	20%	2.354	2.105	2.105	0.249	Additional use of interconnection, new source development, additional water conservation efforts
Groton Utilities	12.600	-	-	12.600	3.325	9.275	0%	5%	5%	12.600	11.970	11.970	0.630	New surface water diversions
Jewett City Water Company	0.519	0.454	-	0.973	-	0.973	0%	0%	0%	0.973	0.973	0.973	-	No expected impact
New London Department of Public Utilities & Waterford Utilities Commission	8.132	-	-	8.132	-	8.132	0%	15%	15%	8.132	6.912	6.912	1.220	New surface water diversions, dam and reservoir modifications, convert emergency interconnection to active use, additional water conservation efforts
Norwich Public Utilities	6.659	-	-	6.659	0.450	6.209	0%	15%	15%	6.659	5.660	5.660	0.999	Develop new groundwater sources, new interconnections, additional water conservation efforts
Putnam WPCA	0.539	1.261	-	1.800	-	1.800	0%	0%	0%	1.800	1.800	1.800	-	No expected impact
Windham Water Works	4.100	-	-	4.100	-	4.100	0%	0%	0%	4.100	4.100	4.100	-	No expected impact
TOTAL	29.155	1.462	0.100	30.717	3.831	26.886				36.617	33.520	33.520	3.098	

Available water from water supply plans as updated with recent utility-provided information.

Guidance adjustment to Total Available Water includes peaking factor for maximum month variation in safe yield studies for reservoir sources.

Estimated percent decrease in available water due to flow releases estimated by MMI unless estimate provided by utility.

Table 3-11a: Available Water Surplus or Deficit for Reservoir Systems Accounting for Required Streamflow Releases (mgd)

Community Water System	Current Total Total Total				2023 Surplus or 2023 Surplus /				2030 Surplus or 2030 Surplus /				2060 Surplus or 2060 Surplus /			
	Total Available Available Available	2023 Total ADD	Surplus Deficit of Available	2023 MMADD	Surplus Deficit of Available	2030 Total ADD	Surplus Deficit of Available	2030 MMADD	Surplus Deficit of Available	2060 Total ADD	Surplus Deficit of Available	2060 MMADD	Surplus Deficit of Available			
	Available Water Water Water Water	(2023) (2030) (2060)	Water for ADD	MMADD	Water for ADD	MMADD	Water for ADD	MMADD	Water for ADD	MMADD	Water for ADD	MMADD				
Aquarion Water Company - Mystic	2.108 2.108 1.908 1.908	1.344	0.764	1.922 0.186	1.403	0.505	2.006 (0.098)	1.554	0.354	2.223 (0.315)						
Groton Utilities	12.600 12.600 11.970 11.970	6.050	6.550	7.502 5.098	6.460	5.510	8.010 3.960	7.220	4.750	8.953 3.017						
New London Department of Public Utilities & Waterford Utilities Commission	6.980 6.980 5.933 5.933	5.986	0.994	7.842 (0.862)	5.986	(0.053)	7.842 (1.909)	6.514	(0.581)	8.533 (2.600)						
Norwich Public Utilities	6.330 6.330 5.381 5.381	5.442	0.888	7.070 (0.740)	6.960	(1.580)	9.020 (3.640)	7.242	(1.862)	9.390 (4.010)						
TOTAL	28.018 28.018 25.192 25.192	18.822	9.196	24.336 3.682	20.809	4.382	26.878 (1.687)	22.530	2.661	29.099 (3.907)						

Available water values corrected for streamflow releases in Table 3-10a.

MMADD from Table 3-8.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Table 3-11b: Available Water Surplus or Deficit for Reservoir Systems Accounting for Required Streamflow Releases and Water Conservation (mgd)

Community Water System	Current Total Total Total				2023 Surplus or 2023 Surplus /				2030 Surplus or 2030 Surplus /				2060 Surplus or 2060 Surplus /			
	Total Available Available Available	2023 Total ADD with Water	Surplus Deficit of Available	2023 MMADD with Water	Surplus Deficit of Available	2030 Total ADD with Water	Surplus Deficit of Available	2030 MMADD with Water	Surplus Deficit of Available	2060 Total ADD with Water	Surplus Deficit of Available	2060 MMADD with Water	Surplus Deficit of Available			
	Available Water Water Water Water	(2023) (2030) (2060)	Water for Conservation ADD	MMADD	Water for Conservation ADD	MMADD	Water for Conservation ADD	MMADD	Water for Conservation ADD	MMADD	Water for Conservation ADD	MMADD				
Aquarion Water Company - Mystic	2.108 2.108 1.908 1.908	1.320	0.788	1.888 0.220	1.361	0.547	1.946 (0.038)	1.499	0.409	2.144 (0.236)						
Groton Utilities	12.600 12.600 11.970 11.970	6.050	6.550	7.502 5.098	6.460	5.510	8.010 3.960	7.220	4.750	8.953 3.017						
New London Department of Public Utilities & Waterford Utilities Commission	6.980 6.980 5.933 5.933	5.986	0.994	7.842 (0.862)	5.986	(0.053)	7.842 (1.909)	6.514	(0.581)	8.533 (2.600)						
Norwich Public Utilities	6.330 6.330 5.381 5.381	5.352	0.978	6.954 (0.624)	6.865	(1.484)	8.896 (3.515)	7.142	(1.761)	9.260 (3.879)						
TOTAL	28.018 28.018 25.192 25.192	18.708	9.310	24.185 3.833	20.671	4.520	26.693 (1.502)	22.375	2.816	28.890 (3.698)						

Available water values corrected for streamflow releases in Table 3-10b.

MMADD from Table 3-8.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Table 3-11b presents similar information to Table 3-11a, except that the demands include the reductions from the water conservation measures discussed above. Water conservation measures are anticipated to modestly reduce the overall new available water need for these systems. Table 3-11c presents similar information to Table 3-11b but adds adjustments to available water for meeting MMADD based on potential available water guidance. As the majority of projected deficits in the region appear to be related to meeting MMADD, the use of revised available water guidance would greatly reduce projected deficits for those systems required to perform releases in accordance with the Streamflow Standards and Regulations.

The Eastern WUCC is encouraged to continue monitoring streamflow release requirements and the potential effect on available water as the safe yields of reservoir systems are recalculated using the mass-balance methodology. When actual adjustments to safe yield and available water are available, the prioritization of certain interconnections or new source developments may need to occur at timelines other than those envisioned in this report. Furthermore, utilities are encouraged to check their release requirements every few years as regional hydrology equations are updated in the USGS *StreamStats* program, particularly given that climate change may result in drier summers in the future (Section 2.4.2).

3.7 Potential Solutions to Address Projected Available Water Deficits

Recall from Section 3.0 of the *Final Water Supply Assessment* (December 2016) that most of the large public water systems in the Eastern PWSMA were considering the development of new sources of supply or interconnections within or beyond the 5-year planning horizon. The new sources of supply or interconnections would be necessary to meet ADD, MMADD, or even PDD, as well as provide critical system redundancy should an existing source become temporarily unavailable. For the majority of those systems, such assessment was conducted prior to CT DPH formalizing the process for calculation of available water, which now renders the ADD and MMADD available water similar. This document does not utilize the previously informal guidance for calculation of available water for reservoir systems, such as assuming that a filter is offline under MMADD conditions.

Table 3-12a provides a summary of the available water needs in the region to meet ADD, MMADD, and potential release requirements in accordance with the Streamflow Standards and Regulations. The total new sources of available water needed are based on a MOS of 1.15. In total, approximately 13.4 mgd of new available water appears needed to meet MMADD and streamflow release requirements in the region through 2060. Table 3-12b presents the same information, only with demands adjusted for the water conservation measures discussed above. The water conservation measures reduce the total new water need in the region to 12.7 mgd to obtain a MOS of 1.15 in each system in the region through 2060.

Table 3-11c: Available Water Surplus or Deficit for Reservoir Systems Accounting for Required Streamflow Releases, Water Conservation, and Available Water Guidance (mgd)

Community Water System	Current Total Available Water	2023						2030						2060					
		Total Available Water for ADD (2023)	Total Available Water for ADD (2030)	Total Available Water for ADD (2060)	Total Available Water for MMADD (2023)	Total Available Water for MMADD (2030)	Total Available Water for MMADD (2060)	2023 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2023 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2030 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2030 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2060 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2060 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD
		2023 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2023 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2030 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2030 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2060 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2060 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2023 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation	2023 MMADD with Water Conservation	Surplus / Deficit of Available Water for MMADD	2060 Total ADD with Water Conservation	Surplus or Deficit of Available Water for Conservation
Aquarion Water Company - Mystic	2.108	2.108	1.908	1.908	2.354	2.105	2.105	1.320	0.788	1.888	0.466	1.361	0.547	1.946	0.159	1.499	0.409	2.144	(0.039)
Groton Utilities	12.600	12.600	11.970	11.970	12.600	11.970	11.970	6.050	6.550	7.502	5.098	6.460	5.510	8.010	3.960	7.220	4.750	8.953	3.017
New London Department of Public Utilities & Waterford Utilities Commission	6.980	6.980	5.933	5.933	8.132	6.912	6.912	5.986	0.994	7.842	0.290	5.986	(0.053)	7.842	(0.930)	6.514	(0.581)	8.533	(1.622)
Norwich Public Utilities	6.330	6.330	5.381	5.381	6.659	5.660	5.660	5.352	0.978	6.954	(0.295)	6.865	(1.484)	8.896	(3.236)	7.142	(1.761)	9.260	(3.600)
TOTAL	28.018	28.018	25.192	25.192	29.745	26.647	26.647	18.708	9.310	24.185	5.560	20.671	4.520	26.693	(0.046)	22.375	2.816	28.890	(2.243)

Available water values corrected for streamflow releases and potential guidance in Table 3-10c.

MMADD from Table 3-8.

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Table 3-12a: Summary of Available Water Deficits (mgd)

Community Water System	2023			2030			2060			2023			2030			2060			Potential			Total			Total		
	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet MMADD	Potential Available Water 2023	Potential Available Water 2030	Potential Available Water 2060	Total Available Water Needed 2023 MOS 1.15 in 2023	Total Available Water Needed 2030 MOS 1.15 in 2030	Total Available Water Needed 2060 MOS 1.15 in 2060	Total Available Water 2023 MOS 1.15 in 2023	Total Available Water 2030 MOS 1.15 in 2030	Total Available Water 2060 MOS 1.15 in 2060	Total New Sources Needed to Meet 2023 MOS 1.15 in 2023	Total New Sources Needed to Meet 2030 MOS 1.15 in 2030	Total New Sources Needed to Meet 2060 MOS 1.15 in 2060	Total New Sources 2023	Total New Sources 2030	Total New Sources 2060								
	2023	2030	2060	2023	2030	2060	2023	2030	2060	Water Need 2023	Water Need 2030	Water Need 2060	Water to Meet 2023	Water to Meet 2030	Water to Meet 2060	Water to Meet 2023	Water to Meet 2030	Water to Meet 2060	Water to Meet 2023	Water to Meet 2030	Water to Meet 2060	Water to Meet 2023	Water to Meet 2030	Water to Meet 2060			
Aquarion Water Company - Mystic System	-	-	-	-	0.098	0.315	-	0.098	0.315	-	2.307	2.556	-	0.399	0.648	-	-	-	-	-	-	-	-	-	-		
Classee Water System - Latimer Point	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.014	0.014	0.014	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008		
Colchester Water & Sewer Commission	-	-	0.133	-	-	0.221	-	-	0.221	-	-	-	1.112	-	-	-	-	-	-	-	-	-	-	-	-	0.366	
East Lyme Water & Sewer Commission	-	-	0.604	-	0.309	1.318	-	0.309	1.318	-	3.231	4.392	-	0.730	1.891	-	-	-	-	-	-	-	-	-	-		
Fall Brook Mobile Home Park	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009	0.009	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004		
Montville WPCA	-	-	-	-	-	0.487	-	-	0.487	-	-	2.779	-	-	-	-	-	-	-	-	-	-	-	-	0.849		
New London Dept. of Public Utilities & Waterford Utilities Commission	-	0.053	0.581	0.862	1.909	2.600	0.862	1.909	2.600	9.018	9.018	9.813	2.038	3.085	3.880	-	-	-	-	-	-	-	-	-	-		
Noank Fire District	-	-	-	0.112	0.112	0.112	0.112	0.112	0.112	0.416	0.416	0.416	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166	0.166		
Norwich Public Utilities	-	1.580	1.862	0.740	3.640	4.010	0.740	3.640	4.010	8.131	10.373	10.799	1.801	4.993	5.418	-	-	-	-	-	-	-	-	-	-		
Preston Plains Water Company	-	0.026	0.078	-	0.033	0.098	-	0.033	0.098	-	0.094	0.169	-	0.045	0.120	-	-	-	-	-	-	-	-	-	-		
TOTAL	0.007	1.665	3.265	1.722	6.108	9.169	1.722	6.108	9.169	17.587	25.462	32.059	4.016	9.429	13.351	-	-	-	-	-	-	-	-	-	-		

MMADD for small community systems based on current reported data or estimated using peaking factor of 1.3.

Deficits to meet ADD from Appended Tables 2, 3, and 4 except where adjusted by Table 3-11a.

Deficits to meet MMADD from Table 3-9a except where adjusted by Table 3-11a.

Potential available water need is the higher of the ADD or MMADD deficit for that planning horizon.

Total available water need accounts for reduction in available water due to streamflow releases.

Total new sources reflects the volume of supply needed above the available water for that planning horizon.

Surpluses and deficits initially shown at a margin of safety of 1.0 (i.e., no additional water set aside), and then upscaled to margin of safety of 1.15 for each planning horizon.

Table 3-12b: Summary of Available Water Deficits with Water Conservation (mgd)

Community Water System	2023	2030	2060	2023	2030	2060	Potential	Potential	Potential	Total	Total	Total	Total	Total	Total
	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet MMADD	Deficit in Available Water to Meet MMADD	Deficit in Available Water to Meet MMADD	Available Water Need 2023	Available Water Need 2030	Available Water Need 2060	Available Water Needed to Meet MOS 1.15 in 2023	Available Water Needed to Meet MOS 1.15 in 2030	Available Water Needed to Meet MOS 1.15 in 2060	New Sources Needed to Meet MOS 1.15 in 2023	New Sources Needed to Meet MOS 1.15 in 2030	New Sources Needed to Meet MOS 1.15 in 2060
Aquarion Water Company - Mystic System	-	-	-	-	0.038	0.236	-	0.038	0.236	-	2.237	2.465	-	0.329	0.557
Classee Water System - Latimer Point	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.014	0.014	0.014	0.008	0.008	0.008
Colchester Water & Sewer Commission	-	-	0.133	-	-	0.221	-	-	0.221	-	-	1.112	-	-	0.366
East Lyme Water & Sewer Commission	-	-	0.399	-	0.190	1.066	-	0.190	1.066	-	3.095	4.102	-	0.594	1.601
Fall Brook Mobile Home Park	0.002	0.001	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.008	0.008	0.007	0.003	0.003	0.002
Montville WPCA	-	-	-	-	-	0.375	-	-	0.375	-	-	2.651	-	-	0.721
New London Dept. of Public Utilities & Waterford Utilities Commission	-	0.053	0.581	0.862	1.909	2.600	0.862	1.909	2.600	9.018	9.018	9.813	2.038	3.085	3.880
Noank Fire District	-	-	-	0.105	0.091	0.076	0.105	0.091	0.076	0.408	0.392	0.375	0.158	0.142	0.125
Norwich Public Utilities	-	1.484	1.761	0.624	3.515	3.879	0.624	3.515	3.879	7.997	10.230	10.649	1.667	4.850	5.268
Preston Plains Water Company	-	0.026	0.078	-	0.033	0.098	-	0.033	0.098	-	0.094	0.169	-	0.045	0.120
TOTAL	0.006	1.569	2.958	1.598	5.783	8.560	1.598	5.783	8.560	17.445	25.088	31.358	3.874	9.055	12.650

MMADD for small community systems based on current reported data or estimated using peaking factor of 1.3.

Deficits to meet ADD from Appended Tables 2, 3, and 4 except where adjusted by Table 3-11b.

Deficits to meet MMADD from Table 3-9b except where adjusted by Table 3-11b.

Potential available water need is the higher of the ADD or MMADD deficit for that planning horizon.

Total available water need accounts for reduction in available water due to streamflow releases.

Total new sources reflects the volume of supply needed above the available water for that planning horizon.

Surpluses and deficits initially shown at a margin of safety of 1.0 (i.e., no additional water set aside), and then upscaled to margin of safety of 1.15 for each planning horizon.

For certain public water systems, clarification of the available water calculations would reduce the apparent need for new supply sources by properly accounting for the mechanics of the reservoir safe yield model, contractual agreements, and supplemental supplies. The calculation of safe yield for a reservoir system requires accounting for the monthly variations in demand of the public water system, such that the withdrawal from the reservoir system is already simulated as greater than ADD during certain months and less than ADD for the remaining months in the model. In other words, the simulated withdrawals are already increased in the model during certain months, with the greatest increase essentially being modeled the MMADD withdrawal. Thus, the model inherently assumes a safe yield for meeting MMADD because of the monthly variations. The use of this maximum month peaking factor is utilized herein to demonstrate the potential effect of this method on projected supply deficits. For example (as presented in Table 3-12c):

- AWC – Mystic System previously utilized an additional 0.430 mgd in its calculation of available water to meet MMADD based on treatment plant capacity. If new guidance were issued to use the maximum month peaking factor of withdrawal from the reservoir safe yield model, it would be sufficient to eliminate projected deficits for this system in 2030, with a modest amount of water projected to be needed through 2060.
- New London Department of Public Utilities & Waterford Utilities Commission did not utilize a higher value of available water to meet MMADD, but its surface water safe yield evaluation used a maximum month peaking factor of 1.165 for withdrawals. If such guidance were allowed, it would greatly reduce projected deficits for this system, and require 2.1 mgd and 2.9 mgd of new sources by 2030 and 2060 to achieve a MOS of 1.15, respectively, less than the new water need in Table 3-12b.
- NPU did not utilize a higher value of available water to meet MMADD, but its surface water safe yield evaluation used a maximum month peaking factor of 1.046 for withdrawals. If such guidance were allowed, it would slightly reduce projected deficits for this system, and require 1.3 mgd, 4.6 mgd, and 5.0 mgd of new sources by 2023, 2030 and 2060 to achieve a MOS of 1.15, respectively, slightly less than the new water need in Table 3-12b.

A change in the regulatory wording (or new guidance) to allow for more realistic methods of determining available water for meeting MMADD could mitigate the apparent need for water in several systems in the region. Assuming that a change in the regulatory wording (or new guidance) becomes available in line with the suggestion above and offsets some of the deficits to meet MMADD, the required water need in the region would be approximately 1.3 mgd through 2023, 7.3 mgd through 2030, and 11.0 mgd through 2060 to achieve a MOS of 1.15. This calculation includes estimated available water reductions for required streamflow releases and includes the passive water conservation measures described above. Some (but not all) of this need could be met through increased use of water from Groton Utilities in the regionally interconnected water system. However, other options will be necessary for those systems with needs located in other areas of the region, including targeted water conservation and water efficiency efforts in specific systems (such as those envisioned under Scenario 2 and Scenario 3 in the *State Water Plan*).

Table 3-12c: Summary of Available Water Deficits with Water Conservation and Available Water Guidance (mgd)

Community Water System	2023			2030			2060			2023			2030			2060			Potential			Total			Total				
	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet ADD	Deficit in Available Water to Meet MMADD with Guidance	Deficit in Available Water to Meet MMADD with Guidance	Deficit in Available Water to Meet MMADD with Guidance	Deficit in Available Water to Meet MMADD with Guidance	Deficit in Available Water to Meet MMADD with Guidance	Deficit in Available Water to Meet MMADD with Guidance	Total Available Water Needed to Meet 2023	Total Available Water Needed to Meet 2030	Total Available Water Needed to Meet 2060	Total Available Water in 2023	Total Available Water in 2030	Total Available Water in 2060	Total Available Water Needed to Meet 2023	Total Available Water Needed to Meet 2030	Total Available Water Needed to Meet 2060	Total New Sources Needed to Meet 2023	Total New Sources Needed to Meet 2030	Total New Sources Needed to Meet 2060	Total New Sources Needed to Meet 2023	Total New Sources Needed to Meet 2030	Total New Sources Needed to Meet 2060					
Aquarion Water Company - Mystic System	-	-	-	-	-	-	-	-	-	0.039	-	-	0.039	-	-	-	-	-	2.465	-	-	-	-	-	0.361				
Classee Water System - Latimer Point	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.014	0.014	0.014	0.014	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008			
Colchester Water & Sewer Commission	-	-	0.133	-	-	0.221	-	-	0.221	-	-	-	0.221	-	-	-	-	-	1.112	-	-	-	-	-	0.366	-	-		
East Lyme Water & Sewer Commission	-	-	0.399	-	0.190	1.066	-	0.190	1.066	-	0.190	1.066	-	3.095	4.102	-	-	-	0.594	1.601	-	-	-	-	-	-	-	-	
Fall Brook Mobile Home Park	0.002	0.001	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.008	0.008	0.007	0.007	0.007	0.007	0.003	0.003	0.002	0.003	0.003	0.002	0.003	0.002	0.002	0.002	
Montville WPCA	-	-	-	-	-	0.375	-	-	0.375	-	-	0.375	-	-	-	-	-	2.651	-	-	-	-	-	0.721	-	-			
New London Dept. of Public Utilities & Waterford Utilities Commission	-	0.053	0.581	-	0.930	1.622	-	0.930	1.622	-	9.018	9.813	-	-	2.106	2.902	-	-	-	-	-	-	-	-	-	-	-	-	
Noank Fire District	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Norwich Public Utilities	-	1.484	1.761	0.295	3.236	3.600	0.295	3.236	3.600	7.997	10.230	10.649	1.338	4.570	4.989	-	-	-	-	-	-	-	-	-	-	-	-		
Preston Plains Water Company	-	0.026	0.078	-	0.033	0.098	-	0.033	0.098	-	0.094	0.169	-	0.045	0.120	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL	0.006	1.569	2.958	0.303	4.396	7.028	0.303	4.396	7.028	8.019	22.459	30.983	1.349	7.326	11.069														

MMADD for small community systems based on current reported data or estimated using peaking factor of 1.3.

Deficits to meet ADD from Appended Tables 2, 3, and 4 except where adjusted by Table 3-11c.

Deficits to meet MMADD from Table 3-9c except where adjusted by Table 3-11c.

Potential available water need is the higher of the ADD or MMADD deficit for that planning horizon.

Total available water need accounts for reduction in available water due to streamflow releases.

Total new sources reflects the volume of supply needed above the available water for that planning horizon.

Surpluses and deficits initially shown at a margin of safety of 1.0 (i.e., no additional water set aside), and then upscaled to margin of safety of 1.15 for each planning horizon.

Table 3-13 summarizes the projected water need in the region based on projections developed under each of the three scenarios.

TABLE 3-13
Summary of Projected Water Need to Meet MMADD with a MOS of 1.15 (mgd)

Scenario	5-Year Planning Horizon (2023)	20-Year Planning Horizon (2030)	50-Year Planning Horizon (2060)
Basic Projections	4.016	9.429	13.351
With Passive Water Conservation	3.874	9.055	12.650
With Passive Water Conservation and Available Water Guidance	1.349	7.326	11.069

The following potential solutions are recommended for meeting projected water needs in each CWS projecting a deficit:

- AWC – Mystic System: Pursue targeted water conservation and water efficiency measures, secure additional supply from Groton Utilities through existing interconnection, or develop new sources of supply;
- Classe Water System – Latimer Point: Secure a higher contract limit and Sale of Excess Water Permit from AWC for its available water needs;
- Colchester Water & Sewer Commission: Consider targeted water conservation and water efficiency measures or a new source of supply if necessary over the long-term;
- East Lyme Water & Sewer Commission: Pursue targeted water conservation and water efficiency measures and a new source of supply or interconnection if necessary over the long-term;
- Fall Brook Mobile Home Park: If necessary, secure a new supply source;
- Montville WPCA: Secure additional supply from Groton Utilities through existing interconnection;
- New London Department of Public Utilities & Waterford Utilities Commission: Secure new sources of supplies and interconnections, and pursue targeted water conservation and water efficiency measures;
- Noank Fire District: Work with the WUCC and DPH to resolve available water calculation issue, or pursue higher contractual limit from Groton Utilities;
- NPU: Secure new sources of supplies and interconnections, and pursue targeted water conservation and water efficiency measures; and
- Preston Plains Water Company: Secure additional supply from MPTN through existing interconnection.

It is possible that the volume of new water projected to be needed to meet MMADD through 2060 could be found and developed for use. Nonetheless, it is not certain whether diversion permits can be

obtained for all new supply sources, so targeted water conservation and water efficiency efforts should first be considered by AWC, Colchester Water & Sewer Commission, New London & Waterford, and NPU to further lower projected demands based on the guidance in Section 2.2. Such programs could include development of rate structures that encourage conservation initiatives. Note that AWC has already completed water conservation studies for each of its systems as discussed in Section 2.2. Following Section 4.0 which discusses challenges specific to small systems, Section 5.0 and Section 7.0 of this document presents an analysis of future potential interconnections and supply sources in the region to address these water needs.



4.0 SATELLITE MANAGEMENT AND SMALL SYSTEM CHALLENGES

4.1 Satellite Management

Satellite management is defined in RCSA Section 25-33h-1(a)(10) as "management of a public water supply system by another public water system". Satellite management is common for small systems that are physically or geographically isolated from surrounding public water systems. Satellite management can be a cost-effective means of operating a small system because it takes advantage of the "economy of scale" factor that larger water suppliers can offer.

The term satellite system, while not defined in the regulations, is generally understood to mean a self-contained public water system that serves a discrete, usually small area that is not interconnected with a larger system or distribution piping network. Satellite systems typically serve a contained population, such as a condominium or apartment complex, a residential subdivision, a mobile home park, or a singular facility, such as a town hall, library, school, or business. Satellite systems may be managed by their owner (in the case of a private development) or a local government (in the case of a public facility), or they may be managed by a separate entity that owns and operates public water systems, such as a water company. It is the latter scenario that is considered satellite management. However, a better description of "satellite management" would be "satellite ownership and operation", as many entities who provide satellite management services operate under contract to an owner and management group.

Table 4-1 lists service providers who currently contract operator services to multiple public water systems that they do not own. This information is statewide and based on the most recent DPH Contract Operator List as of November 2017 and may not be complete. Some of the contract operators also own and operate their own satellite systems. Several entities provide services in the vicinity of their office location, while others are willing to perform these services statewide.

TABLE 4-1
Entities Willing to Provide Contract Operation Services to Public Water Systems

Contract Operator	Office Location
Al's Affordable Plumbing	Clinton
Aqua Compliance Specialists	Salem
Aqua Pump	Stafford
Aquarion Water Company	Bridgeport
Connecticut Water Company	Clinton
Eastern Water Solutions	Oxford
Fuss & O'Neill	Manchester
Groton Utilities	Groton
Hazardville Water Company	Enfield
Hungerfords Pump Service	North Haven
Hydro Dynamic Engineering	Southington
Jewett City Water Company	Griswold
JH Barlow Pump and Water Conditioning	Wolcott
John Findorak & Sons	Wilton

TABLE 4-1
Entities Willing to Provide Contract Operation Services to Public Water Systems

Contract Operator	Office Location
LaFramboise Well Drilling & Water Service	Thompson
Northeast Water Solutions	Exeter, RI
Southeastern Connecticut Water Authority	Ledyard
Stavens Brothers	Tolland
SUEZ	Paramus, NJ, et. al.
Tomaszek Plumbing and Heating Services	Waterford
Torrington Water Company	Torrington
VRI Environmental Services	Lagrangeville, NY
Water Systems Solutions & Design	Watertown
Water Systems Specialties	Thomaston
Weston & Sampson	Peabody, MA
Whitewater Water & Wastewater Solutions	Charlton, MA

The information presented in Table 4-2 should be used as a resource for those small system providers that are currently providing limited service in remote areas and that wish to contract out their operations. In general, the vast majority of small CWSs and NTNC systems rely on contract operators to provide technical capacity for day-to-day maintenance of public water systems. In an effort to evaluate the future need for satellite contract operations, as well as the ability and willingness of water suppliers to provide such services, the ESA providers in the region were queried. Results are presented in Table 4-2.

TABLE 4-2
Satellite Management Needs and Opportunities of ESA Providers

ESA Holder	Intend to Operate Their Own Satellite Public Water Systems	Potential Need for Contract Operation by Other Providers	Available to Operate Satellite Water Systems for Others	Satellite Systems Unlikely to Occur in ESA
Aquarion Water Company	X		X	
Colchester Sewer & Water Commission	X			
Connecticut Water Company	X		X	
East Lyme Water & Sewer Commission	X			
ESA Unassigned (Primarily CT DEEP lands)	X			
Groton Long Point Association				X
Groton Utilities	X		X	
Jewett City Water Company	X		X	
Ledyard WPCA		X^		
Montville WPCA	X			
New London Dept. of Public Utilities				X
Noank Fire District				X
Norwich Public Utilities	X			
Putnam WPCA		X*		
Southeastern Connecticut Water Authority	X		X	
Sprague Water & Sewer Authority	X			

TABLE 4-2
Satellite Management Needs and Opportunities of ESA Providers

ESA Holder	Intend to Operate Their Own Satellite Public Water Systems	Potential Need for Contract Operation by Other Providers	Available to Operate Satellite Water Systems for Others	Satellite Systems Unlikely to Occur in ESA
Sterling Water Commission		X^		
Town of Lebanon		X^		
Town of North Stonington		X		
Town of Preston		X^		
Town of Stonington		X		
Waterford Utilities Commission		X^		
Windham Water Works		X*		

*Water main extensions preferred over satellite system operation for these utilities.

[^]Currently has a contract operator for its systems. Waterford's distribution system is operated by New London per their agreement.

In general, the need for new public water systems in the region will be driven by the following conditions:

- Creating public water systems in some village centers may be necessary due to high densities and challenging lot sizes coupled with a desire for nominal economic growth. An example is Ashford, where the lack of utilities is considered to be limiting economic development;
- Creating public water systems in some village centers or neighborhoods may be necessary due to water quality concerns; and
- Developers will continue to approach local governments about new projects ranging from commercial establishments to various types of developments. Many of these will necessitate the development of new public water systems (community or non-community), particularly if local land use regulations push for dense, cluster-style developments to minimize impervious surfaces.

Because some portions of the Eastern PWSMA are rural, the need for public water service may not be able to be addressed by extension of existing public water systems. However, development of new public water systems must not be taken lightly, especially given the many small systems that are already located in the region and the fact that the creation of new systems is costly. When new public water systems are determined to be necessary, the construction of such systems is governed by the Certificate of Public Convenience and Necessity (CPCN) process codified in CGS 16-262m. This process is discussed in detail in Section 3.0 of *Final Recommended Exclusive Service Areas* (June 2017).

While specific regulations have been developed governing the minimum standards to be met for the creation of new CWSs, regulations have not yet been developed for non-community water systems. The WUCC recommends development of such regulations in order to ensure standardized and consistent development of new non-community water systems across the state.

The potential exists for many non-community systems to be consolidated and operated by an ESA holder. A dedicated source of funding is necessary to allow for the consolidation of such systems, as the cost is unlikely to be borne by a single developer or the individual systems being consolidated.

While the development of new small water systems is performed through the CPCN process, the WUCC has an important role in the creation of new water systems. Per RCSA Section 25-33h-1(k)(3), DPH requests that the WUCC recommend the creation of any new water system as opposed to developing a main extension. The Eastern WUCC recently reviewed the proposed development of a TNC system in Lebanon, noting that the location was adjacent to three other non-community systems. The Eastern WUCC therefore requested a discussion with the applicant, the ESA holder, and the additional system prior to issuing a recommendation in order to determine the feasibility of a main extension. Future reviews by the Eastern WUCC are expected to be conducted in a similar manner.

The WUCC recognizes the challenges of expanding small CWSs and non-community systems under private ownership to provide service to new properties, but encourages this to be performed when possible (see Section 6.1 for an example). As a condition of approval, new NTNC and TNC systems constructed since 2007 have been required to consolidate with a CWS once one becomes available. There are presently no regulatory mandates (short of a Consent Order or activation of a takeover proceeding) for ordering older public water systems to consolidate, and such consolidation is often expensive. A dedicated funding source for consolidation of nearby systems would therefore allow for the consolidation of small water systems whose primary business is not the conveyance of public water supply, while developers would be able to reasonably cover the cost of a site-specific water supply evaluation and cost of design as done today.

With the development of ESAs across the Eastern PWSMA, the mapping developed for the *Final Recommended Exclusive Service Areas* (June 2017) depicts the areas in which ESA holders will be responsible for providing satellite management (ownership and operation) of new CWSs. For a few ESA holders, satellite systems are unlikely to be possible or necessary due to the near saturation of the existing system within the ESA, or due to the lack of buildable area in remaining unserved areas of the ESA.

Numerous local government ESA holders who may perform satellite management have indicated a possible need for contract operation of community and NTNC systems that are located within their ESA. All of these noted local governments currently provide service to limited facilities, such as schools and town halls, or in the case of the ESA holders North Stonington and Stonington, do not currently provide service at all. Several of these local governments have entered into agreements (some formal, some informal) with other providers for satellite management.

Several of the larger municipal ESA providers (i.e. currently providing service to greater than 1,000 people) have also indicated a possible future need for satellite management. For Ledyard WPCA, contract operation is presently provided by Groton Utilities as part of the regionally interconnected water system in southeastern Connecticut. For Putnam WPCA and WWW, this is due to their general desire to connect new customers to their existing systems and not own and operate satellite systems. WWW has expressed a desire to modify its ESA in the future, if necessary, to allow another utility interested in satellite ownership to own and operate a new satellite system.

Local regulatory methods have also been used in an attempt to restrict the development of new water systems. For example, in Ledyard there is a subdivision regulation that new developments of 10 or more

lots must tie into an existing public water system if one is located within 1,000 feet. This mitigates the proliferation of new CWSs in areas nearby existing public water service.

4.2 Small System Challenges and Viability

Many of the public water systems in the Eastern PWSMA are small systems. Operational requirements such as regulatory permitting, technical assessment, system maintenance, infrastructure replacement, and water supply need require a disproportionate amount of time and money compared to the operation of a larger system. Furthermore, many such small systems are associated with developments where the water system was designed as an accessory and not the primary component. For some systems, this has resulted in limited understanding of the technical, managerial, and financial needs of those public water systems.

In particular, the lack of proper planning and/or asset management planning for many small CWSs (particularly a lack of knowledge regarding the full cost of providing a safe and reliable supply of drinking water) has resulted in systems with limited financial capacity to address public health code issues and deficiencies.

Many small systems rely on components that are beyond their useful service life. However, planning to acquire loans from the Drinking Water State Revolving Fund (DWSRF) must be done in advance, whereas during emergencies small systems need access to capital immediately and typically need to secure traditional bank funding. Additionally, the current DWSRF program administered by DPH has been identified by many utilities as being burdensome and time consuming, particularly for small system owners who may not have the staff and time to complete the forms, address DPH questions, etc.

Lack of customer meters is another problem in small water systems. When individual customers do not know or understand their water consumption figures, or the costs required to receive drinking water, the situation impedes the ability to recover true costs and discourages water conservation. Metering can be a physical challenge if apartments and condominiums are not arranged in a manner that facilitates meter installation.

Townsley Report

The Townsley Consulting Group, LLC prepared *A Review of Financial and System Viability of Connecticut's Small Community Water Systems Prepared for the State of Connecticut Public Utilities Regulatory Authority* (March 2014). The report was commissioned by the Public Utilities Regulatory Authority (PURA) in response to Section 47 of Public Act 13-298. Townsley surveyed 348 small CWSs (serving less than 1,000 people) regarding technical and financial information with a response rate of about 30% (a little over 100 systems responded). In addition, Townsley randomly selected 65 CWSs to evaluate their sanitary survey reports. Finally, Townsley also discussed the acquisition process with major investor-owned water utilities.

The Townsley study concluded that the biggest costs for small utilities were regulatory compliance (including water quality sampling) and preventative maintenance. A small number of systems appeared to be in poor condition and needing significant capital investment. Approximately one-fifth of the systems were not currently collecting or obtaining sufficient revenues to meet daily operational needs, and approximately half were not able to escrow funds for future maintenance needs and emergencies. Overall, approximately 40% of the systems were operating "day-to-day" financially. A slight majority of respondents (56%) indicated that they would not be interested in being taken over by another utility.

The study noted that increasing regulatory requirements may pose a risk to the continued financial viability of some small systems. This integrated report has gleaned and adapted the following four recommendations from the findings of the Townsley report:

- Recommended developing a grant or loan funding mechanism specific to meeting small system needs (including streamlined forms);
- Recommended that PURA and DPH streamline the regulatory process for uncontested water system acquisitions, such as removing the need for the acquiring utility to essentially “re-permit” the system following acquisition. Use of a single, joint application to CT DPH and PURA was recommended, with the ability to waive unnecessary hearings, a less burdensome process for resolving disputes, and without a separate permitting effort;
- Recommended that PURA consider implementing an initial rate setting policy for new CWS requiring regulatory oversight to help ensure that the initial established rates are cost-based (to cover expenses and reserve fund);
- Recommended identifying CWSs that would have high future capital requirements or other issues that would affect the ability to provide water service. One method was to improve the triennial inspection (sanitary survey) to include data collection on the status of infrastructure, future capital needs, and financial viability. To this end, the study recommended asset management legislation be reintroduced to provide a framework for small system viability.

Regarding the first recommendation, DPH appears to prefer continued utilization of the DWSRF to meet small system needs. This is discussed in Section 11. To date, the status of action on the second recommendation above is not presently known. Regarding the third recommendation, it is largely no longer germane as ESAs have been assigned throughout the state with ESA holders who will establish rates. Finally, the last recommendation developed into the Capacity Assessment Tool (CAT) now used by DPH to determine the technical, managerial, and financial viability of small water systems, and legislation⁴ has been introduced regarding asset management for small systems.

Limited information is available regarding the viability of small water systems. The CAT is a good method for understanding the status of such systems. Continued maintenance and enhancement of the CAT is recommended, which should be filled out during each sanitary survey visit and provided to the surveyed water system as part of the sanitary survey report. In this way, each small water system will be made aware of areas for potential improvement. Development of a CAT specifically for non-community water systems, which are typically structured differently from CWSs, is warranted.

The Townsley Report contends that the largest costs for small utilities were regulatory compliance and preventative maintenance. Although the perception of compliance as a major cost may be true in practice for some systems that have deferred maintenance (therefore making maintenance costs artificially low), it is unlikely correct over the long term. If systems were keeping up with maintenance, that would likely be a much higher cost than regulatory compliance. The WUCCs should strive to educate small systems in this matter when possible.

⁴ <https://www.cga.ct.gov/2017/TOB/h/2017HB-07220-R00-HB.htm>

Water Supply Assessment Report

As noted in the WSA report, the large number of small public water systems in the region is not viewed as an issue per se. However, the viability of these systems is an issue of concern, particularly in regions where the density of small systems is noticeable, such as in Montville. Additionally, the operation of small water systems immediately adjacent to larger systems can result in a disparity of the cost of water among populations in close proximity, especially when small systems fail to fully fund their water system operations. The cost of interconnecting small systems can be prohibitive or, at the very least, a disincentive. More fully understanding small water system technical, managerial, and financial capacity to provide water supply is of interest. Several sets of challenges are facing the region:

- Eliminating the proliferation of small systems may be possible in communities where larger public water system expansions have occurred, and therefore, these larger systems are now adjacent to small systems. Examples can be found in Montville along Route 32 and Ledyard near Route 117. Barriers to connecting small systems to larger systems (thus eliminating the small separate systems) include lack of funding and/or desire to make the investment, lack of interest from the small system, potential changes in water quality, inconsistencies between the design and technical standards of the small system and the acquiring utility, and potential changes in pressure. For the most part, these types of barriers should be feasible to transcend provided funding is available.
- Reducing the number of small systems may be possible in some communities where options are limited. For example, some of the small Non-Community systems in North Stonington were connected to the SCWA system when it was extended nearby in the last decade.
- Potential acquisitions of water systems may be of interest to system owners that are not in the business of providing water. For example, numerous small water systems are in operation that serve apartment complexes and mobile home parks. Some private boarding schools also exist in the region with education as their chief objective, and they may not be interested in water system management.
- Potential acquisitions of water systems may be of interest to owners that are currently experiencing significant technical, managerial, and capacity challenges. These systems, particularly the numerous Non-Community systems, could benefit from different ownership.

In general, small systems considered to have high technical, managerial, and financial capacity are considered to be viable, while systems lacking capacity in one or more areas may not be viable. The DPH piloted the CAT in 2015 as a method for tracking the viability of small CWSs. For those systems found to be lacking capacity in one or more areas, conducting system improvements, interconnecting with another utility, consolidating with another utility, or becoming a satellite system of another utility are potential general options to improve capacity.

In some cases, the customers of a small community system with limited managerial or financial capacity to perform asset management and capital improvement planning may be better served by selling the water system to another utility (such as the surrounding ESA holder) who has been found to be capable of providing adequate technical, managerial, and financial oversight. In such a case, the customers would continue to rely on existing water system sources and infrastructure but would benefit from the technical and maintenance support of a more administratively sound utility. Such satellite ownership and operation is presented as Option B in Section 4.3 below.

Interconnections in the region are discussed in more detail in Section 5.0. Interconnections are sometimes associated with system consolidation, but they are different concepts. An interconnection allows for flow of water in either one or both directions, sometimes during emergencies or seasonal shortages, and sometimes to provide a sustained source of supply from one system to another. While water is shared between two systems, the management of each individual system continues to be performed by each respective utility. Interconnections are presented as Option C in Section 4.3 below.

Alternatively, consolidation serves to merge two separate systems to operate as one, physically and administratively. The system being consolidated ceases to exist as a separate water system, and any existing sources of supply and other water system infrastructure are reassigned to the utility and system performing the consolidation. This option is presented as Option D in Section 4.3 below. One challenge related to consolidation is the need to either abandon or obtain diversion permits for the sources of supply for the small system being consolidated. Abandonment is typically pursued when the small system supplies are not considered cost-effective to operate.

4.3 Recommended Actions for Small Community Water Systems

As of December 2017, a total of 61 small CWSs in the east region were coded “yellow” relative to the CAT score system and two are “red”. These numbers do not include satellite CWSs owned by larger water utilities (those that prepare WSPs such as AWC, Connecticut Water Company (CWC), and SCWA). These 63 systems (out of 107 total) were evaluated to determine appropriate actions that can be taken to make them more sustainable and resilient. This evaluation was undertaken in partnership with the Drinking Water System Vulnerability Assessment and Resiliency planning process conducted by CIRCA and UConn in 2017 and 2018. Factors considered in the evaluation include the following:

- CAT score;
- Whether the CWS is within 1,000 feet of another CWS (this information was provided in the WSA report);
- Actual distance to another CWS; and
- Limitations related to sources, storage, or pumping; for example, some CWSs have only one source of supply (one well) and most lack atmospheric storage. Some have insufficient hydropneumatic storage, only bladder storage, or lack any storage whatsoever.

The WUCCs believe it is inappropriate to assign single actions to individual small CWSs. Instead, a toolbox of options has been developed and each small CWS has been placed into a bin with several tools available for achieving improved resilience. The following tools were identified:

- A. Conduct internal improvements and remain a small independently-owned CWS
- B. Pursue acquisition by larger CWS and remain a satellite system owned and operated by the larger CWS
- C. Interconnection with larger or more viable CWS
- D. Interconnection and eventual consolidation with larger or more viable CWS

To ensure that each CWS has at least two tools, six bins were utilized. It is important to recognize that option A is always available as a tool for a small CWS. In addition, interconnection or consolidation of more than one system in an area may be geographically feasible depending on the location of the

project and should be considered as part of any project pursued under option C or D above. Systems were placed into bins as follows:

1. A and B: 32 CWSs; these systems are typically too distant for an interconnection or consolidation to be a viable option. There are many examples in the region; Fall Brook Mobile Home Park is an example of such a system.
2. A and C: five CWSs; these systems may be sufficiently close to another system that interconnection is feasible, but the nearby system is not a large system or has its own challenges to address. An example is Kitemaug Orchard Association which is only 250 feet from Jensen's Marina Cove.
3. A and D: three CWSs; these are the three Pleasure Valley Mobile Home Park systems in Norwich that should consolidate with one another (option D) or otherwise make improvements to each system.
4. A, B and C: three CWSs; these systems may be sufficiently close to another system that interconnection is feasible, as is acquisition by a larger system. An example is Mar-Lea Park Apartments in Ashford, which could interconnect with the adjacent but similarly-sized Ashford Hills Apartments but could likewise potentially be acquired by a larger utility and operated as a satellite.
5. A, B and D: three CWSs; these systems are in areas where acquisition and operation of satellites is common, but eventual consolidation might make sense.
6. A, C and D: 17 CWSs; these systems are typically within 1,000 feet of another CWS and should therefore focus on becoming interconnected or consolidated.

CWSs coded "green" (high capacity scores) in the CAT were not included in the detailed evaluation described above, as they are believed more sustainable and resilient due to the individual components of their technical, managerial, and financial capabilities. However, some of the green score systems are located in close proximity to existing CWSs and should consider interconnections as a future tool for maintaining viability and increasing resilience. The following CWSs in the east region are applicable:

- Knob Hill Condominiums Well #5 System, Colchester (consolidate with Knob Hill Condominiums);
- Connollys Trailer Park, Griswold (emergency interconnection with JCWC);
- Fox Laurel Mobile Home Park, Montville (emergency interconnection with SCWA);
- Freedom Village Elderly Housing, Montville (emergency interconnection with SCWA);
- Independence Village Elderly Housing, Montville (emergency interconnection with Montville WPCA);
- Countryside Drive Association, Norwich (emergency interconnection with NPU); and
- Arlington Acres Manufactured House Community, Stonington (emergency interconnection with AWC).

The WUCC, in coordination with DPH, should develop a procedure for periodically reviewing the 64 yellow and red score systems in the bins as well as the green score systems that could be interconnected with other systems, and annually report on the status of such systems and document technical or planning-level assistance provided to any of them. Furthermore, the WUCC should encourage DPH to regularly update the CAT for small community systems throughout the state and keep ESA holders advised of low capacity systems within their ESA.

Although DPH and PURA may order a failing water system to be taken over by another utility, this process is relatively rare. It is important to note that unless ordered by the state through a takeover or other process, small systems must voluntarily accept transfer of ownership or consolidation. Therefore, there is no set schedule contemplated by the WUCC for any of the projects identified for these small CWSs. Rather, systems are encouraged to evaluate their current situation and consider the general

recommendations herein as potential solutions. Finally, regardless of the ESA holder, local municipal leaders should be kept apprised of any takeover process that may be initiated against a public water system in their community.

The WUCC regulations call for identification of public water systems willing to secure satellite management provided by another utility, or willing to transfer ownership to another utility; and development of a water system satellite management program and schedule for its implementation. In lieu of making binding determinations relative to these items in the regulations, the approach outlined above can be used to accomplish the intent of the regulations.

4.4 Emergency Management, Communications, and Voluntary Associations

Local governments are responsible for providing a priority power restoration list to electric utilities. These lists typically include critical local facilities such as the emergency operations center, fire departments, and public works facility; emergency shelters and schools that can be used as shelter; elderly and assisted living facilities; and infrastructure such as water and sewer pumping stations. Small water systems that are not considered critical facilities by local emergency management personnel are often not on that list. For example, a nursing home with its own water system would be on the local critical facility list due to challenges related to sheltering offsite vs. sheltering in place, but an apartment building with its own water system would not be because residents can shelter offsite. DPH has been focused on updating nursing home contacts recently, but it may be prudent to develop a secondary list of critical facilities for local governments that is comprised of small CWSs.

Likewise, emergency contact information is a key concern related to small systems. According to DPH, small CWS owners and operators often require several emails and telephone calls to cause a response. Systems managed by voluntary associations are reportedly particularly difficult to contact because the association contacts can change frequently, and the level of water system managerial capacity can change rapidly. The merging of multiple levels of critical facility contacts and public water supply contacts into one system could help overall communications during and after emergencies.

The Drinking Water System Vulnerability Assessment and Resiliency planning process and report will likely provide recommendations for the above considerations. In the meantime, two provisional recommendations are:

- Provide a list of CWSs to provide to local governments and the electric utilities that will be considered a second tier of critical facilities. When local hazard mitigation plans and emergency operations plans are updated, incorporate these inventories. DPH has already prepared such a list. Similar to the approach for dam emergency action plans, the contact information (person, telephone numbers, and email addresses) should be verified and updated biennially.
- Augment DPH's list of emergency contacts with the pertinent contact information for the local emergency management director and his/her backup.

A method to phase out volunteer associations from being system owners should be considered in coordination with DPH. This would address limitations that voluntary associations currently face with regard to applying for grants and loans such as the DWSRF. Possible tools to reducing the number of voluntary associations include using the takeover process in the regulations, or requiring a different ownership model for small CWSs. A recommendation is:

- The WUCCs and DPH should review the small CWS inventory to determine a subset of systems that are run by voluntary associations, and reach out to these systems to determine whether technical, managerial, or financial assistance is needed.



5.0 EXISTING AND POTENTIAL FUTURE INTERCONNECTIONS

An interconnection is any physical, hydraulic connection between two or more public water systems. Interconnections may be temporary or permanent, uni-directional or bi-directional. Interconnections are used for different purposes:

- Emergency interconnections are put in place for anticipated use in the event of an emergency or drought condition such that one public water system is able to provide water to another system for the duration of the emergency.
- Active interconnections are utilized on a periodic or regular basis to supplement flows during unusually high demand peak periods of service, or are utilized daily to supply water from one system to another.

When systems are proximal to each other, interconnections present a cost-effective solution to meet periodic or regular water needs, including needs during critical or emergency situations such drought, water quality problems or treatment issues, or during routine maintenance of a supply source or storage tank. Deterrents to interconnections include water quality (blending concerns), capital improvement costs, fire protection considerations, and operational, maintenance, and monitoring requirements.

5.1 Existing Interconnections in the Region

In the Eastern PWSMA, numerous systems are in place for the daily transfer of water from one system to another. Existing Interconnections in the region were previously discussed in Section 2 of the *Final Water Supply Assessment* (December 2016) and general locations and directions of active flow are shown on Appended Figure 1. These are summarized in Table 5-1, with the majority being part of the regionally interconnected water system in southeastern Connecticut.

TABLE 5-1
List of Active Interconnections in the Eastern PWSMA Providing Transfer of Water

Supplier	Receiver	Town	Average-Day Transfer (mgd)	Data Year
Groton Utilities	AWC – Mystic	Groton	0.114	2016
Groton Utilities	Groton Long Point Association	Groton	0.120	2015
Groton Utilities	Ledyard WPCA - Gales Ferry	Groton	0.166	2016
Groton Utilities	Noank Fire District	Groton	0.198	2016
Groton Utilities	Ledyard WPCA – Ledyard Center	Ledyard	0.135	2016
Groton Utilities	Montville WPCA (via Ledyard WPCA – Gales Ferry System)	Ledyard	0.472	2015
Montville Water Supply	SCWA – Hillcrest Division	Montville	0.002	2014
Montville Water Supply	Mohegan Tribal Utility Authority	Montville	0.193	2015
NPU	Mohegan Tribal Utility Authority	Montville	0.450	2015

TABLE 5-1
List of Active Interconnections in the Eastern PWSMA Providing Transfer of Water

Supplier	Receiver	Town	Average-Day Transfer (mgd)	Data Year
MPTN	Preston Plains Water Company	Preston	0.018	2012
CWC Crystal Water Company	Putnam WPCA	Putnam	0.001	2016
AWC – Mystic	Classee Water – Latimer Point	Stonington	0.011	2016
AWC – Mystic	CWC – Masons Island	Stonington	0.039	2016
New London Dept. Of Public Utilities	East Lyme Water & Sewer*	Waterford	0.000	2016

* Regional Water Banking Project. Water is directed from East Lyme for storage in Lake Konomoc during periods of low demand during the year, and then purchased back by East Lyme during periods of high demand during the year. The net annual transfer is zero.

Table 5-2 lists the known emergency interconnections in the region. Many of these interconnections are also part of the regionally interconnected water system in southeastern Connecticut, with the remainder being interconnections between sub-systems of a single small utility.

TABLE 5-2
List of Existing Emergency Interconnections in the Eastern PWSMA

Supplier	Receiver	Town
Montville Water Supply	Ledyard WPCA – Gales Ferry	Ledyard
Montville Water Supply	NPU	Montville
Montville Water Supply	Waterford Utilities Commission	Montville
NPU	Montville Water Supply	Montville
Waterford Utilities Commission	Montville Water Supply	Montville
Pleasure Valley M.H.P – Sys. #1	Pleasure Valley M.H.P – Sys. #2	Norwich
Pleasure Valley M.H.P – Sys. #2	Pleasure Valley M.H.P – Sys. #3	Norwich

5.2 Interconnection Permitting Requirements

The following permitting requirements apply to interconnections:

5.2.1 Sale of Excess Water Permits

CGS Section 22a-358 requires that whenever any public water system has water reserves in excess of those required to maintain an abundant supply of water to inhabitants of its service area, such system may sell such excess water to any other public water system upon approval from the Commissioner of Public Health. Such approval can be given only after the applicant has clearly established to the satisfaction of the commissioner that such abundant supplies are in existence and will continue to be in existence for five years or for such longer period as the applicant seeks permission to sell excess water. Permits are valid for a maximum of ten years.

Prior to 1985, the sale of excess water was regulated through the Connecticut DEEP. Public Act 85-142 transferred the approval requirement from the Commissioner of DEEP to the Commissioner of Public Health. Table 5-3 presents the active Sale of Excess Water Permits issued by Connecticut DPH as of November 2017.

TABLE 5-3
Sale of Excess Water Permits Issued by DPH

System Supplying Water	System(s) Receiving Water	Type*	Average Daily Permitted Transfer (mgd)	Maximum Month Permitted Transfer (mgd)
Groton Utilities	AWC – Mystic	D	0.200	0.750
AWC – Mystic	Classee Water – Latimer Point	D	0.006	0.012
AWC – Mystic	CWC – Masons Island	D	0.044	0.044
New London Dept. of Public Utilities	East Lyme Water & Sewer	Sea.	1.000	1.000
Groton Utilities	Ledyard WPCA – Gales Ferry	D	0.250	0.250
Groton Utilities	Ledyard WPCA – Ledyard Center	D	0.350	0.350
NPU	Mohegan Tribal Nation Utilities	D	0.495	0.495
Groton Utilities	Montville WPCA and Mohegan Tribal Nation Utilities	D	1.930	1.930
Groton Utilities	Noank Fire District	D	0.250	0.450
Groton Utilities	NPU	E	1.000	1.000
MPTN	Preston Plains Water Company	D	0.002	0.002
CWC – Crystal	Putnam WPCA	Sup.	As Needed	As Needed
Regionally Interconnected Water System	Regionally Interconnected Water System	E	1.000	1.000
Groton Utilities	SCWA – Barrett	E	0.269	0.269
Groton Utilities	SCWA – Chriswood	E	0.269	0.269
Groton Utilities	SCWA – Gray Farms	E	0.269	0.269
Montville WPCA	SCWA – Hillcrest	D	0.095	0.095
Groton Utilities	SCWA – Ledyard Center	E	0.269	0.269
Groton Utilities	SCWA – Tower/Ferry	E	0.269	0.269

*Permit Category includes D = Daily, E = Emergency, Sea = Seasonal, and Sup = Supplemental

A variety of permits are active in the region. Many are for daily use, while some permits authorize special cases (e.g. the Water Banking Project and the Interregional Water Supply Response Plan). Many of the permits are for emergency interconnections, with the majority of the emergency interconnections between Groton Utilities and SCWA having been recently permitted for eventual construction in the next few years. While it has been argued by several utilities that Sale of Excess Water permits should not be required for emergency interconnections, and that the permit requirements are considered an impediment to the development of emergency interconnections, the permit application process is straightforward for emergency interconnections as there is no requirement to allocate an increment of available water to the interconnection.

Several WUCC members have expressed concern with CGS 22-a358 as it requires a permit for any sale of water without a reasonable minimum threshold. Even if a water utility provides a minimal amount of water to another utility to service one property as a consecutive system, the supplying utility is required to obtain a Sale of Excess Water permit. In some cases, modification of the ESA boundary would be an appropriate way to address this issue. However, for systems not authorized to provide direct service outside of a franchise area, adoption of a minimal threshold allowing for some exemption from this permitting is desired.

Adoption of a minimal threshold (per day or per year) to the Sale of Excess Water permit statute is of interest to some utilities to exempt minimal sales to consecutive water systems.

5.2.2 *Diversion Permitting Requirements*

While some interconnections have been in place for many decades and were registered in accordance with the Water Diversion Policy Act (CGS 22a-365 through 22a-379) enacted in 1982, some more recently constructed interconnections require a diversion permit from Connecticut DEEP. An individual diversion permit is required for proposed diversions in excess of 50,000 gallons per day (gpd) that have the potential to have more than minimal impacts to the environment, including those involving inter-basin transfers of water. In general, if an interconnection is proposed which would transfer more than 1.0 mgd, or involves the transfer of water between sub-regional drainage basins, an individual permit is likely to be needed from Connecticut DEEP.

CGS Section 22a-378a allows DEP to issue a general permit for minor activities including:

"Transferring water from one distribution system or service area to another distribution system or service area or the installation of the capacity to transfer such water in anticipation of a water supply emergency for public water supply"

Therefore, general permits are required for transfers of water above 50,000 gpd that Connecticut DEEP deems to cause minimum environmental impacts, including emergency interconnections of water distribution systems and some interconnections proposed for active, daily use. Many interconnections with a maximum transfer of less than 1.0 mgd fall into this category, although some interconnections require a more detailed analysis.

In addition, temporary authorizations may be issued by DEEP when necessary. In the event of a water supply emergency, DEEP has the authority to temporarily issue a permit for diversion of water for a period of up to thirty days, which can be extended for one additional thirty day period (CGS Section 22a-378). Extensions may be granted beyond the second thirty day period however DEEP must hold a hearing to grant the extension.

5.2.3 *Interconnection Agreement Requirements*

Interconnection agreements between utilities range from informal (in some cases based on a verbal agreement) to legal documents. There are no set criteria with respect to the terms and conditions of interconnections, however most sound agreements include the following elements:

- 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;
- 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; and
- Notice required to terminate.

Interconnections for sale of water must be considered as a commitment against the supplier's available water for as long as the agreement exists. Interconnections for purchased water may be included as part of the receiving system's available water provided that reliable delivery is assured by contract. In addition, CGS 22a-358 requires that the receiving utility agree to restrict water usage in the same manner as the supplier when necessary in accordance with the emergency contingency provisions of the supplier's WSP.

The following guidelines have been developed for the use and maintenance of interconnections:

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 flexible 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.

5.3 Potential Interconnections to Address Supply Deficits in the Region

Inter- and intra-regional interconnections must be considered as a potential means of supplying water. They may be less expensive than developing additional sources such as new groundwater supplies. Interconnections can also provide supply to areas where source development is not feasible.

The regulatory and participatory process involved in creating regional interconnections can be costly and time-consuming. While some interconnections can be constructed with relatively short lengths of piping, many require installation of a mile or more of water main at considerable cost. One large end user may provide the majority or all of the funding, but often outside funding is necessary to facilitate an interconnection project.

Some interconnections also require the cooperation of many municipal and private entities for its success. There are currently no mandates for systems to interconnect or for systems to act as a vehicle for pass-through transmission of water. A lack of cooperation by one or more entities could necessitate the installation of parallel transmission piping, which is contrary to the goals of the ESA delineation process per RCSA 25-33h-1(d)(B)(i)(cc). Therefore, regional WUCC meetings will continue to be a forum to discuss regional needs and come to agreements on how certain areas may be served.

Water quality is a concern when interconnections result in the blending of water from two or more systems. When the character of drinking water changes, even slightly, consumers may become dissatisfied. Additional concerns arise for certain specialized uses, such as industrial process water. Systems proposing an interconnection for active daily use are encouraged to evaluate the potential water quality that may result following any such connection as part of their feasibility study; such result will be specific to the water quality in each system.

As discussed in Section 3.5 through Section 3.7, certain systems in the region are projecting a deficit of available water to meet ADD and MMADD in future years. Potential interconnections to address these needs are presented in the following subsections.

In general, raw water interconnections are not prudent in the Eastern PWSMA, as the utilities projecting deficits are either already connected to the regionally interconnected water system in southeastern Connecticut, or are systems that cannot treat raw surface water. The potential use of new surface water supplies which could be transferred through the regionally interconnected water system is considered in Section 7.0.

5.3.1 Potential Interconnections to Meet ADD and MMADD through the 5- & 20-Year Planning Periods

As shown in Tables 3-12b and 3-12c, seven systems are projecting deficits in the five-year and 20-year planning horizons who potentially need to secure additional supply via one or more interconnections. Six of the systems are part of the regionally connected water system in southeastern Connecticut.

Based on the information in Table 3-9b and Table 3-11b (projected demands after accounting for passive water conservation benefits), Table 5-4 presents projected surpluses in excess of 1.0 mgd to meet MMADD for systems in the region through 2030.

TABLE 5-4
Systems with Surplus Available Water Greater than 1.0 mgd through 2030

Large Community Water System	Surplus of Available Water (mgd)	Surplus while Maintaining MOS of 1.15 (mgd)
CWC – Crystal	1.082	0.871
Groton Utilities	3.960	2.759

The CWC-Crystal System is considered to be located too distant from these two utilities to provide any increment of water need. While Groton Utilities projects 3.960 mgd of surplus through 2030, only 2.759 mgd would be available to other utilities while maintaining a MOS of 1.15. Furthermore, Montville WPCA already has identified increasing transfers through the regionally interconnected water system as its first priority in order to meet future needs, so it is anticipated that there will be additional parties considering this source of supply. Similarly, Noank Fire District relies on Groton Utilities for its supply, and if the available water calculation issue is not resolved would need to increase its contractual limit with Groton Utilities to increase its available water. Thus, it is expected that both New London & Waterford and NPU will need to rely on development of new supplies and targeted water conservation and water efficiency measures to meet the remainder of projected needs, although some of these supplies could be developed in conjunction with Groton Utilities (see Section 7.4).

The AWC – Mystic System is projecting a moderate deficit in 2030 without available water guidance (see Section 3.5 & Section 3.7), but is projecting a surplus of supply if the suggested guidance presented herein were allowed. The potential deficit of 0.329 mgd could be met either through additional supply from Groton Utilities, or through development of new supplies (either independently or in conjunction with Groton Utilities).

Classee Water System – Latimer Point projects an additional supply need of 0.006 mgd due to its available water being limited by the DPH Sale of Excess Water Permit. All demands are presently being met by AWC, and future demands for this system are accounted for in the projected demands for the AWC – Mystic System. Therefore, these utilities should work together to revise the Sale of Excess Water Permit limit.

The East Lyme Water & Sewer Commission is connected to the regionally interconnected water system, and is projecting a deficit through 2030. While it is possible that East Lyme could acquire its needed increment of supply from Groton Utilities, it is also feasible that new supply sources developed by New London & Waterford or NPU could provide a portion of the additional supply need. In addition, the potential exists for East Lyme to acquire an additional increment of supply if CWC completes consolidation of its shoreline systems in Old Lyme and develops a potential long-term consolidation with its Guilford system. Finally, performing targeted water conservation and water efficiency measures and development of new supply sources should be considered in the future if revised projections continue to indicate a long-term supply deficit to meet projected needs.

The Preston Plains Water Company projects an additional supply need of 0.037 mgd through 2030. It appears that this water should come from its existing interconnection with MPTN, as that utility appears to have sufficient water available.

5.3.2 Potential Interconnections to Meet ADD and MMADD through the 50-Year Planning Period

As shown in Tables 3-12b and 3-12c, eight systems are projecting deficits in the 50-year planning horizons who potentially need to secure additional supply via one or more interconnections. The recommendations for Classee Water System – Latimer Point, East Lyme Water & Sewer Commission, and Preston Plains Water Company are believed to still be applicable for the 50-year planning horizon, so further discussion of those systems is not provided below.

Based on the information in Table 3-9b and Table 3-11b (with projected water conservation benefits but not available water guidance), Table 5-5 presents projected surpluses in excess of 1.0 mgd to meet MMADD for systems in the region through 2060.

TABLE 5-5
Systems with Surplus Available Water Greater than 1.0 mgd through 2060

Large Community Water System	Surplus of Available Water (mgd)	Surplus while Maintaining MOS of 1.15 (mgd)
CWC – Crystal	1.017	0.796
Groton Utilities	3.017	1.674

Again, the CWC-Crystal System is considered to be located to distant from any of the other utilities to provide any increment of water need. While Groton Utilities projects 3.017 mgd of surplus through 2060, only 1.674 mgd would be available to other utilities while maintaining a MOS of 1.15. At least a portion of this excess water is expected to be assigned to the Montville WPCA and potentially Noank Fire District for future demands. Thus, it is expected that both New London & Waterford and NPU will continue to need to rely on development of new supplies and targeted water conservation and water efficiency measures to meet the remainder of projected needs. Refer to Section 7.4 for potential prioritization of projects based on available water after future supply sources are considered.

The AWC – Mystic System is projecting a deficit in 2060 without available water guidance, which is mitigated if the suggested guidance presented herein were allowed. The potential deficit of 0.557 mgd could be met either through additional supply from Groton Utilities, or through development of new supplies (either independently or in conjunction with Groton Utilities).

The Colchester Water & Sewer Commission is located very distant from other utilities (nearly 19,000 feet to the water mains of the closest utility, NPU) and is projecting a relatively modest deficit after adjusting for passive water conservation measures. Therefore, development of an interconnection may not be cost-effective. Consideration should be given by Colchester Water & Sewer Commission to performing targeted water conservation and water efficiency measures, or developing new supply sources in the future if revised projections continue to indicate a long-term supply deficit to meet projected needs.

It has long been recognized that regional approaches may be necessary in the future to satisfy demands in the Eastern PWSMA. Accordingly, evaluation of future supply sources has considered the ability of each potential supply to serve regionally significant needs.

5.4 Potential Interconnections Recommended to Increase Resiliency in the Region

Interconnections are a potentially cost-effective way to increase supply resiliency in the region. Many small water systems as well as some large water systems utilize only a single source of supply, be it a reservoir or a wellfield. While multiple wells at a wellfield provide some manner of redundancy for certain events (e.g. pump failure), some events (e.g. contamination or drought) could result in certain systems being left without a source of supply for an extended period. To address this deficiency, this Integrated Report recommends development of certain interconnections to increase system redundancy in the region.

Since the completion of the former Southeastern Connecticut WUCC process in 2001, the former Southeastern WUCC continued to meet along with a SCCOG Regional Water Committee to discuss regional issues. As one of the main goals of the previous planning effort was to develop a regionally interconnected water system in the southern portion of the region, a significant effort was performed to develop critical components for such a system including the Thames Basin Regional Interconnection in 2008 under the Thames River. Today, the regionally interconnected water system includes 11 utilities, with a 12th utility (Sprague) envisioned to be connected via emergency interconnection in the near future.

The SCCOG Regional Water Committee developed a “Regional Water Priority Planning Document” dated November 2010 in order to address known supply needs in the region. Many of the near-term priority projects envisioned have come to pass, but three projects to increase resiliency in the region are still applicable and discussed below.

Development of infrastructure to allow for two-way transfer of water between interconnected systems is an important resiliency measure which should be considered for both existing and new interconnections. A dedicated funding source may be necessary to facilitate this resiliency effort.

An Intra-Regional Water Supply Response Plan was developed for the regionally interconnected water system and permitted by the Connecticut DEEP. This permit authorizes short-term transfers of water by parties connected to the regionally interconnected water system up to a maximum of 1.0 mgd for seven consecutive days provided that any permits or registration limits for any of the regionally interconnected sources or interconnections are not exceeded. The permit provides flexibility to the parties involved by allowing for a faster response in an emergency, as well as allowing utilities to plan for temporary shutdowns of critical system components (such as for storage tank cleaning) without requiring a temporary authorization from DEEP. This type of “standby” interconnection may be of interest in other areas of the state where multiple systems are regionally interconnected.

5.4.1 *Interconnections Recommended to Increase Source Resiliency for Large Systems*

Certain large systems in the region maintain a single source of supply such as a reservoir or wellfield without an emergency source of supply. These systems include:

- CWC – Gallup system, which relies on a single wellfield;
- CWC – Plainfield system, which relies on a single wellfield;
- CWC – Thompson system, which relies on a single wellfield;
- SCWA – Mohegan Division, which relies on a single wellfield;
- SCWA – Montville Division, which relies on a single wellfield;
- SCWA – North Stonington Division, which relies on a single wellfield; and
- WWW – which draws all of its water from a single reservoir.

CWC has long identified interconnection of its Gallup System, Plainfield System, and Crystal System as a goal to increase source redundancy in each system. To that end, CWC submitted a diversion permit application in December 2017 to interconnect the Plainfield and Crystal systems (a distance of approximately 12,000 feet), and interconnecting the Plainfield and Gallup systems (a distance of approximately 13,000 feet) is expected in the 5-year planning period. The WUCC should encourage the

efforts of CWC to develop a regionally interconnected water system along the Interstate 395 corridor. However, interconnecting the Thompson system with Putnam WPCA is not envisioned at this time.

The SCWA – Mohegan system is located very close (less than 100 feet) to the Montville WPCA system such that an emergency interconnection would be feasible. However, the SCWA – Montville and SCWA – North Stonington systems are located distant (greater than 20,000 feet) from nearby large systems such that interconnections may not be a cost-effective method of providing a redundant water supply source to these systems. As noted in Section 5.2.1, emergency interconnections are planned for the SCWA systems in Ledyard in the near future.

WWW relies on a single reservoir to meet its supply needs. Although WWW is located relatively distant from significant nearby large water systems, an interconnection between WWW and NPU was envisioned as part of the November 2010 “Regional Water Priority Planning Document” in association with the development of a potential new groundwater supply source along the Shetucket River. The feasibility of developing this interconnection is largely dependent on the feasibility of new source development in the southern Windham and northern Franklin area given the distance involved between the WWW and NPU systems (approximately 35,000 feet). An additional benefit to this interconnection would be the potential to connect customers along Route 32 in Franklin who rely on low-yielding wells or wells with poor water quality. In the event that the above interconnection is not feasible, WWW could potentially develop a feasible emergency interconnection with a utility in the Central PWSMA, such as with CWC in the Town of Mansfield.

Aside from the situations described above, a resiliency solution is presently in development in the region. Sprague Water & Sewer relies on a single wellfield with a reservoir as an emergency source of supply. However, the emergency source is not immediately viable for use. An emergency interconnection between NPU and Sprague has been proposed along Route 97 to address this regional need as part of other improvements to the NPU system, and is expected to be completed in the next five years.

Furthermore, some portions of the regionally-interconnected water system in southeastern Connecticut are reliant on a single water main to provide active daily supply. In particular, Montville WPCA is supplied by the Thames Basin Regional Interconnection under the Thames River. While emergency sources of supply are available to Montville from NPU and Waterford, use of such sources would not present a desirable mode of operation for an extended period. As such, the SCCOG Regional Water Priority Planning Document identified an emergency interconnection between Ledyard WPCA along Route 12 and NPU as a mid-term medium priority, and this project continues to be pursued. Development of such an emergency interconnection would allow for water to be routed to systems on the western side of the Thames River (including Montville WPCA) via NPU if the Thames Basin Regional Interconnection under the Thames River was rendered inoperable, and would provide resiliency to all of the interconnected systems. A third connection across the Thames River at Route 2A was envisioned as another long-term solution for consideration, although it has been noted that the existing bridge is not equipped to support a water main at this time.

The following interconnections may also be possible to further strengthen the reliability and resiliency of the regionally interconnected water system:

- Each Ledyard WPCA system (Gales Ferry and Ledyard Center) has only one interconnection point with Groton Utilities, one of which is a critical entrance point for water leaving Groton Utilities and

travelling to Montville. An emergency interconnection between the two Ledyard WPCA systems, or consolidation of the two systems, would provide redundancy to this critical portion of the regionally interconnected water system utilized on a daily basis. The WUCC should encourage Ledyard WPCA to consider potential locations for such an interconnection (or consolidation) in the near future.

- The Ledyard WPCA – Ledyard Center system is located approximately 7,300 feet away from the AWC – Mystic System. An interconnection between these systems could strengthen the resiliency of the southeastern portion of the regionally interconnected water system by providing an additional route for water to cycle into Ledyard or Stonington.
- Groton Long Point relies upon a single interconnection with Groton Utilities. Development of an emergency interconnection point with Groton Utilities is recommended for resiliency purposes. This could be constructed in the Mumford Cove area.

Finally, Table 2-8 of the *Final Water Supply Assessment* (December 2016) identified for some systems specific projects envisioned to increase resiliency of that specific system. Such projects include potential interconnections, installation of redundant water mains within distribution systems, and other improvements which may increase resiliency. The WUCC recommends that each system continue to identify and implement projects which may increase resiliency in individual systems even if such projects would not meet a regional need.

5.4.2 *Interconnections Recommended to Increase Source Resiliency for Small Systems*

Many of the smaller community public water systems in the region operate with a single source of supply, with no backup supply. This leaves these systems vulnerable to interrupted service due to equipment failures, contamination, and the like. Interconnections of systems that have water quality or other operational problems and those which rely on a single source of supply should be given a high priority with respect to interconnections. Additionally, those very small systems with administrative shortcomings should also be considered for interconnection or consolidation with adjacent utilities.

The analysis in Section 4.3 identifies interconnections and consolidation as one of many potential solutions for a number of small CWSs in the region. For small community systems with a high capacity, several systems are recommended to develop an interconnection for resiliency purposes. It is recommended that large systems identify small systems in the vicinity of any system expansions or interconnection projects and approach small systems about potential interconnections and consolidations as part of such projects.



6.0 JOINT USE, MANAGEMENT, OR OWNERSHIP OF SERVICES, EQUIPMENT, AND FACILITIES

Joint use or ownership of facilities, equipment, and/or services is envisioned to provide savings in capital and operational costs, result in maintenance reduction, and improve both reliability and efficiency of system operation for those systems engaged in such arrangements. Smaller systems may benefit from paying a proportionate share of such facilities, equipment, or services in lieu of carrying the sole financial burden. Larger systems may more fully utilize existing equipment and/or expertise by broadening the scope of their operations.

6.1 Existing and Planned Shared or Joint Use Facilities

Joint ownership of major infrastructure, such as supply sources, storage, treatment, or water mains is not widely practiced in the region. Instead, joint use agreements in effect in the region commonly involve a division of ownership of the resources involved. For example, the most common joint use in the region is the arrangement where one public water system sells water to a neighboring system through an interconnection, as discussed in Section 5.0. For instance, Groton Utilities provides 100 percent of daily supply to the Ledyard WPCA, Montville Water Supply, Noank Fire District, and Groton Long Point systems through the regionally interconnected water system. However, these systems do not share in the development, ownership, operation, or maintenance of the sources of supply that feed the system, and each entity is responsible for its own water mains, storage tanks, and pumping stations within its respective service area.

Furthermore, the interconnected utilities utilize an *Intraregional Water Supply Response Plan* to govern short-term transfers of water during periods of need as discussed in Section 5.4. The greatest advantage of this plan is the flexibility it gives the parties involved to facilitate a rapid response to a planned or unexpected need with minimal delay.

Groton Utilities has indicated an interest in developing new supply sources for regional use in conjunction with other utilities. This would likely occur via a development agreement whereby a utility in need agrees to contribute a certain amount of the cost for site feasibility and studies as well as capital costs in exchange for being allocated a certain increment of water from the new source. Some utilities, such as Montville WPCA, have indicated in their WSPs that they are in favor of working with Groton Utilities in this manner.

While there are no examples of joint uses between small community systems in the Eastern PWSMA, one unique example of a joint use between small community systems that occurs in the Western PWSMA is worth mentioning. The AWC – Clearview system in Wolcott receives all of its water from Countryside Apartments. However, the apartment complex does not specifically meter the connection to bill for the interconnected use. Instead, AWC and Countryside Apartments have come to an agreement where AWC pays approximately 42% of all maintenance and capital improvement costs for the shared components of the water system, and Countryside Apartments provides water to AWC as needed to meet the needs of the Clearview system. AWC sells water to its customers to cover its costs. A variety of assurances and procedures are built into the governing agreements. In this way, AWC has ensured a guaranteed and reliable supply of water, and ensured that asset management and capital

improvement planning is being conducted. This type of arrangement may be feasible between certain small CWSs in the region, particularly those systems discussed in Section 4.0 where the distance between systems is such that interconnections may be feasible.

In summary, given the forecast deficit in water supply sources in the southern part of the region, there is a potential for future shared ownership and use of supplies beyond routine interconnections. This type of shared use would require formal agreements among the stakeholders. For example, the projected deficits in the regionally interconnected water system could potentially be met by water from a jointly-owned future supply source, where the parties needing water pool resources to develop and harness a new supply source. At this time, the utilities in the region connected to Groton Utilities have already generally agreed to this type of arrangement for the regionally interconnected water system. This type of arrangement may become more common if water supply development trends towards regional supplies to meet the needs of several systems.

6.2 Existing and Planned Joint Use of Services

The most prominent example of joint use in the region which is not an interconnection is the contractual relationship between the New London Department of Public Utilities and the Waterford Utilities Commission. This arrangement was developed following a 1958 study by the Town of Waterford which found that limited groundwater supplies appeared to be viable in the town and coordination with New London for public water supply was the preferred alternative. Under this arrangement, New London serves public water supply customers in Waterford with water supply through the use of water mains owned and maintained by the Waterford Utility Commission. Customers in Waterford are direct customers of New London. New London is not responsible for any mains owned by the Waterford Utility Commission, and vice-versa. Through the agreement, the two systems operate as one consolidated system.

Some systems contract out operations of their entire system under a satellite operations agreement. These are described in Section 4.1 of this document. Several of the larger water providers, namely AWC, CWC, JCWC, and SCWA, provide services to smaller systems, including leak detection, meter reading, and emergency repair services. Groton Utilities also operates as contract operator for the Ledyard WPCA systems. When multiple small water systems are located proximal to each other, it may be to their benefit to band together to solicit contract operation services, particularly for common tasks such as water quality testing, asset management, and maintenance responsibilities.

In some cases, it may be beneficial for certain systems, particularly small community systems, to request the services of a larger utility to perform certain intermittent functions, and DPH encourages utilities to offer such services for a reasonable fee. In particular, the CAT results have found that many systems could use assistance in conducting asset management, something that many larger systems have experience with for their smaller satellite systems. Alternatively, small community systems may wish to look to non-profit organizations such as RCAP Solutions or the ASRWWA for assistance with asset management, capital improvement planning, and the like.

6.3 Existing and Planned Joint Use / Ownership of Equipment

Equipment is shared among public water systems in the region largely through informal arrangements and on an as-needed basis. The most common scenario is shared generators and other equipment among neighboring systems during emergency situations. Other equipment, including compressors,

piping, fittings, meters, and the like are informally shared or borrowed on a cooperative basis and among systems with ongoing working relationships, or more formally through the CT WARN program. Utilities have noted that the CT WARN program and ASRWWA, in particular, provide expertise and equipment for little or no cost to members beyond the cost of membership.

Specialized equipment and operations are most commonly contracted out to non-water system suppliers. This includes water tankers, excavation equipment, portable generators, pumps, pipes, and fittings, leak detection equipment, and the like. However, for some equipment shared ownership may be viable.

WWW noted that the Town of Windham participates in the Intertown Capital Equipment Purchase Incentive Program through the Connecticut Office of Policy and Management (OPM). This program allows municipalities to band together to buy equipment which will be shared by all parties. WWW notes that the issue is that some equipment is in very high demand by many parties during some months of the year limiting its availability. A similar type of system could be beneficial for small CWSs, who may be able to band together to increase their purchasing power by buying in bulk (e.g. treatment chemicals). Small systems are encouraged to consider this type of joint use with nearby CWSs if their system components are compatible.



7.0 ANALYSIS AND PRIORITIZATION OF POTENTIAL FUTURE WATER SUPPLIES

This section of the Integrated Report identifies potential new sources of water supply for consideration in the Eastern PWSMA as identified by utilities depicting a deficit in any of the five-year, 20-year, or 50 year planning periods. This analysis focuses on potential supply sources and infrastructure enhancements which are considered to be regionally significant. This analysis includes, but is not necessarily limited to, sources of water and interconnections on the 2017 High Quality Source List promulgated by DPH. Sources of supply being considered by utilities that generate a limited volume of water to be used solely for their own needs are *not* considered to be regionally significant.

For this report, regionally significant supplies may include:

- New sources with the potential to produce above 1.0 mgd proximal to systems projecting supply deficits; and
- Infrastructure improvements to enhance safe yield that are associated with sources which already serve regional needs.

In general, this document has been laid out to demonstrate the potential benefits of certain actions to meet water supply needs:

- First, Section 2.2 and Sections 3.5 through 3.7 demonstrate the potential benefits of passive water conservation, with targeted water conservation and water efficiency measures being recommended for each system still showing a significant supply deficit;
- Second, active and emergency interconnections were encouraged in Section 4.0 between small community systems in the region;
- Third, continued use of emergency interconnections are encouraged to ensure critical redundancy, and existing interconnections in the region were evaluated in Section 5.0 and found to not be viable to meet all deficits in the region without development of other new sources of supply; and
- Finally, joint ownership and management was considered in Section 6.0 which recommended consolidating resources to develop new regional supply sources if feasible.

This approach attempts to minimize potential impacts and costs of new source development. For example, the recent water main extension in Franklin along Route 32 from NPU was considered by Connecticut DEEP to have less environmental impacts (per the Environmental Impact Evaluation) than the development of new sources (10 new bedrock wells). Should evaluation of the benefit of targeted water conservation and water efficiency measures demonstrate that projected deficits cannot be eliminated, or cannot be eliminated even when combined with securing water through an interconnection (or development of an interconnection proves impractical), development of new supply sources will need to be pursued.

For those systems projecting deficits, Table 7-1 summarizes the potential sources of new water supply envisioned by each utility in its most recent WSP and summarized in Chapter 3.0 of the *Final Water Supply Assessment* (December 2016). A variety of potential sources and system modifications are envisioned.

TABLE 7-1
Potential Sources of Supply for Systems Projecting Significant Supply Deficits

Community Water System	Alternative	Potential Supply (mgd)	Regionally Significant?
AWC – Mystic	Develop wells in Whitford Brook watershed	Unknown	No
	Develop wells in Copps Brook watershed	Unknown	No
Colchester Water & Sewer	Reactivate inactive Country Place Well	0.072	No
	Develop wells in Sherman Brook watershed	Unknown	No
	Develop wells in the Judd Brook watershed	Unknown	No
	Develop wells in the Blackledge River watershed	Unknown	No
	Develop wells in the Jeremy River watershed	Unknown	No
	Develop surface water reservoir in Meadow Brook watershed	Unknown	No
	Develop surface water reservoir in Judd Brook watershed	Unknown	No
	Develop surface water reservoir in Pine Brook watershed	Unknown	No
	Develop surface water reservoir in Sherman Brook watershed	Unknown	No
East Lyme Water & Sewer	Install replacement wells as necessary	Lost Capacity	No
	Develop new supplies in conjunction with SCWA	Unknown	Possible
	Develop Camp Rell Wellfield	< 1.000	No
Montville WPCA	Develop wells in Trading Cove Brook aquifer	0.500	No
	Divert surface water from Oxoboxo Lake to NPU for treatment and purchase	0.500	No
New London & Waterford	Hunt's Brook diversion	2.000	Yes
	Sealing Lake Konomoc dam	0.200	Yes
	Excavation of Lake Konomoc	1.290	Yes
	Acquire Millers Pond and connect to reservoir system	1.600	Yes
	Activate Polly Brook Well	0.300	No
Norwich Public Utilities	Recycling of filter plant backwash	0.500	No
	Utilize Norwichtown Well for active rather than emergency use	1.000	Yes
	Reactivation of Fairview Reservoir	0.740	Possible
	Reactivation of Bog Meadow Reservoir	0.380	Possible
	Development of new wells in Shetucket River aquifer	Unknown	Possible
	Development of new wells in Yantic River aquifer	Unknown	Possible

In addition, Groton Utilities is envisioning development of supplies although the system is not presently projecting a supply deficit. These are summarized in Table 7-2. Each project could be regionally significant.

TABLE 7-2
Additional Potential Sources of Supply Which Are Regionally Significant

Community Water System	Alternative	Potential Supply (mgd)
Groton Utilities	Haleys Brook downstream diversion (fall-spring)	3.0
	Haleys Brook mid-stream diversion (fall-spring)	1.4
	Shewville Brook diversion	3.4
	Elevate Ledyard Reservoir dam	Unknown

7.1 Potential Groundwater Sources to Address Supply Deficits

As noted in Table 7-1, potential new groundwater supplies have been identified by several utilities. These are briefly described by utility below:

- AWC is considering well development in two nearby watersheds, although site-specific testing has not been conducted. While it is possible that a well or wells may be developed that yield more than 1.0 mgd, AWC is not projecting that level of deficit in its Mystic system. Therefore, any sources developed by AWC have a high likelihood of yielding less than 1.0 mgd and therefore are not considered to be regionally significant.
- Colchester Water & Sewer Commission is considering well development in several areas, although site-specific testing has not been conducted. However, because the system is relatively isolated from other large systems in the region (See Section 5.0), any groundwater sources developed by Colchester are considered unlikely to be regionally significant at this time.
- East Lyme Water & Sewer Commission plans to rehabilitates its groundwater supplies as necessary, and has identified the potential groundwater supply development in the vicinity of Camp Niantic (formerly Camp Rell) in Niantic. However, the new supply is not expected to yield more than 1.0 mgd and therefore neither of these projects are considered regionally significant. East Lyme has also considered teaming with SCWA to conduct source development feasibility studies but none have been performed to date.
- Montville WPCA has identified the potential to develop groundwater supplies in the Trading Cove Brook aquifer in northern Montville. However, the supply is not expected to yield more than 1.0 mgd and therefore is not considered regionally significant.
- New London Department of Public Utilities & Waterford Utilities Commission have identified activation of the Polly Brook Well in Waterford as a potential supply source. However, the supply is not expected to yield more than 1.0 mgd and therefore is not considered regionally significant.
- NPU has identified the potential for activating its Norwichtown Well as a potential groundwater supply. The well is registered with Connecticut DEEP for a withdrawal of 1.0 mgd and is presently used as an emergency source of supply. NPU also considers the well to be an important emergency source of supply for the regionally interconnected water system. In addition, NPU has considered groundwater supply development in the Shetucket River aquifer and the Yantic River aquifer, but site-specific studies have not been performed to date.

Based on the above, only East Lyme Water & Sewer Commission and NPU are considering development of groundwater supplies which could be regionally significant. For those areas where site-specific studies have yet to be conducted and the volume of potential supply is unknown, further study should be conducted by these utilities to quantify the potential yield to determine if these supplies should be developed or preserved through land acquisition for future supply development.

Therefore, the only potentially regionally significant groundwater supply source presently under consideration in the region is the Norwichtown Well, which lies in the Yantic River basin (basin 3900). A brief description of the Yantic River basin is provided below:

The Yantic River subregional basin is located within the Yantic regional basin and the Thames River major basin. The watershed area of the Yantic River extends through Lebanon, Franklin and Bozrah, and other towns.

As noted in the *State Water Plan* (January 2018), registered diversion volumes often far exceed actual or even potential withdrawals. The *State Water Plan* attempts to clarify registered usage to determine actual use versus unused portions of registrations in its Basin Water Summaries, and identifies the following information regarding the Yantic River regional basin:

- Out-of-stream water needs and reservoir release requirements total 4% of average annual streamflow;
- Out-of-stream and instream water needs total 78% of average annual streamflow;
- July out-of-stream water needs and reservoir release requirements total 20% of July streamflow; and
- July out-of-stream and instream water needs total 84% of July streamflow.

Active use of the Norwichtown well by NPU would be relatively straightforward as NPU regularly performs all required water quality monitoring to ensure the well can be activated at any time. The drawback is that active use of the well would leave NPU without an emergency source of supply other than its interconnection to the regionally interconnected water system via Montville WPCA. While a second connection to the regionally interconnected water system is proposed via Preston and Ledyard in the next five years (Section 5.0), NPU has indicated that maintaining its own emergency sources of supply would be desirable. As such, active use of the Norwichtown well would likely spur development of new groundwater sources for emergency use. Such an action would not provide a direct revenue return on the capital investment as the water would not be actively used, nor is the development of new emergency sources be considered a regionally significant action for the purposes of this document.

7.2 Potential Surface Water Sources to Address Supply Deficits

As noted in Table 7-1 and Table 7-2, potential new surface water supplies have been identified by several utilities. These are briefly described by utility below:

- Colchester Water & Sewer Commission is considering surface water supply development in several areas, including the development of reservoirs and/or direct withdrawals. Site-specific testing has not been conducted. However, because the system is relatively isolated from other large systems in the region (See Section 5.0), any surface water sources developed by Colchester are considered unlikely to be regionally significant at this time. In the event that a significant supply source can be developed, the WUCC may reconsider its significance in the future.
- East Lyme Water & Sewer Commission has considered teaming with SCWA to conduct source development feasibility studies, but none have been performed to date. Therefore, these potential supplies are not considered to be regionally significant at this time.

- Groton Utilities has long considered diversions from Haleys Brook (basin 2105) in Groton and Shewville Brook (basin 3003) in Preston as potential future supply sources:
 - Diversion from one of two locations on Haleys Brook during higher water periods in fall, winter, or spring to provide additional flow to Morgan Reservoir have the potential to increase safe yield by 1.4 or 3.0 mgd depending on the location of the withdrawal. These safe yield estimates were calculated while ensuring that minimum streamflow standards were maintained in Haleys Brook. The creation of a run-of-the-river dam may be necessary to facilitate withdrawals.
 - A diversion from Shewville Brook to Morgan Reservoir has the potential to increase safe yield by up to 3.4 mgd. The creation of a run-of-the-river dam may be necessary to facilitate withdrawals.
 - In addition, Groton Utilities is considering raising the level of the Ledyard Reservoir dam to increase storage (and safe yield) in the reservoir system. The potential benefit to safe yield has not been calculated at this time.
- Montville WPCA has identified the potential to divert surface water from Oxoboxo Lake to Stony Brook Reservoir as a source of supply. The water would then be treated by NPU for resale to Montville WPCA. However, the supply is not expected to yield more than 1.0 mgd, and it is unclear at this time if withdrawal of water from the lake would be feasible. Therefore this potential source is not considered regionally significant.
- New London Department of Public Utilities & Waterford Utilities Commission have identified a variety of infrastructure improvements at Lake Konomoc to increase safe yield by approximately 1.49 mgd. In addition, the following regionally significant supplies have been identified:
 - New London has considered a diversion from Hunts Brook (basin 3006) as a potential source of supply for more than 40 years. Water would be diverted from the brook for storage at Lake Konomoc and would provide a benefit of approximately 2.0 mgd to safe yield. A run-of-the-river dam may be necessary to support the withdrawal. However, DEEP has not favorably reviewed previous proposals related to this diversion, and the environmental impact of such diversion would likely need to be mitigated from previous proposals.
 - New London has also considered Millers Pond (basin 3006) as a potential water source for several decades. Water diverted from Millers Pond could potentially tie into the infrastructure for the diversion from Hunts Brook, resulting in a 1.6 mgd increase in safe yield. The City of New London reached an understanding with the owners of the pond in 2006 for use of the pond as an emergency source of supply.
- NPU has identified the potential for reactivating its Fairview Reservoir and Bog Meadow Reservoir in Norwich as potential supply sources. Both sources (basin 3900) were historically used and withdrawals are registered with the Connecticut DEEP, but treatment facilities are not currently available. The combined safe yield of the two sources is 1.12 mgd and together the two sources may be regionally significant.

In general, creation of new reservoirs is considered to be challenging in Connecticut, and as such new reservoirs have largely not been developed in Connecticut over the past several decades. First,

development of a reservoir needs a significant amount of land to be flooded to be viable, which is difficult to achieve with the level of development present in Connecticut. Furthermore, such land is typically not presently owned by a utility, which drives up potential costs to purchase land for the reservoir as well as to protect land in the watershed. If significant undeveloped land exists near a proposed reservoir, it may be controlled by the state or held in trust by other entities not seeking a change from undeveloped to open water. Thus, successful coordination among multiple parties would be essential for development of a new reservoir, which could potentially take decades of planning and expenditure to come to fruition, and this challenge is prior to consideration of potential environmental impacts. For this reason, some utilities (such as Groton Utilities) have been focused on pursuing potential smaller scale diversions of surface water with minimum streamflow requirements in mind.

From a permitting perspective, the modern environmental movement began around 1970 with passage of a number of State and federal regulatory programs. The Connecticut Water Pollution Control Act (1968), National Environmental Policy Act (1970), federal Safe Drinking Water Act (1974), federal Clean Water Act (1972), and subsequent amendments, and parallel State programs provide the basis of water resource regulation and management in the state.

The 1982 Water Diversion Act authorizes Connecticut DEEP to regulate the withdrawal of water in excess of 50,000 gpd from surface and ground sources. There are approximately 1,800 "grandfathered" registered diversions that existed prior to 1982, and approximately 350 diversion permits are active for diversions statewide. The Diversion Act requires DEEP to consider the impact of a project based on potential impacts to streamflow rates, aquatic systems, recreation, fish habitat and boating with consideration of the societal and economic benefits, among other considerations. They also consider alternative actions such as water conservation and inter-utility water purchases.

Section 404 of the Federal Water Pollution Control Act authorizes the EPA and United States Army Corps of Engineers (USACE) to regulate discharges to the waters of the United States, including most watercourses and wetlands. The construction of dams and reservoirs are regulated because they usually result in the filling or submergence of wetlands. The Corps has denied permits for several major water supply reservoir projects in the past due to potential environmental impacts, and mitigation actions for projects evaluated under Section 404 programs typically require a high ratio of mitigation to potential impacts to receive USACE support.

Thus, the prospects of receiving regulatory permits for new or enlarged reservoirs depend greatly upon their environmental impact and the availability of alternatives. Projects that would require filling wetlands for dams, that inundate large wetland areas, or that harm downstream areas by diminishing stream flow, will have difficulty in being approved without significant space and expenditure for mitigation activities.

Low flow stream releases or maintenance of minimum instream flow is expected to be required for new surface water diversions for the purpose of maintaining sufficient downstream habitat and supporting downstream uses. These requirements reduce the percentage of the watershed runoff that would be available for water supply. Consequently, substantial water supply yields can only be expected from relatively large watersheds. To this end, the above proposals largely include raising dam elevations, dredging, diverting Class A non-tributary streams laterally to reservoirs to enhance refill and augment existing reservoirs. In particular, the proposed Haleys Brook diversions by Groton Utilities consider minimum streamflow requirements and evaluate the potential benefits from only diverting water during high water periods. These types of augmentation would still require regulatory approvals, but may

result in less impact as compared to development of new reservoir supplies, thereby making them preferable.

7.2.1 *Diversion from Haleys Brook (Basin 2105)*

The Haleys Brook subregional basin is located within the Southeast Eastern regional basin (basin 2100) and the Southeast Coast major basin. The watershed area of the Haleys Brook extends primarily through Ledyard and Groton.

The State Water Plan identifies the following information regarding the Southeast Eastern regional basin:

- Out-of-stream water needs and reservoir release requirements total 16% of average annual streamflow;
- Out-of-stream and instream water needs total 77% of average annual streamflow;
- July out-of-stream water needs and reservoir release requirements total 226% of July streamflow; and
- July out-of-stream and instream water needs total 280% of July streamflow.

As noted above, Groton Utilities has been considering two general locations along Haleys Brook for withdrawals to supplement reservoir storage during late fall, winter, and spring. As withdrawals are not proposed during the summer low flow period, this proposal attempts to minimize potential environmental impacts during the summer low flow period. A midstream location would be closer to the existing reservoir system than a downstream location, but the downstream location would be closer to the confluence of the Mystic River thereby reducing the potential for environmental impacts in the brook during the period of withdrawal. Groton Utilities has currently considered the preliminary feasibility of these sites for water supply diversion. Given the potential supply deficits in the region, it is recommended that Groton Utilities work in concert with other utilities to attempt to bring one of these locations online within the 5-year planning period.

7.2.2 *Diversion from Shewville Brook (Basin 3002 or 3003)*

The Shewville Brook subregional basin is located within the Thames Main Stem regional basin (basin 3000) and the Thames major basin. The diversion of water associated with this brook could also occur downstream on Poquetanuck Brook (basin 3003) slightly downstream of the confluence of Shewville Brook. The watershed area of the Haleys Brook extends primarily through Ledyard, North Stonington, and Preston.

The draft State Water Plan identifies the following information regarding the Southeast Eastern regional basin:

- Out-of-stream water needs and reservoir release requirements total 2% of average annual streamflow;
- Out-of-stream and instream water needs total 89% of average annual streamflow;
- July out-of-stream water needs and reservoir release requirements total 23% of July streamflow; and
- July out-of-stream and instream water needs total 96% of July streamflow.

As noted above, Groton Utilities has been conceptually evaluating a withdrawal along Shewville Brook (or Poquetanuck Brook) for withdrawals to supplement reservoir storage. No mention of limiting withdrawals to occurring during late fall, winter, and spring is provided in the WSP. While the initial conceptual withdrawal location provided a benefit to safe yield of the system, that location is no longer under consideration and Groton Utilities plans to develop a new feasibility study to evaluate a new withdrawal location nearby, which will likely have a similar benefit to safe yield. Given the potential supply deficits in the region, it is recommended that Groton Utilities work in concert with other utilities to attempt to augment its supply with Shewville Brook within the 20-year planning period.

7.2.3 *Diversion from Hunts Brook (Basin 3006)*

The Hunts Brook subregional basin is located within the Thames Main Stem regional basin (basin 3000) and the Thames major basin. The watershed area of Hunts Brook lies in Montville and Waterford. As noted in Section 7.2.2, based on the Basin Water Summary the potential exists for limited supply development in the Thames Main Stem regional basin without reducing available flow for instream needs.

As noted above, diversion of water from Hunts Brook in Montville would be routed to Lake Konomoc. Water travelling downstream past the diversion point could potentially be withdrawn from Millers Pond downstream in Waterford. Given the potential supply deficits in the region, it is recommended that New London & Waterford perform a feasibility study to attempt to develop new alternatives for this source of supply for which a permit may be obtained, with the goal of bringing this source online within the 20-year planning period. As noted in the discussion in Section 8.1, streamflow releases would likely be needed from both locations, which would limit potential withdrawals. However, flood skimming and other withdrawals during periods of higher flow may be able to be permitted provided adequate instream flows are maintained.

7.2.4 *Reactivate Bog Meadow Reservoir and Fairview Reservoir (Basin 3900)*

NPU has identified recycling of backwash water as a potential method to increase available water. Current operations at the two NPU treatment plants are such that backwash water is not recycled, such that the water lost to backwashing (average of 0.83 mgd) is counted against available water. NPU plans to commence a study to evaluate, design, and construct the means for recycling backwash water at each treatment plant, with the goal of minimizing waste. For the purposes of this report, it is assumed that a minimum of 0.5 mgd of available water would be gained through incorporation of a backwash recycling strategy.

As treatment facilities are not present at the Bog Meadow and Fairview reservoirs, development of treatment facilities will be a significant project cost. Historically, water was routed between reservoirs from Bog Meadow to Fairview for storage and treatment, but transfers were discontinued in the 1930s because the water quality in Bog Meadow Reservoir was inferior to other sources of supply which were available. The condition of the existing transfer piping is not known. However, operation in the historical manner may be feasible, as Fairview Reservoir is located adjacent to active water supply mains. As this action will require a feasibility analysis, it is recommended for the 20-year planning period.

7.3 Potential Groundwater Sources to Address New Small System Water Demands

New small CWSs are likely to be developed in the Eastern PWSMA within the 5-, 20-, and 50-year planning periods for the reasons cited in the *Final Water Supply Assessment* (December 2016) and Section 2.1 and 2.3 of this report, such as where new contaminants are identified, where local zoning encourages cluster-style developments, and for other reasons. New systems will be developed in areas where ESAs have been established and even potentially in areas that remained unassigned relative to ESAs. These water systems will likely be served by new groundwater supplies that are distant from existing large water systems. For this reason, the list of existing and future sources populated from Individual WSPs (developed by water utilities that serve greater than 1,000 people each) is not useful as an indicator of potential sources for new small CWSs. Such systems will be developed under the CPCN process.

7.4 New Supply Development Implementation Strategy

The development of new water supply sources, both regionally and locally, will take considerable planning and analysis. The following is a summary of steps that would need to be taken for each source.

- Secure site access and investigate potential yields through preliminary geologic investigation and/or safe yield modeling.
- Analyze area land use for compatibility with water supply source development.
- Meet with local, state and federal regulators to determine problem areas and assess the feasibility of obtaining permits. Meeting with regulatory agencies early in the source development process is critical to the financial success of the project, as source development testing is extremely costly.
- If a pathway forward to a permit appears possible, secure rights to necessary land through easement, development agreement, or outright purchase.
- Install and develop test wells (for groundwater sources) and/or complete stream flow analysis (for surface water sources) to verify source yields and permit limits.
- Complete analysis of potential environmental impacts. This should include analysis of instream flow rates, wetlands and wetland habitat, waste load allocation requirements, water quality, fish and wildlife habitat, and flood management issues.
- Develop a mitigation plan to offset projected impacts.
- Coordinate with host community(ies) and potentially other utilities.
- Submit applications to DEEP and USACE as required.
- Submit permit applications to local boards and commissions as necessary.
- Finalize land transfers and easements, if any are outstanding. Complete detailed land use analysis and develop and implement plan for additional land acquisition in source water areas.

- Establish protective reservoir watershed area or APA mapping.
- Implement changes in land use regulations necessary to protect the source.
- Design and construct infrastructure necessary to deliver water to the distribution system, including any treatment and pumping systems, along with necessary water transmission mains and piping.

Permitting plays a critical role in the success of new source development. Meeting with regulators at the local, state and federal levels early in the development process is critical to establishing a successful implementation plan. Each potential source has distinct environmental issues associated with its development. Source developers will need to be aware of these issues before embarking on a program of costly testing and development.

At the State level, source development will require a water diversion permit, and other permits may also be required. A 401 Water Quality Certification will also be required if the project is regulated by the USACE. At the federal level, the USACE regulates the filling or discharge to wetlands and navigable waters. The development or expansion of surface water supplies typically requires Corps involvement.

Water quality analysis will dictate the treatment needs of each source. Surface water supplies will require construction of a treatment system that may include filtration, coagulation and flocculation, clarification, aeration, disinfection, and/or iron and manganese removal. Treatment facilities will generate waste process waters and sludges that must be disposed of off-site.

Groundwater sources typically require less treatment than surface waters. In many cases, the soil matrix provides sufficient filtration to sustain drinking water quality. Iron and manganese are the two most common constituents found in groundwater and may require treatment. Disinfection is often required for groundwater systems as is pH adjustment before distribution.

Downstream users of surface waters and environmental groups can pose restrictions on water supply development in addition to regulatory restrictions. The Connecticut Environmental Policy Act (CEPA) was used beginning in the late 1990s as a basis for intervention in a diversion permit application. The State Supreme Court, opening the door for the use of CEPA to oppose diversions, upheld this intervention. The recreational and aesthetic value of a waterbody or watercourse, as well as downstream water usage, must be considered with the development of new water supplies and reactivation of unpermitted inactive water supplies. Local municipal planning staff are a good resource in determining downstream uses and potential conflicts.

While targeted water conservation and water efficiency measures are recommended for each system showing a supply deficit, as noted by the A4WE such measures must be system specific and the potential effectiveness of such measures for a particular system cannot be quantified at this time. The consequences of not developing new water supplies in a timely manner in the future include the potential for moratoriums on new connections, limits on economic development, increases in water pricing, and water rationing or allocation among users. Therefore, utilities projecting deficits should, in general, actively pursue targeted conservation and water efficiency programs while performing the necessary planning for new source development.

Finally, innovative treatment and supply augmentation techniques should be considered in the future. These could include desalination of Class SA surface water or groundwater to artificial recharge, spreading basins, or induced streambed infiltration. It should be noted, however, that development of water supplies in waterbodies that receive waste discharges is not allowed under current statutes and regulations. Conversion of Class B surface water resources to Class A could also result in a potential supply source if point source discharges were eliminated or relocated. The potential cost of such actions may vary widely. For example, the cost to treat water via desalination is typically eight to 16 times more costly than conventional water treatment.

7.5 Recommendations

Recall from Section 5.4.1 that transfers through the regionally interconnected water system may help to meet some of the supply needs of the region through 2060. However, recommendations for the timing of such improvements were deferred to this section such that the potential benefits of regionally significant supply sources may be considered.

As noted in Section 5.3, Groton Utilities has surplus supply available. However, Groton Utilities has stated that it would prefer not to commit any more of their presently surplus supply to the regionally interconnected water system. Instead, Groton Utilities would prefer to work with other utilities with supply needs to develop the new sources it has identified to increase safe yield of its system. As part of the supply development agreement, Groton Utilities would allocate some or all of the increased supply to the utility in need. This will provide a buffer for future growth in Groton (for example, if a large water user such as certain types of industry return to the city) while allowing Groton Utilities to assist in meeting regional needs.

The WUCC encourages each utility considering sources of supply not deemed regionally significant herein to continue pursuing such supplies independently. Should a potentially regionally significant supply be found, utilities are encouraged to discuss potential use of such source with the WUCC.

Based on the above, and the desire of the Eastern WUCC for systems in need to develop their own supply sources whenever possible to prevent being entirely dependent upon regional interconnections, a menu of options to be considered by utilities is included in Table 7-3, Table 7-4, and Table 7-5 for the three planning horizons. Note that supply sources not considered to be regionally significant in Table 7-1 are not listed in these tables.

Based on the planning data in these tables, the large CWSs currently projecting deficits would be able to have excess water supply through the 50-year planning period if all available sources are developed (an unlikely scenario). The total potential yield of the regionally significant sources is 14.470 mgd as compared to the projected 20-year deficit of 9.0 mgd and the 50-year deficit of 12.6 mgd.

As shown in Table 7-3, several (but not many) options for increasing available supply appear to be available for New London & Waterford and NPU to develop within the five-year planning period. The timing of these improvements is based on evaluations completed to date by these utilities and a reasonable potential for the sources to be permitted. However, accessing Groton Utilities current surplus may be necessary (at least temporarily) if passive water conservation benefits and guidance from DPH regarding the available water calculation for MMADD are not realized.

TABLE 7-3: Menu of Potential Water Supply Solutions to Consider for 2023 (mgd)

Large Community Water System & Potential Solutions	Basic Projections	Passive Water Conservation	Passive Water Conservation & DPH Guidance
New London Department of Public Utilities & Waterford Utility	2.038	2.038	-
Norwich Public Utilities	1.801	1.667	1.338
Total Deficit in 2023	3.838	3.704	1.338
Lake Konomoc improvements	0.200	0.200	0.200
Activate Norwichtown Well	1.000	1.000	1.000
Recycling of NPU filter plant backwash	0.500	0.500	0.500
Activate Haleys Brook diversion (midstream)	1.400	1.400	1.400
Access Groton Utilities Surplus*	2.759	2.759	2.759
Surplus in 2023	2.021	2.155	4.521

*If necessary. Not preferred by Groton Utilities.

TABLE 7-4: Menu of Potential Water Supply Solutions to Consider for 2030 (mgd)

Large Community Water System & Potential Solutions	Basic Projections	Passive Water Conservation	Passive Water Conservation & DPH Guidance
AWC - Mystic	0.399	0.329	-
East Lyme Water & Sewer Commission	0.730	0.594	0.594
New London Department of Public Utilities & Waterford Utility	3.085	3.085	2.106
Norwich Public Utilities	4.993	4.850	4.570
Total Deficit in 2030	9.206	8.858	7.270
Lake Konomoc improvements	0.200	0.200	0.200
Dredging of Lake Konomoc	1.290	1.290	1.290
Hunts Brook diversion	2.000	2.000	2.000
Millers Pond diversion	1.600	1.600	1.600
Activate Norwichtown Well	1.000	1.000	1.000
Recycling of NPU filter plant backwash	0.500	0.500	0.500
Reactivation of Bog Meadow and Fairview Reservoirs	1.120	1.120	1.120
Activate Haleys Brook diversion (downstream)	3.000	3.000	3.000
Activate Shewvile Brook diversion	3.400	3.400	3.400
Access Groton Utilities Surplus*	2.759	2.759	2.759
Surplus in 2030	7.663	8.011	9.599

*If necessary. Not preferred by Groton Utilities.

TABLE 7-5: Menu of Potential Water Supply Solutions to Consider for 2060 (mgd)

Large Community Water System & Potential Solutions	Basic Projections	Passive Water Conservation	Passive Water Conservation & DPH Guidance
AWC - Mystic	0.648	0.557	0.361
East Lyme Water & Sewer Commission	1.891	1.601	1.601
Montville WPCA	0.849	0.721	0.721
New London Department of Public Utilities & Waterford Utility	3.880	3.880	2.902
Norwich Public Utilities	5.418	5.268	4.989
Total Deficit in 2060	12.687	12.028	10.573
Lake Konomoc improvements	0.200	0.200	0.200
Dredging of Lake Konomoc	1.290	1.290	1.290
Hunts Brook diversion	2.000	2.000	2.000
Millers Pond diversion	1.600	1.600	1.600
Activate Norwichtown Well	1.000	1.000	1.000
Recycling of NPU filter plant backwash	0.500	0.500	0.500
Reactivation of Bog Meadow and Fairview Reservoirs	1.120	1.120	1.120
Activate Haleys Brook diversion (downstream)	3.000	3.000	3.000
Activate Shewvile Brook diversion	3.400	3.400	3.400
Access Groton Utilities Surplus*	1.674	1.674	1.674
Surplus in 2060	3.097	3.756	5.211

*If necessary. Not preferred by Groton Utilities.

As stated previously, development and activation of targeted water conservation and water efficiency programs should be the first priority for New London & Waterford and NPU to reduce potential water need. This should be coupled with completion of a revised WSP, as the current plans for New London and NPU date from 2009 and 2011, respectively (Waterford Utilities Commission has a 2016 plan). Furthermore, New London and NPU should set in motion the projects listed in Table 7-3, including beginning working with Groton Utilities on development of a future regional source of supply. This will ensure that sufficient supply will be available in the region by 2023, and some or all capital projects may always be placed on hold if revised projections and water conservation and water efficiency measures are effective.

Development of targeted water conservation and water efficiency programs to reduce demand, coupled with completion of revised projections, should be the first priority for New London and NPU.

As shown in Table 7-4, additional supply options are possible for development by 2030 for each utility in need and by Groton Utilities. As stated in Section 3.7, it is expected that passive water conservation measures will eliminate deficits for AWC-Mystic and East Lyme Water & Sewer Commission in the 20-year planning period. New London & Waterford and NPU should continue to work with Groton Utilities towards development of regional water supply sources, as well as

work conscientiously towards development of at least one additional supply during this planning period. Not all of these sources would need to be developed by 2030. These utilities should work with the WUCC to prioritize these potential projects and alternatives.

Similar to Table 7-4, Table 7-5 demonstrates the how the potential projects will eliminate deficits in the region through 2060. Additional projects will need to be developed between 2030 and 2060 to meet these deficits, and utilities should continue to work with the WUCC to prioritize potential projects and alternatives. It is possible that targeted water conservation and water efficiency measures may greatly reduce projected needs; likewise, it is possible for demands to be realized which are not currently accounted for over this long-term planning period. It is anticipated that future updates to this Integrated Report will provide a revised analysis of methods to meet long-term needs in the region. Nevertheless, it is expected that if AWC-Mystic and Montville WPCA desire to secure an additional increment of available water from Groton Utilities during this timeframe, coordination on supply development will be necessary.

Source development should begin as early as possible with preliminary source investigation. Potential source locations should be reviewed with local, state and federal regulatory agencies as early as possible in the development process. Regulators should be involved in the development of plans to assess yields and potential impacts as early as possible. Involvement of regulatory agencies early in the development process will be critical to the successful development of new sources. In addition, a sound land acquisition strategy with available funding will be key to successful implementation of new source development. Finally, the WUCC should be prepared to continue to work with DPH on evaluation of alternative treatment technologies, and other methods to address deficits, in the event that the above water supply solutions cannot materialize or are not as effective at increasing safe yield as the preliminary analyses have indicated.



8.0 POTENTIAL IMPACT ON OTHER USES OF WATER RESOURCES

Information presented in this section evaluates the potential impact of developing regionally significant future sources identified in Section 5 and Section 7. The evaluation is considers the following criteria:

- Water Quality
- Minimum Streamflow (based on the Streamflow Standards and Regulations)
- Flood Management
- Recreation
- Hydropower
- Natural Diversity Data Base (NDDB) areas of Environmental Concern
- Aquatic Habitat
- Riparian Rights
- Waste Load Allocation
- Resiliency to Climate Change

The review and information provided herein is based on published information only. Detailed review and field analysis of each future source will be required prior to source development and use.

The projected aquifer and stream yield has been compared to the 7Q10 flowrate for each source. It is assumed that permits would not be issued for the development of a source where the yield is greater than 50% of the 7Q10 flow. While permit criteria varies depending on the resource, 50% of 7Q10 is used as for planning purposes.

The only readily available information with regard to riparian rights is contained in the diversion permitting inventory maintained by the Connecticut DEEP. Other riparian rights may exist as recorded in land record deeds; these have not been evaluated by the WUCC. It is noted that conflicts may exist between those entities holding diversion permits and registrations and other individuals with legitimate riparian rights.

8.1 Potential Impacts of Projects by New London Department of Public Utilities

Regionally significant potential groundwater supplies include the following potential actions by the New London Department of Public Utilities, potentially undertaken in association with Waterford Utilities Commission:

- Sealing the Lake Konomoc dam (0.200);
- Excavation of Lake Konomoc (1.290 mgd);
- Hunts Brook diversion to Lake Konomoc (2.000 mgd); and
- Millers Pond diversion to Lake Konomoc (1.600 mgd).

Water Quality and Minimum Streamflows

The proposed direct improvements to Lake Konomoc are not anticipated to have a long-term impact on water quality. Water quality in Lake Konomoc is considered Class AA quality suitable for use as public

water supply. Any localized disturbances which may temporarily impact water quality during construction would be mitigated, and state permitting will be required, at a minimum, to dredge the reservoir. As releases will be required from Lake Konomoc in accordance with the Streamflow Standards and Regulations, impacts to minimum streamflow are not anticipated.

Hunts Brook is mapped as having Class AA water quality to the location of the proposed diversion, in light of it being long envisioned as a public water supply source. Downstream of the diversion location, Hunts Brook is mapped as having Class A (potential public water supply) water quality, including at Millers Pond. Diversion of water from Hunts Brook for public water supply is not anticipated to have an adverse impact on water quality as the use of this source for public water supply is consistent with the classification. Best management practices would be necessary during construction to ensure that any water quality impacts would be minimized.

The USGS program *StreamStats* (version 4) was used to determine flow statistics along Hunts Brook to the vicinity of the proposed diversion location. The drainage area to the approximate location of the proposed Hunts Brook diversion is 5.16 square miles, and the percentage of coarse-grained stratified drift in the basin is 4.1%. The 99% duration flow was calculated to be 0.131 cubic feet per second (cfs) (0.085 mgd), which is slightly higher than the 7Q10 flow (which is generally considered to be equivalent to the 99.2% duration flow) but generally equivalent. Insufficient flow exists in the brook during low flow periods to support a withdrawal of 2.000 mgd. The diversion of water from the brook to Lake Konomoc would need to be higher during certain periods of the year than others in order to provide a safe yield increase of approximately 2.000 mgd. In addition, it is likely that releases would need to be made in accordance with the Streamflow Standards and Regulations as a small dam and diversion structure is proposed. Therefore, the benefit to available water from this source would be reduced.

The USGS program *StreamStats* (version 4) was used to determine flow statistics along Hunts Brook to the outlet of Millers Pond. The drainage area to the approximate location of the proposed Hunts Brook diversion is 9.89 square miles, and the percentage of coarse-grained stratified drift in the basin is 8.9%. The 99% duration flow was calculated to be 0.426 cubic feet per second (cfs) (0.275 mgd), which is slightly higher than the 7Q10 flow (which is generally considered to be equivalent to the 99.2% duration flow) but generally equivalent. Insufficient flow exists in the brook during low flow periods to support a withdrawal of 1.600 mgd. The diversion of water from the pond to Lake Konomoc would need to be higher during certain periods of the year than others in order to provide a safe yield increase of approximately 1.600 mgd. In addition, it is likely that releases would need to be made in accordance with the Streamflow Standards and Regulations as Millers Pond would be impounded for active water supply. Therefore, the benefit to available water from this source would be reduced.

As both impoundments would need to make releases under the Streamflow Standards and Regulations, it is generally expected that minimum instream flows would be maintained downstream of the dams during low flow periods each year. As these surface water supply sources would require diversion permits, site specific evaluations of impacts would be required prior to activation.

Flood Management

The proposed direct improvements to Lake Konomoc are not anticipated to have a long-term impact on flood management. These improvements would not change the overall water level in the reservoir.

Construction of a new low head dam along Hunts Brook may impact flood management along Hunts Brook. The vicinity of the project is mapped by FEMA as Zone A, indicating that it lies within a 1% annual

chance floodplain without elevations defined. Raising water levels along the brook may result in adverse impacts to flooding on adjacent properties. Hydraulic analysis should be completed if new facilities are to be constructed in the floodplain to ensure that adverse increases in water surface elevations are prevented. Prevention of impacts to flood management is largely controlled through local permitting efforts, including building permits and zoning controls. In addition, DPH requires facilities to be free from flooding, which typically means above the 1% annual chance flood elevation. The State of Connecticut requires critical facilities to be constructed to the 0.2% annual chance flood elevation, which may be required if state funding is utilized for certain projects.

The vicinity of Millers Pond is mapped by FEMA as Zone X, indicating that it lies within a 0.2% annual chance floodplain. These are areas of moderate flood hazard. However, water levels would not be raised as part of the diversion, such that only the construction of new facilities may drive any impacts to flood management.

Recreation

The proposed direct improvements to Lake Konomoc are not anticipated to have a long-term impact on recreation, as this reservoir is not used for recreation.

The property surrounding Hunts Brook and Millers Pond is currently privately owned. Limited use of the brook and the pond may occur for recreation, which would be affected by public water supply withdrawals depending upon the time of year and the volume. Hunts Brook has not been accessed for supporting recreational use in the 2016 Connecticut Integrated Water Quality Report, so recreational value for this brook may be low, and impacts to recreation is anticipated to be minimal.

Hydropower

Based on information available on the Federal Energy Regulatory Commission website as of November 2017, there are no hydropower operations located in the Hunts Brook watershed.

Natural Diversity Database and Aquatic Habitat Concerns

The December 2017 NDDB shapefile was accessed to determine the potential location of wildlife which could potentially be affected by the proposed diversions. All of Lake Konomoc is located within an NDDB area, as is Millers Pond. An additional NDDB area is located along Hunts Brook between the diversion point and Millers Pond. Thus, each proposed activity has the potential to affect listed species through reduced flow in the intermediate section of Hunts Brook and potentially fluctuating water levels in Millers Pond.

Aquatic habitats could potentially be impacted by the use of surface water sources. The occurrence of impacts would be directly related to the proposed withdrawal rate and the hydrogeology of the area. The 2016 Connecticut Integrated Water Quality Report notes that Hunts Brook is considered to be fully supporting of aquatic life to the vicinity of the proposed diversion, but the brook was not accessed downstream of the diversion to Millers Pond. Downstream of Millers Pond, the brook is considered to be not supporting of aquatic life. The potential cause of this impairment is unknown but is possibly related to stormwater runoff. Assuming that instream flows are maintained through compliance with the Streamflow Standards and Regulations, impacts to aquatic habitat would be minimal.

Riparian Rights

A large agricultural operation is located along Hunts Brook between the diversion location and Millers Pond, as is Waterford Country School. Waterford Country School impounds Lake Cuheca along Hunts

Brook upstream of Millers Pond, but the use is not immediately known. It is not clear if additional riparian users are located downstream of Millers Pond.

Waste Load Allocations

Hunts Brook is not utilized for assimilation of treated wastewater.

Climate Change

Each of the four projects is resilient to climate change. Conducting dam improvements and increasing storage are both actions which will increase resiliency. Activation of Millers Pond as a surface water source would be relatively resilient to climate change given the relatively large watershed. Diversion directly from Hunts Brook would be at the highest risk of being affected by climate change, as it is possible that flows in the stream could become much lower in the future resulting in less water being available to transfer to a reservoir. However, the safe yield methodology accounts for this issue by using the most extreme drought period of record.

8.2 Potential Impacts of Projects by Norwich Public Utilities

Regionally significant potential groundwater supplies include the following potential actions by NPU:

- Recycling of NPU filter plant backwash (0.500 mgd);
- Use of the Norwichtown Well for active rather than emergency use (1.000 mgd); and
- Reactivation of Bog Meadow and Fairview Reservoirs (combined 1.120 mgd).

Water Quality and Minimum Streamflows

Recycling of filter backwash water at NPU treatment plants is expected to have a negligible impact on water quality and minimum streamflow. The recycling process proposed will remove backwash constituents and solids from the water and direct the backwash water back to the respective reservoir for reuse.

The Norwichtown Well lies in an area where the mapped groundwater quality is considered Class GAA-Impaired. Active use of the well is not expected to reduce groundwater quality, but may result in movement of contaminants from surrounding areas mapped as Class GB (groundwater not suitable for drinking).

The USGS program *StreamStats* (version 4) was used to determine flow statistics along the Yantic River to the Norwichtown Well. The drainage area to the Norwichtown Well is 89.8 square miles, and the percentage of coarse-grained stratified drift in the basin is 13.1%. The 99% duration flow was calculated to be 7.54 cubic feet per second (cfs) (4.873 mgd), which is slightly higher than the 7Q10 flow (which is generally considered to be equivalent to the 99.2% duration flow) but generally equivalent. The proposed withdrawal of 1.0 mgd is 20.5% of the 99% duration flow.

As the Yantic River is Class B, active use of the Norwichtown Well could potentially impact water quality and minimum streamflow in the Yantic River during low-flow periods. This assumes a 1:1 ratio of groundwater withdrawals to surface water flow diminution, and is discussed further under Wasteload Allocation. As the groundwater supply source is registered, a specific evaluation of impact may not be required prior to activation.

While the main stem of the Yantic River is Class B, numerous tributaries which feed it are Class A streams with potential for surface water supplies. Surface water in the reservoirs draining to Bog Meadow and Fairview Reservoirs are mapped as Class AA (suitable for public water supply), and the surrounding groundwater is mapped as Class GAA (suitable for public water supply). Withdrawals from these sources for public water supply are consistent with the classification and not expected to reduce water quality within the reservoirs. The outlet streams from each reservoir are mapped as Class A.

The USGS program *StreamStats* (version 4) was used to determine flow statistics at the outlet of Bog Meadow Reservoir. Based on the calculations, the RGQ80 (July through October) is 0.0586 cfs. Therefore, this dam would be exempt from making releases in accordance with the Streamflow Standards and Regulations.

The USGS program *StreamStats* (version 4) was used to determine flow statistics at the outlet of Fairview Reservoir. Based on the calculations, the 80% duration flow during the RGQ80 (July through October) is 0.0583 cfs. Therefore, this dam would be exempt from making releases in accordance with the Streamflow Standards and Regulations.

As both impoundments would be exempt from making releases under the Streamflow Standards and Regulations, it is generally expected that minimum instream flows would be expected downstream of the dams low flow periods each year. Active use of the reservoirs is unlikely to impact water quality in these streams, but may result in less spillage each year (and therefore a longer period of lower flows). As these surface water supply sources are registered, a specific evaluation of impact may not be required prior to activation.

Flood Management

Recycling of backwash water, the active use of groundwater supplies, and the reactivation of surface water supplies are not expected to adversely impact flood management in the watershed. Prevention of impacts to flood management is largely controlled through local permitting efforts, including building permits and zoning controls. Pump houses and treatment buildings should be constructed outside of the floodplain to the greatest extent practical, and in the case of the Norwichtown Well already exist. Hydraulic analysis should be completed if new facilities are to be constructed in the floodplain to ensure that increases in water surface elevations are prevented. In addition, DPH requires facilities to be free from flooding, which typically means above the 1% annual chance flood elevation. The State of Connecticut requires critical facilities to be constructed to the 0.2% annual chance flood elevation, which may be required if state funding is utilized for certain projects.

Recreation

Recreation is not likely to be adversely impacted by the active use of the Norwichtown Well or by recycling of backwash water in this watershed so long as in-stream flows are not depleted. Potential impacts will need to be assessed following pump testing when impacts to stream flows are determined.

The property surrounding the Bog Meadow Reservoir is currently operated as a fish and game preserve under an agreement with the Norwich Fish and Game Association, Inc. and the State of Connecticut. The agreement allows the Association to use the Bog Meadow Reservation, including the Bog Meadow Reservoir, "for the propagation, preservation and restoration of fish and game, for hunting and fishing, and for sports activities in connection therewith". However, the agreements with both parties may be terminated with proper notice. In addition, the 2016 Connecticut Integrated Water Quality Report notes that Bog Meadow Reservoir is fully supporting for recreation. Active use of the reservoir for

public water supply may not be consistent with some of the activities currently authorized at the reservoir and surrounding watershed, such that reactivation may have an impact to recreation.

The Fairview Reservoir is not presently utilized for recreation. No impacts to recreation are expected for reactivation of this reservoir. In addition, the outflow streams have not been accessed for supporting recreational use in the 2016 Connecticut Integrated Water Quality Report, so recreational value for these streams is likely low, and impacts to recreation along the outlet streams will be minimal.

Hydropower

Based on information available on the Federal Energy Regulatory Commission website as of November 2017, there are no hydropower operations located in the Yantic River watershed.

Natural Diversity Database and Aquatic Habitat Concerns

The December 2017 NDDB shapefile was accessed to determine the potential location of wildlife which could potentially be affected by the proposed diversions. The Norwichtown Well is not located in an NDDB area, nor are any of the active or inactive reservoirs. Thus, each proposed activity does not appear to have the potential to affect listed species.

The 2016 Connecticut Integrated Water Quality Report notes that Bog Meadow Reservoir is fully supporting for aquatic life. Fairview Reservoir was not accessed, nor were the outlet streams or the Yantic River. The Yantic River is a Class B water body which is considered suitable for wildlife habitat.

Aquatic habitats could potentially be impacted by the use of groundwater and surface water sources. The occurrence of impacts would be directly related to the proposed withdrawal rate and the hydrogeology of the area.

Riparian Rights

The largest water user in the Yantic River watershed appears to be NPU based on diversion registrations and permits, although a number of registered diversion volumes for NPU sources exceed the capacity of the reservoir. Two of the sources are inactive at the present time. Use of any of the proposed sources is unlikely to affect riparian rights in the Yantic River watershed.

Waste Load Allocations

There are sewage treatment plants discharging to the Yantic River, hence its Class B water quality designation. Diminution of instream flow during low flow periods could impact water quality by making treated wastewater a relatively higher percentage of instream flow in some areas.

Climate Change

Each of the three projects is resilient to climate change. Recycling of plant backwash water is essentially water conservation which provides a benefit to overall resiliency. The use of groundwater sources is generally considered to be more resilient to climate change than surface water sources provided the well depth is sufficient to eliminate concerns about potentially declining water tables. The reactivation of reservoirs with small watersheds is the project most at risk from being affected by climate change, as small watersheds tend to be flashier (in terms of runoff) than larger ones. However, the safe yield methodology accounts for this issue by using the most extreme drought period of record.

8.3 Potential Impacts of Projects by Groton Utilities

Regionally significant potential groundwater supplies include the following potential actions by Groton Utilities, potentially undertaken in association with other utilities in the region:

- Haleys Brook seasonal diversion at midstream location (1.4 mgd);
- Haleys Brook seasonal diversion at downstream location (3.0 mgd);
- Shewville Brook diversion (3.4 mgd); and
- Elevating the Ledyard Reservoir dam (unknown).

Water Quality and Minimum Streamflows

Elevating the Ledyard Reservoir dam is not anticipated to have a long-term impact on water quality. Water quality in Ledyard Reservoir is considered Class AA quality suitable for use as public water supply. Any localized disturbances which may temporarily impact water quality during construction would be mitigated, and state and federal permitting will be required to increase the height of the reservoir. As releases will be required from Ledyard Reservoir in accordance with the Streamflow Standards and Regulations, impacts to minimum streamflow are not anticipated.

Haleys Brook is mapped as having Class A (potential public water supply) water quality to the location of the proposed midstream diversion upstream of Quaker Farm Road, and continues to be mapped as Class A to its confluence with the Mystic River. Diversion of water from Haleys Brook for public water supply is not anticipated to have an adverse impact on water quality as the use of this source for public water supply is consistent with the classification. Best management practices would be necessary during construction to ensure that any water quality impacts would be minimized.

The USGS program *StreamStats* (version 4) was used to determine flow statistics along Haleys Brook to the vicinity of the proposed midstream diversion location. The drainage area to the approximate location of the proposed Haleys Brook midstream diversion is 2.68 square miles, and the percentage of coarse-grained stratified drift in the basin is 10.2%. Groton Utilities plans to withdraw water from Haleys Brook during fall, winter, and spring when higher flows are available, and plans to only withdraw such that adequate instream flows are maintained. It is possible that a small low head dam may be needed to support the diversion, such that instream flows downstream of the site would be maintained in accordance with the releases in the Streamflow Standards and Regulations.

The USGS program *StreamStats* (version 4) was used to determine flow statistics along Haleys Brook to the vicinity of the proposed downstream diversion location. The drainage area to the approximate location of the proposed Haleys Brook midstream diversion is 7.54 square miles, and the percentage of coarse-grained stratified drift in the basin is 10.4%. Similar to the above, Groton Utilities plans to withdraw water from Haleys Brook during fall, winter, and spring when higher flows are available, and plans to only withdraw such that adequate instream flows are maintained. It is possible that a small low head dam may be needed to support the diversion, such that instream flows downstream of the site would be maintained in accordance with the releases in the Streamflow Standards and Regulations.

As all impoundments would need to make releases under the Streamflow Standards and Regulations, it is generally expected that minimum instream flows would be maintained downstream of each diversion during low flow periods each year. As these surface water supply sources would require diversion permits, site specific evaluations of impacts would be required prior to activation.

Flood Management

The proposed elevation of Ledyard Reservoir Dam is anticipated to have a long-term impact on flood management. The vicinity of Ledyard Reservoir in Ledyard is mapped by FEMA as Zone A, indicating that it lies within a 1% annual chance floodplain without elevations defined. The vicinity of the reservoir in Groton is mapped by FEMA as Zone X, indicating that it lies within a 0.2% annual chance floodplain. As water levels in the reservoir would increase, the regulatory floodplain in Ledyard would also widen within the backwater zone of the reservoir which stretches northward to Morgan Pond. However, no homes or structures are immediately adjacent to the existing floodplain boundaries, so the overall impact on flood management from this activity may be minimal.

Construction of a new low head dam along Haleys Brook at the midstream location may impact flood management along Haleys Brook. The vicinity of the project is mapped by FEMA as Zone A, indicating that it lies within a 1% annual chance floodplain without elevations defined. Raising water levels along the brook may result in adverse impacts to flooding on adjacent properties. However, no homes or structures are immediately adjacent to the existing floodplain boundaries, so the overall impact on flood management from this activity may be minimal.

Construction of a new low head dam along Haleys Brook at the downstream location may impact flood management along Haleys Brook if a new dam needs to be installed. Depending on the final location selected, the vicinity of the project is mapped by FEMA as Zone A, indicating that it lies within a 1% annual chance floodplain without elevations defined, or in Zone AE, meaning the same floodplain but with elevations defined. Raising water levels along the brook may result in adverse impacts to flooding on adjacent properties. If a new dam is not necessary, then the impact to flood management from this activity may be minimal.

Hydraulic analysis should be completed if new facilities are to be constructed in the floodplain to ensure that adverse increases in water surface elevations are prevented. Prevention of impacts to flood management is largely controlled through local permitting efforts, including building permits and zoning controls. In addition, DPH requires facilities (such as pumping stations) to be free from flooding, which typically means above the 1% annual chance flood elevation. The State of Connecticut requires critical facilities to be constructed to the 0.2% annual chance flood elevation, which may be required if state funding is used for certain projects.

Recreation

The proposed elevation of Ledyard Reservoir dam is not anticipated to have a long-term impact on recreation, as this reservoir is not used for recreation.

The property surrounding Haleys Brook at both locations is currently privately owned. Limited use of the brook and the pond may occur for recreation, which could be affected by public water supply withdrawals. However, compliance with the Streamflow Standards and Regulations should ensure that a reasonable amount of water is present in the stream to support recreational use. Haleys Brook was not accessed for supporting recreational use in the 2016 Connecticut Integrated Water Quality Report, so recreational value for this brook may be low, and impacts to recreation are anticipated to be minimal.

Hydropower

Based on information available on the Federal Energy Regulatory Commission website as of November 2017, there are no hydropower operations located in the Haleys Brook watershed.

Natural Diversity Database and Aquatic Habitat Concerns

The December 2017 NDDB shapefile was accessed to determine the potential location of wildlife which could potentially be affected by the proposed diversions. All of Haleys Brook is located within an NDDB area from the vicinity of the midstream diversion location as well as downstream to the Mystic River. Thus, each proposed location has the potential to affect listed species through reduced flow in Haleys Brook. Ledyard Reservoir is not located in an area identified by the NDDB as supporting listed species.

Aquatic habitats could potentially be impacted by the use of surface water sources. The occurrence of impacts would be directly related to the proposed withdrawal rate and the hydrogeology of the area. The 2016 Connecticut Integrated Water Quality Report did not assess the Poquonock River (Great Brook) downstream of Ledyard Reservoir, but notes that the downstream reach of Haleys Brook is considered to be fully supporting of aquatic life, and this assessment includes both potential diversion locations. The report further identifies Haleys Brook as being on the list of waters identified for an action plan to be developed by 2022 due to nutrients potential impacting habitat for fish, other aquatic life, and wildlife. Additional evaluation of potential impacts to aquatic life from diversion of water from Haleys Brook may be necessary as part of the diversion permitting process.

Riparian Rights

The largest water user in the Poquonock River (Great Brook) watershed appears to be Groton Utilities based on diversion registrations and permits, although a number of registered diversion volumes for Groton Utilities sources exceed the capacity of the reservoir. Elevation of the dam is unlikely to affect riparian rights in the Poquonock River (Great Brook) watershed.

It is not clear if riparian users are located along Haleys Brook downstream of the midstream diversion location. Registered and permitted diverters do not appear to exist in the watershed based on the DEEP lists. This would need to be investigated as part of the diversion permit application process.

Waste Load Allocations

Haleys Brook is not utilized for assimilation of treated wastewater.

Climate Change

Each of the four projects is resilient to climate change. Conducting dam improvements to increase storage will increase resiliency by making more water available. Diversion directly from Haleys Brook or Shewville would be at the highest risk of being affected by climate change, as it is possible that flows in the streams could become much lower in the future resulting in less water being available to transfer to a reservoir. However, the safe yield methodology accounts for this issue by using the most extreme drought period of record.

8.4 Potential Impacts of Serving East Lyme through Regional Interconnections

This report largely recommends system-specific source development and coordination with Groton Utilities on new source development to meet regionally significant needs. The East Lyme Water & Sewer Commission is presently projecting an intermediate term deficit of 0.594 mgd through 2030 and a long-term deficit of 1.601 mgd through 2060. While some of this need could be met through the development of system-specific supplies, or potentially through new sources developed by NPU or New London Department of Public Utilities, provision of water through regional interconnections may be a way to meet some or all of this projected need. These may include interconnection with Groton Utilities

or with the CWC – Guilford system via the consolidated Soundview and Point O’ Woods systems in Old Lyme.

Provision of water from Groton Utilities would likely require East Lyme to coordinate with Groton Utilities on new source development as noted previously. Thus, the source of water for such an interconnection has already been evaluated in Section 8.3. The following discussion considers the potential impact of interconnecting with the CWC – Guilford system, which could likely provide a portion of East Lyme’s supply deficit over the long-term.

Water Quality and Minimum Streamflows

Active movement of water through interconnections can cause potential adverse impacts if water is moved from drainage basins where instream flows are already impaired through flow diminution, or could become impaired through flow diminution resulting from the interconnection. For this reason, DEEP closely reviews the permit applications submitted to authorize movement of water through interconnections, and will require (through special conditions) actions that protect instream flows. These conditions can vary from direct protections (such as a requirement to release water from source reservoirs) to indirect protections such as water conservation targets and leak detection.

The Streamflow Standards and Regulations are the primary means of mitigating for potential impacts associated with increased movement of water from to East Lyme from the CWC – Guilford system. The regulations will require the release of water from the affected CWC surface water supplies to downstream watercourses. These releases will mitigate the potential impacts of additional interbasin transfers from the source basins of the CWC – Guilford system by ensuring that flow diminution does not occur downstream of the surface water sources.

The sources of supply to the CWC – Guilford system are all Class AA or GAA, which is a situation that is appropriate for active sources of supply. Use of these sources to provide water through interconnections will not alter or affect these classifications.

The water quality classifications downstream of AWC surface water supplies vary from river to river, with all of them Class A. Likewise, the conditions documented in the 2016 Connecticut Integrated Water Quality Report vary from river to river. Additional withdrawals from water supply sources can hinder efforts to maintain or improve water quality classifications and water quality if flow diminution occurs, but the releases made in accordance with the Streamflow Standards and Regulations will protect watercourses from adverse changes in classification or quality.

Flood Management

Use of interconnections will not, in itself, cause adverse impacts to flood management. Potential impacts would arise if sources need to be altered to accommodate movement of water through interconnections. As this is not the case, flood management impacts will be negligible.

Recreation

The protection of instream flows through implementation of the Streamflow Standards and Regulations across CWC’s surface water supplies will mitigate the potential adverse impacts to recreation.

Hydropower

The protection of instream flows through implementation of the Streamflow Standards and Regulations across CWC's surface water supplies will mitigate the potential adverse impacts to downstream hydropower, should this be a concern in the future.

Natural Diversity Database and Aquatic Habitat Concerns

The protection of instream flows through implementation of the Streamflow Standards and Regulations across CWC's surface water supplies will mitigate the potential adverse impacts to threatened and endangered species and aquatic habitats.

Riparian Rights

All of the sources of water to existing or future interconnections are either registered or permitted. Other riparian rights are not apparent, but the protection of instream flows through implementation of the Streamflow Standards and Regulations across CWC's surface water supplies will mitigate potential adverse impacts to riparian rights.

Waste Load Allocations

The protection of instream flows through implementation of the Streamflow Standards and Regulations across CWC's surface water supplies will mitigate the potential adverse impacts to waste load allocations, for those rivers that receive wastes.

Climate Change and Drought Resilience

Compared to development of new individual sources, development and use of interconnections is relatively resilient to the effects of climate change and droughts for several reasons. First, interconnections rely on existing sources of supply that have, in many cases, already been utilized and "tested" through previous droughts that have occurred. Second, the legal agreements and permits associated with interconnections tend to cause a critical review of drought management responses on either end of the interconnection, often leading to uniformity in future drought management approaches. For example, water utilities purchasing water are required to align their drought response protocols to be consistent with the supplier's drought response protocols. This helps build resilience. Third, interconnections can allow a much-needed movement of water if one of the connected utilities experiences an emergency related to climate change or a flashy drought.

8.5 Potential Impacts of Interconnection Projects for Resiliency

This report recommends a vast network of interconnections that should be considered for development and used for region-wide resilience to unplanned and/or planned outages and interruptions in supply. Because these interconnections will be used for emergencies and infrequent outages, adverse environmental impacts will be minimal. If any of the interconnections are subsequently used for active daily supply, a system-specific analysis will need to be conducted to evaluate the impacts and facilitate issuance of a water diversion permit.



9.0 MINIMUM DESIGN STANDARDS

9.1 Overview

The State of Connecticut has included minimum design criteria as a portion of its Final Regulations for issuing a CPCN to water systems. The State's design criteria represents the minimum standard for water system design. Any utility or ESA holder who wishes to enforce other specific standards must ensure that any local standard be at least as stringent as the minimum standards required by DPH, as DPH in its regulatory authority is the final arbiter of any water system design or modification.

The State Regulations include RCSA Section 16-262m-8 for CWS design. This section of the regulations begins by providing a summary of key definitions, and then goes on to identify criteria associated with facility location, design population and demand, water supply requirements, source protection, well construction and water quality, atmospheric storage tanks, on-site standby power, transmission and distribution systems, materials of construction, fire protection, service pipes (service connections), and pump house requirements. Throughout this section of the document, the term "State design criteria" is intended to reflect Section 16-252m-8.

While there are advantages to having a legislatively established set of minimum design standards, WUCC members have found that the minimum standards are not strong enough in some cases. The WUCC recommends that the State's minimum design criteria be reviewed at regular intervals to ensure the development of reliable water systems with proper technical, managerial, and financial capacity.

With references to other State regulations, American Water Works Association standards, and the National Electric Code, the State design criteria become fairly comprehensive in scope, and can serve as a basic minimum design framework for all water companies, regardless of size. However, case-by-case exceptions to these criteria should be made if justifiable, particularly for larger utilities which often have their own minimum design criteria or are subject to more stringent requirements.

For non-community water systems, DPH regulates construction and expansion based on CGS Section 16-262m(e)(2), wherein the applicant must completed the construction or expansion in accordance with engineering standards established by said department's regulations for water supply systems. As noted previously in this document, development of recommendations specific to development of non-community water systems is recommended.

This section focuses on design standards that are currently in place by some utilities which exceed the CT DPH minimum standards. In general, such requirements should be provided to a developer as early as possible. It is recognized that it would not be economically feasible for many utilities (particularly smaller systems) to retrofit existing systems to comply with current standards. Therefore, it is the intent that these criteria be applied to all new, expanded, or upgraded facilities.

9.2 Local Minimum Design Standards

Many larger utilities have their own minimum design standards which parallel or in some instances are more stringent than those set forth by the State. Those utilities which possess more stringent standards (or site-specific variations of the State standards) have the right to require developers to comply with

these standards when constructing an extension to their existing system or service area. The State regulations (Section 16-262m-7) appear to support this contention by stipulating that the "specifications for materials, equipment, and testing shall be in accordance with ... the specified water utility which will eventually own the system..." It is important for a utility to maintain consistency of design parameters throughout its service area as system expansion occurs, and to provide the appropriate pipe sizing to be consistent with continued expansion of the system.

In some cases, smaller interconnected utilities have directly adopted the standards of the regional supplier (e.g., Berlin Water Control Commission utilizes the same local minimum design standards as MDC). The WUCC supports this approach as it may help strengthen regionally interconnected water systems and provide for consistent infrastructure construction such that emergency assistance can be more easily obtained from nearby water utilities.

Finally, many utilities require a developer to enter into a "developer's agreement" or equivalent when a new system will be designed and turned over to that utility. Such an agreement may be separate from the agreements required under the CPCN regulations, and typically specifies the responsibilities of each party and required design standards in advance of project design. The WUCC supports this approach as it ensures that both parties are informed and committed to working together through the CPCN process.

The following are examples of different types of local design standards that exceed the state minimum requirements:

- CWC requires new systems meet a MOS of 1.25; in other words, that existing supplies can provide 25% more water than anticipated demands. This provides a mitigating buffer for future yield reductions, which sometimes occurs in groundwater wells.
- SCCRWA requires that the safe yield of bedrock wells be calculated based on a stabilized well rate while pumping for 12 hours per day (instead of the minimum standard of 18 hours per day). SCCRWA has significant concerns regarding low yielding bedrock wells being approved for new developments where the system may not be viable over the long-term.
- East Hampton WPCA requires a 120-hour pumping test of new wells (instead of the minimum requirement of 72 hours).
- East Hampton WPCA requires a peaking factor of 1.5 to be applied to the design calculation for ADD. If the resulting water use is greater than 50,000 gpd, the developer is required to obtain a water diversion permit from DEEP.
- CWC requires a minimum eight-inch diameter ductile iron pipe to be installed in new systems. This is larger than the six-inch minimum standard. CTWC allows the six-inch minimum standard only if fire protection will not be developed.
- MDC has standards which are more stringent than the minimum state design standards for developer-funded water main extensions, MDC main extensions, and applications for new domestic, fire, and irrigation water connections.

- NPU has material requirements (e.g. specific brand valves or hydrants) that they require to be installed. East Hampton WPCA also has specific material requirements.
- SCCRWA has a document regarding Rules and Regulations for Water Service on its website which provides specific requirements to be followed related to infrastructure.
- SCWA requires that developers and/or contractors use AWWA design standards as needed to supplement the state minimum standards.
- CWC requires that all new services be a minimum diameter of one inch and constructed of copper unless larger diameter pipe is necessary.
- SCCRWA has design standards specific to material types for use in service connections and meter vaults.
- AWC has design standards and preferences (e.g., redundancy, materials, equipment, wiring, level of automation, etc.) that differ from the state minimum standards.
- CWC has purchasing, design, metering, controls, and material standards.
- SCCRWA has specific standards pertaining to the safety of chambers or vaults.
- East Hampton WPCA includes a one-year warranty period in its developer agreements following issuance of the final Certificate of Occupancy, with a secured amount equal to 10% of the construction bond.

In some cases, there may be a desire for compliance with a utility's design standards to be built into a local condition of approval. Good communication between commissions and the utility would ensure that comments regarding utility design standards are provided and understood during the local approval process.

9.3 Impact on Existing Systems

The criteria set forth in Sections 16-262m-1 to 16-262m-9 could have a significant impact on existing smaller community systems if they desire to expand. This concern is specifically related to whether an entire system would have to be brought up to the minimum design criteria if expansion occurs, even if the water utility has historically provided an adequate supply of water at sufficient pressure to their customers. DPH has stated that it is their intent to review an entire existing system for conformance to the regulations if expansions of five percent or more service connections are contemplated by a regulated water company, with particular emphasis during this review on whether or not the proposed expansion will compromise existing service under any potential average or peak demand conditions. The regulations do allow for a hearing process for aggrieved parties with which situations such as this could be addressed. However, it is uncertain if this process would look favorably upon the smaller systems.

9.4 Conclusions and Recommendations

The State regulations for issuing a CPCN set forth minimum design criteria under CGS Section 16-262m. These criteria have the advantage that they are set in law and are thus legislatively supported. Additional items and/or modifications to enhance these regulations have been adopted by a variety of utilities as noted above. Individual utilities have the right to impose their own site-specific standards within their existing service areas or ESAs.

The WUCC recommends that utilities ensure any local design standards are in a written format, adopted by the utility, and provided to a developer at the beginning of the CPCN process. Ideally, any local standards would be referenced in a development agreement between the developer and the utility which would eventually own and operate the system.

The WUCC has a continuing concern regarding the impact of any accepted set of minimum design standards. It was generally agreed that such rules or standards are essential and, at a minimum, must be applied to new systems or greatly expanded systems. However, it is also important that some realistic measure be incorporated for upgrading the existing portion of systems desiring to expand. For example, a system which is adding two or three houses, although it may represent a five percent or greater expansion, is different than expansion encompassing 100 or more customers. There is indeed merit to having streamlined procedures for existing smaller utilities desiring minimal degree of expansion.



10.0 RELATIONSHIP AND COMPATIBILITY WITH OTHER PLANNING DOCUMENTS

10.1 Water Supply Plans

By regulation, the CWSP is comprised of the individual water system plans of each public water system within the Eastern PWSMA and the areawide supplement consisting of a WSA, ESA boundaries, integrated report, and executive summary. Therefore, this plan is inextricably linked to Individual WSPs.

As part of this process, discrepancies among the requirements for the analyses required for WSPs and for the CWSP have been identified. While the water supply planning regulations focus on demands for systems, the CWSP regulations request breakdowns in demand by municipality and by ESA. As most of the public water supply demands which are known are system specific, these breakdowns are largely estimated, and system projections are used to generate the regional evaluation of need. The utility of such breakdowns should be evaluated moving forward, with potential revisions to water supply planning or CWSP regulations as appropriate to facilitate regional planning.

Given the differences in data requirements for the three related planning efforts (Water Supply Planning, Coordinated Water System Planning, and State Water Planning), the WUCC encourages a review be conducted of the data requirements to maximize the utility of future data collection and projections by WUCC members for multiple planning efforts.

Finally, Public Act 17-211 will make public versions of WSPs more widely available, and specifically for local planners and planning commissions. Utilities are encouraged to continue building relationships with local planning staff, including involving such planners when WSP updates are performed. This will both inform projected system demands in WSPs, as well as helping local planners evaluate system capabilities for local planning efforts.

10.2 Local Plans of Conservation and Development

As noted in the *Final Water Supply Assessment* (December 2016), local Plans of Conservation and Development were reviewed to determine potential water supply needs. The desire for additional public water service was identified in many communities in the region, either through development of new systems or extension of existing systems. For other communities, it was noted that there was either no desire to see systems expand, or that existing systems were unlikely to expand. Finally, many of these plans currently do not address public water supply needs.

Utilities should coordinate with local planners during POCD updates to identify areas of development in watershed or recharge areas which is incompatible with public water supply.

POCDs set forth a community's planning goals over the next 10 years. Each municipal POCD should address the realities of the municipality's water supply issues and needs. In those cases where there is currently not enough water to meet community growth plans, the community has two options: increase supply or reduce demand. Therefore, each municipal POCD should describe (1) how additional water supply sources are to be developed or acquired and/or (2) how demand growth (e.g. from system expansion and/or the rate of usage by customers) is to be curtailed.

Specific to the second point, it is encouraged for local POCDs to discuss the continued need for water conservation and source protection as part of their sustainability and conservation chapters. As noted in Section 2.2, utilities would prefer for some aspects of water conservation initiatives to be driven at the local level. In addition, these plans should continue to identify areas where extension of water service is desired by the community to help inform utility planning efforts. Finally, local planning staff and commissions should reach out to utilities and ESA holders during POCD updates.

The WUCC encourages local planners to discuss water conservation and source protection in their POCD (and for source protection, to coordinate with other watershed towns on such planning), to identify areas where public water service is desired and undesired, and to consider both small and large public water system needs.

10.3 Regional Planning Documents

Funding assistance is recommended for Councils of Government staff to monitor and inform local land use commissions regarding source water protection, ESA boundaries, and water supply challenges.

Regional planning will continue to be an important aspect of public water supply planning, particularly through the membership of regional councils of governments in each WUCC. In particular, regional planners are well-positioned to evaluate water supply needs which could support regional economic development, as well as identifying areas where extension of utilities or utility avoidance is desired.

An update to the 1990s-era NECCOG regional plan is reportedly in development, but was not available for review at the time of assessment. The former Windham Region Council of Governments prepared a Regional Plan in 2010 which covered Chaplin, Hampton, and Scotland. The goals of that plan included concentrating development in areas with existing public water, sewer, and other community infrastructure, encouraging source protection by ensuring that development not degrade water quality (particularly in public water supply recharge areas), and encouraging public water supplies to be constrained to regional centers. These goals were considered appropriate for the primarily rural and suburban nature of many of the communities in that former planning region.

The SCCOG Regional Plan was adopted in October 2017 and provides current regional planning goals relative to public water supply. In particular, the plan encourages regional sharing of supplies through interconnections and the regionally interconnected water system, supports the development of regional and state water plans to ensure continued availability of adequate water supply, and seeks implementation measures to protect utility infrastructure from flooding risk.

Economic development opportunities will continue to be vital to the region regardless of water supply challenges. In particular, the Interstate 395 corridor has been identified as an important economic growth area in Connecticut. However, as identified throughout this document, public water supply is not always located in the areas of need. As projected public water supply demands continue to be realized, it will become more of a challenge to supply water to the people and businesses in areas presently unplanned for economic development, but

In order to better facilitate regional planning, DPH is encouraged to share Geographic Information System data with Councils of Governments appropriate to regional planning, such as ESA boundaries and public water system locations. To this end, more detailed mapping of non-community water systems will be essential to conduct proper regional and local planning.

where economic development may be desired in the future. The regional planning goals espoused by SCCOG for public water supply (and protection of water supply) are in line with meeting potential future water supply needs in the region.

The information in this CWSP is consistent with existing regional planning documents to the extent possible. It is anticipated that this CWSP will be useful as a resource for regional planners into the future.

10.4 Conservation and Development Policies Plan for Connecticut

The Conservation & Development Policies: The Plan for Connecticut 2013-2018 was adopted in June 2013. This planning effort is believed consistent with five of the six growth management principles (GMPs) in that plan:

- **GMP #1: Redevelop and Revitalize Regional Centers and Areas with Existing or Currently Planned Physical Infrastructure** –The desire to rehabilitate infrastructure to reduce unaccounted for water in areas with current public water service is consistent with this GMP.
- **GMP #2: Expand Housing Opportunities and Design Choices to Accommodate a Variety of Household Types and Needs** – This plan identifies the potential need for public water service to serve certain types of developments, particularly cluster-style developments with limited areas for wells and septic systems.
- **GMP #4: Conserve and Restore the Natural Environment, Cultural and Historic Resources, and Traditional Rural Lands** – This GMP is consistent with the needs for source protection and the desire to avoid development of water mains in areas where public water supply is not needed where possible.
- **GMP #5: Protect and Ensure the Integrity of Environmental Assets Critical to Public health and Safety** – This GMP is consistent with the needs for source protection and resiliency of public water system assets outlined in this plan.
- **GMP #6: Promote Integrated Planning across all Levels of Government to Address Issues on a Statewide, Regional, and Local Basis** – This plan considers planning issues on all levels to generate an overall cohesive planning effort.

10.5 State Water Plan

The *State Water Plan* was approved by the Water Planning Council for distribution to the legislature in January 2018. The five most important points of the plan relative to the CWSP include use of the plan as a platform for decision-making, maintenance of highest quality drinking water, balance (of ecological and consumer needs), conservation, and maintenance of scientific data. Implementation of the plan is expected to work towards elimination of obsolete and obsolete portions of diversion registrations, identifying funding sources for water-related projects, and identifying legislative priorities.

Similar to the *State Water Plan*, the CWSP is expected to be a platform for future decision making, although its scope is limited to public water supply whereas the State Water Plan considers all uses of water. Many of the themes in the State Water Plan are applicable to utilities, such as identifying users

of treated water who may be able to reduce reliance on treated water by using Class B water (which could be part of a targeted water conservation and water efficiency program), and the desire for source protection and resiliency.

From a data perspective, DEEP is presently developing forms to standardize reporting of water use by registered and permitted diverters. One of the challenges identified in this planning process has been identifying accurate data for smaller community and non-community systems. As noted in Section 3.0, much of the demand data for such systems are estimated, and where available water is known for such systems it is based on initial well yield data and not necessarily safe yield. In addition, small systems are largely not required to report usage on a regular basis. Overcoming this data gap will continue to be a challenge for future planning efforts.

As data reporting becomes more standardized, it may become possible to require smaller utilities to also report usage data on a regular basis, overcoming a data gap that presently exists for the majority of public water systems.

The *State Water Plan* continues an emerging trend in state planning where water usage by drainage basin is evaluated. Similar to the discussion in Section 10.1, this presents a challenge for regional planning as existing water supply planning regulations request system specific information, and the CWSP regulations request data summarization by municipality and ESA, and neither requests evaluation by basin. The reporting of water information by subregional drainage basin in the future would be ideal to inform future planning efforts at the statewide level, but will be a challenge for large utilities without the capability to digitize their system components and evaluate demand at that scale.



11.0 FINANCIAL CONSIDERATIONS

11.1 Planning Cost Estimates for Implementation of Surface Supply Development

New surface water supplies must go through planning, investigation, permitting, and construction phases. Preliminary planning for future supply source development has been initiated by numerous public water systems in the region as presented in the Individual WSPs and as briefly discussed in the *Final Water Supply Assessment* (December 2016). Preliminary region-wide planning with respect to future surface water supply source development is presented in Section 7 of this document.

The following discussion outlines the major aspects of implementation of surface water supply development and provides typical anticipated cost ranges. It should be noted that these cost ranges are provided for planning purposes only and specific project costs are dependent upon many site-specific factors, including the proximity of the source to the end-user, cost of land acquisition, extent of potential environmental impacts and the associated analysis required to evaluate and mitigate such impact, permitting costs and legal fees, the volume of water to be withdrawn, water quality (i.e. required treatment), and site development issues.

For purposes of this document, the following discussion assumes that new surface supply sources are either run-of-river type of withdrawals, existing impoundments, or involve the creation of very low head dams. The costs of land rights and construction of new water supply reservoirs are not considered.

Source Investigation/Preliminary Design – Hydrologic and hydraulic investigation, as well as long term water quality monitoring, must be conducted prior to development of any new surface supply source. In the case of a supply from an existing impoundment, safe yield analysis will be necessary, typically with the use of a mass balance computer program, such as the USACE HEC-ResSIM program or similar software. Source investigation, including conceptual design of facilities can range from \$50,000 to well over \$250,000.

Regulatory Permitting and Environmental Analysis – Regulatory permits and approvals are typically required at the local, state, and federal levels through local planning and zoning commissions and local inland wetlands commissions; the state DEEP, DPH, and potentially PURA; and the federal USACE. Environmental analysis is typically required for new source development with respect to wetlands, aquatic habitat, in-stream water flow, wildlife, vegetation, and the like. Competing uses must also be addressed, including the potential impacts on existing diversions, active and passive recreation, aesthetics, downstream waste assimilation, and other downstream uses. Regulatory permitting and environmental analysis can be extensive, depending on the exact nature of the supply source. Costs can range from under \$50,000 to over \$1,000,000.

If state money is used for source development, evaluation under the CEPA would be required. Evaluation under the CEPA typically requires similar, but in some cases more extensive information than that required for a DEEP diversion permit application. In some cases the CEPA process is used as an opportunity to develop a publically-reviewed alternatives analysis to determine the best action to meet the project purpose and need. Similar to the above, costs for a CEPA evaluation are highly variable and can range from under \$50,000 to over \$250,000.

Engineering Design – Engineering design of intake structures, transmission piping, treatment systems, and distribution piping is necessary prior to construction of a new supply source. While this cost can be quite variable, and is particularly dependent upon the need for conventional treatment design, costs in the several hundred thousand dollar to greater than \$1,000,000 range are normal. This does not include the design of necessary transmission and distribution piping, or pumping stations.

Construction Costs – Construction of water intake and transmission piping and conventional treatment facilities for a surface water supply is highly variable. New conventional treatment facilities, while dependent upon capacity, are often in the several million dollar range. Less expensive, smaller package systems can be constructed for the treatment of low volumes of water.

Ongoing Maintenance Costs – Annual operating and maintenance costs for a surface water supply source may include land leasing (if the property was not purchased), property taxes, electric supply, emergency (backup) power supply, water treatment equipment and chemicals, pipe and pump repairs and replacement, and regulatory compliance such as water testing. In addition, additional labor and benefits costs may be incurred if additional staffing is needed to manage and operate the new surface water supply source or treatment plant. Of course, many of these costs will already be familiar to larger utilities, and the incremental costs associated with a new supply source may not be significant after several years.

11.2 Planning Cost Estimates for Implementation of Groundwater Supply Development

Similar to surface water supply development, new groundwater supplies must go through planning, investigation, permitting, and construction phases. The following discussion outlines the major financial aspects of implementation of groundwater supply development. It should be noted that these numbers are typical ranges and that actual costs will vary significantly depending upon the specific site and supply issues.

Development of a new ground water supply source, often known as a wellfield, is an extensive process. To first site a potential wellfield, available land must be located in a relatively undeveloped area, keeping in mind that property within 200 feet of each well (the sanitary radius for wells pumping at rates greater than 50 gallons per minute) must be in the direct control of the utility, and that APA regulations require evaluation of the area of contribution and recharge for wells completed into stratified sand and gravel. Land purchase costs alone may be prohibitive in some cases. The wellfield must also be within an acceptable distance of the service area such that connection of the wellfield to existing service mains is feasible. Thus, these two goals are often at odds (i.e. the wellfield cannot be within the most densely developed area, even though the water main costs would be lowest for such a case).

Source Investigation/Test Borings and Pump Testing – Source investigation includes review of geological information based on published data (bedrock and surface geological maps, soil survey maps, and well records) and evaluation of hydrogeologic conditions, including watershed size and recharge capability. Site inspections are also conducted in this phase to visually assess the area. Widely spaced test borings are then drilled to confirm subsurface conditions and, if conditions are favorable (i.e. suitable soil gradation, thickness of stratum, depth to water, etc.), small diameter well screens and standpipes are installed and the wells are pump tested. Water levels in the pumping well and surrounding observation wells are monitored throughout the test to evaluate aquifer response. Water quality samples are also typically collected and analyzed in the preliminary investigation phase.

Following initial investigations, large diameter wells and smaller diameter monitoring wells are typically installed and long term yield testing is conducted in accordance with DEEP and DPH requirements to evaluate safe yield and for Level A aquifer modeling. Initial source investigation is generally in the range of \$100,000 to \$250,000.

Regulatory Permitting and Environmental Analysis – Similar to surface water supplies, groundwater supply development typically requires regulatory permits and approvals at the local, state, and federal levels. Municipal planning & zoning and inland wetlands permits and approvals must be obtained in most cases. If there are any direct wetland impacts (due to filling or construction) or indirect wetland impacts (due to groundwater drawdown), USACE permitting will likely be necessary, as well as a 401 Water Quality Certification from DEEP.

If the wellhead(s) must be raised above the 1% annual chance flood elevation (or 0.2% annual chance flood elevation if state money is used) of the nearest surface water body, filling will be necessary. As a result, a hydraulic analysis of the floodplain must be completed to evaluate the need for FEMA map adjustment, or to design mitigation that will compensate for the filling. In some cases, the required filling will tie this process back to the wetland permitting.

A DEEP water diversion permit must be obtained if the wellfield joins a system with daily withdrawals exceeding 50,000 gpd, even if the wellfield itself does not draw more than 50,000 gpd. In most cases, the water diversion permit application is the most extensively "supported" document of all the regulatory applications. For example, the wetland and hydraulic analyses described above are required, along with a report that discusses the results of a five-day aquifer pump test. If the wellfield is completed in stratified drift, the numerical modeling completed in accordance with the Level A regulations is used to predict the response of the aquifer and watercourses under different pumping scenarios. Other potential environmental and cultural resource impacts require evaluation prior to obtaining the necessary regulatory permits for groundwater withdrawal, often including instream flow modeling.

Similar to the above discussion, if state money is used for source development, evaluation under the CEPA would be required. Regulatory permitting and associated environmental investigations can range from \$50,000 to upwards of \$1,000,000.

Engineering Design – Engineering design of production wells, transmission piping, treatment systems, and distribution piping is necessary prior to construction of a new groundwater supply source. Engineering will be necessary to design water main sizes and layouts, pump sizes and settings, treatment facility layout, and storage. Capital expenses include water mains, pipes, pumps, treatment facilities (at a minimum, pH control will be needed), fill material, access roads, fencing, a central pump house (or houses), and usually a clearwell or storage facility. Depending on the distance between the wellfield and the service area, and the difference in elevation, a booster pumping station may be necessary. While engineering design can be quite variable, costs in the several hundred thousand dollar to greater than \$1,000,000 range and higher are typical.

Construction Costs – Construction of water intake, transmission and distribution piping, and treatment facilities for a groundwater supply would be expected to be in the range of several hundred thousand dollars to over a million dollars, depending upon the specific project needs.

Ongoing Maintenance Costs – Similar to surface water supplies, annual costs for a wellfield may include land leasing (if the property was not purchased), property taxes, electric supply, emergency (backup) power supply, water treatment equipment and chemicals, pipe and pump repairs and replacement, and regulatory compliance such as water testing, as well as labor and benefits expenses.

11.3 Planning Cost Estimates for Implementation of Interconnections

Similar to surface water supply development, new interconnections must go through planning, investigation, permitting, and construction phases. The following discussion outlines the major financial aspects of implementation of interconnection development. It should be noted that these numbers are typical ranges and that actual costs will vary significantly, depending upon the specific site and supply issues.

Routing Evaluation – Development of a new interconnection requires evaluation of potential routing and evaluation of the system characteristics at each connection point. If pumping stations or pressure reducing valves are necessary to support the interconnection, project costs may increase significantly, particularly if land must be acquired to support such infrastructure. Conceptual design plans must be developed and site-specific investigation of the pipeline route must be performed to evaluate potential impediments (shallow depth to rock, utility crossings, stream crossings, bridges, etc.) which will drive design parameters. Initial investigations and conceptual design typically range from \$30,000 to \$100,000 or more depending on the length of the routing and the number of alternatives.

Regulatory Permitting and Environmental Analysis – Interconnections also require regulatory permits and approvals at the state levels and planning and zoning approval at the local level if a structure is constructed for the pump, pressure reducing valve, generator and instrumentation is required, although permitting is not typically required at the federal level. DEEP requires, at a minimum, application for a water diversion General Permit for interconnections of less than 1.0 mgd. DPH will also require a General Application to evaluate the engineering design. If the interconnection will be between two utilities for sale of water, DPH requires a Sale of Excess Water Permit.

Similar to the above discussion, if state money is used for source development, evaluation under the CEPA would be required. Regulatory permitting and associated environmental investigations can range from \$50,000 to upwards of \$500,000.

Engineering Design – Engineering design of interconnection piping, pumping stations, pressure reducing valves, and any connections to the main along the interconnection route is necessary prior to construction of an interconnection. For interconnections spanning a long distance, additional treatment to maintain the chlorine residual may be required. Engineering will be necessary to design water main sizes and layouts, pump sizes and settings, treatment facility layout, and any storage facilities which may be necessary to facilitate the interconnection, and related capital expenses will be required. While engineering design can be quite variable, costs in the several hundred thousand dollar range and higher are typical.

Construction Costs – Construction of transmission and distribution piping, pumping stations, pressure reducing valves, meters, and other possible facilities for a groundwater supply would be expected to be in the range of several hundred thousand dollars to over a million dollars, depending upon the specific project needs.

Ongoing Maintenance Costs – Annual costs for an interconnection may include land leasing (if certain project elements require it) or property taxes, electric supply, emergency (backup) power supply, water treatment equipment and chemicals, pipe and pump repairs and replacement, and regulatory compliance such as water testing.

11.4 Financing Issues

Financing issues are multi-faceted and include rate structures for customers, capitalization of improvements, and bonding. There is a broad cross section of financial structures in the region, including those that are essentially an adjunct of a residential or multi-family housing complex, privately or investor-owned companies, and municipal public water systems, and regional not-for-profit water utilities. Each operates in a unique manner.

Some water systems are experiencing a trend of decreasing average-day demands. With continued conservation and the decline of industry, and the housing market decline of the Great Recession, water systems have been challenged by declining revenue. Because of the high fixed-cost requirements of public water systems, this has, in some cases, negatively impacted levels of service and made paying for infrastructure more challenging. Examples can be found throughout the region. For an example of a solution, East Hampton WPCA has elected to shift a greater portion of their revenue requirement to the basic service charge to cover fixed costs. Other creative solutions, such as the infrastructure replacement and revenue adjustment mechanisms authorized under Public Acts 07-139 and 13-78, respectively, continue to be needed to recapture lost revenue and/or pay for maintenance and improvements. Therefore, a general discussion of the financial operation of water systems in the region is warranted.

11.4.1 Financial Operation of Public Water Systems

Municipal public water systems may operate under a general municipal budget, with no direct connection of the user fees and water department budgets. Alternately, they may operate as an enterprise system of accounting, using operating revenues to fund operating and maintenance expenses as well as capital improvements. The latter system is generally preferred by AW4E to prevent user fees from being allocated back to the general fund in lieu of being used to meet capital improvements.

Major capital improvement projects in municipal systems are generally financed through revenues from water charges and general obligation bonds, with bonding expenses funded through the water department's revenues (i.e. user fees). Ideally, these systems review and analyze their water use rates such that operating and capital needs can be adequately met. However, for many municipal systems it can be difficult to predict capital improvement funding as bonding inherently has legitimate competing needs such as fire department upgrades, education improvements, and public works projects, and difficult decisions must be made between supply-side and distribution-side improvements. Furthermore, in combined water and sewer departments the limited funding must be allocated for both water and sewer infrastructure. Both of these issues require dedicated asset management and financial planning to address.

For some municipal systems, asset management planning is considered challenging because the availability of capital improvement funding is variable. Development of formal infrastructure replacement programs in coordination with DPH is recommended for such systems.

For small municipal systems, collections can occasionally be an issue, such as for rental properties. In some cases, it costs more money to transfer the debt to a collections agency or attempt to enforce the debt than would be obtained through collection, and the utility is forced to suffer the lost revenue.

Investor-owned public water systems are regulated by PURA, including regulation of the user rates that may be charged. Any increase in user fees must be justified and approved by the PURA through a rate case process. Rate structures for investor-owned systems must provide a return on investment. Capital improvement projects are typically funded through a capital improvement budget built from user fees, through developer agreements, or from loans.

Small residential systems, such as condominium associations, may utilize a general association fee to cover miscellaneous water service expenses, with no long term capital improvement financial account. This type of management structure has been identified as a financial capacity issue by DPH. The Townsley Study (2014) identified a variety of systems unable to meet present maintenance and/or future capital improvement needs as discussed in Section 4.2. Other small private water systems, particularly non-community systems, do not charge for water but rather consider it as a business cost. Capital improvement planning is varied for non-community systems between entirely reactive and extremely proactive (such as for schools). DPH is available to provide tools and guidance to small systems regarding full-cost pricing, sustainability, and cost appreciation.

11.4.2 *Funding of Public Water System Operations and Maintenance*

Normal operation and maintenance costs of the public water systems in the region will continue to be supported by the individual systems. Those public water systems (municipal, private, and investor-owned) serving greater than 1,000 people are required to prepare Individual WSPs. One of the components of the WSPs is the identification of system improvements and maintenance activities. Generally, the WSPs include improvement schedules along with estimated costs and funding sources. However, DPH has identified that asset management and capital improvement planning in smaller systems is often lacking. Resources for addressing this issue are presented in Section 11.5.

Many municipal water systems have been using annual rate increases as a method to publicize the cost of water and to limit the financial impact of the increase to customers. This method has been reported to be generally accepted by customers, many of whom are used to providing an annual cursory review – at a minimum – of municipal expenses when local budgets are developed. As noted above, large private water utilities must have their rates approved by PURA.

As noted in Section 2.2, water rates can be used to encourage water conservation. In general, the use of declining water rates (where the cost of individual units of water decreases with additional use) is discouraged in favor of uniform or – ideally – inclining block rates. The use of seasonal or water conservation surcharges may also be used to encourage conservation, although such surcharges are most effective with annual advance reminders combined with monthly billing practices. As conservation measures can reduce demands and therefore revenues, solutions have been sought to stabilize revenue declines without fully relying on annual rate increases. As noted previously, East Hampton WPCA recently altered their rate structure to minimize their reliance on commodity revenues. While arguably discouraging conservation, the rate structure has the benefit of providing greater revenue stability.

A method allowing for revenue recovery for municipal water systems is needed to address discrepancies between actual annual revenues and expected annual revenue. Municipal water systems are further encouraged to utilize programs similar to WICA to surcharge customer bills for water conservation projects.

Public Act 13-78 authorized PURA to authorize rates for each water company (as defined in CGS Section 16-1) in consideration of supply-side and demand-side water conservation. In addition, a revenue adjustment mechanism was authorized to reconcile the difference in rates between actual annual revenues of a water utility versus allowed annual revenues. Refunds are typically offered to customers on each bill the following year, or surcharges are added to each bill to cover shortfalls. This action has helped many utilities such as AWC, CWC, and JCWC balance fluctuations in annual revenue. Furthermore, CGS Section 16-262v authorizes a Water Infrastructure and Conservation Adjustment (WICA) be added to customer bills to recover costs of eligible projects such as infrastructure improvements to reduce unaccounted-for water. Water companies not presently using the above methods are encouraged to investigate and implement these programs.

In addition, Public Act 13-78 authorized water companies to include reasonable and necessary system improvements required for a water system acquisition approved by PURA to be included in its rate case. However, water companies continue to be concerned about the takeover process given the need to often make costly unforeseen improvements to unviable systems following an acquisition.

Development of a risk based approach is recommended to better evaluate the condition of systems and apply projected costs into the takeover and ratemaking proceedings. The WUCC meetings will continue to be a place where this issue may be discussed.

According to DPH, the State of Rhode Island authorizes utilities to assess a surcharge which is placed into a statewide land-acquisition fund for source protection. Utilities who contribute to the fund are authorized to apply for funding. Utilities are presently mixed on whether such a program would work in Connecticut. Utilities with surface water sources that have large watersheds view this type of proposal favorably, as they have limited funding for land acquisition in comparison to the total acreage of the watershed. Other utilities were of the opinion that any additional surcharge on customer bills would be viewed unfavorably. If such a surcharge becomes desired, one suggestion put forth by utilities was to dedicate money collected by that surcharge to the billing utility for purchase of watershed lands by that utility, with oversight of the account by regulators.

11.5 Potential Funding Sources for Capital Improvement Projects

Development of many of the future supply sources will also likely be supported by the entity that is in need of such supply. These may include some of the potential future supply sources presented in Section 7 of this document. Interconnections among public water systems for ongoing supply and/or emergency situations are encouraged by the DPH. These types of interconnections would also likely be funded by the individual public water systems involved and have the potential for significant expenditures.

The WUCC, as an organization, does not have an available budget with which to implement the recommendations included in this document or other regional studies and analyses. Several possibilities exist with respect to funding of regional water supply projects in the Eastern PWSMA such as regional council of government and/or state funding as described below.

Upon completion of the CWSP by the former Southeastern WUCC, that body made a formal request to the SCCOG to pursue funding for additional study of regional water supply development and continued work towards resolution of the potential water supply shortfall in the southeast region. That process helped develop the regionally interconnected water system in use today, although capital costs and feasibility analyses were largely paid for by the parties needing the water. This required a collaborative effort and the necessary legal agreements with respect to the apportionment of capital expenditures and long-term operation and maintenance costs, ownership, and division of responsibilities throughout the life of the project. The former Southeastern WUCC demonstrated that this type of planning effort can be successful, and the Eastern WUCC plans to continue to build on this process to facilitate additional projects to meet regional needs.

DPH is encouraged to conduct regular training seminars on financial management to improve financial capacity, and specifically on the types of funding available for both large and small systems.

A variety of funding sources are possible to meet site investigation and capital improvement needs. In addition to rate adjustments and general funding sources discussed in Section 11.4, several existing programs provide grants and loans for water system projects as discussed below.

In general, outside funding sources are considered to be generally limited for water system improvements, with municipalities having more options for funding sources than private utilities. Many utilities have identified the need for a reliable source of funding for infrastructure replacement for both large and small systems. The majority of existing funding programs are loans, or grants that are tied to specific areas or highly competitive. A reliable source of such funding could address existing capital improvement needs as well as planning for future supply sources.

Development of a grant funding source for upgrading small public water systems, interconnecting or consolidating small systems with larger utilities, consolidating small systems, and for development of regional water supply solutions is recommended.

11.5.1 – Drinking Water State Revolving Fund

Many projects of regional significance, as well as water system projects benefiting single utilities, could potentially receive funding through the DPH DWSRF, which provides low interest funding for certain water supply projects. In particular, this program may be used to provide low-interest loans to fund regionalization and interconnections.

The DWSRF is based on a ranking system developed for each public water system. Small systems are prioritized for DWSRF loans, and at least 15% of the funding must be assigned to small systems annually. In addition, federal subsidies exist for loan principal forgiveness provided certain conditions are met. DPH reports that approximately 60 to 70 systems have benefited from DWSRF funding since 2000.

There has been difficulty in getting smaller systems to apply for the loans as in many cases a consultant is required to prepare the plans and bid packages necessary for the project loan, as well as complete the DPH documentation requirements. Thus, application requires additional upfront costs which can make applying for the non-guaranteed loan to not be financially viable. In general, the smaller systems who have been successful at obtaining loans from DWSRF tend to be taxing districts and other larger small systems with several hundred customers. These systems have sufficient financial resources and fiscal

planning experience to prepare grant applications and do the necessary planning to access DWSRF loans.

One of the loan requirements is that an asset management plan be in place for the system, which is something that small water systems often lack. As such, part of the loan may be used to develop an asset management plan as part of the project. On occasion, DPH is able to streamline the process, such as when generator loans were streamlined following Tropical Storm Irene, Winter Storm Alfred, and Superstorm Sandy.

In general, the WUCC believes that improvements are warranted to allow smaller community systems more flexibility to access DWSRF loans. Many utilities feel that the application process, including the forms and required documentation, needs to be reconsidered as the current process does not appear to be meeting the needs of water utilities and particularly small water systems. In addition, it has been noted that DWSRF is not always the solution for small systems because there is a long lead time, whereas banks are more responsive. Small systems cannot rely on DWSRF for emergency repairs, for instance, which for small systems without asset management plans is when replacements occur.

11.5.2 – Small Town Economic Assistance Program

The Small Town Economic Assistance Program (STEAP) (CGS Section 4-66g) funds economic development, community conservation, and quality-of-life capital projects for localities which are ineligible to receive Urban Action (CGS Section 4-66c) bonds. This program is administered by the Connecticut OPM, with funding issued by the State Bond Commission and the grants administered by various state agencies. Projects eligible for STEAP funding include:

- Economic development projects such as (a) constructing or rehabilitating commercial, industrial, or mixed-use structures and (b) constructing, reconstructing, or repairing roads, access ways, and other site improvements;
- Recreation and solid waste disposal projects;
- Social service-related projects, including day care centers, elderly centers, domestic violence and emergency homeless shelters, multi-purpose human resource centers, and food distribution facilities;
- Housing projects;
- Pilot historic preservation and redevelopment programs that leverage private funds; and
- Other kinds of development projects involving economic and community development, transportation, environmental protection, public safety, children and families and social service programs.

The range of projects eligible for STEAP funding is very broad, and can include the costs of land, engineering, architectural planning, and contract services needed to complete the project. As such, the use of funds is also relatively flexible. STEAP funding could potentially be used to develop new public water systems, extend water mains, or perform source improvements as part of a development project.

11.5.3 – United States Department of Agriculture Rural Development Water & Environmental Programs

The United States Department of Agriculture (USDA)⁵ through its Rural Development program provides technical assistance and financing necessary to develop drinking water systems in rural areas. Funding is available for the construction of water facilities in rural communities with populations of 10,000 people or less, and also provides funding to organizations that provide technical assistance and training to rural communities in relation to their water activities. Examples of the USDA programs are provided below:

- **Circuit Rider Program** – Provides technical assistance to rural water systems that are experiencing day-to-day operational, financial, or managerial issues, and can provide energy audits.
- **Emergency Community Water Assistance Grants** – Helps eligible communities (local governments, non-profit organizations, and federally recognized tribes) prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water. A federal disaster declaration is not required. Eligible areas include rural areas and towns with populations of 10,000 or less, and Tribal lands in rural areas, where the median household income is less than the state's median household income for non-metropolitan areas. Up to \$150,000 may be granted to construct water line extensions, repair breaks or leaks in existing water distribution lines, and address related maintenance necessary to replenish water supply. In addition, up to \$500,000 may be granted to construct a water source, intake, or treatment facility. Partnerships for matching funds with other federal, state, local, private, and non-profit entities are encouraged.
- **Special Evaluation Assistance for Rural Communities and Households** – This program helps very small, financially distressed rural communities (including local governments, non-profits, and federally recognized tribes) with predevelopment feasibility studies, design, and technical assistance on proposed water and waste disposal projects. Eligible areas include rural areas with a population of 2,500 or less and a median household income below the poverty line, or less than 80% of the statewide non-metropolitan median household income based on latest census data. The grants may pay to evaluate projects to construct, enlarge, extend, or improve rural water facilities, and to make public or private improvements for the successful operation or protection of such facilities.

11.5.4 – United States Economic Development Administration

The United States Economic Development Administration (USED) provides grants for water infrastructure projects. For example, the proposed water main extension in Franklin is being jointly funded by USDA and USEPA. The grant programs support development in economically distressed areas of the United States by fostering job creation and attracting private investment through making construction, non-construction, and revolving loan fund investments. The USED also assists eligible recipients in developing economic development plans and studies designed to build capacity and guide the economic prosperity and resiliency of an area or region through investments to guide the eventual creation and retention of high-quality jobs.

11.5.5 – FEMA Hazard Mitigation Assistance Program

The FEMA Hazard Mitigation Assistance Program provides 75% of project costs for eligible projects which reduce the impact of natural hazards such as flooding. Eligible projects could include relocation

⁵ <https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs>

of critical water mains potentially susceptible to flooding, elevation of treatment buildings, or utility hardening. Local governments with an approved and effective Hazard Mitigation Plan may apply to the State of Connecticut as a sub-applicant to receive funding. Projects must demonstrate cost-effectiveness (demonstrate greater quantitative benefits than costs) to be eligible for funding. Funding for certain programs is authorized by Congress on a nationally-competitive basis each year, and additional funding is allocated to affected states following a federal disaster declaration.

11.5.6 – *Other Agencies*

The ASRWWA is a private non-profit organization that represents water and wastewater systems across Connecticut and Rhode Island providing training, technical assistance, and advocacy to small and rural water systems. ASRWWA provides on-site technical assistance for leak detection, process control, compliance, and source water and groundwater protection, and can also assist with securing grants for improvements.

RCAP Solutions (www.rcapsolutions.org) is a non-profit organization that offers many diverse and supportive programs and services, such as asset management, community surveys (such as infrastructure needs assessments, income surveys, and sanitary surveys), community and regional planning for water infrastructure and facilities development, compliance oversight, project oversight, and systems management to improve efficiency. RCAP Solutions also provides loans in underserved markets that are not typically eligible for loans through traditional resources.



12.0 RECOMMENDATIONS AND PRIORITIZATION

The recommendations identified through this Integrated Report are the result of a multi-year planning process drawing on decades of experience of water utility staff and regional planners. As a result of this planning process, the following major findings were derived:

- Finding #1: Water planning in Connecticut is rapidly advancing through numerous stakeholder efforts. While the changes are expected to be beneficial, utilities will need to make adjustments.
- Finding #2: Regionally, sufficient water supply exists to meet existing and projected ADD through 2060. However, the water is not always in the location of need. Projections of ADD for the CWSs indicate that significant supplies will be needed for two large systems by the 20-year planning period in order to maintain margin of safety of 15 percent (1.15). Certain individual systems will require new sources even sooner to meet MMADD. Based on existing sources and procedures for calculation of available water, CWSs in the region are projecting a supply need of approximately 4.0 mgd, 9.4 mgd, and 13.3 mgd over the five-year, 20-year, and 50-year planning horizons, primarily to meet MMADD.
- Finding #3: The benefits of passive water conservation efforts envisioned by the *State Water Plan* would significantly reduce projected demands for many larger public water systems. When such passive water conservation savings is included, the projected supply need in the region reduces to 3.9 mgd, 9.0 mgd, and 12.6 mgd over the five-year, 20-year, and 50-year planning horizons. At a minimum, utilities should review their existing rate structures and modify them as appropriate to encourage water conservation while covering the full cost of providing public water supply.
- Finding #4: A number of methods are available to reduce future water needs, including (in order of implementation) updating projections which may be out of date, implementing targeted water conservation and water efficiency measures, authorizing reasonable additive factors to be included in available water when calculating MOS for MMADD, developing interconnections or new sources to be transferred through interconnections, and developing new sources of supply. The use of targeted water conservation and water efficiency measures are expected to be the primary driver towards reducing demands and projected water supply deficits in the region. When development of new sources of supply is necessary in the future, the Eastern WUCC has a variety of regionally-significant source of supply options to evaluate.
- Finding #5: The viability of small CWSs continues to be a concern. Recent DPH efforts to identify systems with inadequate capacity have been greatly beneficial for both planning and regulatory purposes.
- Finding #6: The two year planning process has brought together a diverse group of representatives from local and state government, public and privately held public water systems, and regional Councils of Governments. This forum has enabled coordination of planning efforts and an exchange of knowledge and perspectives. Continued regular meetings by the WUCC will continue to encourage regional planning efforts.

12.1 Prioritization and Implementation of Recommendations

Recommendations developed throughout the Coordinated Water System planning process by the Eastern WUCC are located throughout this *Integrated Report* and summarized in Table 12-1. The Eastern WUCC formally evaluated the importance and priority of each recommendation at its March 14, 2018 meeting prior to approving the document to be submitted for public review. The WUCC intends to work with DPH and its member utilities and Councils of Governments, as well as outside committees and agencies, to implement these recommendations in the coming years.

12.2 Prioritization and Cost of Capital Improvement Projects

Given the level of variation between the status of various preliminary planning studies, particularly the fact that many of the proposed capital improvement projects have only been conceptually evaluated, many yield estimates are uncertain, and cost estimates have not been developed, prioritization of capital improvement projects is not appropriate at this time. This process is therefore deferred for further consideration by WUCC members as projects advance through planning stages. Potential capital improvement projects may include:

- Interconnections of small CWS nearby larger utilities where interconnection is found to be the preferred option for daily supply, or for emergency purposes (Section 4.3);
- Development of interconnections between CWC systems utilizing a single wellfield (Section 5.4);
- Development of interconnections with SCWA systems utilizing a single wellfield (Section 5.4);
- Development of an interconnection with WWW which utilizes a single reservoir (Section 5.4);
- Projects to improve the resiliency of the regionally-interconnected water system in the southern part of the region (Section 5.4);
- Interconnecting with or consolidating small CWS or non-community systems along or nearby the installation route of an interconnection project (Section 5.4); and
- Development (or joint development) of potentially regionally-significant sources of supply (Section 6.1 and Section 7.5).

In addition to whether a capital improvement project can reliably meet a portion or all of a regional need, the WUCC may use this document for guidance towards prioritizing potential projects in the future. The questions regarding climate change and resiliency from Section 2.4.3 should be considered, as well as the potential impacts on other uses of water resources outlined in Section 8.0. Finally, the WUCC is encouraged to consider metrics such as project costs per gallon as a way to compare the financial viability of multiple projects.

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

Topic Area	Goal	Recommended Strategy	Lead(s)	Timeframe
Responsible Planning	Prevent proliferation of water systems when other options are available	Modify ESA boundaries where appropriate to prevent creation of unnecessary consecutive water systems across ESA boundaries	WUCC	Ongoing
		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
	Work towards constructive changes to statutes and regulations	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	By 2023
		Explore and provide recommendations regarding an appropriate minimum threshold requiring issuance of a sale of excess water permit to exempt minimal sales required to service a small number of properties	WUCC, DPH	By 2023
		Review the State's minimum design criteria for new public water systems every five years to ensure the development of reliable water systems with proper technical, managerial, and financial capacity	WUCC, DPH	1st Review By 2023
		Explore and provide recommendations regarding regulations to ensure the standardized and consistent development of new non-community water systems	DPH	By 2023
		Consider development of a streamlined CPCN process for small utilities desiring a minimal degree of expansion instead of the five-percent rule	WUCC, DPH	By 2023
		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	By 2030
	Develop and use best-available data	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	By 2023
		Provide annual updates to the WUCC on the status of small systems based on the CAT	DPH, WUCC	Ongoing
		Keep WUCC informed on an annual basis regarding potentially regionally-significant water supply sources	Utilities	Ongoing
		Revise water demand projections that may be out of date (e.g. WSPs more than five years old such as NPU and New London Department of Public Utilities)	Utilities	By 2023
		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	By 2023
		Encourage local planners to identify in POCDs areas where public water service is desired	Utilities, COGs	Ongoing
		Provide Geographic Information System data appropriate for regional planning to Councils of Governments, including ESA boundaries and general public water system service locations	DPH	By 2023
		Review and improve accuracy of spatial data regarding the locations of non-community water systems	DPH	By 2023
		Consider and implement requiring all public water systems to report water usage on an annual basis	DPH, WUCC	By 2023
		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	By 2030
	Improve education of small system owners	Require training in asset management for small water system owners	DPH	By 2023
		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
		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
		Encourage small systems to work with non-profit 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
Source Protection	Encourage prudent development and conservation of existing large, protected watersheds	Implement the DWQMP process (potential candidate utilities include NPU, New London Department of Public Utilities, Putnam WPCA, and WWW)	Utilities, DPH	By 2023
		Pursue modification of CGS 8-30g to more strongly consider source water protection concerns in reservoir watersheds and APAs	DPH	By 2023
		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	Ongoing
	Improve stormwater quality in watersheds and aquifer recharge areas	Promote the adoption of best management practices for the use of green infrastructure in stormwater management design	Utilities	By 2023
		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	By 2023
	Consider methods to improve enforcement capabilities	Evaluate and provide recommendations regarding methods of improving enforcement to prevent activities on private property that may lead to reservoir or aquifer contamination	WUCC	By 2023
Drought Management	Consider methods to improve enforcement of conservation measures	Work with agencies and committees considering drought management to evaluate the model ordinance and evaluate potential legislative authority for water utilities to enforce restrictions under certain conditions	WUCC	By 2023
	Consider methods to improve timing of activation of drought triggers and conservation measures	Work with agencies and committees considering drought management to evaluate trigger criteria, forecasting models, and other methods to coordinate drought planning and response	WUCC	By 2023

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

Topic Area	Goal	Recommended Strategy	Lead(s)	Timeframe
Water Conservation	Consider and encourage methods for water systems to utilize to enhance water efficiency	Explore and provide recommendations regarding various methods of reducing unaccounted-for water	WUCC	Ongoing
		Explore and provide recommendations regarding the use of alternative methods for tracking water usage, water loss, and waste	WUCC	Ongoing
		Explore and provide recommendations regarding the use of outdoor water use restrictions to be applied seasonally	WUCC	Ongoing
		Explore and provide recommendations regarding the use of innovative billing structures, including covering the full cost to provide water through the basic rate before billing uses, and the use of water conservation surcharges to reduce seasonal peaks	WUCC	Ongoing
		Modify rate structures to encourage water conservation while covering the full cost to provide water	Utilities	Ongoing
		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
		Develop and enact targeted water conservation and water efficiency programs (potential candidate utilities include AWC, Colchester Water & Sewer, East Lyme Water & Sewer, New London Department of Public Utilities, NPU, and Waterford Utilities Commission)	Utilities, DPH	By 2023
	Consider alternative means to supply non-potable uses	Encourage the use of Class B water for non-potable uses within service area boundaries	WUCC	Ongoing
		Encourage the use of gray water reuse systems in new developments to reduce demands on potable water	WUCC	Ongoing
	Consider legislation to improve water conservation	Explore and provide recommendations regarding state and local legislation to further regulate demand-side water conservation	WUCC	By 2030
	Encourage dissemination of water conservation information	Encourage local planners to include discussions in POCDs on the importance of water conservation	COGs, Utilities	Ongoing
Climate Change	Ensure methods of calculating safe yield are consistent with climate change	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	1st Review By 2030
		Require regular monitoring of groundwater levels to detect trends that may impact safe yield	DPH	Ongoing
	Correct disparities in existing regulations	Explore and provide recommendations regarding updating the public health code to require new wells to be elevated to the 0.2% annual chance flood elevation (which may already be required by the State's flood regulations)	WUCC, DPH	By 2030
		Develop redundant infrastructure, backup power, increased system storage, and conduct more comprehensive emergency response planning to improve resiliency	Utilities	Ongoing
	Improve resiliency of public water systems	Encourage small systems with the potential to develop emergency interconnections to do so	DPH, WUCC	Ongoing
		Initiate planning for development of interconnections for systems (such as CWC, SCWA, and WWW) with only one source of supply (reservoir or wellfield)	WUCC, Utilities	By 2023
		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	By 2023
		Assist municipal systems in conducting asset management planning and developing formal infrastructure replacement programs	DPH	Ongoing
	Develop and use best-available data	Re-evaluate reservoir release requirements in light of changing rainfall and runoff patterns as USGS <i>StreamStats</i> is updated	Utilities	Ongoing
Funding	Improve availability of funding for desirable projects	Develop a dedicated source of grant funding to allow for the consolidation of small water systems located in close proximity	DPH	Immediately
		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	Immediately
		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	Immediately
		Develop legislation to allow revenue recovery for municipal systems to address discrepancies between actual annual revenues and expected annual revenue	DPH	By 2023
		Conduct regular seminars on financial management and the types of funding available for capital improvement projects	DPH	Ongoing
		Develop a dedicated source of grant funding for small system improvements	DPH	Immediately
		Develop a dedicated source of grant funding for regional water supply solutions	DPH	Ongoing
		Improve the accessibility of DWSRF loans for small water systems, such as through a streamlined process for certain types of improvements	DPH	Immediately
	Encourage joint use arrangements to reduce costs	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	Ongoing



APPENDED TABLES

Appended Table 1: Existing ADD and Available Water for Community Water Systems (mgd)

Community Water System	2015-2016 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2015-2016 Residential Demand	2015-2016 Non-Residential Demand	2015-2016 Unaccounted for Water	Percent Unaccounted for Water	2015-2016 Total ADD	2015-2016 Water Sold to Other Utilities	2015-2016 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) from System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD
Ah 1 LLC (Mar-Lea)	50	75	0.004	-	-	-	0.004	-	0.004	0.016	-	0.016	-	0.012
Ah 3 LLC (Woodlawn)	96	75	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043
Aquarion Water Co of CT-Lebanon Division	192	26	0.005	0.001	0.001	10.5%	0.007	-	0.007	0.030	-	0.030	-	0.023
Aquarion Water Co of CT-Mystic	11,361	55	0.627	0.494	0.215	16.1%	1.336	0.050	1.286	2.008	0.100	2.108	0.114	0.772
Arlington Acres Manufact House Comm, LLC	392	84	0.033	-	-	-	0.033	-	0.033	0.039	-	0.039	-	0.006
Arno Drive LLC	33	75	0.002	-	-	-	0.002	-	0.002	0.024	-	0.024	-	0.021
Ash Water Company, LLC	108	65	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043
Ashford Hills Apartments	136	75	0.010	-	-	-	0.010	-	0.010	0.037	-	0.037	-	0.027
Birch Hills Condominiums	132	75	0.010	-	-	-	0.010	-	0.010	0.050	-	0.050	-	0.040
Brooklyn Manor	30	75	0.002	-	-	-	0.002	-	0.002	0.008	-	0.008	-	0.005
Brookwood Apartments	44	75	0.003	-	-	-	0.003	-	0.003	0.008	-	0.008	-	0.004
Campbell Heights Apartments - System #2	36	130	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.015
Carefree Homeowners Association	172	41	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.001
Chaplin Woods Condominiums	69	19	0.001	-	-	-	0.001	-	0.001	0.023	-	0.023	-	0.021
Classee Water System - Latimer Point	316	34	0.011	-	-	-	0.011	-	0.011	-	0.006	0.006	0.011	(0.005)
Colchester Commons	224	49	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039
Colchester Sewer & Water Commission	4,806	44	0.212	0.122	0.003	0.7%	0.337	-	0.337	0.746	-	0.746	-	0.410
Colonial Efficiency Apartments	66	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001
Connollys Trailer Park	74	75	0.006	-	-	-	0.006	-	0.006	0.010	-	0.010	-	0.004
Conrads Park	60	75	0.005	-	-	-	0.005	-	0.005	0.009	-	0.009	-	0.004
Country Acres Park	48	83	0.004	-	-	-	0.004	-	0.004	0.017	-	0.017	-	0.013
Country Manor	66	75	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045
Country Manor II (Woodland Apartments)	36	75	0.003	-	-	-	0.003	-	0.003	0.014	-	0.014	-	0.011
Countryside Drive Association	96	75	0.007	-	-	-	0.007	-	0.007	0.011	-	0.011	-	0.004
Cranberry Bog Apartments	72	103	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000
Crystal Lake Condominiums	184	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.036
CTWC - Amston Lake Division	464	31	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.036
CTWC - Ashford Park Division	334	46	0.015	-	0.003	14.6%	0.018	-	0.018	0.050	-	0.050	-	0.032
CTWC - Cornfield Point Div.	57	35	0.002	-	-	-	0.002	-	0.002	0.016	-	0.016	-	0.014
CTWC - Country Mobile Div.	186	29	0.005	0.000	0.000	3.1%	0.006	-	0.006	0.018	-	0.018	-	0.012
CTWC - Crystal System	7,387	71	0.522	0.538	0.121	10.2%	1.181	0.001	1.180	2.490	-	2.490	-	1.309
CTWC - Gallup System	3,390	48	0.163	0.140	0.085	22.0%	0.388	-	0.388	0.862	-	0.862	-	0.474
CTWC - Lebanon Elderly Div.	67	19	0.001	-	-	-	0.001	-	0.001	0.011	-	0.011	-	0.010
CTWC - Plainfield System	1,835	49	0.090	0.037	0.009	6.3%	0.135	-	0.135	0.750	-	0.750	-	0.615
CTWC - Pompey Hollow Division	32	63	0.002	-	-	-	0.002	-	0.002	0.033	-	0.033	-	0.031
CTWC - Ponemah Village	60	30	0.002	-	-	-	0.002	-	0.002	0.032	-	0.032	-	0.031
CTWC - SDC Water	216	19	0.004	-	0.001	17.2%	0.005	-	0.005	0.050	-	0.050	-	0.045
CTWC - Shoreline Reg-Bay Mountain	440	29	0.013	0.000	0.003	19.3%	0.016	-	0.016	0.042	-	0.042	-	0.026
CTWC - Shoreline Region-Masons Island	445	72	0.032	0.001	0.007	17.3%	0.039	-	0.039	-	0.050	0.050	0.039	0.011
CTWC - Thompson System	1,334	57	0.076	0.040	0.013	9.7%	0.129	-	0.129	0.387	-	0.387	-	0.259
CTWC - Westchester Hills Condominium Assn.	225	75	0.017	-	-	-	0.017	-	0.017	0.046	-	0.046	-	0.030
CTWC - Westchester Village	252	25	0.006	-	-	-	0.006	-	0.006	0.045	-	0.045	-	0.039
Deer Run Supply	84	75	0.006	-	-	-	0.006	-	0.006	0.011	-	0.011	-	0.005
Douglas Manor	135	75	0.010	-	-	-	0.010	-	0.010	0.021	-	0.021	-	0.011
East Lyme Water & Sewer Commission	15,245	52	0.786	0.753	0.272	15.0%	1.810	-	1.810	2.501	-	2.501	-	0.691
Evangelical Christian Center - Main	84	75	0.006	-	-	-	0.006	-	0.006	0.029	-	0.029	-	0.023
Fall Brook Mobile Home Park	98	75	0.007	-	-	-	0.007	-	0.007	0.005	-	0.005	-	(0.002)
Fawn Ridge Association Inc.	36	75	0.003	-	-	-	0.003	-	0.003	0.021	-	0.021	-	0.018
Fox Laurel Mobile Home Park, LLC	40	75	0.003	-	-	-	0.003	-	0.003	0.013	-	0.013	-	0.010
Freedom Village Elderly Housing	43	75	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.047
Gaia Gardens	276	75	0.021	-	-	-	0.021	-	0.021	0.036	-	0.036	-	0.016
Gibson Hill Park	140	55	0.008	-	-	-	0.008	-	0.008	0.009	-	0.009	-	0.001
Gorman Road Apartments	25	75	0.002	-	-	-	0.002	-	0.002	0.027	-	0.027	-	0.025
Groton Long Point Association	2,400	42	0.100	0.020	-	-	0.120	-	0.120	-	0.345	0.345	0.120	0.225
Groton Utilities	28,328	34	0.960	4.788	0.010	0.2%	5.758	1.399	4.359	12,600	-	12,600	-	6,842
Independence Village Elderly Housing	55	75	0.004	-	-	-	0.004	-	0.004	0.011	-	0.011	-	0.007
Jensens Marina Cove System	70	25	0.002	-	-	-	0.002	-	0.002	0.013	-	0.013	-	0.011
Jewett City Water Co., S & W System	320	43	0.014	-	0.003	19.6%	0.017	-	0.017	0.050	-	0.050	-	0.033
Jewett City Water Co-Hill-N-Dale	146	36	0.005	-	0.001	12.2%	0.006	-	0.006	0.026	-	0.026	-	0.020
Jewett City Water Company	6,577	34	0.225	0.153	0.092	19.5%	0.470	-	0.470	0.913	-	0.913	-	0.443
Jumbo Apartments	35	75	0.003	-	-	-	0.003	-	0.003	0.012	-	0.012	-	0.009
Justice Resource Institute, Inc.	56	75	0.004	-	-	-	0.004	-	0.004	0.005	-	0.005	-	0.001
Kitemaug Orchard Association, Inc.	490	75	0.037	-	-	-	0.037	-	0.037	0.050	-	0.050	-	0.013
Knob Hill Condominiums	84	75	0.006	-	-	-	0.006	-	0.006	0.029	-	0.029	-	0.023
Knobbrook Village Elderly Housing	48	75	0.004	-	-	-	0.004	-	0.004	0.050	-	0.050	-	0.046
Lakeside Manor Apartments	72	40	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.047
Lakeview Mobile Home Park	99	75	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000
Ledyard WPCA - Ledyard Center	1,960	45	0.088	0.046	0.001	0.6%	0.135	-	0.135	-	0.350	0.350	0.135	0.215
Ledyard WPCA, Gales Ferry System	1,420	45	0.064	0.101	0.001	0.4%	0.166	-	0.166	-	0.250	0.250	0.166	0.084
Lincoln Park Elderly Housing	80	31	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000
Lisbon Mobile Homes	155	75	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037
Longview Estates, LLC	69	75	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.014
Mariapolis Prep School - St Johns	128	75	0.010	-	-	-	0.010	-	0.010	0.015	-	0.015	-	0.006
Mariapolis Prep School - St Alberts	51	57	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000
Mashantucket Pequot Tribal Nation	312	45	0.014	1.087	0.087	7.3%	1.188	0.018	1.170	2.530	-	2.530	-	1.342
Matulaitis Nursing Home	254	75	0.019	-	-	-	0.019	-	0.019	0.050	-	0.050	-	0.031
Meadows Apartments	301	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027
Mohegan Tribal Utility Authority	105	75	0.008	0.635	-	-	0.643	-	0.643	-	1.450	1.450	0.643	0.807
Montville Water Supply	2,840	113	0.322	0.285	0.060	9.0%	0.667	0.195	0.472	-	1.930	1.930	0.667	1.263
Moosup Garden Apartments	210	55	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037
Moosup Manor	27	48	0.001	-	-	-	0.001	-	0.001	0.029	-	0.029	-	0.028
Moosup Pond Terrace, LLC	46	75	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.046
Mountview Apartments	105	75	0.008	-	-	-	0.008	-	0.008	0.010	-	0.010	-	0.002
New London Dept. of Public Utilities	28,025	24	0.676	3.967	0.806	14.8%	5.449	1.900	3.549	6.980	-	6.980	-	1.531
Noank Fire District	1,947	86	0.168	0.025	0.005	2.5%	0.198	-	0.198	-	0.250	0.250	0.198	0.052
Northstone Gardens	79	75	0.006	-	-	-	0.006	-	0.006	0.027	-</			

Appended Table 1: Existing ADD and Available Water for Community Water Systems (mgd)

Community Water System	2015-2016 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2015-2016 Residential Demand	2015-2016 Non-Residential Demand	2015-2016 Unaccounted for Water	Percent Unaccounted for Water	2015-2016 Total ADD	2015-2016 Water Sold to Other Utilities	2015-2016 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) from System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	
Putnam Water Pollution Control Authority	7,338	58	0.423	0.462	0.075	7.8%	0.960	-	0.960	1.800	-	1.800	0.001	0.840	
Quinebaug Mobile Home Park	205	75	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	
Rogers Mobile Home Park - Groton	57	75	0.004	-	-	-	-	0.004	-	0.004	0.023	-	0.023	-	0.018
Roseland Terrace Association, Inc.	100	75	0.008	-	-	-	-	0.008	-	0.008	0.009	-	0.009	-	0.001
Round Hill LLC - Well# 1&2	72	75	0.005	-	-	-	-	0.005	-	0.005	0.018	-	0.018	-	0.012
Salem Manor Condominiums, System #1	32	75	0.002	-	-	-	-	0.002	-	0.002	0.008	-	0.008	-	0.006
Salem Manor Condominiums, System #2	25	75	0.002	-	-	-	-	0.002	-	0.002	0.002	-	0.002	-	0.000
SCWA, Barrett Division (Bar)	300	32	0.010	-	0.002	18.2%	0.012	-	0.012	0.050	-	0.050	-	0.038	
SCWA, Birchwood Division (Bwd)	108	31	0.003	-	-	-	-	0.003	-	0.003	0.020	-	0.020	-	0.016
SCWA, Cedar Ridge Division	370	42	0.015	-	0.003	15.0%	0.018	-	0.018	0.050	-	0.050	-	0.032	
SCWA, Chesterfield Division	524	47	0.024	-	-	-	-	0.024	-	0.024	0.050	-	0.050	-	0.026
SCWA, Chriswood Division (Cwd)	164	33	0.005	-	0.002	23.9%	0.007	-	0.007	0.018	-	0.018	-	0.011	
SCWA, Gray Farms Division (Grf)	460	47	0.022	-	0.004	14.3%	0.025	-	0.025	0.050	-	0.050	-	0.025	
SCWA, Hillcrest Division (Hlc)	450	53	0.024	-	-	-	-	0.024	-	0.024	0.010	0.095	0.105	0.002	0.081
SCWA, Ledyard Center Division	196	9	0.002	0.002	0.001	15.0%	0.005	-	0.005	0.043	-	0.043	-	0.039	
SCWA, Mohegan Division	1,428	42	0.060	-	0.010	14.0%	0.070	-	0.070	0.228	-	0.228	-	0.158	
SCWA, Montville Division (Mty)	2,570	32	0.083	-	0.005	6.0%	0.088	-	0.088	0.220	-	0.220	-	0.132	
SCWA, North Stonington Division (Nst)	1,860	13	0.025	0.022	0.002	4.0%	0.049	-	0.049	0.180	-	0.180	-	0.131	
SCWA, Robin Hill Division (Rbn)	388	39	0.015	-	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035
SCWA, Seven Oaks (Oak)	26	62	0.002	-	-	-	-	0.002	-	0.002	0.049	-	0.049	-	0.047
SCWA, Tower-Ferry View Division	2,567	73	0.188	-	0.077	29.0%	0.265	-	0.265	0.881	-	0.881	-	0.616	
Seely - Brown Village	48	75	0.004	-	-	-	-	0.004	-	0.004	0.020	-	0.020	-	0.016
Solar Recreational League - Lower Ridge	150	17	0.003	-	-	-	-	0.003	-	0.003	0.044	-	0.044	-	0.042
Sprague Water & Sewer Authority	1,058	33	0.035	0.020	0.006	10.0%	0.061	-	0.061	0.180	-	0.180	-	0.119	
St. Thomas More School-Main System	270	75	0.020	-	-	-	-	0.020	-	0.020	0.048	-	0.048	-	0.027
St. Thomas More School-The Cove	25	75	0.002	-	-	-	-	0.002	-	0.002	0.009	-	0.009	-	0.007
Sterling Water System	308	75	0.023	0.171	-	-	-	0.194	-	0.194	0.432	-	0.432	-	0.238
Strawberry Park	950	75	0.071	-	-	-	-	0.071	-	0.071	0.100	-	0.100	-	0.029
Sunny Waters Mobile Home Park	303	75	0.023	-	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027
The Rectory School	300	60	0.018	-	-	-	-	0.018	-	0.018	0.048	-	0.048	-	0.030
Thompson Hill Water Co - Beechwood Acres	77	75	0.006	-	-	-	-	0.006	-	0.006	0.012	-	0.012	-	0.006
Thompson Hill Water Co - Paula Lane Div	85	75	0.006	-	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001
Tunnel Hill Mobile Home Park	40	75	0.003	-	-	-	-	0.003	-	0.003	0.009	-	0.009	-	0.006
Veterans Base Camp	85	75	0.006	-	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001
Village Hill Apartments	36	75	0.003	-	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000
Voluntown Housing Authority	42	75	0.003	-	-	-	-	0.003	-	0.003	0.004	-	0.004	-	0.000
Waterford Country School, Inc.	180	75	0.014	-	-	-	-	0.014	-	0.014	0.019	-	0.019	-	0.006
Waterford Utilities Commission	16,862	63	1.070	0.549	0.281	14.8%	1.900	-	1.900	-	1.900	1.900	1.900	1.900	-
Westerly Water Department	4,480	75	0.336	0.100	0.046	9.6%	0.482	-	0.482	-	-	-	-	-	-
Westview Nursing Care & Rehab Ctr, Inc.	140	75	0.011	-	-	-	-	0.011	-	0.011	0.012	-	0.012	-	0.002
Westview Terrace Mobile Home Park	60	75	0.005	-	-	-	-	0.005	-	0.005	0.011	-	0.011	-	0.006
Windham Water Works	18,777	51	0.961	0.711	0.257	13.3%	1.929	-	1.929	-	-	-	-	-	-
Woodstock Academy South Campus (Former Hyde School)	620	17	0.010	-	-	-	-	0.010	-	0.010	0.045	-	0.045	-	0.035
Woodstock Housing Authority	26	75	0.002	-	-	-	-	0.002	-	0.002	0.010	-	0.010	-	0.008
Woodstock Meadows Condominium Assn.	180	75	0.014	-	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.037
Wyndham Park Apartments	312	75	0.023	-	-	-	-	0.023	-	0.023	0.027	-	0.027	-	0.004
TOTAL	234,657	49	11,425	17,492	2,938		31.855	4.013	27.842	46.253	6.743	52.997	4.013	23.553	

Notes: Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Westerly Water Department serves Pawcatuck from sources in Rhode Island. Available water is assumed equal to demand.

Windham Water Works serves Windham from source in Central PWSMA. Demands in table are for only those areas in Eastern PWSMA. Available Water within Eastern PWSMA is assumed equal to demand.

Data summarized from Table B-3 in Appendix B and represents the most current data available from water utilities, water supply plans, or DPH records

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Appended Table 2: 5-Year (2023) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2023 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2023 Residential Demand	2023 Non-Residential Demand	2023 Unaccounted-for Water	Percent Unaccounted-for Water	2023 Total ADD	2023 Water Sold to Other Utilities	2023 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2023 Residential Demand with Water Conservation	2023 Unaccounted-for Water with Water Conservation	2023 Total ADD with Water Conservation	2023 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Ah 1 LLC (Mar-Lea)	50	75	0.004	-	-	-	0.004	-	0.004	0.016	-	0.016	-	0.012	2	73	0.004	-	0.004	0.004	0.013
Ah 3 LLC (Woodlawn)	96	75	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	2	73	0.007	-	0.007	0.007	0.043
Aquarion Water Co of CT-Lebanon Division	192	30	0.006	0.001	0.001	9.1%	0.008	-	0.008	0.030	-	0.030	-	0.022	-	30	0.006	0.001	0.008	0.008	0.022
Aquarion Water Co of CT-Mystic	11,948	53	0.634	0.508	0.202	15.0%	1.344	0.050	1.294	2.008	0.100	2.108	0.114	0.764	2	51	0.611	0.202	1.320	1.270	0.788
Arlington Acres Manufact House Comm, LLC	392	84	0.033	-	-	-	0.033	-	0.033	0.039	-	0.039	-	0.006	2	82	0.032	-	0.032	0.032	0.007
Arnio Drive LLC	33	75	0.002	-	-	-	0.002	-	0.002	0.024	-	0.024	-	0.021	2	73	0.002	-	0.002	0.002	0.021
Ash Water Company, LLC	108	65	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	2	63	0.007	-	0.007	0.007	0.043
Ashford Hills Apartments	136	75	0.010	-	-	-	0.010	-	0.010	0.037	-	0.037	-	0.027	2	73	0.010	-	0.010	0.010	0.027
Birch Hills Condominiums	132	75	0.010	-	-	-	0.010	-	0.010	0.050	-	0.050	-	0.040	2	73	0.010	-	0.010	0.010	0.040
Brooklyn Manor	30	75	0.002	-	-	-	0.002	-	0.002	0.008	-	0.008	-	0.005	2	73	0.002	-	0.002	0.002	0.005
Brookwood Apartments	44	75	0.003	-	-	-	0.003	-	0.003	0.008	-	0.008	-	0.004	2	73	0.003	-	0.003	0.003	0.004
Campbell Heights Apartments - System #2	36	130	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.015	2	128	0.005	-	0.005	0.005	0.015
Carefree Homeowners Association	172	41	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.001	-	41	0.007	-	0.007	0.007	0.001
Chaplin Woods Condominiums	69	19	0.001	-	-	-	0.001	-	0.001	0.023	-	0.023	-	0.021	-	19	0.001	-	0.001	0.001	0.021
Classee Water System - Latimer Point	316	34	0.011	-	-	-	0.011	-	0.011	-	0.006	0.006	0.011	(0.005)	-	34	0.011	-	0.011	0.011	(0.005)
Colchester Commons	224	49	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	-	49	0.011	-	0.011	0.011	0.039
Colchester Sewer & Water Commission	4,987	45	0.224	0.193	0.038	8.4%	0.455	-	0.455	0.746	-	0.746	-	0.291	-	45	0.224	0.038	0.455	0.455	0.291
Colonial Efficiency Apartments	66	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	2	73	0.005	-	0.005	0.005	0.001
Connollys Trailer Park	74	75	0.006	-	-	-	0.006	-	0.006	0.010	-	0.010	-	0.004	2	73	0.005	-	0.005	0.005	0.004
Conrads Park	60	75	0.005	-	-	-	0.005	-	0.005	0.009	-	0.009	-	0.004	2	73	0.004	-	0.004	0.004	0.004
Country Acres Park	48	83	0.004	-	-	-	0.004	-	0.004	0.017	-	0.017	-	0.013	2	81	0.004	-	0.004	0.004	0.013
Country Manor	66	75	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045	2	73	0.005	-	0.005	0.005	0.045
Country Manor II (Woodland Apartments)	36	75	0.003	-	-	-	0.003	-	0.003	0.014	-	0.014	-	0.011	2	73	0.003	-	0.003	0.003	0.011
Countryside Drive Association	96	75	0.007	-	-	-	0.007	-	0.007	0.011	-	0.011	-	0.004	2	73	0.007	-	0.007	0.007	0.004
Cranberry Bog Apartments	72	103	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	2	101	0.007	-	0.007	0.007	0.000
Crystal Lake Condominiums	184	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.036	2	73	0.013	-	0.013	0.013	0.037
CTWC - Amston Lake Division	464	32	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	32	0.015	-	0.015	0.015	0.035
CTWC - Ashford Park Division	334	54	0.018	-	-	-	0.018	-	0.018	0.050	-	0.050	-	0.032	2	52	0.017	-	0.017	0.017	0.033
CTWC - Cornfield Point Div.	57	47	0.003	-	-	-	0.003	-	0.003	0.016	-	0.016	-	0.013	-	47	0.003	-	0.003	0.003	0.013
CTWC - County Mobile Div.	186	47	0.009	-	-	-	0.009	-	0.009	0.018	-	0.018	-	0.010	-	47	0.009	-	0.009	0.009	0.010
CTWC - Crystal System	7,596	70	0.531	0.526	0.117	10.0%	1.174	-	1.174	2.490	-	2.490	-	1.316	2	68	0.516	0.117	1.159	1.159	1.331
CTWC - Gallup System	3,472	48	0.168	0.119	0.070	19.6%	0.357	-	0.357	0.862	-	0.862	-	0.505	-	48	0.168	0.054	0.341	0.341	0.521
CTWC - Lebanon Elderly Div.	67	19	0.001	-	-	-	0.001	-	0.001	0.011	-	0.011	-	0.010	-	19	0.001	-	0.001	0.001	0.010
CTWC - Plainfield System	1,914	48	0.092	0.029	0.008	6.1%	0.129	-	0.129	0.750	-	0.750	-	0.621	-	48	0.092	0.008	0.129	0.129	0.621
CTWC - Pompey Hollow Division	32	91	0.003	-	-	-	0.003	-	0.003	0.033	-	0.033	-	0.031	2	89	0.003	-	0.003	0.003	0.031
CTWC - Ponemah Village	60	30	0.002	-	-	-	0.002	-	0.002	0.032	-	0.032	-	0.031	-	30	0.002	-	0.002	0.002	0.031
CTWC - SDC Water	216	24	0.005	-	-</td																

Appended Table 2: 5-Year (2023) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2023 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2023 Residential Demand	2023 Non-Residential Demand	2023 Unaccounted-for Water	Percent Unaccounted-for Water	2023 Total ADD	2023 Water Sold to Other Utilities	2023 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2023 Residential Demand with Water Conservation	2023 Unaccounted-for Water with Water Conservation	2023 Total ADD with Water Conservation	2023 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Jewett City Water Co., S & W System	320	43	0.014	-	0.002	12.0%	0.016	-	0.016	0.050	-	0.050	-	0.034	-	43	0.014	0.002	0.016	0.016	0.034
Jewett City Water Co-Hill-N-Dale	146	36	0.005	-	0.001	12.0%	0.006	-	0.006	0.026	-	0.026	-	0.020	-	36	0.005	0.001	0.006	0.006	0.020
Jewett City Water Company	6,577	34	0.225	0.153	0.052	12.0%	0.430	-	0.430	0.913	-	0.913	-	0.483	-	34	0.225	0.052	0.430	0.430	0.483
Jumbo Apartments	35	75	0.003	-	-	-	0.003	-	0.003	0.012	-	0.012	-	0.009	2	73	0.003	-	0.003	0.003	0.009
Justice Resource Institute, Inc.	56	75	0.004	-	-	-	0.004	-	0.004	0.005	-	0.005	-	0.001	2	73	0.004	-	0.004	0.004	0.001
Kitemaug Orchard Association, Inc.	490	75	0.037	-	-	-	0.037	-	0.037	0.050	-	0.050	-	0.013	2	73	0.036	-	0.036	0.036	0.014
Knob Hill Condominiums	84	75	0.006	-	-	-	0.006	-	0.006	0.029	-	0.029	-	0.023	2	73	0.006	-	0.006	0.006	0.023
Knollbrook Village Elderly Housing	48	75	0.004	-	-	-	0.004	-	0.004	0.050	-	0.050	-	0.046	2	73	0.004	-	0.004	0.004	0.046
Lakeside Manor Apartments	72	40	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.047	-	40	0.003	-	0.003	0.003	0.047
Lakeview Mobile Home Park	99	75	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	2	73	0.007	-	0.007	0.007	0.000
Ledyard WPCA - Ledyard Center	2,149	41	0.088	0.047	0.001	0.9%	0.137	-	0.137	-	0.350	0.350	0.137	0.213	-	41	0.088	0.001	0.137	0.137	0.213
Ledyard WPCA, Gales Ferry System	1,556	41	0.064	0.112	0.002	0.9%	0.178	-	0.178	-	0.250	0.250	0.178	0.072	-	41	0.064	0.002	0.178	0.178	0.072
Lincoln Park Elderly Housing	80	31	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	-	31	0.003	-	0.003	0.003	0.000
Lisbon Mobile Homes	155	75	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	2	73	0.011	-	0.011	0.011	0.037
Longview Estates, LLC	69	75	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.014	2	73	0.005	-	0.005	0.005	0.014
Marianapolis Prep School - St Johns	128	75	0.010	-	-	-	0.010	-	0.010	0.015	-	0.015	-	0.006	2	73	0.009	-	0.009	0.009	0.006
Marianapolis Prep School -St Alberts	51	57	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	2	55	0.003	-	0.003	0.003	0.000
Mashantucket Pequot Tribal Nation	462	102	0.047	1.188	0.111	8.3%	1.346	0.050	1.296	2.530	-	2.530	-	1.184	2	100	0.046	0.111	1.345	1.295	1.185
Matulaitis Nursing Home	254	75	0.019	-	-	-	0.019	-	0.019	0.050	-	0.050	-	0.031	2	73	0.019	-	0.019	0.019	0.031
Meadows Apartments	301	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	2	73	0.022	-	0.022	0.022	0.028
Mohegan Tribal Utility Authority	105	75	0.008	0.685	-	-	0.693	-	0.693	-	1.450	1.450	0.693	0.757	2	73	0.008	-	0.693	0.693	0.757
Montville Water Supply	2,973	115	0.342	0.514	0.068	7.3%	0.924	0.245	0.679	-	1.930	1.930	1.169	1.006	2	113	0.336	0.068	0.918	0.673	1.012
Moosup Garden Apartments	210	55	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	2	53	0.011	-	0.011	0.011	0.037
Moosup Manor	27	48	0.001	-	-	-	0.001	-	0.001	0.029	-	0.029	-	0.028	-	48	0.001	-	0.001	0.001	0.028
Moosup Pond Terrace, LLC	46	75	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.046	2	73	0.003	-	0.003	0.003	0.046
Mountview Apartments	105	75	0.008	-	-	-	0.008	-	0.008	0.010	-	0.010	-	0.002	2	73	0.008	-	0.008	0.008	0.002
New London Dept. of Public Utilities	29,581	30	0.887	4.213	0.886	14.8%	5.986	3.100	2.886	6.980	-	6.980	-	0.994	-	30	0.887	0.886	5.986	2.886	0.994
Noank Fire District	1,970	86	0.170	0.025	0.005	2.5%	0.200	-	0.200	-	0.250	0.250	0.200	0.050	-	84	0.166	0.005	0.196	0.196	0.054
Northstone Gardens	79	75	0.006	-	-	-	0.006	-	0.006	0.027	-	0.027	-	0.021	2	73	0.006	-	0.006	0.006	0.021
Norwich Public Utilities	44,823	52	2.335	2.663	0.444	8.2%	5.442	0.450	4.992	6.330	-	6.330	-	0.888	2	50	2.245	0.444	5.352	4.902	0.978
Oakdale Heights Association, Inc	876	75	0.066	-	-	-	0.066	-	0.066	0.100	-	0.100	-	0.034	2	73	0.064	-	0.064	0.064	0.036
Oakridge Gardens, LLC	70	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	2	73	0.005	-	0.005	0.005	0.001
Oakridge Village	33	75	0.002	-	-	-	0.002	-	0.002	0.026	-	0.026	-	0.023	2	73	0.002	-	0.002	0.002	0.024
Perry Hill Estates Apartments Inc.	144	75	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	2	73	0.011	-	0.011	0.011	0.039
Pickett Road Apartments	25	75	0.002	-	-	-	0.002	-	0.002	0.006	-	0.006	-	0.005	2	73	0.002	-	0.002	0.002	0.005
Pinecrest Condominiums	110	75	0.008	-	-	-	0.008	-	0.008	0.023	-	0.023	-	0.015	2	73	0.008	-	0.008	0.008	0.015
Pleasure Valley Mobile Home Park	328	48	0.016	-	-	-	0.016	-	0.016	0.050	-	0.050	-	0.034	-	48	0.016	-	0.016	0.016	0.034
Pomfret School	400	103	0.041	-	-	-	0.041	-													

Appended Table 2: 5-Year (2023) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2023 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2023 Residential Demand	2023 Non-Residential Demand	2023 Unaccounted-for Water	Percent Unaccounted-for Water	2023 Total ADD	2023 Water Sold to Other Utilities	2023 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2023 Residential Demand with Water Conservation	2023 Unaccounted-for Water with Water Conservation	2023 Total ADD with Water Conservation	2023 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
SCWA, Robin Hill Division (Rbn)	388	39	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	39	0.015	-	0.015	0.015	0.035
SCWA, Seven Oaks (Oak)	26	62	0.002	-	-	-	0.002	-	0.002	0.049	-	0.049	-	0.047	2	60	0.002	-	0.002	0.002	0.047
SCWA, Tower-Ferry View Division	2,567	73	0.188	-	0.077	29.0%	0.265	-	0.265	0.881	-	0.881	-	0.616	2	71	0.183	0.040	0.223	0.223	0.658
Seely - Brown Village	48	75	0.004	-	-	-	0.004	-	0.004	0.020	-	0.020	-	0.016	2	73	0.004	-	0.004	0.004	0.016
Solar Recreational League - Lower Ridge	150	17	0.003	-	-	-	0.003	-	0.003	0.044	-	0.044	-	0.042	-	17	0.003	-	0.003	0.003	0.042
Sprague Water & Sewer Authority	1,038	46	0.048	0.009	0.006	10.0%	0.064	-	0.064	0.180	-	0.180	-	0.116	-	46	0.048	0.006	0.064	0.064	0.116
St. Thomas More School-Main System	270	75	0.020	-	-	-	0.020	-	0.020	0.048	-	0.048	-	0.027	2	73	0.020	-	0.020	0.020	0.028
St. Thomas More School-The Cove	25	75	0.002	-	-	-	0.002	-	0.002	0.009	-	0.009	-	0.007	2	73	0.002	-	0.002	0.002	0.007
Sterling Water System	308	75	0.023	0.142	0.029	15.0%	0.194	-	0.194	0.432	-	0.432	-	0.238	2	73	0.022	0.029	0.193	0.193	0.239
Strawberry Park	950	75	0.071	-	-	-	0.071	-	0.071	0.100	-	0.100	-	0.029	2	73	0.069	-	0.069	0.069	0.031
Sunny Waters Mobile Home Park	303	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	2	73	0.022	-	0.022	0.022	0.028
The Rectory School	300	60	0.018	-	-	-	0.018	-	0.018	0.048	-	0.048	-	0.030	2	58	0.017	-	0.017	0.017	0.030
Thompson Hill Water Co - Beechwood Acres	77	75	0.006	-	-	-	0.006	-	0.006	0.012	-	0.012	-	0.006	2	73	0.006	-	0.006	0.006	0.006
Thompson Hill Water Co - Paula Lane Div	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	2	73	0.006	-	0.006	0.006	0.001
Tunnel Hill Mobile Home Park	40	75	0.003	-	-	-	0.003	-	0.003	0.009	-	0.009	-	0.006	2	73	0.003	-	0.003	0.003	0.006
Veterans Base Camp	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	2	73	0.006	-	0.006	0.006	0.001
Village Hill Apartments	36	75	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	2	73	0.003	-	0.003	0.003	0.000
Voluntown Housing Authority	42	75	0.003	-	-	-	0.003	-	0.003	0.004	-	0.004	-	0.000	2	73	0.003	-	0.003	0.003	0.001
Waterford Country School, Inc.	180	75	0.014	-	-	-	0.014	-	0.014	0.019	-	0.019	-	0.006	2	73	0.013	-	0.013	0.013	0.006
Waterford Utilities Commission	16,800	60	1.008	1.633	0.459	14.8%	3.100	-	3.100	-	3.100	3.100	3.100	-	2	58	0.974	0.459	3.066	3.066	-
Westerly Water Department	4,480	75	0.336	0.100	0.046	9.6%	0.482	-	0.482	-	-	-	-	-	2	73	0.327	0.046	0.473	0.473	-
Westview Nursing Care & Rehab Ctr, Inc.	140	75	0.011	-	-	-	0.011	-	0.011	0.012	-	0.012	-	0.002	2	73	0.010	-	0.010	0.010	0.002
Westview Terrace Mobile Home Park	60	75	0.005	-	-	-	0.005	-	0.005	0.011	-	0.011	-	0.006	2	73	0.004	-	0.004	0.004	0.006
Windham Water Works	19,434	51	0.995	0.709	0.261	13.3%	1.965	-	1.965	-	-	-	-	-	1	50	0.972	0.261	1.942	1.942	-
Woodstock Academy South Campus (Former Hyde School)	620	17	0.010	-	-	-	0.010	-	0.010	0.045	-	0.045	-	0.035	-	17	0.010	-	0.010	0.010	0.035
Woodstock Housing Authority	26	75	0.002	-	-	-	0.002	-	0.002	0.010	-	0.010	-	0.008	2	73	0.002	-	0.002	0.002	0.008
Woodstock Meadows Condominium Assn.	180	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.037	2	73	0.013	-	0.013	0.013	0.037
Wyndham Park Apartments	312	75	0.023	-	-	-	0.023	-	0.023	0.027	-	0.027	-	0.004	2	73	0.023	-	0.023	0.023	0.004
TOTAL	245,278	50	12.208	19.970	3.240		35.418	5.822	29.596	46.253	7.943	54.197	5.822	21.226		49	11.924	3.185	35.080	29.257	21.499

Notes: Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Water conservation projection calculated by MMI based on system data from Table B-4.

Westerly Water Department serves Pawcatuck from sources in Rhode Island. Available water is assumed equal to demand.

Windham Water Works serves Windham from source in Central PWSMA. Demands in table are for only those areas in Eastern PWSMA. Available Water within Eastern PWSMA is assumed equal to demand.

Data summarized from Table B-4 in Appendix B and represents the most current data available from water utilities, water supply plans, or DPH records

Available water is for existing sources only and does not include future sources planned by a utility or potential reductions in available water

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Appended Table 3: 20-Year (2030) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2030 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2030 Residential Demand	2030 Non-Residential Demand	2030 Unaccounted-for Water	Percent Unaccounted-for Water	2030 Total ADD	2030 Water Sold to Other Utilities	2030 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2030 Residential Demand with Water Conservation	2030 Unaccounted-for Water with Water Conservation	2030 Total ADD with Water Conservation	2030 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Ah 1 LLC (Mar-Lea)	50	75	0.004	-	-	-	0.004	-	0.004	0.016	-	0.016	-	0.012	6	69	0.003	-	0.003	0.003	0.013
Ah 3 LLC (Woodlawn)	96	75	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	6	69	0.007	-	0.007	0.007	0.043
Aquarion Water Co of CT-Lebanon Division	208	32	0.007	0.001	0.001	9.1%	0.009	-	0.009	0.030	-	0.030	-	0.021	-	32	0.007	0.001	0.009	0.009	0.021
Aquarion Water Co of CT-Mystic	12,443	53	0.664	0.528	0.210	15.0%	1.403	0.050	1.353	2.008	0.100	2.108	0.114	0.705	3	50	0.622	0.210	1.361	1.311	0.747
Arlington Acres Manufact House Comm, LLC	392	84	0.033	-	-	-	0.033	-	0.033	0.039	-	0.039	-	0.006	6	78	0.031	-	0.031	0.031	0.008
Arnio Drive LLC	33	75	0.002	-	-	-	0.002	-	0.002	0.024	-	0.024	-	0.021	6	69	0.002	-	0.002	0.002	0.021
Ash Water Company, LLC	108	65	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	6	59	0.006	-	0.006	0.006	0.044
Ashford Hills Apartments	136	75	0.010	-	-	-	0.010	-	0.010	0.037	-	0.037	-	0.027	6	69	0.009	-	0.009	0.009	0.027
Birch Hills Condominiums	132	75	0.010	-	-	-	0.010	-	0.010	0.050	-	0.050	-	0.040	6	69	0.009	-	0.009	0.009	0.041
Brooklyn Manor	30	75	0.002	-	-	-	0.002	-	0.002	0.008	-	0.008	-	0.005	6	69	0.002	-	0.002	0.002	0.005
Brookwood Apartments	44	75	0.003	-	-	-	0.003	-	0.003	0.008	-	0.008	-	0.004	6	69	0.003	-	0.003	0.003	0.005
Campbell Heights Apartments - System #2	36	130	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.015	6	124	0.004	-	0.004	0.004	0.015
Carefree Homeowners Association	172	41	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.001	-	41	0.007	-	0.007	0.007	0.001
Chaplin Woods Condominiums	69	19	0.001	-	-	-	0.001	-	0.001	0.023	-	0.023	-	0.021	-	19	0.001	-	0.001	0.001	0.021
Classee Water System - Latimer Point	316	34	0.011	-	-	-	0.011	-	0.011	-	0.006	0.006	0.011	(0.005)	-	34	0.011	-	0.011	0.011	(0.005)
Colchester Commons	224	49	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	-	49	0.011	-	0.011	0.011	0.039
Colchester Sewer & Water Commission	5,505	45	0.248	0.270	0.057	9.9%	0.575	-	0.575	0.746	-	0.746	-	0.172	-	45	0.248	0.057	0.575	0.575	0.172
Colonial Efficiency Apartments	66	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	6	69	0.005	-	0.005	0.005	0.001
Connollys Trailer Park	74	75	0.006	-	-	-	0.006	-	0.006	0.010	-	0.010	-	0.004	6	69	0.005	-	0.005	0.005	0.005
Conrads Park	60	75	0.005	-	-	-	0.005	-	0.005	0.009	-	0.009	-	0.004	6	69	0.004	-	0.004	0.004	0.005
Country Acres Park	48	83	0.004	-	-	-	0.004	-	0.004	0.017	-	0.017	-	0.013	6	77	0.004	-	0.004	0.004	0.014
Country Manor	66	75	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045	6	69	0.005	-	0.005	0.005	0.045
Country Manor II (Woodland Apartments)	36	75	0.003	-	-	-	0.003	-	0.003	0.014	-	0.014	-	0.011	6	69	0.002	-	0.002	0.002	0.012
Countryside Drive Association	96	75	0.007	-	-	-	0.007	-	0.007	0.011	-	0.011	-	0.004	6	69	0.007	-	0.007	0.007	0.004
Cranberry Bog Apartments	72	103	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	6	97	0.007	-	0.007	0.007	0.001
Crystal Lake Condominiums	184	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.036	6	69	0.013	-	0.013	0.013	0.037
CTWC - Amston Lake Division	464	32	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	32	0.015	-	0.015	0.015	0.035
CTWC - Ashford Park Division	334	54	0.018	-	-	-	0.018	-	0.018	0.050	-	0.050	-	0.032	4	50	0.017	-	0.017	0.017	0.033
CTWC - Cornfield Point Div.	57	47	0.003	-	-	-	0.003	-	0.003	0.016	-	0.016	-	0.013	-	47	0.003	-	0.003	0.003	0.013
CTWC - Country Mobile Div.	186	47	0.009	-	-	-	0.009	-	0.009	0.018	-	0.018	-	0.010	-	47	0.009	-	0.009	0.009	0.010
CTWC - Crystal System	7,857	70	0.549	0.541	0.121	10.0%	1.211	-	1.211	2.490	-	2.490	-	1.279	6	64	0.502	0.121	1.164	1.164	1.326
CTWC - Gallup System	3,542	50	0.177	0.121	0.063	17.4%	0.361	-	0.361	0.862	-	0.862	-	0.501	-	50	0.177	0.054	0.352	0.352	0.510
CTWC - Lebanon Elderly Div.	67	19	0.001	-	-	-	0.001	-	0.001	0.011	-	0.011	-	0.010	-	19	0.001	-	0.001	0.001	0.010
CTWC - Plainfield System	2,008	49	0.097	0.029	0.008	6.1%	0.135	-	0.135	0.750	-	0.750	-	0.615	-	49	0.097	0.008	0.135	0.135	0.615
CTWC - Pompey Hollow Division	32	91	0.003	-	-	-	0.003	-	0.003	0.033	-	0.033	-	0.031	6	85	0.003	-	0.003	0.003	0.031
CTWC - Ponemah Village	60	30	0.002	-	-	-	0.002	-	0.002	0.032	-	0.032	-	0.031	-	30	0.002	-	0.002	0.002	0.031
CTWC - SDC Water	216	24	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045	-	24	0.005	-	0.005	0.005	0.045
CTWC - Shoreline Reg-Bay Mountain	440	35	0.015	-	-	-	0.015	-	0.015	0.042	-	0.042	-	0.027	-	35	0.015	-	0.0		

Appended Table 3: 20-Year (2030) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2030 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2030 Residential Demand	2030 Non-Residential Demand	2030 Unaccounted-for Water	Percent Unaccounted-for Water	2030 Total ADD	2030 Water Sold to Other Utilities	2030 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2030 Residential Demand with Water Conservation	2030 Unaccounted-for Water with Water Conservation	2030 Total ADD with Water Conservation	2030 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Jewett City Water Co., S & W System	320	43	0.014	-	0.002	12.0%	0.016	-	0.016	0.050	-	0.050	-	0.034	-	43	0.014	0.002	0.016	0.016	0.034
Jewett City Water Co-Hill-N-Dale	146	36	0.005	-	0.001	12.0%	0.006	-	0.006	0.026	-	0.026	-	0.020	-	36	0.005	0.001	0.006	0.006	0.020
Jewett City Water Company	6,577	34	0.225	0.153	0.052	12.0%	0.430	-	0.430	0.913	-	0.913	-	0.483	-	34	0.225	0.052	0.430	0.430	0.483
Jumbo Apartments	35	75	0.003	-	-	-	0.003	-	0.003	0.012	-	0.012	-	0.009	6	69	0.002	-	0.002	0.002	0.009
Justice Resource Institute, Inc.	56	75	0.004	-	-	-	0.004	-	0.004	0.005	-	0.005	-	0.001	6	69	0.004	-	0.004	0.004	0.001
Kitemaug Orchard Association, Inc.	490	75	0.037	-	-	-	0.037	-	0.037	0.050	-	0.050	-	0.013	6	69	0.034	-	0.034	0.034	0.016
Knob Hill Condominiums	84	75	0.006	-	-	-	0.006	-	0.006	0.029	-	0.029	-	0.023	6	69	0.006	-	0.006	0.006	0.023
Knollbrook Village Elderly Housing	48	75	0.004	-	-	-	0.004	-	0.004	0.050	-	0.050	-	0.046	6	69	0.003	-	0.003	0.003	0.046
Lakeside Manor Apartments	72	40	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.047	-	40	0.003	-	0.003	0.003	0.047
Lakeview Mobile Home Park	99	75	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	6	69	0.007	-	0.007	0.007	0.001
Ledyard WPCA - Ledyard Center	2,338	40	0.094	0.047	0.009	5.9%	0.149	-	0.149	-	0.350	0.350	0.149	0.201	-	40	0.094	0.009	0.149	0.149	0.201
Ledyard WPCA, Gales Ferry System	1,692	40	0.068	0.112	0.011	5.9%	0.191	-	0.191	-	0.250	0.250	0.191	0.059	-	31	0.003	-	0.003	0.003	0.000
Lincoln Park Elderly Housing	80	31	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	6	69	0.011	-	0.011	0.011	0.038
Lisbon Mobile Homes	155	75	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	6	69	0.005	-	0.005	0.005	0.015
Longview Estates, LLC	69	75	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.014	6	69	0.009	-	0.009	0.009	0.006
Marianapolis Prep School - St Johns	128	75	0.010	-	-	-	0.010	-	0.010	0.015	-	0.015	-	0.006	6	51	0.003	-	0.003	0.003	0.001
Marianapolis Prep School -St Alberts	51	57	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	6	193	0.060	0.140	1.692	1.642	0.838
Mashantucket Pequot Tribal Nation	312	199	0.062	1.492	0.140	8.3%	1.694	0.050	1.644	2.530	-	2.530	-	0.836	6	69	0.018	-	0.018	0.018	0.032
Matulaitis Nursing Home	254	75	0.019	-	-	-	0.019	-	0.019	0.050	-	0.050	-	0.031	6	69	0.021	-	0.021	0.021	0.029
Meadows Apartments	301	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	6	69	0.007	-	0.714	0.714	0.736
Mohegan Tribal Utility Authority	105	75	0.008	0.707	-	-	0.715	-	0.715	-	1.450	1.450	0.715	0.735	6	103	0.373	0.095	1.190	0.924	0.740
Montville Water Supply	3,640	109	0.395	0.723	0.095	7.8%	1.212	0.267	0.946	-	1.930	1.930	1.479	0.718	5	50	0.011	-	0.011	0.011	0.038
Moosup Garden Apartments	210	55	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	6	48	0.001	-	0.001	0.001	0.028
Moosup Manor	27	48	0.001	-	-	-	0.001	-	0.001	0.029	-	0.029	-	0.028	6	69	0.003	-	0.003	0.003	0.001
Moosup Pond Terrace, LLC	46	75	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.046	6	69	0.007	-	0.007	0.007	0.002
Mountview Apartments	105	75	0.008	-	-	-	0.008	-	0.008	0.010	-	0.010	-	0.002	6	30	0.927	0.886	5.986	2.666	0.994
New London Dept. of Public Utilities	30,885	30	0.927	4.173	0.886	14.8%	5.986	3.320	2.666	6.980	-	6.980	-	0.994	6	80	0.158	0.005	0.188	0.188	0.062
Noank Fire District	1,970	86	0.170	0.025	0.005	2.5%	0.200	-	0.200	-	0.250	0.250	0.200	0.050	6	69	0.005	-	0.005	0.005	0.022
Northstone Gardens	79	75	0.006	-	-	-	0.006	-	0.006	0.027	-	0.027	-	0.021	2	50	2.316	0.568	6.865	6.415	(0.535)
Norwich Public Utilities	46,316	52	2.412	3.981	0.568	8.2%	6.960	0.450	6.510	6.330	-	6.330	-	(0.630)	6	69	0.060	-	0.060	0.060	0.040
Oakdale Heights Association, Inc	876	75	0.066	-	-	-	0.066	-	0.066	0.100	-	0.100	-	0.034	6	69	0.005	-	0.005	0.005	0.001
Oakridge Gardens, LLC	70	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	6	69	0.002	-	0.002	0.002	0.024
Oakridge Village	33	75	0.002	-	-	-	0.002	-	0.002	0.026	-	0.026	-	0.023	6	69	0.010	-	0.010	0.010	0.040
Perry Hill Estates Apartments Inc.	144	75	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	6	69	0.002	-	0.002	0.002	0.005
Pickett Road Apartments	25	75	0.002	-	-	-	0.002	-	0.002	0.006	-	0.006	-	0.005	6	69	0.008	-	0.008	0.008	0.016
Pinecrest Condominiums	110	75	0.008	-	-	-	0.008	-	0.008	0.023	-	0.023	-	0.015	6	48	0.016	-	0.016	0.016	0.034
Pleasure Valley Mobile Home Park	328	48	0.016	-	-	-	0.016	-	0.016	0.050	-	0.050	-	0.034	6	97	0.039	-	0.039	0.039	0.011
Pomfret School	400	103	0.041	-	-	-	0.041														

Appended Table 3: 20-Year (2030) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2030 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2030 Residential Demand	2030 Non-Residential Demand	2030 Unaccounted-for Water	Percent Unaccounted-for Water	2030 Total ADD	2030 Water Sold to Other Utilities	2030 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2030 Residential Demand with Water Conservation	2030 Unaccounted-for Water with Water Conservation	2030 Total ADD with Water Conservation	2030 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
SCWA, Robin Hill Division (Rbn)	388	39	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	39	0.015	-	0.015	0.015	0.035
SCWA, Seven Oaks (Oak)	26	62	0.002	-	-	-	0.002	-	0.002	0.049	-	0.049	-	0.047	6	56	0.001	-	0.001	0.001	0.047
SCWA, Tower-Ferry View Division	2,567	73	0.188	-	0.077	29.0%	0.265	-	0.265	0.881	-	0.881	-	0.616	6	67	0.173	0.040	0.212	0.212	0.669
Seely - Brown Village	48	75	0.004	-	-	-	0.004	-	0.004	0.020	-	0.020	-	0.016	6	69	0.003	-	0.003	0.003	0.017
Solar Recreational League - Lower Ridge	150	17	0.003	-	-	-	0.003	-	0.003	0.044	-	0.044	-	0.042	-	17	0.003	-	0.003	0.003	0.042
Sprague Water & Sewer Authority	1,056	46	0.049	0.010	0.006	9.8%	0.065	-	0.065	0.180	-	0.180	-	0.115	-	46	0.049	0.006	0.065	0.065	0.115
St. Thomas More School-Main System	270	75	0.020	-	-	-	0.020	-	0.020	0.048	-	0.048	-	0.027	6	69	0.019	-	0.019	0.019	0.029
St. Thomas More School-The Cove	25	75	0.002	-	-	-	0.002	-	0.002	0.009	-	0.009	-	0.007	6	69	0.002	-	0.002	0.002	0.007
Sterling Water System	308	75	0.023	0.142	0.029	15.0%	0.194	-	0.194	0.432	-	0.432	-	0.238	6	69	0.021	0.029	0.192	0.192	0.240
Strawberry Park	950	75	0.071	-	-	-	0.071	-	0.071	0.100	-	0.100	-	0.029	6	69	0.066	-	0.066	0.066	0.034
Sunny Waters Mobile Home Park	303	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	6	69	0.021	-	0.021	0.021	0.029
The Rectory School	300	60	0.018	-	-	-	0.018	-	0.018	0.048	-	0.048	-	0.030	6	54	0.016	-	0.016	0.016	0.031
Thompson Hill Water Co - Beechwood Acres	77	75	0.006	-	-	-	0.006	-	0.006	0.012	-	0.012	-	0.006	6	69	0.005	-	0.005	0.005	0.007
Thompson Hill Water Co - Paula Lane Div	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	6	69	0.006	-	0.006	0.006	0.001
Tunnel Hill Mobile Home Park	40	75	0.003	-	-	-	0.003	-	0.003	0.009	-	0.009	-	0.006	6	69	0.003	-	0.003	0.003	0.006
Veterans Base Camp	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	6	69	0.006	-	0.006	0.006	0.001
Village Hill Apartments	36	75	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	6	69	0.002	-	0.002	0.002	0.001
Voluntown Housing Authority	42	75	0.003	-	-	-	0.003	-	0.003	0.004	-	0.004	-	0.000	6	69	0.003	-	0.003	0.003	0.001
Waterford Country School, Inc.	180	75	0.014	-	-	-	0.014	-	0.014	0.019	-	0.019	-	0.006	6	69	0.012	-	0.012	0.012	0.007
Waterford Utilities Commission	17,000	60	1.020	1.809	0.491	14.8%	3.320	-	3.320	-	3.320	3.320	3.320	-	6	54	0.918	0.491	3.218	3.218	-
Westerly Water Department	4,480	75	0.336	0.100	0.046	9.6%	0.482	-	0.482	-	-	-	-	-	6	69	0.309	0.046	0.455	0.455	-
Westview Nursing Care & Rehab Ctr, Inc.	140	75	0.011	-	-	-	0.011	-	0.011	0.012	-	0.012	-	0.002	6	69	0.010	-	0.010	0.010	0.002
Westview Terrace Mobile Home Park	60	75	0.005	-	-	-	0.005	-	0.005	0.011	-	0.011	-	0.006	6	69	0.004	-	0.004	0.004	0.007
Windham Water Works	21,804	51	1.116	0.876	0.306	13.3%	2.298	-	2.298	-	-	-	-	-	1	50	1.090	0.306	2.272	2.272	-
Woodstock Academy South Campus (Former Hyde School)	620	17	0.010	-	-	-	0.010	-	0.010	0.045	-	0.045	-	0.035	-	17	0.010	-	0.010	0.010	0.035
Woodstock Housing Authority	26	75	0.002	-	-	-	0.002	-	0.002	0.010	-	0.010	-	0.008	6	69	0.002	-	0.002	0.002	0.008
Woodstock Meadows Condominium Assn.	180	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.037	6	69	0.012	-	0.012	0.012	0.038
Wyndham Park Apartments	312	75	0.023	-	-	-	0.023	-	0.023	0.027	-	0.027	-	0.004	6	69	0.022	-	0.022	0.022	0.005
TOTAL	254,459	50	12.832	22.874	3.592		39.298	6.405	32.893	46.253	8.163	54.417	6.405	17.899		48	12.219	3.545	38.639	32.233	18.404

Notes: Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Water conservation projection calculated by MMI based on system data from Table B-5.

Westerly Water Department serves Pawcatuck from sources in Rhode Island. Available water is assumed equal to demand.

Windham Water Works serves Windham from source in Central PWSMA. Demands in table are for only those areas in Eastern PWSMA. Available Water within Eastern PWSMA is assumed equal to demand.

Data summarized from Table B-5 in Appendix B and represents the most current data available from water utilities, water supply plans, or DPH records

Available water is for existing sources only and does not include future sources planned by a utility or potential reductions in available water

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).

Appended Table 4: 50-Year (2060) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2060 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2060 Residential Demand	2060 Non-Residential Demand	2060 Unaccounted-for Water	Percent Unaccounted-for Water	2060 Total ADD	2060 Water Sold to Other Utilities	2060 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2060 Residential Demand with Water Conservation	2060 Unaccounted-for Water with Water Conservation	2060 Total ADD with Water Conservation	2060 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Ah 1 LLC (Mar-Lea)	50	75	0.004	-	-	-	0.004	-	0.004	0.016	-	0.016	-	0.012	10	65	0.003	-	0.003	0.003	0.013
Ah 3 LLC (Woodlawn)	96	75	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	10	65	0.006	-	0.006	0.006	0.044
Aquarion Water Co of CT-Lebanon Division	208	32	0.007	0.001	0.001	9.1%	0.009	-	0.009	0.030	-	0.030	-	0.021	-	32	0.007	0.001	0.009	0.009	0.021
Aquarion Water Co of CT-Mystic	13,742	54	0.742	0.579	0.233	15.0%	1.554	0.050	1.504	2.008	0.100	2.108	0.114	0.554	4	50	0.687	0.233	1.499	1.449	0.609
Arlington Acres Manufact House Comm, LLC	392	84	0.033	-	-	-	0.033	-	0.033	0.039	-	0.039	-	0.006	10	74	0.029	-	0.029	0.029	0.010
Arnio Drive LLC	33	75	0.002	-	-	-	0.002	-	0.002	0.024	-	0.024	-	0.021	10	65	0.002	-	0.002	0.002	0.022
Ash Water Company, LLC	108	65	0.007	-	-	-	0.007	-	0.007	0.050	-	0.050	-	0.043	10	55	0.006	-	0.006	0.006	0.044
Ashford Hills Apartments	136	75	0.010	-	-	-	0.010	-	0.010	0.037	-	0.037	-	0.027	10	65	0.009	-	0.009	0.009	0.028
Birch Hills Condominiums	132	75	0.010	-	-	-	0.010	-	0.010	0.050	-	0.050	-	0.040	10	65	0.009	-	0.009	0.009	0.041
Brooklyn Manor	30	75	0.002	-	-	-	0.002	-	0.002	0.008	-	0.008	-	0.005	10	65	0.002	-	0.002	0.002	0.006
Brookwood Apartments	44	75	0.003	-	-	-	0.003	-	0.003	0.008	-	0.008	-	0.004	10	65	0.003	-	0.003	0.003	0.005
Campbell Heights Apartments - System #2	36	130	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.015	10	120	0.004	-	0.004	0.004	0.015
Carefree Homeowners Association	172	41	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.001	-	41	0.007	-	0.007	0.007	0.001
Chaplin Woods Condominiums	69	19	0.001	-	-	-	0.001	-	0.001	0.023	-	0.023	-	0.021	-	19	0.001	-	0.001	0.001	0.021
Classee Water System - Latimer Point	316	34	0.011	-	-	-	0.011	-	0.011	-	0.006	0.006	0.011	(0.005)	-	34	0.011	-	0.011	0.011	(0.005)
Colchester Commons	224	49	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	-	49	0.011	-	0.011	0.011	0.039
Colchester Sewer & Water Commission	6,532	45	0.294	0.482	0.104	11.8%	0.880	-	0.880	0.746	-	0.746	-	(0.133)	-	45	0.294	0.104	0.880	0.880	(0.133)
Colonial Efficiency Apartments	66	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	10	65	0.004	-	0.004	0.004	0.001
Connollys Trailer Park	74	75	0.006	-	-	-	0.006	-	0.006	0.010	-	0.010	-	0.004	10	65	0.005	-	0.005	0.005	0.005
Conrads Park	60	75	0.005	-	-	-	0.005	-	0.005	0.009	-	0.009	-	0.004	10	65	0.004	-	0.004	0.004	0.005
Country Acres Park	48	83	0.004	-	-	-	0.004	-	0.004	0.017	-	0.017	-	0.013	10	73	0.004	-	0.004	0.004	0.014
Country Manor	66	75	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045	10	65	0.004	-	0.004	0.004	0.046
Country Manor II (Woodland Apartments)	36	75	0.003	-	-	-	0.003	-	0.003	0.014	-	0.014	-	0.011	10	65	0.002	-	0.002	0.002	0.012
Countryside Drive Association	96	75	0.007	-	-	-	0.007	-	0.007	0.011	-	0.011	-	0.004	10	65	0.006	-	0.006	0.006	0.005
Cranberry Bog Apartments	72	103	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	10	93	0.007	-	0.007	0.007	0.001
Crystal Lake Condominiums	184	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.036	10	65	0.012	-	0.012	0.012	0.038
CTWC - Amston Lake Division	464	32	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	32	0.015	-	0.015	0.015	0.035
CTWC - Ashford Park Division	334	54	0.018	-	-	-	0.018	-	0.018	0.050	-	0.050	-	0.032	4	50	0.017	-	0.017	0.017	0.033
CTWC - Cornfield Point Div.	57	47	0.003	-	-	-	0.003	-	0.003	0.016	-	0.016	-	0.013	-	47	0.003	-	0.003	0.003	0.013
CTWC - Country Mobile Div.	186	47	0.009	-	-	-	0.009	-	0.009	0.018	-	0.018	-	0.010	-	47	0.009	-	0.009	0.009	0.010
CTWC - Crystal System	8,448	70	0.591	0.581	0.130	10.0%	1.302	-	1.302	2.490	-	2.490	-	1.188	10	60	0.507	0.130	1.218	1.218	1.272
CTWC - Gallup System	3,698	50	0.184	0.126	0.052	14.3%	0.362	-	0.362	0.862	-	0.862	-	0.500	-	50	0.184	0.052	0.362	0.362	0.500
CTWC - Lebanon Elderly Div.	67	19	0.001	-	-	-	0.001	-	0.001	0.011	-	0.011	-	0.010	-	19	0.001	-	0.001	0.001	0.010
CTWC - Plainfield System	2,114	48	0.102	0.029	0.009	6.1%	0.140	-	0.140	0.750	-	0.750	-	0.610	-	48	0.102	0.009	0.140	0.140	0.610
CTWC - Pompey Hollow Division	32	91	0.003	-	-	-	0.003	-	0.003	0.033	-	0.033	-	0.031	10	81	0.003	-	0.003	0.003	0.031
CTWC - Ponemah Village	60	30	0.002	-	-	-	0.002	-	0.002	0.032	-	0.032	-	0.031	-	30	0.002	-	0.002	0.002	0.031
CTWC - SDC Water	216	24	0.005	-	-	-	0.005	-	0.005	0.050	-	0.050	-	0.045	-	24	0.005	-	0.005	0.005	0.045
CTWC - Shoreline Reg-Bay Mountain	440	35	0.015	-	-	-	0.015	-	0.015	0.042	-	0.042	-	0.027	-	35</					

Appended Table 4: 50-Year (2060) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2060 Residential Service Area Population	Residential Per-Capita Demand (gpcd)	2060 Residential Demand	2060 Non-Residential Demand	2060 Unaccounted-for Water	Percent Unaccounted-for Water	2060 Total ADD	2060 Water Sold to Other Utilities	2060 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2060 Residential Demand with Water Conservation	2060 Unaccounted-for Water with Water Conservation	2060 Total ADD with Water Conservation	2060 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
Jewett City Water Co., S & W System	320	43	0.014	-	0.002	12.0%	0.016	-	0.016	0.050	-	0.050	-	0.034	-	43	0.014	0.002	0.016	0.016	0.034
Jewett City Water Co-Hill-N-Dale	146	36	0.005	-	0.001	12.0%	0.006	-	0.006	0.026	-	0.026	-	0.020	-	36	0.005	0.001	0.006	0.006	0.020
Jewett City Water Company	6,577	34	0.225	0.153	0.052	12.0%	0.430	-	0.430	0.913	-	0.913	-	0.483	-	34	0.225	0.052	0.430	0.430	0.483
Jumbo Apartments	35	75	0.003	-	-	-	0.003	-	0.003	0.012	-	0.012	-	0.009	10	65	0.002	-	0.002	0.002	0.010
Justice Resource Institute, Inc.	56	75	0.004	-	-	-	0.004	-	0.004	0.005	-	0.005	-	0.001	10	65	0.004	-	0.004	0.004	0.001
Kitemaug Orchard Association, Inc.	490	75	0.037	-	-	-	0.037	-	0.037	0.050	-	0.050	-	0.013	10	65	0.032	-	0.032	0.032	0.018
Knob Hill Condominiums	84	75	0.006	-	-	-	0.006	-	0.006	0.029	-	0.029	-	0.023	10	65	0.005	-	0.005	0.005	0.024
Knollbrook Village Elderly Housing	48	75	0.004	-	-	-	0.004	-	0.004	0.050	-	0.050	-	0.046	10	65	0.003	-	0.003	0.003	0.047
Lakeside Manor Apartments	72	40	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.047	-	40	0.003	-	0.003	0.003	0.047
Lakeview Mobile Home Park	99	75	0.007	-	-	-	0.007	-	0.007	0.008	-	0.008	-	0.000	10	65	0.006	-	0.006	0.006	0.001
Ledyard WPCA - Ledyard Center	2,338	40	0.094	0.047	0.009	5.9%	0.149	-	0.149	-	0.350	0.350	0.149	0.201	-	40	0.094	0.009	0.149	0.149	0.201
Ledyard WPCA, Gales Ferry System	1,692	40	0.068	0.112	0.011	5.9%	0.191	-	0.191	-	0.250	0.250	0.191	0.059	-	31	0.003	-	0.003	0.003	0.000
Lincoln Park Elderly Housing	80	31	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	10	65	0.010	-	0.010	0.010	0.039
Lisbon Mobile Homes	155	75	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	10	65	0.004	-	0.004	0.004	0.015
Longview Estates, LLC	69	75	0.005	-	-	-	0.005	-	0.005	0.019	-	0.019	-	0.014	10	65	0.008	-	0.008	0.008	0.007
Marianapolis Prep School - St Johns	128	75	0.010	-	-	-	0.010	-	0.010	0.015	-	0.015	-	0.006	7	50	0.003	-	0.003	0.003	0.001
Marianapolis Prep School -St Alberts	51	57	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	10	227	0.071	0.141	1.704	1.654	0.826
Mashantucket Pequot Tribal Nation	312	237	0.074	1.492	0.141	8.3%	1.707	0.050	1.657	2.530	-	2.530	-	0.823	10	65	0.017	-	0.017	0.017	0.033
Matulaitis Nursing Home	254	75	0.019	-	-	-	0.019	-	0.019	0.050	-	0.050	-	0.031	10	65	0.020	-	0.020	0.020	0.030
Meadows Apartments	301	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	10	65	0.007	-	0.764	0.764	0.686
Mohegan Tribal Utility Authority	105	75	0.008	0.757	-	-	0.765	-	0.765	-	1.450	1.450	0.765	0.685	10	64	0.545	0.231	1.770	1.454	0.160
Montville Water Supply	8,577	74	0.630	0.995	0.231	12.4%	1.856	0.317	1.539	-	1.930	1.930	2.173	0.074	5	50	0.011	-	0.011	0.011	0.038
Moosup Garden Apartments	210	55	0.012	-	-	-	0.012	-	0.012	0.049	-	0.049	-	0.037	-	48	0.001	-	0.001	0.001	0.028
Moosup Manor	27	48	0.001	-	-	-	0.001	-	0.001	0.029	-	0.029	-	0.028	10	65	0.003	-	0.003	0.003	0.047
Moosup Pond Terrace, LLC	46	75	0.003	-	-	-	0.003	-	0.003	0.050	-	0.050	-	0.046	10	65	0.007	-	0.007	0.007	0.003
Mountview Apartments	105	75	0.008	-	-	-	0.008	-	0.008	0.010	-	0.010	-	0.002	-	30	0.963	0.964	6.514	2.744	0.466
New London Dept. of Public Utilities	32,094	30	0.963	4.587	0.964	14.8%	6.514	3.770	2.744	6.980	-	6.980	-	0.466	10	76	0.150	0.005	0.180	0.180	0.070
Noank Fire District	1,970	86	0.170	0.025	0.005	2.5%	0.200	-	0.200	-	0.250	0.250	0.200	0.050	10	65	0.005	-	0.005	0.005	0.022
Northstone Gardens	79	75	0.006	-	-	-	0.006	-	0.006	0.027	-	0.027	-	0.021	2	50	2.383	0.591	7.142	6.692	(0.812)
Norwich Public Utilities	47,667	52	2.484	4.167	0.591	8.2%	7.242	0.450	6.792	6.330	-	6.330	-	(0.912)	10	65	0.057	-	0.057	0.057	0.043
Oakdale Heights Association, Inc	876	75	0.066	-	-	-	0.066	-	0.066	0.100	-	0.100	-	0.034	10	65	0.005	-	0.005	0.005	0.001
Oakridge Gardens, LLC	70	75	0.005	-	-	-	0.005	-	0.005	0.006	-	0.006	-	0.001	10	65	0.002	-	0.002	0.002	0.024
Oakridge Village	33	75	0.002	-	-	-	0.002	-	0.002	0.026	-	0.026	-	0.023	10	65	0.009	-	0.009	0.009	0.041
Perry Hill Estates Apartments Inc.	144	75	0.011	-	-	-	0.011	-	0.011	0.050	-	0.050	-	0.039	10	65	0.002	-	0.002	0.002	0.005
Pickett Road Apartments	25	75	0.002	-	-	-	0.002	-	0.002	0.006	-	0.006	-	0.005	10	65	0.007	-	0.007	0.007	0.003
Pinecrest Condominiums	110	75	0.008	-	-	-	0.008	-	0.008	0.023	-	0.023	-	0.015	10	65	0.007	-	0.007	0.007	0.016
Pleasure Valley Mobile Home Park	328	48	0.016	-	-	-	0.016	-	0.016	0.050	-	0.050	-	0.034	-	48	0.016	-	0.016	0.016	0.034
Pomfret School	400	103	0.041	-																	

Appended Table 4: 50-Year (2060) Projected ADD and Existing Available Water for Community Water Systems (mgd)

Community Water System	2060 Residential Service Area Population	2060 Residential Per-Capita Demand (gpcd)	2060 Residential Demand	2060 Non-Residential Demand	2060 Unaccounted-for Water	Percent Unaccounted-for Water	2060 Total ADD	2060 Water Sold to Other Utilities	2060 System ADD	Existing Available Water (ADD) from Sources	Existing Available Water (ADD) from Interconnections	Existing Total Available Water (ADD) for System	Water Purchased from Other Utilities	Available Water Surplus / Deficit for Total ADD	Residential Per-Capita Demand Reduction (gpcd)	New Residential Per-Capita Demand with Water Conservation (gpcd)	2060 Residential Demand with Water Conservation	2060 Unaccounted-for Water with Water Conservation	2060 Total ADD with Water Conservation	2060 System ADD with Water Conservation	Available Water Surplus or Deficit for Total ADD with Water Conservation
SCWA, Robin Hill Division (Rbn)	388	39	0.015	-	-	-	0.015	-	0.015	0.050	-	0.050	-	0.035	-	39	0.015	-	0.015	0.015	0.035
SCWA, Seven Oaks (Oak)	26	62	0.002	-	-	-	0.002	-	0.002	0.049	-	0.049	-	0.047	10	52	0.001	-	0.001	0.001	0.047
SCWA, Tower-Ferry View Division	2,567	73	0.188	-	0.077	29.0%	0.265	-	0.265	0.881	-	0.881	-	0.616	10	63	0.162	0.040	0.202	0.202	0.679
Seely - Brown Village	48	75	0.004	-	-	-	0.004	-	0.004	0.020	-	0.020	-	0.016	10	65	0.003	-	0.003	0.003	0.017
Solar Recreational League - Lower Ridge	150	17	0.003	-	-	-	0.003	-	0.003	0.044	-	0.044	-	0.042	-	17	0.003	-	0.003	0.003	0.042
Sprague Water & Sewer Authority	1,110	46	0.051	0.010	0.006	9.4%	0.068	-	0.068	0.180	-	0.180	-	0.112	-	46	0.051	0.006	0.068	0.068	0.112
St. Thomas More School-Main System	270	75	0.020	-	-	-	0.020	-	0.020	0.048	-	0.048	-	0.027	10	65	0.018	-	0.018	0.018	0.030
St. Thomas More School-The Cove	25	75	0.002	-	-	-	0.002	-	0.002	0.009	-	0.009	-	0.007	10	65	0.002	-	0.002	0.002	0.007
Sterling Water System	308	75	0.023	0.142	0.029	15.0%	0.194	-	0.194	0.432	-	0.432	-	0.238	10	65	0.020	0.029	0.191	0.191	0.241
Strawberry Park	950	75	0.071	-	-	-	0.071	-	0.071	0.100	-	0.100	-	0.029	10	65	0.062	-	0.062	0.062	0.038
Sunny Waters Mobile Home Park	303	75	0.023	-	-	-	0.023	-	0.023	0.050	-	0.050	-	0.027	10	65	0.020	-	0.020	0.020	0.030
The Rectory School	300	60	0.018	-	-	-	0.018	-	0.018	0.048	-	0.048	-	0.030	10	50	0.015	-	0.015	0.015	0.033
Thompson Hill Water Co - Beechwood Acres	77	75	0.006	-	-	-	0.006	-	0.006	0.012	-	0.012	-	0.006	10	65	0.005	-	0.005	0.005	0.007
Thompson Hill Water Co - Paula Lane Div	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	10	65	0.006	-	0.006	0.006	0.002
Tunnel Hill Mobile Home Park	40	75	0.003	-	-	-	0.003	-	0.003	0.009	-	0.009	-	0.006	10	65	0.003	-	0.003	0.003	0.006
Veterans Base Camp	85	75	0.006	-	-	-	0.006	-	0.006	0.007	-	0.007	-	0.001	10	65	0.006	-	0.006	0.006	0.002
Village Hill Apartments	36	75	0.003	-	-	-	0.003	-	0.003	0.003	-	0.003	-	0.000	10	65	0.002	-	0.002	0.002	0.001
Voluntown Housing Authority	42	75	0.003	-	-	-	0.003	-	0.003	0.004	-	0.004	-	0.000	10	65	0.003	-	0.003	0.003	0.001
Waterford Country School, Inc.	180	75	0.014	-	-	-	0.014	-	0.014	0.019	-	0.019	-	0.006	10	65	0.012	-	0.012	0.012	0.008
Waterford Utilities Commission	17,000	60	1.020	2,192	0.558	14.8%	3,770	-	3,770	-	3,770	3,770	3,770	-	10	50	0.850	0.558	3,600	3,600	-
Westerly Water Department	4,480	75	0.336	0.100	0.046	9.6%	0.482	-	0.482	-	-	-	-	-	10	65	0.291	0.046	0.437	0.437	-
Westview Nursing Care & Rehab Ctr, Inc.	140	75	0.011	-	-	-	0.011	-	0.011	0.012	-	0.012	-	0.002	10	65	0.009	-	0.009	0.009	0.003
Westview Terrace Mobile Home Park	60	75	0.005	-	-	-	0.005	-	0.005	0.011	-	0.011	-	0.006	10	65	0.004	-	0.004	0.004	0.007
Windham Water Works	23,405	51	1.198	0.876	0.318	13.3%	2,393	-	2,393	-	-	-	-	-	1	50	1.170	0.318	2,365	2,365	-
Woodstock Academy South Campus (Former Hyde School)	620	17	0.010	-	-	-	0.010	-	0.010	0.045	-	0.045	-	0.035	-	17	0.010	-	0.010	0.010	0.035
Woodstock Housing Authority	26	75	0.002	-	-	-	0.002	-	0.002	0.010	-	0.010	-	0.008	10	65	0.002	-	0.002	0.002	0.008
Woodstock Meadows Condominium Assn.	180	75	0.014	-	-	-	0.014	-	0.014	0.050	-	0.050	-	0.037	10	65	0.012	-	0.012	0.012	0.038
Wyndham Park Apartments	312	75	0.023	-	-	-	0.023	-	0.023	0.027	-	0.027	-	0.004	10	65	0.020	-	0.020	0.020	0.007
TOTAL	272,508	51	13.783	25.677	4.079		43.539	7.604	35.935	46.253	8.613	54.867	7.604	14.203		47	12.795	4.041	42.513	34.909	14.986

Notes: Waterford WPCA customers are serviced by New London. Available water is equal to demand.

Water conservation projection calculated by MMI based on system data from Table B-6.

Westerly Water Department serves Pawcatuck from sources in Rhode Island. Available water is assumed equal to demand.

Windham Water Works serves Windham from source in Central PWSMA. Demands in table are for only those areas in Eastern PWSMA. Available Water within Eastern PWSMA is assumed equal to demand.

Data summarized from Table B-6 in Appendix B and represents the most current data available from water utilities, water supply plans, or DPH records

Available water is for existing sources only and does not include future sources planned by a utility or potential reductions in available water

Surpluses and deficits shown at a margin of safety of 1.0 (i.e., no additional water set aside).



APPENDED FIGURE

Legend

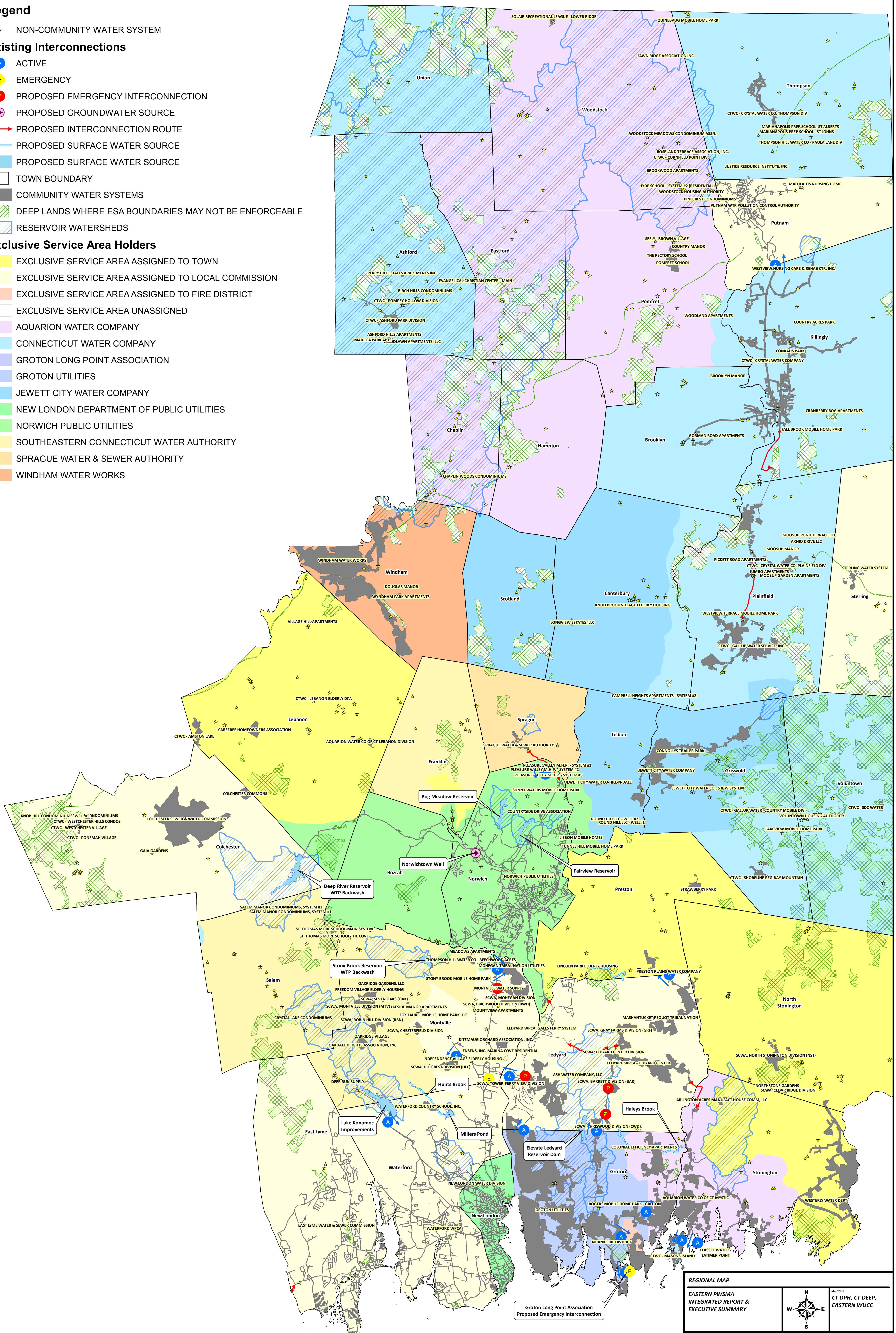
★ NON-COMMUNITY WATER SYSTEM

Existing Interconnections

- ACTIVE
- EMERGENCY
- PROPOSED EMERGENCY INTERCONNECTION
- PROPOSED GROUNDWATER SOURCE
- PROPOSED INTERCONNECTION ROUTE
- PROPOSED SURFACE WATER SOURCE
- TOWN BOUNDARY
- COMMUNITY WATER SYSTEMS
- DEEP LANDS WHERE ESA BOUNDARIES MAY NOT BE ENFORCEABLE
- RESERVOIR WATERSHEDS

Exclusive Service Area Holders

- 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
- CONNECTICUT WATER COMPANY
- GROTON LONG POINT ASSOCIATION
- GROTON UTILITIES
- JEWETT CITY WATER COMPANY
- NEW LONDON DEPARTMENT OF PUBLIC UTILITIES
- NORWICH PUBLIC UTILITIES
- SOUTHEASTERN CONNECTICUT WATER AUTHORITY
- SPRAGUE WATER & SEWER AUTHORITY
- WINDHAM WATER WORKS



REGIONAL MAP			SOURCE: CT DPH, CT DEEP, EASTERN WUCC
SIB VERSIONED	SIB DRAWN	DM CHECKED	DATE: FEBRUARY 27, 2018
1:96,000			
PROJECT NO.: 1017-05-05			
Engineering, Landscape Architecture and Environmental Science			
99 Realty Drive Cheshire, Connecticut 06410 (203) 271-1773 Fax: (203) 271-0733 www.miloneandmacbroom.com			
			APPENDED FIGURE 1



APPENDIX A

PUBLIC COMMENTS RECEIVED ON THE PRELIMINARY INTEGRATED REPORT



APPENDIX B

SUMMARY OF PROCESS USED TO PROJECT PUBLIC WATER DEMANDS



B. SUMMARY OF PROCESS USED TO PROJECT PUBLIC WATER DEMANDS

As required by RCSA Section 25-33h-1(d)(C)(i), the Integrated Report is required to project public water demands for the Eastern PWSMA as a whole, for each municipality within the area, and for each ESA. The amount of safe yield (or, as used herein, available water) also must be reported for the Eastern PWSMA and for each ESA. Given the number of public water systems in the Eastern PWSMA, and the wide range of information available for each system, a variety of methods were utilized to determine existing and projected demands.

Community water system (CWS) demands were originally developed in 2016 for the *Final Water Supply Assessment*. In September 2017, all public water systems were invited to provide usage data for average day demand (ADD), maximum month average day demand (MMADD), and peak day demand (PDD) for calendar year 2016; estimated ADD in terms of residential, non-residential, and unaccounted-for water use; and available water. The information provided by public water systems was supplemented with other estimates where necessary as discussed below. Tables B-3 through B-6 at the end of this Appendix presents the raw tables used to develop the summaries of existing public water demands and projected public water demands in the Eastern PWSMA. Summaries of these data are presented in Section 3 of this report.

B.1 Community Water Systems

B.1.1 Existing Water Demands (2015-2016 Data)

The *Final Water Supply Assessment* (December 2016) included actual or estimated water demands for each community public water system within the Western PWSMA for the calendar year 2015. All CWSs were invited to provide usage data for ADD for that calendar year in the fall of 2016. When actual data were not available, the most recent data available were taken from water supply plans (WSPs), PURA annual reports, DEEP water diversion permits and related applications, and sanitary surveys prepared by the Connecticut Department of Public Health (DPH). Data sources for various systems included the following:

- Aquarion Water Company (AWC): Provided 2016 data and projection data for all systems, supplemented with 2016 PURA annual report and information in 2006 WSP;
- Colchester Water & Sewer Commission: Current (2010) and projected data from 2012 WSP;
- Connecticut Water Company (CWC): Provided 2016 data and projection data for large systems, 2016 PURA annual report response used for other systems, supplemented with information in 2008 WSP;
- East Lyme Water & Sewer Commission: Current data (2012) from water diversion permit application for *Intra-Regional Water Supply Response Plan*, projection data from 2005 WSP;
- Groton Long Point Association: Provided 2015 data, projection data from 2011 WSP;
- Groton Utilities: Provided 2016 data and projection data, supplemented with information in 2012 WSP;
- Jewett City Water Company (JCWC): Provided 2016 data and projection data for all systems, supplemented with information in 2006 WSP and 2016 PURA annual report;

- Ledyard WPCA: Provided 2016 data and projection data for all systems, supplemented with information in 2016 WSP;
- Mashantucket Pequot Tribal Nation (MPTN): Current (2010) and projected data from 2012 WSP;
- Mohegan Tribal Utility Authority: Provided 2015 data; projection data from 2015 Montville WPCA WSP;
- Montville WPCA: Provided 2015 data, projection data from 2015 WSP;
- New London Department of Public Utilities: Provided 2016 data and projection data for combined system with Waterford, supplemented with information in 2009 WSP;
- Noank Fire District: Provided 2016 data, projection data from 2009 WSP, supplemented with information from 2013 PURA annual report;
- Norwich Public Utilities (NPU): Current data from 2012 PURA annual report, projection data from 2011 WSP;
- Preston Plains Water Company: Current data from 2014 PURA annual report, projections from 2009 WSP;
- Putnam WPCA: Current and projected data from 2012 WSP;
- Southeastern Connecticut Water Authority (SCWA): Provided 2015 data for all systems, projections from 2006 WSP, supplemented with data from 2012 PURA annual report;
- Sprague Water & Sewer Commission: Current data from 2014-2015 PURA annual report, projection data from 2012 WSP;
- Sterling Water Commission: Current data from 2015-2016 annual report;
- Vanilla Bean Café (Pomfret): Provided 2016 data and projection data for system;
- Waterford Utilities Commission: Provided 2015 data, projection data from 2016 WSP;
- Westerly Water Department: Current (2012) and projected data from 2013 WSP; and
- Windham Water Works (WWW): Provided 2016 data and projection data, supplemented with 2014 PURA annual report and information in 2012 WSP.

For many small community systems, water demand information was not available. In such cases, water demands were estimated in the *Final Water Supply Assessment* based on the CPCN design standard of 75 gallons per person per day. The same estimation method was used for new systems developed between 2016 and September 2017 that did not respond to the data collection request. The date of the DPH public water system list utilized to develop the projections in this *Integrated Report* is September 2017.

For large CWSs (those serving 1,000 people or more), a breakdown of water usage residential and non-residential consumption is typically provided in the WSP. For systems that did not respond to the 2017 data collection request, WSPs, PURA annual reports, and in some cases estimates based on aerial photography (e.g. numbers of houses, or sizes of non-residential structures) were used to estimate potential water demands within an area.

For smaller CWSs, the majority of these systems are entirely residential such that non-residential demands were estimated to be zero. Where such systems were known to include non-residential uses (either due to a data collection response, inclusion in a WSP, or from review of aerial photography and land use), a non-residential demand estimate or actual number was provided.

Unaccounted-for water was reported if available in WSPs and PURA annual reports, or was otherwise left as zero due to the lack of information available. It is recognized that for some systems (e.g.

apartment buildings with internal piping), an unaccounted-for water of zero is appropriate (because leaks within the building would become obvious); for other systems with underground water mains between service connections some increment of water is likely lost.

Many of the larger CWSs, and some of the smaller CWSs have interconnections with other public water systems. For those interconnections which can be actively used, any transfers and/or sales of water between the systems were tracked. In this way, the total ADD of the system (which includes the sale or transfer of water) can be modified into a system-specific ADD (the water usage within the specific public water system). Similarly, available water for each system was calculated based on the amount of water available from sources and interconnections as modified for commitments made between systems.

Most of the larger CWSs, as well as some of the smaller CWSs lie in one or more towns. In order to properly calculate the amount of public water supply demand in each town in the Eastern PWSMA, demands on such systems were estimated within each town. For residential demands, in most cases residential service area population was available from WSPs or PURA annual reports, and in other cases, an estimated service area population could be developed by reviewing the system boundary versus aerial photography. The estimated residential service population and the utility's per-capita residential demand value were used to estimate residential demand in each town. Non-residential demands were typically based on data available in WSPs, estimated from aerial photography and the septic design flow⁶ of 0.1 gallons per square foot, or back-calculated based on other known quantities (residential demand, unaccounted-for water, and ADD). When not specifically estimated, non-residential demands were estimated by apportioning by percentage of population.

An estimate of water movement was developed between each town in a system to ensure proper calculation of excess available water. In some cases, a system may have a commitment to sell water to another utility in a municipality where it does not have any sources. This is shown by the system having a negative available water from its sources, and the system in that town may also show a deficit for meeting ADD. While the tables in this appendix depict such data by town based on regulatory necessity, such data is more appropriately viewed at the system level. Therefore, judgement is required by the reader when reviewing the data in the appendix tables, and the reader is reminded that Section 3.0 of the *Integrated Report* summarizes the pertinent data on demands and projections for each system.

B.2.2 Projected Water Demands

MMI did not develop new projections for any water systems. Water demand projections were available for all of the large community systems and some of the smaller CWSs, either provided through a data collection response or available in a WSP. As noted in the *Final Water Supply Assessment*, not all WSPs use 2015 or 2016 as the base year for projections. In such cases, the projections were advanced to the current planning horizons, except where existing data is greater than the projection. For example, if the current demand exceeded the projected demand for a system for the 5-year planning period, the current demand level would be maintained for that planning horizon. Given the age of some WSPs, this occurred frequently for the 5-year planning horizon and more rarely for the 20-year planning horizon.

⁶ CT DPH Technical Standards for Subsurface Sewage Disposal Systems as revised through January 1, 2015:
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_engineering/pdf/011916_final_technical_standards.pdf.

Projections are provided for residential service population, residential demands, non-residential demands (including sales of water to other utilities), and unaccounted-for water. When a WSP reported a goal or specific figure for future unaccounted-for water, that figure was used for the projection. For most large systems, non-residential demand projections were back-calculated from projected residential demands, unaccounted-for water, and ADD. For most small community systems, projected demands were held consistent with existing ADD, as these systems largely serve one development or parcel and are not expected to expand unless an expanded ESA was awarded. However, specific projections were included for small community systems when provided by that system in a data collection response or WSP.

Sales projections were based on the system needing the water. If water was being used to supplement an existing supply, the sales to that system were held constant across the planning horizons. For consecutive systems receiving all of their water from another utility, the projected demand of the receiving utility was used to calculate projected sales for the source utility. Thus, in some cases, projected sales for resale for the source utility may differ from projected sales values reported in WSPs. The benefit of using this method is that when an interconnected utility is projected to have higher demands than its presently available water, the available water deficit is assigned to the utility with the need and not the utility selling the water.

As the purpose of the available water analysis is to determine where new sources will be needed, available water for community systems was generally held constant through the planning horizons. The surpluses and deficits of available water are discussed at the end of Section 3 and drive additional analyses in this report. Available water is held constant regardless of expiration of water diversion permits, sale of excess water permits, or contracts – in all cases, renewal is assumed through the 50-year planning horizon. In rare cases, available water may be planned to be reduced through abandonment of sources or consolidation of systems, so the available water may change slightly between planning horizons when this information is known. In general, available water is not increased due to planned new or reactivated sources of supply across the planning horizons in order to drive the analysis of available water need.

Zoning in the majority of communities in the Eastern PWSMA is such that the development of new CWSs is possible. In particular, the desire of many communities for cluster-style developments where homes (and corresponding impervious surfaces) are consolidated sometimes make it difficult to achieve setbacks for private wells and septic systems. For the purposes of this regional analysis, the development of new CWS ADD was tied to each town's population increase and residential service ratio.

- For towns where population was projected to be lost, it was assumed that no new community systems would be necessary outside of any projections for existing systems.
- For towns where population will be increasing, the existing residential service ratio was used to determine if there would be leftover additional community public water system population after accounting for existing projections from other (usually large) community systems. Any population left over was assigned a demand of 75 gallons per person per day. This additional demand would, in theory, be taken up by an existing CWS or a new CWS developed in the community.

Table B-1 presents the results of the additional CWS demand analysis, which depicts towns where there is more population growth (and expected resulting public water supply demands) in the region than accounted for by water supply planning projections. Note that not all communities are projected to need new CWSs or have excess CWS demands outside of existing projections, and such communities are not listed in Table B-1. In general, increases of less than 25 residential service population are likely to occur within existing systems, while increases of more than 25 could be the result of a new CWS developed under the CPCN process.

TABLE B-1
Additional Community Water System Demand Projections Not Accounted for in Other Projections

Town	ESA Holder(s)	Additional Residential CWS Service Population and ADD (2023)	Additional Residential CWS Service Population and ADD (2030)	Additional Residential CWS Service Population and ADD (2060)
Ashford	CWC	5 – 385 gpd	None	None
Bozrah	NPU	28 – 2,084 gpd	24 – 1,813 gpd	38 – 2,843 gpd
Brooklyn	CWC	75 – 5,659 gpd	29 – 2,189 gpd	None
Griswold	JCWC	374 – 28,039 gpd	None	None
Norwich	NPU	None	1,740 – 130,523 gpd	6,500 – 487,489 gpd
Pomfret	AWC	38 – 2,821 gpd	29 – 2,145 gpd	32 – 2,387 gpd
Putnam	Putnam WPCA	229 – 17,183 gpd	72 – 5,363 gpd	None
Sprague	Sprague Water & Sewer	4 – 293 gpd	None	None
Sterling	Sterling Water Comm.	42 – 3,133 gpd	30 – 2,213 gpd	34 – 2,513 gpd
Windham	WWW	1,475 – 110,614 gpd	None	3,014 – 226,032 gpd
Woodstock	AWC, CWC	12 – 900 gpd	None	None
Total		2,282 – 171,111 gpd	1,924 – 144,246 gpd	9,618 – 721,264 gpd

Note: Projected demands based on 75 gallons per person per day.

Finally, in some cases certain ESA holders have made clear that they would extend water mains to serve areas that would otherwise become new satellite CWSs. In such cases, the demands in Table B-1 above may be used as guidance by ESA holders for estimating additional demands in unserved areas of an ESA in the next WSP update.

B.2 Non-Community Water Systems

B.2.1 Existing Water Demands (2015-2016 Data)

The *Final Water Supply Assessment* (December 2016) did not include estimates of non-community public water system ADD. In general, actual usage data is not available for many systems, as these data are not required to be submitted to CT DPH. Although NTNC systems have certified operators who record usage data (typically on a weekly basis), many TNC systems are unmetered or, if metered, have meters which are read irregularly. For those non-community systems that did not report water demand information, ADD demands were estimated based on the CT DPH Technical Standards for Subsurface Sewage Disposal Systems as revised through January 1, 2015 coupled with the estimated non-residential population served.

In most cases, the ADD for non-community systems are estimated and are likely conservative. The Technical Standards for sewage disposal are purposefully higher than actual water usage to ensure a conservatively large septic system design. Therefore, the ADD reported for these systems should be considered a high-end estimate. Nevertheless, these estimates are useful for determining the potential non-residential public water supply in an area.

Similar to the small CWS, residential demands for the non-community water systems were only provided if such service was known, or was included in a WSP. The vast majority of non-community systems do not have residential demands. Unaccounted-for water was also left at zero for all non-community systems unless specifically reported in a data collection response.

Finally, the majority of non-community water systems are very small and available water calculations and demand projections are largely not available. It was assumed that each non-community system had sufficient water to meet its current demands. Transfers or sales of water to non-community systems were only reported if available from a data collection response, WSP, or PURA annual report. As available water is not reported for non-community systems, the tables in Section 3.0 referencing available water are titled to regard only CWSs.

B.2.2 Projected Water Demands

Water demands are generally not projected for existing non-community water systems, unless data to that effect was provided through a data collection response or in a WSP. Such systems typically only serve one parcel and the vast majority are not expected to expand to serve off-property.

Zoning in the majority of communities in the Eastern PWSMA is such that the development of new non-community water systems is possible. For the purposes of this regional analysis, the development of new non-community water system ADD was tied to each municipality's population increase.

- For municipalities where population was projected to be lost, it was assumed that no new non-community systems would be necessary.
- For municipalities where population was increasing, it was assumed that non-residential demands from existing non-community water systems would increase by a percentage equal to the percent gain in population. In other words, when population is increasing it was assumed that additional public water service at businesses and industry will be necessary, but when population is decreasing the ADD is held steady.

In some cases, an existing large system is projected to expand and incorporate some of the non-residential demand discussed above. However, new non-community public water systems are often developed in areas separated from or distant from existing service areas, and the associated water demands are minimal. Therefore, they have been included regardless of the presence of a larger system such that projected public water supply demands are conservatively higher.

Table B-2 presents the results of the additional non-community water system demand analysis. Note that not all communities are projected to need new non-community water systems or have additional non-community water system demands due to a decline in population. In general, any increases of less

than 50 gpd are expected to come within existing NTNC and TNC systems, while increases of more than 50 gpd are expected to be divided between new NTNC and TNC systems and existing non-community systems. Any new non-community water systems would be developed under the CPCN process.

TABLE B-2
Additional Non-Community Water System Demand Projections Not Accounted for in Other Projections

Municipality	ESA Holder	Additional NTNC and TNC ADD (2023)	Additional NTNC and TNC ADD (2030)	Additional NTNC and TNC ADD (2060)
Ashford	CWC	287 gpd	None	None
Bozrah	NPU	3,735 gpd	3,250 gpd	280 gpd
Brooklyn	CWC	344 gpd	254 gpd	475 gpd
Colchester	Colchester Water & Sewer	6 gpd	16 gpd	None
Eastford	AWC	89 gpd	None	None
Griswold	CWC, JCWC	1,101 gpd	843 gpd	575 gpd
Groton	Groton Utilities	71 gpd	1 gpd	None
Killingly	CWC	1,712 gpd	904 gpd	None
Norwich	NPU	239 gpd	203 gpd	568 gpd
Pomfret	AWC	960 gpd	730 gpd	812 gpd
Putnam	Putnam WPCA	372 gpd	279 gpd	155 gpd
Scotland	JCWC	13 gpd	None	None
Sprague	Sprague Water & Sewer	20 gpd	14 gpd	None
Sterling	Sterling Water Comm.	738 gpd	521 gpd	592 gpd
Thompson	CWC	80 gpd	None	None
Union	CWC	60 gpd	29 gpd	14 gpd
Windham	WWW	1,233 gpd	1,149 gpd	3,368 gpd
Woodstock	AWC	1,095 gpd	None	None
Total		12,155 gpd	8,193 gpd	6,841 gpd

The demands in Table B-2 above may be used as guidance by ESA holders for estimating additional demands in unserved areas of an ESA in the next WSP update.

B.3 Other Areas Where Potential Demands May Occur Despite Projected Population Decline

Section 6.2 of the *Final Water Supply Assessment* (December 2016) identified several locations where public water service was desired in order to address certain areas of need. These include areas not accounted for in WSP projections or the population-based community and non-community demand projections discussed in Section B.1 or Section B.2. These areas include the following:

- Ashford – Lack of utilities identified as an issue hindering economic development;
- Bozrah – Survey referenced in comprehensive plan promotes extension of public water supply along Stockhouse Road and Salem Turnpike, among other areas;
- Chaplin – Development of public water systems in Natchaug Village and Shermans Corner along Route 6 was noted as desirable;
- Colchester – Utility extensions were mentioned as a possible strategy to attract development;

- Franklin – Development of public water service for Birch Heights subdivision was desired, along with extension of public water to several areas with contaminated wells;
- Ledyard – Expansion of public water supply is desired in the Ledyard Center Village District;
- North Stonington – Potential for expansion of public water service along the Route 2 corridor was identified; and
- Thompson – Expansion of the CWC system to the industrial park on Reardon Road is desired, along with possible extension into areas with substandard septic systems.

In general, water demand projections for these areas have not been developed and any such projects have an uncertain timetable. However, in all cases, the water demands will be relatively minimal (less than 10,000 gpd) and largely subsume existing small community and non-community system demands. Therefore, while it is recognized that new systems may be needed for these areas, inclusion of these demands in the regional projections is not necessary at this time.

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for system	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Ashford	Ashford Hills Apartments	CTWC	C	136	0.010	-	0.010	-	0.010	0.037	-	-	-	-	-	-	-	-	-	0.027	
Ashford	Ah 1 LLC (Mar-Lea)	CTWC	C	50	0.004	-	0.004	-	0.004	0.016	-	-	-	-	-	-	-	-	-	0.012	
Ashford	Ah 3 LLC (Woodlawn)	CTWC	C	96	0.007	-	0.007	-	0.007	0.050	-	-	-	-	-	-	-	-	-	0.043	
Ashford	Birch Hills Condominiums	CTWC	C	132	0.010	-	0.010	-	0.010	0.050	-	-	-	-	-	-	-	-	-	0.040	
Ashford	CTWC - Ashford Park Division	CTWC	C	334	0.015	-	0.015	0.003	0.018	0.050	-	-	-	-	-	-	-	-	-	0.032	
Ashford	CTWC - Pompey Hollow Division	CTWC	C	32	0.002	-	0.002	-	0.002	0.033	-	-	-	-	-	-	-	-	-	0.031	
Ashford	Evangelical Christian Center - Main	CTWC	C	42	0.003	-	0.003	-	0.003	0.015	-	-	-	-	-	-	-	-	-	0.011	
Ashford	Perry Hill Estates Apartments Inc.	CTWC	C	144	0.011	-	0.011	-	0.011	0.050	-	-	-	-	-	-	-	-	-	0.039	
Ashford	Ashford Dari Bar	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Motel	CTWC	NC	25	-	0.002	0.002	-	0.002	0.002	-	-	-	-	-	-	-	-	-	-	
Ashford	Camp Connri	CTWC	NC	319	-	0.016	0.016	-	0.016	0.016	-	-	-	-	-	-	-	-	-	-	
Ashford	Church of Latter Day Saints	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Evangelical Christian Center - Rec Center	CTWC	NC	150	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp (#2)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp-Main System#1	CTWC	NC	335	-	0.017	0.017	-	0.017	0.017	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster - Well #2	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster (Cafeteria Well)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	P&D Realty, LLC	CTWC	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Rm's Bar & Grill	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Saint Philip Church Rectory	CTWC	NC	26	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Smitty's, LLC	CTWC	NC	28	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	St. Phillip The Apostle (Activity Ctr)	CTWC	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Westford Congregational Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Elementary School	CTWC	NTNC	673	-	0.007	0.007	-	0.007	0.007	-	-	-	-	-	-	-	-	-	-	
Ashford	Brialee Rv & Tent Park	CTWC	NTNC	100	-	0.004	0.004	-	0.004	0.004	-	-	-	-	-	-	-	-	-	-	
Borah	Norwich Public Utilities	Norwich Public Utilities	C-Large	563	0.039	0.137	0.175	0.015	0.191	-	-	-	-	-	4.745	4.555	-	-	-	-	
Borah	Acorn Acres Campground-System 1: Tennis	Norwich Public Utilities	NC	30	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres Campground-System 2: Laundry	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres, Inc.	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Bestway Convenience Store	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Childrens Dental Association	Norwich Public Utilities	NC	110	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Lake Road Plaza	Norwich Public Utilities	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Leffingwell Baptist Church	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Little Brook Plaza	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Revelation Church	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Hillandale Farm, Ct, LLC	Norwich Public Utilities	NTNC	88	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Manor	CTWC	C	30	0.002	-	0.002	-	0.002	0.008	-	-	-	-	-	-	-	-	-	0.005	
Brooklyn	Gorman Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	0.027	-	-	-	-	-	-	-	-	-	0.025	
Brooklyn	CTWC - Crystal System	CTWC	C-Large	2041	0.144	0.149	0.293	0.033	0.326	0.326	0.690	-	-	-	-	-	-	-	-	0.364	
Brooklyn	Americas Best Value Inn	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Country Club/Golf Course	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Market	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Pizza Restaurant	CTWC	NC	37	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Cozy Corner Restaurant	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Golden Lamb Restaurant	CTWC	NC	45	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Hanks Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Our Lady of La Salette Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sacred Heart Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sorels Garage	CTWC	NC	25	-	0.000	0.000	-													

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Colchester	Gaia Gardens	Colchester Sewer & Water Commission	C	276	0.021	-	0.021	-	0.021	-	0.021	0.036	-	-	0.036	-	-	-	-	-	0.01
Colchester	Knob Hill Condominiums	Colchester Sewer & Water Commission	C	84	0.006	-	0.006	-	0.006	-	0.006	0.029	-	-	0.029	-	-	-	-	-	0.02
Colchester	CTWC - Westchester Hills Condominium Assn.	Colchester Sewer & Water Commission	C	225	0.017	-	0.017	-	0.017	-	0.017	0.046	-	-	0.046	-	-	-	-	-	0.03
Colchester	CTWC - Amston Lake Division	Colchester Sewer & Water Commission	C	18	0.001	-	0.001	-	0.001	-	0.001	-	-	-	-	0.001	-	-	-	-	-
Colchester	752 Middletown Road - Colchester	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Colchester Bible Baptist Church	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Day Pond S.P./Beachwell	Colchester Sewer & Water Commission	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Day Pond S.P./Upper Picnic Area	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Hung Won Li, LLC	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Khyber Kassem, Md	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Marias Pizza Palace Restaurant	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Papa-Zs & Sons Pizza	Colchester Sewer & Water Commission	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Priani Vineyards	Colchester Sewer & Water Commission	NC	28	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Colchester	Salmon River State Park	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Scotties Frozen Custard	Colchester Sewer & Water Commission	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	State Police Fleet Maintenance	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Strip Mall On Middletown Road	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Two Brothers Wine & Spirit	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Westchester Congregational Church	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	The Caring Community of Ct, Inc.	Colchester Sewer & Water Commission	NTNC	90	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Tri-Town Shopping Plaza	Colchester Sewer & Water Commission	NTNC	82	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	East Lyme Water & Sewer Commission	East Lyme Water & Sewer Commission	C-Large	15245	0.786	0.753	1.539	0.272	1.810	-	1.810	2.501	-	-	2.501	-	-	-	-	-	0.69
East Lyme	Camp Niantic By The Atlantic-System 1	East Lyme Water & Sewer Commission	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 1	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 2	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 3	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Inncom International	East Lyme Water & Sewer Commission	NTNC	75	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Eastford	Evangelical Christian Center - Main	AWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.015	-	-	0.015	-	-	-	-	-	0.01
Eastford	Camp Nahaco - Dining Hall Camp	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Charlie Brown Campground	AWC	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Eastford	Charlie Brown Campground-Rec Hall	AWC	NC	75	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Congregational Church of Eastford	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Baptist Church- Activity Center	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Natchaug State Park/Lower Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Natchaug State Park/Upper Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Nickerson Park Campground	AWC	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Eastford	Peppertree Camping	AWC	NC	34	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Elementary School	AWC	NTNC	225	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Eastford	Whitcraft Corporation	AWC	NTNC	272	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	-
Franklin	Norwich Public Utilities	Norwich Public Utilities	C-Large	0	-	0.001	0.001	0.000	0.001	-	0.001	-	-	-	0.001	-	-	-	-	-	-
Franklin	10 Route 32 - Franklin	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	107 Route 32	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	260 Route 32	Norwich Public Utilities	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	7-Eleven #32517	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	96 Route 32	Norwich Public Utilities	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Arrowhead Acres, LLC.	Norwich Public Utilities	NC	63	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Dw Transport & Leasing, Inc.	Norwich Public Utilities	NC	38	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Mobil	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Municipal Complex	SCWA	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Wildlife Management Area	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Giddings Rec. Park Pavilion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Giddings Recreation Concession Stand	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Thames Valley Academy of Gymnastics	Norwich Public Utilities	NC	37	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	The Plant Group - Head House	SCWA	NC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Commons	Norwich Public Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Elementary School	SCWA	NTNC	300	-	0.003	0.003	-	0.003	-	0.00										

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Groton	Mystic Medical Group	AWC	NC	25	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Groton	Old Mystic Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	-
Groton	Comcast Cablevision	Groton Utilities	NTNC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Groton	Groton Board of Education	AWC	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Groton	Medtronic Xomed (Merocel Facility)	Groton Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Groton	Mystic Business Park, LLC	Groton Utilities	NTNC	55	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Groton	Precious Memories Daycare Center	AWC	NTNC	169	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Hampton	Goodwin Conservation Center	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Hampton	Hampton Mini Mart	AWC	NC	39	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Hampton	Our Lady of Lourdes Catholic Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Hampton	EastConn Central Administration	AWC	NTNC	65	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Hampton	Hampton Elementary School	AWC	NTNC	220	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Killingly	Conrads Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.005	0.009	-	-	0.009	-	-	-	-	-	0.004
Killingly	Country Acres Park	CTWC	C	48	0.004	-	0.004	-	0.004	-	0.004	0.017	-	-	0.017	-	-	-	-	-	0.013
Killingly	Cranberry Bog Apartments	CTWC	C	72	0.007	-	0.007	-	0.007	-	0.007	0.008	-	-	0.008	-	-	-	-	-	0.000
Killingly	CTWC - Crystal System	CTWC	C-Large	5346	0.378	0.389	0.767	0.087	0.854	0.001	0.853	1.800	-	-	1.800	-	-	-	-	-	0.947
Killingly	Fall Brook Mobile Home Park	CTWC	C	98	0.007	-	0.007	-	0.007	-	0.007	0.005	-	-	0.005	-	-	-	-	-	(0.002)
Killingly	Westview Nursing Care & Rehab Ctr, Inc.	CTWC	C	140	0.011	-	0.011	-	0.011	-	0.011	0.012	-	-	0.012	-	-	-	-	-	0.002
Killingly	CTWC - Plainfield System	CTWC	C-Large	60	-	0.003	0.003	-	0.003	-	0.003	0.750	-	-	0.750	-	0.132	-	-	-	0.615
Killingly	1075 North Main Street - Killingly	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	430 Ledge Road	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	474 Putnam Pike	CTWC	NC	46	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	610 Wauregan Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	Church of The Nazarine	CTWC	NC	150	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	Cumberland Farms Store #4632	CTWC	NC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	Four Gs Pizzeria	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Killingly	Hide Away Cove Campground	CTWC	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Killingly	Mozzarellas of Killingly, Inc	CTWC	NC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Killingly	Ou812, LLC - 165 Hartford Turnpike	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Killingly	Stateline Camp Resort-Well #1	CTWC	NC	50	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Killingly	The Gathering Place Restaurant & Pizza	CTWC	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Killingly	Zips Diner Inc	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Killingly	60 Hartford Pike	CTWC	NTNC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Killingly	EastConn	CTWC	NTNC	87	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Killingly	Frito-Lay	CTWC	NTNC	700	-	0.025	0.025	-	0.025	-	0.025	-	-	-	-	-	-	-	-	-	-
Killingly	Killingly High School & Agricultural Ctr	CTWC	NTNC	1400	-	0.035	0.035	-	0.035	-	0.035	-	-	-	-	-	-	-	-	-	-
Killingly	Killingly Hwy Dept Garage	CTWC	NTNC	68	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Killingly	Rogers Corp - Rogers Well	CTWC	NTNC	250	-	0.009	0.009	-	0.009	-	0.009	-	-	-	-	-	-	-	-	-	-
Lebanon	Aquarion Water Co of CT-Lebanon Division	Town of Lebanon	C	192	0.005	0.001	0.006	0.001	0.007	-	0.007	0.030	-	-	0.030	-	-	-	-	-	0.023
Lebanon	Carefree Homeowners Association	Town of Lebanon	C	172	0.007	-	0.007	-	0.007	-	0.007	0.008	-	-	0.008	-	-	-	-	-	0.001
Lebanon	CTWC - Lebanon Elderly Div.	Town of Lebanon	C	67	0.001	-	0.001	-	0.001	-	0.001	0.011	-	-	0.011	-	-	-	-	-	0.010
Lebanon	Village Hill Apartments	Town of Lebanon	C	36	0.003	-	0.003	-	0.003	-	0.003	0.003	-	-	0.003	-	-	-	-	-	0.000
Lebanon	CTWC - Amstak Lake Division	Town of Lebanon	C	446	0.014	-	0.014	-	0.014	-	0.014	0.050	-	-	0.050	-	-	-	-	-	0.036
Lebanon	Norwich Public Utilities	Norwich Public Utilities	C-Large	22	0.002	0.001	0.002	0.000	0.002	-	0.002	4.748	-	-	4.748	-	4.745	-	-	-	-
Lebanon	903 Exeter Rd - Lebanon	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Lebanon	Fire Safety Complex	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-</							

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD		
Lisbon	Round Hill LLC - Well# 1&2	JCWC	C	72	0.005	-	0.005	-	0.005	0.018	-	-	0.018	-	-	-	-	-	-	0.012			
Lisbon	Tunnel Hill Mobile Home Park	Norwich Public Utilities	C	40	0.003	-	0.003	-	0.003	0.009	-	-	0.009	-	-	-	-	-	-	-	0.006		
Lisbon	Norwich Public Utilities	Norwich Public Utilities	C-Large	134	0.009	0.072	0.081	0.007	0.088	-	0.088	-	-	-	0.088	-	-	-	-	-	-		
Lisbon	Lisbon Town Hall	JCWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-		
Lisbon	Lisbon Central School	JCWC	NTNC	620	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	-		
Lisbon	Lisbon River Road, LLC	JCWC	NTNC	85	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-		
Lisbon	Ross Hill Park Campground	JCWC	NTNC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-		
Montville	Mohegan Tribal Utility Authority	Montville WPCA	C-Large	105	0.008	0.635	0.643	-	0.643	-	0.643	-	1.450	-	1.450	-	-	-	-	-	0.643	0.807	
Montville	Deer Run Supply	SCWA	C	84	0.006	-	0.006	-	0.006	-	0.006	0.011	-	-	0.011	-	-	-	-	-	-	0.005	
Montville	Fox Laurel Mobile Home Park, LLC	Montville WPCA	C	40	0.003	-	0.003	-	0.003	-	0.003	0.013	-	0.013	-	-	-	-	-	-	-	0.010	
Montville	Freedom Village Elderly Housing	SCWA	C	43	0.003	-	0.003	-	0.003	-	0.003	0.050	-	0.050	-	-	-	-	-	-	-	0.047	
Montville	Independence Village Elderly Housing	Montville WPCA	C	55	0.004	-	0.004	-	0.004	-	0.004	0.011	-	-	0.011	-	-	-	-	-	-	0.007	
Montville	Jensens Marina Cove System	Montville WPCA	C	70	0.002	-	0.002	-	0.002	-	0.002	0.013	-	0.013	-	-	-	-	-	-	-	0.011	
Montville	Kitemaug Orchard Association, Inc.	Montville WPCA	C	490	0.037	-	0.037	-	0.037	-	0.037	0.050	-	0.050	-	-	-	-	-	-	-	0.013	
Montville	Lakeside Manor Apartments	SCWA	C	72	0.003	-	0.003	-	0.003	-	0.003	0.050	-	0.050	-	-	-	-	-	-	-	0.047	
Montville	Meadows Apartments	SCWA	C	301	0.023	-	0.023	-	0.023	-	0.023	0.050	-	0.050	-	-	-	-	-	-	-	0.027	
Montville	Montville Water Supply	Montville WPCA	C-Large	2840	0.322	0.285	0.607	0.060	0.667	0.195	0.472	-	1.930	1.095	0.835	-	-	-	-	-	-	0.667	0.363
Montville	Mountview Apartments	Montville WPCA	C	105	0.008	-	0.008	-	0.008	-	0.008	0.010	-	0.010	-	-	-	-	-	-	-	0.002	
Montville	Oakdale Heights Association, Inc	SCWA	C	876	0.066	-	0.066	-	0.066	-	0.066	0.100	-	0.100	-	-	-	-	-	-	-	0.034	
Montville	Oakridge Gardens, LLC	SCWA	C	70	0.005	-	0.005	-	0.005	-	0.005	0.006	-	0.006	-	-	-	-	-	-	-	0.001	
Montville	Oakridge Village	SCWA	C	33	0.002	-	0.002	-	0.002	-	0.002	0.026	-	0.026	-	-	-	-	-	-	-	0.023	
Montville	SCWA, Birchwood Division (Bwd)	Montville WPCA	C	108	0.003	-	0.003	-	0.003	-	0.003	0.020	-	0.020	-	-	-	-	-	-	-	0.016	
Montville	SCWA, Chesterfield Division	Montville WPCA	C	524	0.024	-	0.024	-	0.024	-	0.024	0.050	-	0.050	-	-	-	-	-	-	-	0.026	
Montville	SCWA, Hillcrest Division (Hlc)	Montville WPCA	C	450	0.024	-	0.024	-	0.024	-	0.024	0.010	0.095	-	0.105	-	-	-	-	-	-	0.002	0.081
Montville	SCWA, Mohegan Division	Montville WPCA	C-Large	1428	0.060	-	0.060	0.010	0.070	-	0.070	0.228	-	0.228	-	-	-	-	-	-	-	0.158	
Montville	SCWA, Montville Division (Mtv)	SCWA	C-Large	2570	0.083	-	0.083	0.005	0.088	-	0.088	0.220	-	0.220	-	-	-	-	-	-	-	0.132	
Montville	SCWA, Robin Hill Division (Rbn)	SCWA	C	388	0.015	-	0.015	-	0.015	-	0.015	0.050	-	0.050	-	-	-	-	-	-	-	0.035	
Montville	SCWA, Seven Oaks (Oak)	SCWA	C	26	0.002	-	0.002	-	0.002	-	0.002	0.049	-	0.049	-	-	-	-	-	-	-	0.047	
Montville	St. Thomas More School-Main System	SCWA	C	270	0.020	-	0.020	-	0.020	-	0.020	0.048	-	0.048	-	-	-	-	-	-	-	0.027	
Montville	St. Thomas More School-The Cove	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.009	-	0.009	-	-	-	-	-	-	-	0.007	
Montville	Thompson Hill Water Co - Beechwood Acres	SCWA	C	77	0.006	-	0.006	-	0.006	-	0.006	0.012	-	0.012	-	-	-	-	-	-	-	0.006	
Montville	Norwich Public Utilities	Norwich Public Utilities	C-Large	551	0.038	0.450	0.488	0.043	0.531	0.450	0.081	1.583	0.450	1.133	-	-	1.051	-	-	-	-	-	
Montville	Waterford Utilities Commission	Montville WPCA	C-Large	0	-	0.170	0.170	0.030	0.200	-	0.200	-	-	-	0.200	-	-	-	-	-	-	-	
Montville	1434 Route 85	SCWA	NC	44	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	712 Route 163	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Calvary Chapel (Annex) Southeastern Ct	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Calvary Chapel of Se CT (Church)	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Ballfields	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Large Pavilion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Small Pavilion	SCWA	NC	50	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Chesterfield Lodge	SCWA	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Cornerstone Baptist Church	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Montville	Davids Place	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-</td										

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
North Stonington	Mystic Koa, Highland Orchard Rv	Town of North Stonington	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Baptist Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Ch - Worship Hall	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Grange #138	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Shell Station (Hendels)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Xtra Mart	Town of North Stonington	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Spicer Plus (Food & Fuel/Dunkin Donuts)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	St Thomas More Catholic Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Stardust Motel	Town of North Stonington	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Infirmary	Town of North Stonington	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Knollwood	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Lodge	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Main Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - North Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Subway - N Stonington	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	411C Norwich Westerly Rd	Town of North Stonington	NTNC	100	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Kidds & Co., LLC	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Christian Academy	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Second Baptist Church	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Tinaco Plaza, LLC	Town of North Stonington	NTNC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Wood Pond (West 1&2)	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Countryside Drive Association	Norwich Public Utilities	C	96	0.007	-	0.007	-	0.007	-	0.007	-	0.011	-	-	0.011	-	-	-	-	0.00
Norwich	Norwich Public Utilities	Norwich Public Utilities	C-Large	37416	1.893	1.237	3.130	0.275	3.405	-	3.405	-	-	-	-	5.606	0.455	-	-	1.74	
Norwich	Pleasure Valley Mobile Home Park	Norwich Public Utilities	C	328	0.016	-	0.016	-	0.016	-	0.016	0.050	-	-	0.050	-	-	-	-	0.03	
Norwich	Sunny Waters Mobile Home Park	Norwich Public Utilities	C	303	0.023	-	0.023	-	0.023	-	0.023	0.050	-	-	0.050	-	-	-	-	0.02	
Norwich	7-Eleven #32524	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Church of Jesus Christ of Latter Day Sai	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Leomilts Petroleum, Inc	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Dog Pound	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Group Pavilion	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Aesthetic Dentistry	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Worship Center	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	The Norwich Fish & Game Assoc., Inc.	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Montessori Discovery School	Norwich Public Utilities	NTNC	88	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Arnio Drive LLC	CTWC	C	33	0.002	-	0.002	-	0.002	-	0.002	-	0.024	-	-	0.024	-	-	-	0.02	
Plainfield	CTWC - Gallup System	CTWC	C-Large	3390	0.163	0.140	0.303	0.085	0.388	-	0.388	0.862	-	-	0.862	-	-	-	-	0.47	
Plainfield	CTWC - Plainfield System	CTWC	C-Large	1775	0.090	0.034	0.124	0.009	0.132	-	0.132	-	-	-	-	0.132	-	-	-	-	-
Plainfield	Jumbo Apartments	CTWC	C	35	0.003	-	0.003	-	0.003	-	0.003	0.012	-	-	0.012	-	-	-	-	0.00	
Plainfield	Moosup Garden Apartments	CTWC	C	210	0.012	-	0.012	-	0.012	-	0.012	0.049	-	-	0.049	-	-	-	-	0.03	
Plainfield	Moosup Manor	CTWC	C	27	0.001	-	0.001	-	0.001	-	0.001	0.029	-	-	0.029	-	-	-	-	0.02	
Plainfield	Moosup Pond Terrace, LLC	CTWC	C	46	0.003	-	0.003	-	0.003	-	0.003	0.050	-	-	0.050	-	-	-	-	0.04	
Plainfield	Pickett Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	-	0.002	0.006	-	-	0.006	-	-	-	-	0.00	
Plainfield	Westview Terrace Mobile Home Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.005	0.011	-	-	0.011	-	-	-	-	0.00	
Plainfield	10 Putnam Road	CTWC	NC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	1019 Norwich Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	123, 125, & 127 Norwich Road	CTWC	NC	45	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	137 Norwich Rd - Village Commons	CTWC	NC	45	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	20 Norwich Road, LLC	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	32 - 44 Norwich Road	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	518 Norwich Road - Plainfield	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	597 Putnam Road	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	Billys Restaurant & Pizza	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Country Farms	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	Hank's Dairy Bar	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	Plainfield Rest Area (I-395 N&S)	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	Quinebaug Fish Hatchery	CTWC	NC	26	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Riverview Pizza Restaurant	CTWC	NC	43	-	0.00															

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Pomfret	The Owls Nest Day School	AWC	NTNC	38	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Lincoln Park Elderly Housing	AWC	C	80	0.003	-	0.003	-	0.003	-	0.003	0.003	-	-	0.003	-	-	-	-	-	0.00
Preston	Norwich Public Utilities	Norwich Public Utilities	C-Large	234	0.016	0.320	0.336	0.030	0.366	-	0.366	-	-	-	-	-	0.366	-	-	-	-
Preston	Preston Plains Water Company	Town of Preston	C	374	0.018	0.005	0.023	0.002	0.025	-	0.025	0.031	0.018	-	0.049	-	-	-	-	-	0.018
Preston	Strawberry Park	Town of Preston	C	950	0.071	-	0.071	-	0.071	-	0.071	0.100	-	-	0.100	-	-	-	-	-	0.00
Preston	Amos Lake Beach - System #1:Pavilion	Town of Preston	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	0.00
Preston	Amos Lake Beach-System 2:Campground Well	Town of Preston	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	0.00
Preston	Brookside Cafe	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Calvary Baptist Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Citgo Gas Station - Preston	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Dunkin Donuts	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Flemings Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Hidden Acres Campground	Town of Preston	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Preston	Lu - Macs Package Store	Town of Preston	NC	32	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston City Congregational Church	Town of Preston	NC	49	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 10 Lincoln Rd	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 13 Rt 117	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Public Library	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston Senior Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Town Hall	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	St Catherine of Siena	Town of Preston	NC	29	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	St James Episcopal Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Veterans Memorial School	Town of Preston	NTNC	500	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Putnam	Matulaitis Nursing Home	Putnam WPCA	C	254	0.019	-	0.019	-	0.019	-	0.019	0.050	-	-	0.050	-	-	-	-	-	0.00
Putnam	Putnam Water Pollution Control Authority	Putnam WPCA	C-Large	7190	0.40	0.462	0.866	0.07	0.940	-	0.940	1.261	-	-	1.261	0.524	0.005	-	-	0.001	0.80
Putnam	Colonial Plaza Condominium Assn, Inc.	Putnam WPCA	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Marika's Place	Putnam WPCA	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Stonewall Commons of Putnam	Putnam WPCA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Village Restaurant & Lounge	Putnam WPCA	NC	49	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Darigan-Barr, Inc.	Putnam WPCA	NTNC	89	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Preschool And Childcare, LLC.	Putnam WPCA	NTNC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Chrysler Dodge Jeep	Putnam WPCA	NTNC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Crystal Lake Condominiums	SCWA	C	184	0.014	-	0.014	-	0.014	-	0.014	0.050	-	-	0.050	-	-	-	-	-	0.00
Salem	Salem Manor Condominiums, System #1	SCWA	C	32	0.002	-	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	0.00
Salem	Salem Manor Condominiums, System #2	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.002	-	-	0.002	-	-	-	-	-	0.00
Salem	Burnett's Country Gardens	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Fox Farm Brewery	SCWA	NC	25	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Salem	Henny Penny (Hendels Inc.) Salem	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Salem Farms Campground, Inc.	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Free Public Library	SCWA	NC	28	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Town Hall	SCWA	NC	41	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #1	SCWA	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #3	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Colonial Center	SCWA	NTNC	110	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Harris Brook Commons	SCWA	NTNC	60	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Indian Field Coop Campground Assn., Inc.	SCWA	NTNC	685	-	0.024	0.024	-	0.024	-	0.024	-	-	-	-	-	-	-	-	-	-
Salem	Quality Daycare & Co-Op Nursery	SCWA	NTNC	60	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Elementary School	SCWA	NTNC	675	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	-
Salem	Salem Marketplace	SCWA	NTNC	200	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Salem	Salem Town Center LLC	SCWA	NTNC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Scotland	8 Palmer Road - Scotland	JCWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Scotland	Christian Fellowship Church of Scotland	JCWC	NC	100	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Scotland	Highland Campground	JCWC	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Scotland	Scotland Fire Dept	JCWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Scotland	Scotland Elementary School	JCWC	NTNC	200	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Sprague	Sprague Water & Sewer Authority	Sprague Water & Sewer Authority	C-Large	1058	0.035	0.020	0.055	0.006	0.061	-	0.061	0.180	-	-	0.180	-	-	-	-	-	0.10
Sprague	36 Main Street	Sprague Water & Sewer Authority	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Sprague	Sprague Rod And Gun Club	Sprague Water & Sewer Authority	NC	25	-	0.000	0.000	-	0.000	-	0.000	-									

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for system	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Thompson	CTWC - Thompson System	CTWC	C-Large	1334	0.076	0.040	0.116	0.013	0.129	0.129	0.387	-	-	-	-	-	-	-	-	0.259	
Thompson	Justice Resource Institute, Inc.	CTWC	C	56	0.004	-	0.004	-	0.004	-	0.004	0.005	-	-	0.005	-	-	-	-	0.001	
Thompson	Marianapolis Prep School - St Johns	CTWC	C	128	0.010	-	0.010	-	0.010	-	0.010	0.015	-	-	0.015	-	-	-	-	0.006	
Thompson	Marianapolis Prep School -St Alberts	CTWC	C	51	0.003	-	0.003	-	0.003	-	0.003	0.003	-	-	0.003	-	-	-	-	0.000	
Thompson	Quinebaug Mobile Home Park	CTWC	C	205	0.015	-	0.015	-	0.015	-	0.015	0.050	-	-	0.050	-	-	-	-	0.035	
Thompson	Thompson Hill Water Co - Paula Lane Div	CTWC	C	85	0.006	-	0.006	-	0.006	-	0.006	0.007	-	-	0.007	-	-	-	-	0.001	
Thompson	292 Riverside Drive - Thompson	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	773 Quinebaug Road	CTWC	NC	37	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Four Corners Pub	CTWC	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Koinonia School of Sports	CTWC	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Lord Thompson Manor	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Country Store	CTWC	NC	108	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Pond S.P./Park Well	ESA Unassigned	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Quinnatisset Country Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Rollies Variety	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Thompson House of Pizza	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Rod & Gun Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway-Concession & Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Tri-State Baptist Church	CTWC	NC	157	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Valley Springs Sportsman Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	West Thompson Lake Campground	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	White Horse At Vernon Stiles Inn	CTWC	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Thompson	Ivanhoe Tool & Die Co Inc	CTWC	NTNC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Marianapolis Prep School - Admin/School	CTWC	NTNC	266	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	
Thompson	Numa Tool Co Inc	CTWC	NTNC	80	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Union	Travelers Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Union	Union Weigh Station	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Union	Union Elementary School	CTWC	NTNC	80	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	CTWC - SDC Water	CTWC	C	216	0.004	-	0.004	0.001	0.005	-	0.005	0.050	-	-	0.050	-	-	-	-	0.045	
Voluntown	Voluntown Housing Authority	CTWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.004	-	-	0.004	-	-	-	-	0.000	
Voluntown	17 Beach Pond Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Chucky's Mobil	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #1	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #3	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Claudia Restaurant & Town Liquor Store	CTWC	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Nature's Campsites, LLC	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Pachaug S.F./Mount Misery Pump House	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Riverside Mall (Town Pizza)	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Sunnys Market	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Baptist Church	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Fire Station	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Town Hall	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Elementary School	CTWC	NTNC	365	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Waterford	Waterford Country School, Inc.	Waterford Utilities Commission	C	180	0.014	-	0.014	-	0.014	-	0.014	0.019	-	-	0.019	-	-	-	-	0.006	
Waterford	Waterford Utilities Commission	Waterford Utilities Commission	C-Large	16862	1.070	0.379	1.449	0.252	1.700	-	1.700	-	1.900	-	1.900	-	0.200	-	-	1.900	0.000
Waterford	Connecticut Humane Society - Waterford	Waterford Utilities Commission	NC	43	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Waterford	The Williams School Ballfield	Waterford Utilities Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-</									

Table B-3: Eastern PWSMA - Existing Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2015-2016 Residential Demand	2015 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2015-16 Total ADD	Water Sold to Other Utilities	2015-2016 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Woodstock	Woodstock Valley Marketplace	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Crabtree & Evelyn, Ltd.	AWC	NTNC	208	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Woodstock	Linemaster Switch Corp	AWC	NTNC	178	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Woodstock	Northwood Childcare	AWC	NTNC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Rogers Corp - Poron Well	AWC	NTNC	90	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Woodstock	Solar Recreational League - Pavilion	AWC	NTNC	93	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Academy	AWC	NTNC	2188	-	0.039	0.039	-	0.039	-	0.039	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Elementary School	AWC	NTNC	636	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Middle School	AWC	NTNC	511	-	0.008	0.008	-	0.008	-	0.008	-	-	-	-	-	-	-	-	-	-

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for system	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Ashford	Ashford Hills Apartments	CTWC	C	136	0.010	-	0.010	-	0.010	0.037	-	-	-	-	-	-	-	-	-	0.027	
Ashford	Ah 1 LLC (Mar-Lea)	CTWC	C	50	0.004	-	0.004	-	0.004	0.016	-	-	-	-	-	-	-	-	-	0.012	
Ashford	Ah 3 LLC (Woodlawn)	CTWC	C	96	0.007	-	0.007	-	0.007	0.050	-	-	-	-	-	-	-	-	-	0.043	
Ashford	Birch Hills Condominiums	CTWC	C	132	0.010	-	0.010	-	0.010	0.050	-	-	-	-	-	-	-	-	-	0.040	
Ashford	CTWC - Ashford Park Division	CTWC	C	334	0.018	-	0.018	-	0.018	0.050	-	-	-	-	-	-	-	-	-	0.032	
Ashford	CTWC - Pompey Hollow Division	CTWC	C	32	0.003	-	0.003	-	0.003	0.033	-	-	-	-	-	-	-	-	-	0.031	
Ashford	Evangelical Christian Center - Main	CTWC	C	42	0.003	-	0.003	-	0.003	0.015	-	-	-	-	-	-	-	-	-	0.011	
Ashford	Perry Hill Estates Apartments Inc.	CTWC	C	144	0.011	-	0.011	-	0.011	0.050	-	-	-	-	-	-	-	-	-	0.039	
Ashford	Ashford Dari Bar	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Motel	CTWC	NC	25	-	0.002	0.002	-	0.002	0.002	-	-	-	-	-	-	-	-	-	-	
Ashford	Camp Connri	CTWC	NC	319	-	0.016	0.016	-	0.016	0.016	-	-	-	-	-	-	-	-	-	-	
Ashford	Church of Latter Day Saints	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Evangelical Christian Center - Rec Center	CTWC	NC	150	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp (#2)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp-Main System#1	CTWC	NC	335	-	0.017	0.017	-	0.017	0.017	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster - Well #2	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster (Cafeteria Well)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	P&D Realty, LLC	CTWC	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Rm's Bar & Grill	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Saint Philip Church Rectory	CTWC	NC	26	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Smitty's, LLC	CTWC	NC	28	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	St. Phillip The Apostle (Activity Ctr)	CTWC	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Westford Congregational Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Elementary School	CTWC	NTNC	673	-	0.007	0.007	-	0.007	0.007	-	-	-	-	-	-	-	-	-	-	
Ashford	Brialee Rv & Tent Park	CTWC	NTNC	100	-	0.004	0.004	-	0.004	0.004	-	-	-	-	-	-	-	-	-	-	
Borah	Norwich Public Utilities	Norwich Public Utilities	C-Large	563	0.039	0.208	0.246	0.022	0.268	-	-	-	-	-	4.745	4.477	-	-	-	-	
Borah	Acorn Acres Campground-System 1: Tennis	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres Campground-System 2: Laundry	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres, Inc.	Norwich Public Utilities	NC	25	-	0.072	0.072	-	0.072	0.072	-	-	-	-	-	-	-	-	-	-	
Borah	Bestway Convenience Store	Norwich Public Utilities	NC	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Borah	Childrens Dental Association	Norwich Public Utilities	NC	110	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Lake Road Plaza	Norwich Public Utilities	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Leffingwell Baptist Church	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Little Brook Plaza	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Revelation Church	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Hillandale Farm, Ct, LLC	Norwich Public Utilities	NTNC	88	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Manor	CTWC	C	30	0.002	-	0.002	-	0.002	0.008	-	-	-	-	-	-	-	-	-	0.005	
Brooklyn	Gorman Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	0.027	-	-	-	-	-	-	-	-	-	0.025	
Brooklyn	CTWC - Crystal System	CTWC	C-Large	2096	0.147	0.145	0.292	0.032	0.324	0.324	0.690	-	-	-	-	-	-	-	-	-	0.366
Brooklyn	Americas Best Value Inn	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Country Club/Golf Course	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Market	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Pizza Restaurant	CTWC	NC	37	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Cozy Corner Restaurant	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Golden Lamb Restaurant	CTWC	NC	45	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Hanks Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Our Lady of La Salette Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sacred Heart Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sorels Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-								

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Colchester	Gaia Gardens	Colchester Sewer & Water Commission	C	276	0.021	-	0.021	-	0.021	-	0.021	0.036	-	-	0.036	-	-	-	-	-	0.01
Colchester	Knob Hill Condominiums	Colchester Sewer & Water Commission	C	84	0.006	-	0.006	-	0.006	-	0.006	0.029	-	-	0.029	-	-	-	-	-	0.02
Colchester	CTWC - Westchester Hills Condominium Assn.	Colchester Sewer & Water Commission	C	225	0.017	-	0.017	-	0.017	-	0.017	0.046	-	-	0.046	-	-	-	-	-	0.03
Colchester	CTWC - Amston Lake Division	Colchester Sewer & Water Commission	C	18	0.001	-	0.001	-	0.001	-	0.001	-	-	-	-	0.001	-	-	-	-	-
Colchester	752 Middletown Road - Colchester	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Colchester Bible Baptist Church	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Day Pond S.P./Beachwell	Colchester Sewer & Water Commission	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Day Pond S.P./Upper Picnic Area	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Hung Won Li, LLC	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Khyber Kassem, Md	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Marias Pizza Palace Restaurant	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Papa-Zs & Sons Pizza	Colchester Sewer & Water Commission	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Priani Vineyards	Colchester Sewer & Water Commission	NC	28	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Colchester	Salmon River State Park	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Scotties Frozen Custard	Colchester Sewer & Water Commission	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	State Police Fleet Maintenance	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Strip Mall On Middletown Road	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Two Brothers Wine & Spirit	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	Westchester Congregational Church	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Colchester	The Caring Community of Ct, Inc.	Colchester Sewer & Water Commission	NTNC	90	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Colchester	Tri-Town Shopping Plaza	Colchester Sewer & Water Commission	NTNC	82	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	East Lyme Water & Sewer Commission	East Lyme Water & Sewer Commission	C-Large	15567	0.895	0.753	1.648	0.222	1.871	-	1.871	2.501	-	-	2.501	-	-	-	-	-	0.63
East Lyme	Camp Niantic By The Atlantic-System 1	East Lyme Water & Sewer Commission	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 1	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 2	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Girl Scouts of CT - Camp Pattagansett 3	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
East Lyme	Inncom International	East Lyme Water & Sewer Commission	NTNC	75	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Eastford	Evangelical Christian Center - Main	AWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.015	-	-	0.015	-	-	-	-	-	0.01
Eastford	Camp Nahaco - Dining Hall Camp	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Charlie Brown Campground	AWC	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Eastford	Charlie Brown Campground-Rec Hall	AWC	NC	75	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Congregational Church of Eastford	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Baptist Church- Activity Center	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Natchaug State Park/Lower Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Natchaug State Park/Upper Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Eastford	Nickerson Park Campground	AWC	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Eastford	Peppertree Camping	AWC	NC	34	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Eastford	Eastford Elementary School	AWC	NTNC	225	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Eastford	Whitcraft Corporation	AWC	NTNC	272	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	-
Franklin	Norwich Public Utilities	Norwich Public Utilities	C-Large	1862	0.127	0.047	0.175	0.016	0.190	-	0.190	-	-	-	-	0.190	-	-	-	-	-
Franklin	10 Route 32 - Franklin	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	107 Route 32	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	260 Route 32	Norwich Public Utilities	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	7-Eleven #32517	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	96 Route 32	Norwich Public Utilities	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Arrowhead Acres, LLC.	Norwich Public Utilities	NC	63	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Dw Transport & Leasing, Inc.	Norwich Public Utilities	NC	38	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Mobil	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Municipal Complex	SCWA	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Wildlife Management Area	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Giddings Rec. Park Pavilion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Giddings Recreation Concession Stand	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	Thames Valley Academy of Gymnastics	Norwich Public Utilities	NC	37	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Franklin	The Plant Group - Head House	SCWA	NC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Commons	Norwich Public Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Franklin	Franklin Elementary School	SCWA	NTNC	300	-	0.003	0.003	-	0.003	-	0.003	-	-	-</td							

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Groton	Mystic Medical Group	AWC	NC	25	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Groton	Old Mystic Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Groton	Comcast Cablevision	Groton Utilities	NTNC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Groton	Groton Board of Education	AWC	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Groton	Medtronic Xomed (Merocel Facility)	Groton Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Groton	Mystic Business Park, LLC	Groton Utilities	NTNC	55	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Groton	Precious Memories Daycare Center	AWC	NTNC	169	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Hampton	Goodwin Conservation Center	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Mini Mart	AWC	NC	39	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Hampton	Our Lady of Lourdes Catholic Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Hampton	EastConn Central Administration	AWC	NTNC	65	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Elementary School	AWC	NTNC	220	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Killingly	Conrads Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.005	0.009	-	0.009	-	-	-	-	-	0.004	
Killingly	Country Acres Park	CTWC	C	48	0.004	-	0.004	-	0.004	-	0.004	0.017	-	0.017	-	-	-	-	-	0.013	
Killingly	Cranberry Bog Apartments	CTWC	C	72	0.007	-	0.007	-	0.007	-	0.007	0.008	-	0.008	-	-	-	-	-	0.000	
Killingly	CTWC - Crystal System	CTWC	C-Large	5500	0.384	0.381	0.765	0.085	0.850	-	0.850	1.800	-	1.800	-	-	-	-	-	0.950	
Killingly	Fall Brook Mobile Home Park	CTWC	C	98	0.007	-	0.007	-	0.007	-	0.007	0.005	-	0.005	-	-	-	-	-	(0.002)	
Killingly	Westview Nursing Care & Rehab Ctr, Inc.	CTWC	C	140	0.011	-	0.011	-	0.011	-	0.011	0.012	-	0.012	-	-	-	-	-	0.002	
Killingly	CTWC - Plainfield System	CTWC	C-Large	60	-	0.003	0.003	-	0.003	-	0.003	0.750	-	0.750	-	0.161	-	-	-	0.586	
Killingly	1075 North Main Street - Killingly	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	430 Ledge Road	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	474 Putnam Pike	CTWC	NC	46	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	610 Wauregan Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	Church of The Nazarine	CTWC	NC	150	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	Cumberland Farms Store #4632	CTWC	NC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	Four Gs Pizzeria	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Killingly	Hide Away Cove Campground	CTWC	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Killingly	Mozzarellas of Killingly, Inc	CTWC	NC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Killingly	Ou812, LLC - 165 Hartford Turnpike	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Killingly	Stateline Camp Resort-Well #1	CTWC	NC	50	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Killingly	The Gathering Place Restaurant & Pizza	CTWC	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Killingly	Zips Diner Inc	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Killingly	60 Hartford Pike	CTWC	NTNC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Killingly	EastConn	CTWC	NTNC	87	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Killingly	Frito-Lay	CTWC	NTNC	700	-	0.025	0.025	-	0.025	-	0.025	-	-	-	-	-	-	-	-	-	
Killingly	Killingly High School & Agricultural Ctr	CTWC	NTNC	1400	-	0.035	0.035	-	0.035	-	0.035	-	-	-	-	-	-	-	-	-	
Killingly	Killingly Hwy Dept Garage	CTWC	NTNC	68	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Killingly	Rogers Corp - Rogers Well	CTWC	NTNC	250	-	0.009	0.009	-	0.009	-	0.009	-	-	-	-	-	-	-	-	-	
Lebanon	Aquarion Water Co of CT-Lebanon Division	Town of Lebanon	C	192	0.006	0.001	0.007	0.001	0.008	-	0.008	0.030	-	0.030	-	-	-	-	-	0.022	
Lebanon	Carefree Homeowners Association	Town of Lebanon	C	172	0.007	-	0.007	-	0.007	-	0.007	0.008	-	0.008	-	-	-	-	-	0.001	
Lebanon	CTWC - Lebanon Elderly Div.	Town of Lebanon	C	67	0.001	-	0.001	-	0.001	-	0.001	0.011	-	0.011	-	-	-	-	-	0.010	
Lebanon	Village Hill Apartments	Town of Lebanon	C	36	0.003	-	0.003	-	0.003	-	0.003	0.003	-	0.003	-	-	-	-	-	0.000	
Lebanon	CTWC - Amstak Lake Division	Town of Lebanon	C	446	0.014	-	0.014	-	0.014	-	0.014	0.050	-	0.050	-	-	-	-	-	0.036	
Lebanon	Norwich Public Utilities	Norwich Public Utilities	C-Large	22	0.002	0.001	0.002	0.000	0.002	-	0.002	4.748	-	4.748	-	4.745	-	-	-	-	
Lebanon	903 Exeter Rd - Lebanon	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Lebanon	Fire Safety Complex	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Lebanon	First Baptist Church of Lebanon	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Lebanon	Girl Scouts of CT - Camp Laurel - Well 1	Town of Lebanon	NC	140	-	0.007	0.007</td														

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Lisbon	Round Hill LLC - Well# 1&2	JCWC	C	72	0.005	-	0.005	-	0.005	-	0.005	0.018	-	-	0.018	-	-	-	-	0.01	
Lisbon	Tunnel Hill Mobile Home Park	Norwich Public Utilities	C	40	0.003	-	0.003	-	0.003	-	0.003	0.009	-	-	0.009	-	-	-	-	0.00	
Lisbon	Norwich Public Utilities	Norwich Public Utilities	C-Large	579	0.040	0.072	0.112	0.010	0.122	-	0.122	-	-	-	-	0.122	-	-	-	-	
Lisbon	Lisbon Town Hall	JCWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Lisbon	Lisbon Central School	JCWC	NTNC	620	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	
Lisbon	Lisbon River Road, LLC	JCWC	NTNC	85	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Lisbon	Ross Hill Park Campground	JCWC	NTNC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Montville	Mohegan Tribal Utility Authority	Montville WPCA	C-Large	105	0.008	0.685	0.693	-	0.693	-	0.693	-	1.450	-	1.450	-	-	-	-	0.693	0.75
Montville	Deer Run Supply	SCWA	C	84	0.006	-	0.006	-	0.006	-	0.006	0.011	-	-	0.011	-	-	-	-	0.00	
Montville	Fox Laurel Mobile Home Park, LLC	Montville WPCA	C	40	0.003	-	0.003	-	0.003	-	0.003	0.013	-	-	0.013	-	-	-	-	0.01	
Montville	Freedom Village Elderly Housing	SCWA	C	43	0.003	-	0.003	-	0.003	-	0.003	0.050	-	-	0.050	-	-	-	-	0.04	
Montville	Independence Village Elderly Housing	Montville WPCA	C	55	0.004	-	0.004	-	0.004	-	0.004	0.011	-	-	0.011	-	-	-	-	0.00	
Montville	Jensens Marina Cove System	Montville WPCA	C	70	0.002	-	0.002	-	0.002	-	0.002	0.013	-	-	0.013	-	-	-	-	0.01	
Montville	Kitemaug Orchard Association, Inc.	Montville WPCA	C	490	0.037	-	0.037	-	0.037	-	0.037	0.050	-	-	0.050	-	-	-	-	0.01	
Montville	Lakeside Manor Apartments	SCWA	C	72	0.003	-	0.003	-	0.003	-	0.003	0.050	-	-	0.050	-	-	-	-	0.04	
Montville	Meadows Apartments	SCWA	C	301	0.023	-	0.023	-	0.023	-	0.023	0.050	-	-	0.050	-	-	-	-	0.02	
Montville	Montville Water Supply	Montville WPCA	C-Large	2973	0.342	0.514	0.856	0.068	0.924	0.245	0.679	-	1.930	1.095	0.835	-	-	-	-	1.169	0.15
Montville	Mountview Apartments	Montville WPCA	C	105	0.008	-	0.008	-	0.008	-	0.008	0.010	-	-	0.010	-	-	-	-	0.00	
Montville	Oakdale Heights Association, Inc	SCWA	C	876	0.066	-	0.066	-	0.066	-	0.066	0.100	-	-	0.100	-	-	-	-	0.03	
Montville	Oakridge Gardens, LLC	SCWA	C	70	0.005	-	0.005	-	0.005	-	0.005	0.006	-	-	0.006	-	-	-	-	0.00	
Montville	Oakridge Village	SCWA	C	33	0.002	-	0.002	-	0.002	-	0.002	0.026	-	-	0.026	-	-	-	-	0.02	
Montville	SCWA, Birchwood Division (Bwd)	Montville WPCA	C	108	0.003	-	0.003	-	0.003	-	0.003	0.020	-	-	0.020	-	-	-	-	0.01	
Montville	SCWA, Chesterfield Division	Montville WPCA	C	524	0.024	-	0.024	-	0.024	-	0.024	0.050	-	-	0.050	-	-	-	-	0.02	
Montville	SCWA, Hillcrest Division (Hlc)	Montville WPCA	C	450	0.024	-	0.024	-	0.024	-	0.024	0.010	0.095	-	0.105	-	-	-	-	0.002	
Montville	SCWA, Mohegan Division	Montville WPCA	C-Large	1428	0.060	-	0.060	0.010	0.070	-	0.070	0.228	-	-	0.228	-	-	-	-	0.15	
Montville	SCWA, Montville Division (Mtv)	SCWA	C-Large	2570	0.083	-	0.083	0.005	0.088	-	0.088	0.220	-	-	0.220	-	-	-	-	0.13	
Montville	SCWA, Robin Hill Division (Rbn)	SCWA	C	388	0.015	-	0.015	-	0.015	-	0.015	0.050	-	-	0.050	-	-	-	-	0.03	
Montville	SCWA, Seven Oaks (Oak)	SCWA	C	26	0.002	-	0.002	-	0.002	-	0.002	0.049	-	-	0.049	-	-	-	-	0.04	
Montville	St. Thomas More School-Main System	SCWA	C	270	0.020	-	0.020	-	0.020	-	0.020	0.048	-	-	0.048	-	-	-	-	0.02	
Montville	St. Thomas More School-The Cove	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.009	-	-	0.009	-	-	-	-	0.00	
Montville	Thompson Hill Water Co - Beechwood Acres	SCWA	C	77	0.006	-	0.006	-	0.006	-	0.006	0.012	-	-	0.012	-	-	-	-	0.00	
Montville	Norwich Public Utilities	Norwich Public Utilities	C-Large	551	0.038	0.450	0.488	0.043	0.531	0.450	0.081	1.583	-	0.450	1.133	-	1.051	-	-	-	
Montville	Waterford Utilities Commission	Montville WPCA	C-Large	0	-	0.170	0.170	0.030	0.200	-	0.200	-	-	-	-	0.200	-	-	-	-	
Montville	1434 Route 85	SCWA	NC	44	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	712 Route 163	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Calvary Chapel (Annex) Southeastern Ct	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Calvary Chapel of Se CT (Church)	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Ballfields	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Large Pavillion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Camp Oakdale Small Pavillion	SCWA	NC	50	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Chesterfield Lodge	SCWA	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Cornerstone Baptist Church	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Davids Place	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	I-395 Southbound Service Plaza	SCWA	NC	124	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Montville	Laurel Lock Campground - Store Well	SCWA	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Montville	Laurel Lock Campground-Cottage/Lake Well	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Montville	Montville American Little League	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Montville Polish American Citizens Club	Montville WPCA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Naskart LLC	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Natures Art	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Oriental Bar & Grill	Montville WPCA	NC	37	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Montville	Our Lady of The Lakes Church	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Quaker Hill Rod & Gun Club	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Renaldis Getty	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	Renaldis One Stop	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Montville	St. Thomas More School-Fieldhouse	SCWA	NC	260	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Montville	The Chesterfield Fire Company, Inc.	SCWA	NC	26	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Montville	Uncasville Diner	Montville WPCA	NC	25	-	0.001	0.001	-													

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
North Stonington	Mystic Koa, Highland Orchard Rv	Town of North Stonington	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Baptist Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Ch - Worship Hall	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Grange #138	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Shell Station (Hendels)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Xtra Mart	Town of North Stonington	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Spice Plus (Food & Fuel/Dunkin Donuts)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	St Thomas More Catholic Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Stardust Motel	Town of North Stonington	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Infirmary	Town of North Stonington	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Knollwood	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Lodge	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Main Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - North Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Subway - N Stonington	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	411C Norwich Westerly Rd	Town of North Stonington	NTNC	100	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Kidds & Co., LLC	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Christian Academy	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Second Baptist Church	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Tinaco Plaza, LLC	Town of North Stonington	NTNC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Wood Pond (West 1&2)	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	CountrySide Drive Association	Norwich Public Utilities	C	96	0.007	-	0.007	-	0.007	-	0.007	0.011	-	-	0.011	-	-	-	-	-	0.004
Norwich	Norwich Public Utilities	Norwich Public Utilities	C-Large	41012	2.074	1.356	3.430	0.305	3.734	-	3.734	-	-	-	5.529	0.906	-	-	-	-	0.888
Norwich	Pleasure Valley Mobile Home Park	Norwich Public Utilities	C	328	0.016	-	0.016	-	0.016	-	0.016	0.050	-	0.050	-	-	-	-	-	-	0.034
Norwich	Sunny Waters Mobile Home Park	Norwich Public Utilities	C	303	0.023	-	0.023	-	0.023	-	0.023	0.050	-	0.050	-	-	-	-	-	-	0.027
Norwich	7-Eleven #32524	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Church of Jesus Christ of Latter Day Sai	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Leomilte Petroleum, Inc	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Dog Pound	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Group Pavilion	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Aesthetic Dentistry	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Worship Center	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	The Norwich Fish & Game Assoc., Inc.	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Montessori Discovery School	Norwich Public Utilities	NTNC	88	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Arnio Drive LLC	CTWC	C	33	0.002	-	0.002	-	0.002	-	0.002	0.024	-	0.024	-	-	-	-	-	-	0.021
Plainfield	CTWC - Gallup System	CTWC	C-Large	3472	0.168	0.119	0.287	0.070	0.357	-	0.357	0.862	-	0.862	-	-	-	-	-	-	0.505
Plainfield	CTWC - Plainfield System	CTWC	C-Large	1854	0.092	0.026	0.118	0.008	0.126	-	0.126	-	-	-	0.126	-	-	-	-	-	0.009
Plainfield	Jumbo Apartments	CTWC	C	35	0.003	-	0.003	-	0.003	-	0.003	0.012	-	0.012	-	-	-	-	-	-	0.037
Plainfield	Moosup Garden Apartments	CTWC	C	210	0.012	-	0.012	-	0.012	-	0.012	0.049	-	0.049	-	-	-	-	-	-	0.028
Plainfield	Moosup Manor	CTWC	C	27	0.001	-	0.001	-	0.001	-	0.001	0.029	-	0.029	-	-	-	-	-	-	0.046
Plainfield	Moosup Pond Terrace, LLC	CTWC	C	46	0.003	-	0.003	-	0.003	-	0.003	0.050	-	0.050	-	-	-	-	-	-	0.005
Plainfield	Pickett Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	-	0.002	0.006	-	0.006	-	-	-	-	-	-	0.006
Plainfield	Westview Terrace Mobile Home Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.005	0.011	-	0.011	-	-	-	-	-	-	-
Plainfield	10 Putnam Road	CTWC	NC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	1019 Norwich Road	CTWC	NC	25</td																	

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Pomfret	The Owls Nest Day School	AWC	NTNC	38	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Lincoln Park Elderly Housing	AWC	C	80	0.003	-	0.003	-	0.003	-	0.003	0.003	-	-	0.003	-	-	-	-	-	0.000
Preston	Norwich Public Utilities	Norwich Public Utilities	C-Large	234	0.016	0.530	0.546	0.049	0.595	-	0.595	-	-	-	-	-	-	-	-	-	-
Preston	Preston Plains Water Company	Town of Preston	C	384	0.019	0.024	0.043	0.004	0.047	-	0.047	0.031	0.018	-	0.049	-	-	-	-	-	0.050
Preston	Strawberry Park	Town of Preston	C	950	0.071	-	0.071	-	0.071	-	0.071	0.100	-	-	0.100	-	-	-	-	-	0.029
Preston	Amos Lake Beach - System #1:Pavilion	Town of Preston	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Amos Lake Beach-System 2:Campground Well	Town of Preston	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Brookside Cafe	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Calvary Baptist Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Citgo Gas Station - Preston	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Dunkin Donuts	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Flemings Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Hidden Acres Campground	Town of Preston	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Preston	Lu - Macs Package Store	Town of Preston	NC	32	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston City Congregational Church	Town of Preston	NC	49	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 10 Lincoln Rd	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 13 Rt 117	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Public Library	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston Senior Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Town Hall	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	St Catherine of Siena	Town of Preston	NC	29	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	St James Episcopal Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Veterans Memorial School	Town of Preston	NTNC	500	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Putnam	Matulatis Nursing Home	Putnam WPCA	C	254	0.019	-	0.019	-	0.019	-	0.019	0.050	-	-	0.050	-	-	-	-	-	0.021
Putnam	Putnam Water Pollution Control Authority	Putnam WPCA	C-Large	7328	0.409	0.465	0.874	0.076	0.950	-	0.950	1.261	-	-	1.261	0.524	0.005	-	-	-	0.830
Putnam	Colonial Plaza Condominium Assn, Inc.	Putnam WPCA	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Marika's Place	Putnam WPCA	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Stonewall Commons of Putnam	Putnam WPCA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Village Restaurant & Lounge	Putnam WPCA	NC	49	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Dariagan-Barr, Inc.	Putnam WPCA	NTNC	89	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Preschool And Childcare, LLC.	Putnam WPCA	NTNC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Chrysler Dodge Jeep	Putnam WPCA	NTNC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Crystal Lake Condominiums	SCWA	C	184	0.014	-	0.014	-	0.014	-	0.014	0.050	-	-	0.050	-	-	-	-	-	0.036
Salem	Salem Manor Condominiums, System #1	SCWA	C	32	0.002	-	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	0.006
Salem	Salem Manor Condominiums, System #2	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.002	-	-	0.002	-	-	-	-	-	0.000
Salem	Burnett's Country Gardens	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Fox Farm Brewery	SCWA	NC	25	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Salem	Henny Penny (Hendels Inc.) Salem	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Salem Farms Campground, Inc.	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Free Public Library	SCWA	NC	28	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Town Hall	SCWA	NC	41	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #1	SCWA	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #3	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Colonial Center	SCWA	NTNC	110	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Harris Brook Commons	SCWA	NTNC	60	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Indian Field Coop Campground Assn., Inc.	SCWA	NTNC	685	-	0.024	0.024	-	0.024	-	0.024	-	-	-	-	-	-	-	-	-	-
Salem	Quality Daycare & Co-Op Nursery	SCWA	NTNC																		

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for system	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Thompson	CTWC - Thompson System	CTWC	C-Large	1343	0.077	0.040	0.117	0.012	0.128	0.387	-	-	0.387	-	-	-	-	-	-	0.259	
Thompson	Justice Resource Institute, Inc.	CTWC	C	56	0.004	-	0.004	-	0.004	0.005	-	-	0.005	-	-	-	-	-	-	0.001	
Thompson	Marianapolis Prep School - St Johns	CTWC	C	128	0.010	-	0.010	-	0.010	0.015	-	-	0.015	-	-	-	-	-	-	0.006	
Thompson	Marianapolis Prep School -St Alberts	CTWC	C	51	0.003	-	0.003	-	0.003	0.003	-	-	0.003	-	-	-	-	-	-	0.000	
Thompson	Quinebaug Mobile Home Park	CTWC	C	205	0.015	-	0.015	-	0.015	0.015	-	-	0.050	-	-	-	-	-	-	0.035	
Thompson	Thompson Hill Water Co - Paula Lane Div	CTWC	C	85	0.006	-	0.006	-	0.006	0.007	-	-	0.007	-	-	-	-	-	-	0.001	
Thompson	292 Riverside Drive - Thompson	CTWC	NC	25	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Thompson	773 Quinebaug Road	CTWC	NC	37	-	0.000	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	-	
Thompson	Four Corners Pub	CTWC	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Koinonia School of Sports	CTWC	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Lord Thompson Manor	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Country Store	CTWC	NC	108	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Pond S.P./Park Well	ESA Unassigned	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Quinnatisset Country Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Rollies Variety	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Thompson House of Pizza	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Rod & Gun Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway-Concession & Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Tri-State Baptist Church	CTWC	NC	157	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	Valley Springs Sportsman Club	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Thompson	West Thompson Lake Campground	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	White Horse At Vernon Stiles Inn	CTWC	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Thompson	Ivanhoe Tool & Die Co Inc	CTWC	NTNC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Thompson	Marianapolis Prep School - Admin/School	CTWC	NTNC	266	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	
Thompson	Numa Tool Co Inc	CTWC	NTNC	80	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Union	Travelers Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Union	Union Weigh Station	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Union	Union Elementary School	CTWC	NTNC	80	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	CTWC - SDC Water	CTWC	C	216	0.005	-	0.005	-	0.005	0.050	-	0.050	-	-	-	-	-	-	-	0.045	
Voluntown	Voluntown Housing Authority	CTWC	C	42	0.003	-	0.003	-	0.003	0.004	-	0.004	-	-	-	-	-	-	-	0.000	
Voluntown	17 Beach Pond Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Chucky's Mobil	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #1	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #3	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Claudia Restaurant & Town Liquor Store	CTWC	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Nature's Campsites, LLC	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Pachaug S.F./Mount Misery Pump House	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Riverside Mall (Town Pizza)	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Sunnys Market	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Baptist Church	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Fire Station	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Town Hall	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Elementary School	CTWC	NTNC	365	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Waterford	Waterford Country School, Inc.	Waterford Utilities Commission	C	180	0.014	-	0.014	-	0.014	0.019	-	-	0.019	-	-	-	-	-	-	0.006	
Waterford	Waterford Utilities Commission	Waterford Utilities Commission	C-Large	16800	1.008	1.463	2.471	0.429	2.900	-	3.100	-	3.100	-	0.200	-	-	3.100	-	0.000	
Waterford	Connecticut Humane Society - Waterford	Waterford Utilities Commission	NC	43	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Waterford	The Williams School Ballfield	Waterford Utilities Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Windham	Douglas Manor	Windham Water Works	C	135																	

Table B-4: Eastern PWSMA - Five-Year (2023) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2023 Residential Demand	2023 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2023 Total ADD	Water Sold to Other Utilities	2023 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Woodstock	Woodstock Valley Marketplace	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Crabtree & Evelyn, Ltd.	AWC	NTNC	208	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Woodstock	Linemaster Switch Corp	AWC	NTNC	178	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Woodstock	Northwood Childcare	AWC	NTNC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Rogers Corp - Poron Well	AWC	NTNC	90	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Woodstock	Solar Recreational League - Pavilion	AWC	NTNC	93	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Academy	AWC	NTNC	2188	-	0.039	0.039	-	0.039	-	0.039	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Elementary School	AWC	NTNC	636	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	-
Woodstock	Woodstock Middle School	AWC	NTNC	511	-	0.008	0.008	-	0.008	-	0.008	-	-	-	-	-	-	-	-	-	-

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Ashford	Ashford Hills Apartments	CTWC	C	136	0.010	-	0.010	-	0.010	-	0.010	0.037	-	-	0.037	-	-	-	-	-	0.02
Ashford	Ah 1 LLC (Mar-Lea)	CTWC	C	50	0.004	-	0.004	-	0.004	-	0.004	0.016	-	-	0.016	-	-	-	-	-	0.01
Ashford	Ah 3 LLC (Woodlawn)	CTWC	C	96	0.007	-	0.007	-	0.007	-	0.007	0.050	-	-	0.050	-	-	-	-	-	0.04
Ashford	Birch Hills Condominiums	CTWC	C	132	0.010	-	0.010	-	0.010	-	0.010	0.050	-	-	0.050	-	-	-	-	-	0.04
Ashford	CTWC - Ashford Park Division	CTWC	C	334	0.018	-	0.018	-	0.018	-	0.018	0.050	-	-	0.050	-	-	-	-	-	0.03
Ashford	CTWC - Pompey Hollow Division	CTWC	C	32	0.003	-	0.003	-	0.003	-	0.003	0.033	-	-	0.033	-	-	-	-	-	0.03
Ashford	Evangelical Christian Center - Main	CTWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.015	-	-	0.015	-	-	-	-	-	0.01
Ashford	Perry Hill Estates Apartments Inc.	CTWC	C	144	0.011	-	0.011	-	0.011	-	0.011	0.050	-	-	0.050	-	-	-	-	-	0.03
Ashford	Ashford Dari Bar	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Ashford	Ashford Motel	CTWC	NC	25	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Ashford	Camp Connri	CTWC	NC	319	-	0.016	0.016	-	0.016	-	0.016	-	-	-	-	-	-	-	-	-	-
Ashford	Church of Latter Day Saints	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Ashford	Evangelical Christian Center -Rec Center	CTWC	NC	150	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	Hole In The Wall Gang Camp (#2)	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	Hole In The Wall Gang Camp-Main System#1	CTWC	NC	335	-	0.017	0.017	-	0.017	-	0.017	-	-	-	-	-	-	-	-	-	-
Ashford	June Norcross Webster - Well #2	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	June Norcross Webster (Cafeteria Well)	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	P&D Realty, LLC	CTWC	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	Rm's Bar & Grill	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	Saint Philip Church Rectory	CTWC	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Ashford	Smitty's, LLC	CTWC	NC	28	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Ashford	St. Phillip The Apostle (Activity Ctr)	CTWC	NC	28	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Ashford	Westford Congregational Church	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Ashford	Ashford Elementary School	CTWC	NTNC	673	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	-
Ashford	Brialee Rv & Tent Park	CTWC	NTNC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Bozrah	Norwich Public Utilities	Norwich Public Utilities	C-Large	563	0.039	0.592	0.631	0.056	0.687	-	0.687	-	-	-	-	4.745	4.058	-	-	-	-
Bozrah	Acorn Acres Campground-System 1: Tennis	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Bozrah	Acorn Acres Campground-System 2: Laundry	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Bozrah	Acorn Acres, Inc.	Norwich Public Utilities	NC	25	-	0.072	0.072	-	0.072	-	0.072	-	-	-	-	-	-	-	-	-	-
Bozrah	Bestway Convenience Store	Norwich Public Utilities	NC	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bozrah	Childrens Dental Association	Norwich Public Utilities	NC	110	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Bozrah	Lake Road Plaza	Norwich Public Utilities	NC	28	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Bozrah	Leffingwell Baptist Church	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Bozrah	Little Brook Plaza	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Bozrah	Revelation Church	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Bozrah	Hillandale Farm, Ct, LLC	Norwich Public Utilities	NTNC	88	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Brooklyn Manor	CTWC	C	30	0.002	-	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	0.00
Brooklyn	Gorman Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	-	0.002	0.027	-	-	0.027	-	-	-	-	-	0.02
Brooklyn	CTWC - Crystal System	CTWC	C-Large	2166	0.151	0.149	0.300	0.033	0.334	-	0.334	0.690	-	-	0.690	-	-	-	-	-	0.35
Brooklyn	American Best Value Inn	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Brooklyn Country Club/Golf Course	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Brooklyn	Brooklyn Market	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Brooklyn Pizza Restaurant	CTWC	NC	37	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Brooklyn	Cozy Corner Restaurant	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Golden Lamb Restaurant	CTWC	NC	45	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Hanks Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Brooklyn	Our Lady of La Salette Church	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Sacred Heart Church	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Sorels Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Brooklyn Properties, LLC	CTWC	NTNC	54	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Brooklyn	Learning Clinic - Overlook Bldg	CTWC	NTNC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Learning Clinic - Pondview	CTWC	NTNC	11	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Brooklyn	Overlook Holdings LLC Learning Clinic	CTWC	NTNC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Canterbury	Campbell Heights Apartments - System #2	CTWC	C	36	0.005	-	0.005	-	0.005	-	0.005	0.019	-	-	0.019	-	-	-	-	-	0.01
Canterbury	Knollbrook Village Elderly Housing	JCWC	C	48	0.004	-	0.004	-	0.004	-	0.004	0.050	-	-	0.050	-	-	-	-	-	0.04
Canterbury	Longview Estates, LLC	JCWC	C	69	0.005	-	0.005	-	0.005	-	0.005	0.019	-	-	0.019	-	-	-	-	-	0.01
Canterbury																					

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Colchester	Gaia Gardens	Colchester Sewer & Water Commission	C	276	0.021	-	0.021	-	0.021	-	0.021	0.036	-	-	-	-	-	-	-	0.0	
Colchester	Knob Hill Condominiums	Colchester Sewer & Water Commission	C	84	0.006	-	0.006	-	0.006	-	0.006	0.029	-	-	-	-	-	-	-	0.01	
Colchester	CTWC - Westchester Hills Condominium Assn.	Colchester Sewer & Water Commission	C	225	0.017	-	0.017	-	0.017	-	0.017	0.046	-	-	-	-	-	-	-	0.01	
Colchester	CTWC - Amston Lake Division	Colchester Sewer & Water Commission	C	18	0.001	-	0.001	-	0.001	-	0.001	-	-	-	-	0.001	-	-	-	-	
Colchester	752 Middletown Road - Colchester	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Colchester Bible Baptist Church	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Day Pond S.P./Beachwell	Colchester Sewer & Water Commission	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Day Pond S.P./Upper Picnic Area	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Hung Won II, LLC	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Khyberi Kasseem, Md	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Marias Pizza Palace Restaurant	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Papa-Zs & Sons Pizza	Colchester Sewer & Water Commission	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Priam Vineyards	Colchester Sewer & Water Commission	NC	28	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Colchester	Salmon River State Park	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Scotties Frozen Custard	Colchester Sewer & Water Commission	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	State Police Fleet Maintenance	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Strip Mall On Middletown Road	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Two Brothers Wine & Spirit	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Westchester Congregational Church	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	The Caring Community of Ct, Inc.	Colchester Sewer & Water Commission	NTNC	90	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Tri-Town Shopping Plaza	Colchester Sewer & Water Commission	NTNC	82	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	East Lyme Water & Sewer Commission	East Lyme Water & Sewer Commission	C-Large	16020	1.050	0.963	2.013	0.272	2.284	-	2.284	2.501	-	-	-	-	-	-	-	0.21	
East Lyme	Camp Niantic By The Atlantic:System 1	East Lyme Water & Sewer Commission	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 1	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 2	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 3	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Inncom International	East Lyme Water & Sewer Commission	NTNC	75	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Eastford	Evangelical Christian Center - Main	AWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.015	-	-	-	0.015	-	-	-	0.0	
Eastford	Camp Nahaco - Dining Hall Camp	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Charlie Brown Campground	AWC	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Eastford	Charlie Brown Campground-Rec Hall	AWC	NC	75	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Congregational Church of Eastford	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Baptist Church- Activity Center	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Natchaug State Park/Lower Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Natchaug State Park/Upper Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Nickerson Park Campground	AWC	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Eastford	Peppertree Camping	AWC	NC	34	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Elementary School	AWC	NTNC	225	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Eastford	Whitcraft Corporation	AWC	NTNC	272	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	
Franklin	Norwich Public Utilities	Norwich Public Utilities	C-Large	1862	0.127	0.376	0.503	0.045	0.548	-	0.548	-	-	-	-	-	-	-	-	-	
Franklin	10 Route 32 - Franklin	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	107 Route 32	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	260 Route 32	Norwich Public Utilities	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	7-Eleven #32517	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	96 Route 32	Norwich Public Utilities	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Arrowhead Acres, LLC.	Norwich Public Utilities	NC	63	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Dw Transport & Leasing, Inc.	Norwich Public Utilities	NC	38	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Mobil	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Municipal Complex	SCWA	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Wildlife Management Area	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Giddings Rec. Park Pavilion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Giddings Recreation Concession Stand	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Thames Valley Academy of Gymnastics	Norwich Public Utilities	NC	37	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	The Plant Group - Head House	SCWA	NC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Commons	Norwich Public Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Elementary School	SCWA	NTNC	300	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Franklin	Hilltop Realty, LLC	SCWA	NTNC	39	-	0.001	0.001	-	0.001	-	0.001	-	-</td								

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD	
Groton	Mystic Medical Group	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Groton	Old Mystic Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Groton	Comcast Cablevision	Groton Utilities	NTNC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Groton Board of Education	AWC	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Medtronic Xomed (Merocel Facility)	Groton Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Mystic Business Park, LLC	Groton Utilities	NTNC	55	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Precious Memories Daycare Center	AWC	NTNC	169	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Hampton	Goodwin Conservation Center	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Mini Mart	AWC	NC	39	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Our Lady of Lourdes Catholic Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Eastconn Central Administration	AWC	NTNC	65	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Elementary School	AWC	NTNC	220	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Conrads Park	CTWC	C	60	0.005	-	0.005	-	0.005	0.009	-	0.009	-	0.009	-	-	-	-	-	0.004	-	
Killingly	Country Acres Park	CTWC	C	48	0.004	-	0.004	-	0.004	0.017	-	0.017	-	0.017	-	-	-	-	-	0.013	-	
Killingly	Cranberry Bog Apartments	CTWC	C	72	0.007	-	0.007	-	0.007	0.008	-	0.008	-	0.008	-	-	-	-	-	0.000	-	
Killingly	CTWC - Crystal System	CTWC	C-Large	5691	0.398	0.392	0.790	0.088	0.877	-	0.877	1.800	-	1.800	-	-	-	-	-	0.923	-	
Killingly	Fall Brook Mobile Home Park	CTWC	C	98	0.007	-	0.007	-	0.007	0.007	-	0.005	-	0.005	-	-	-	-	-	(0.002)	-	
Killingly	Westview Nursing Care & Rehab Ctr, Inc.	CTWC	C	140	0.011	-	0.011	-	0.011	0.012	-	0.012	-	0.012	-	-	-	-	-	0.002	-	
Killingly	CTWC - Plainfield System	CTWC	C-Large	60	-	0.003	0.003	-	0.003	0.750	-	0.750	-	0.750	-	0.161	-	-	-	0.586	-	
Killingly	1075 North Main Street - Killingly	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	430 Ledge Road	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	474 Putnam Pike	CTWC	NC	46	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	610 Wauregan Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Church of The Nazarine	CTWC	NC	150	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Cumberland Farms Store #4632	CTWC	NC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Four Gs Pizzeria	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Hide Away Cove Campground	CTWC	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-	
Killingly	Mozzarellas of Killingly, Inc	CTWC	NC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Ou812, LLC - 165 Hartford Turnpike	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Stateline Camp Resort-Well #1	CTWC	NC	50	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-	
Killingly	The Gathering Place Restaurant & Pizza	CTWC	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Zips Diner Inc	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	60 Hartford Pike	CTWC	NTNC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Eastconn	CTWC	NTNC	87	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Frito-Lay	CTWC	NTNC	700	-	0.025	0.025	-	0.025	-	0.025	-	-	-	-	-	-	-	-	-	-	
Killingly	Killingly High School & Agricultural Ctr	CTWC	NTNC	1400	-	0.035	0.035	-	0.035	-	0.035	-	-	-	-	-	-	-	-	-	-	
Killingly	Killingly Hwy Dept Garage	CTWC	NTNC	68	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Rogers Corp - Rogers Well	CTWC	NTNC	250	-	0.009	0.009	-	0.009	-	0.009	-	-	-	-	-	-	-	-	-	-	
Lebanon	Aquarion Water Co of CT-Lebanon Division	Town of Lebanon	C	208	0.007	0.001	0.008	0.001	0.009	-	0.009	0.030	-	0.030	-	-	-	-	-	0.021	-	
Lebanon	Carefree Homeowners Association	Town of Lebanon	C	172	0.007	-	0.007	-	0.007	-	0.007	0.008	-	0.008	-	-	-	-	-	0.001	-	
Lebanon	CTWC - Lebanon Elderly Div.	Town of Lebanon	C	67	0.001	-	0.001	-	0.001	-	0.001	0.011	-	0.011	-	-	-	-	-	0.010	-	
Lebanon	Village Hill Apartments	Town of Lebanon	C	36	0.003	-	0.003	-	0.003	-	0.003	0.003	-	0.003	-	-	-	-	-	0.000	-	
Lebanon	CTWC - Amston Lake Division	Town of Lebanon	C	446	0.014	-	0.014	-	0.014	-	0.014	0.050	-	0.050	-	-	-	-	-	0.036	-	
Lebanon	Norwich Public Utilities	Norwich Public Utilities	C-Large	22	0.002	0.001	0.002	0.000	0.002	-	0.002	4.748	-	4.748	-	4.745	-	-	-	-	-	-
Lebanon	903 Exeter Rd - Lebanon	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Lebanon	Fire Safety Complex	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-						

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

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Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
North Stonington	Mystic Koa, Highland Orchard Rv	Town of North Stonington	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Baptist Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Ch - Worship Hall	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Grange #138	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Shell Station (Hendels)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Xtra Mart	Town of North Stonington	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Spicer Plus (Food & Fuel/Dunkin Donuts)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	St Thomas More Catholic Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Stardust Motel	Town of North Stonington	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Infirmary	Town of North Stonington	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Knollwood	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Lodge	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Main Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - North Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Subway - N Stonington	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	411C Norwich Westerly Rd	Town of North Stonington	NTNC	100	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Kidds & Co., LLC	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Christian Academy	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Second Baptist Church	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Tinaco Plaza, LLC	Town of North Stonington	NTNC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Wood Pond (West 1&2)	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Countryside Drive Association	Norwich Public Utilities	C	96	0.007	-	0.007	-	0.007	-	0.007	0.011	-	-	0.011	-	-	-	-	-	0.004
Norwich	Norwich Public Utilities	Norwich Public Utilities	C-Large	24241	2.145	1.534	3.679	0.327	4.006	-	4.006	-	-	-	-	5.110	1.734	-	-	-	(0.630)
Norwich	Pleasure Valley Mobile Home Park	Norwich Public Utilities	C	328	0.016	-	0.016	-	0.016	-	0.016	0.050	-	-	0.050	-	-	-	-	-	0.034
Norwich	Sunny Waters Mobile Home Park	Norwich Public Utilities	C	303	0.023	-	0.023	-	0.023	-	0.023	0.050	-	-	0.050	-	-	-	-	-	0.027
Norwich	7-Eleven #32524	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Church of Jesus Christ of Latter Day Sai	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Leomilts Petroleum, Inc.	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Dog Pound	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Group Pavilion	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Aesthetic Dentistry	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Worship Center	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	The Norwich Fish & Game Assoc., Inc.	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Montessori Discovery School	Norwich Public Utilities	NTNC	88	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Arno Drive LLC	CTWC	C	33	0.002	-	0.002	-	0.002	-	0.024	-	-	-	-	-	-	-	-	-	0.021
Plainfield	CTWC - Gallup System	CTWC	C-Large	3542	0.177	0.121	0.298	0.063	0.361	-	0.862	-	-	-	-	-	-	-	-	-	0.501
Plainfield	CTWC - Plainfield System	CTWC	C-Large	1948	0.097	0.026	0.123	0.008	0.132	-	-	-	-	-	0.132	-	-	-	-	-	-
Plainfield	Jumbo Apartments	CTWC	C	35	0.003	-	0.003	-	0.003	-	0.012	-	-	-	0.012	-	-	-	-	-	0.009
Plainfield	Moosup Garden Apartments	CTWC	C	210	0.012	-	0.012	-	0.012	-	0.049	-	-	-	0.049	-	-	-	-	-	0.037
Plainfield	Moosup Manor	CTWC	C	27	0.001	-	0.001	-	0.001	-	0.029	-	-	-	0.029	-	-	-	-	-	0.028
Plainfield	Moosup Pond Terrace, LLC	CTWC	C	46	0.003	-	0.003	-	0.003	-	0.050	-	-	-	0.050	-	-	-	-	-	0.046
Plainfield	Pickett Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	-	0.006	-	-	-	0.006	-	-	-	-	-	0.005
Plainfield	Westview Terrace Mobile Home Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.011	-	-	-	0.011	-	-	-	-	-	0.006
Plainfield	10 Putnam Road	CTWC	NC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	1019 Norwich Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000										

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Pomfret	The Owls Nest Day School	AWC	NTNC	38	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Lincoln Park Elderly Housing	AWC	C	80	0.003	-	0.003	-	0.003	-	0.003	0.003	-	0.003	-	-	-	-	-	-	0.000
Preston	Norwich Public Utilities	Norwich Public Utilities	C-Large	318	0.022	0.880	0.902	0.080	0.982	-	0.982	-	-	-	-	-	-	-	-	-	-
Preston	Preston Plains Water Company	Town of Preston	C	417	0.020	0.048	0.068	0.006	0.075	-	0.075	0.031	0.018	-	0.049	-	-	-	-	-	0.050 (0.026)
Preston	Strawberry Park	Town of Preston	C	950	0.071	-	0.071	-	0.071	-	0.071	0.100	-	0.100	-	-	-	-	-	-	0.029
Preston	Amos Lake Beach - System #1:Pavilion	Town of Preston	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Amos Lake Beach-System 2:Campground Well	Town of Preston	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Brookside Cafe	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Calvary Baptist Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Citgo Gas Station - Preston	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Dunkin Donuts	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Flemings Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Hidden Acres Campground	Town of Preston	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Preston	Lu - Macs Package Store	Town of Preston	NC	32	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston City Congregational Church	Town of Preston	NC	49	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 10 Lincoln Rd	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 13 Rt 117	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Public Library	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston Senior Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Town Hall	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	St Catherine of Siena	Town of Preston	NC	29	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	St James Episcopal Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Veterans Memorial School	Town of Preston	NTNC	500	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Putnam	Matulaitis Nursing Home	Putnam WPCA	C	254	0.019	-	0.019	-	0.019	0.050	-	-	0.050	-	-	-	-	-	-	-	0.031
Putnam	Putnam Water Pollution Control Authority	Putnam WPCA	C-Large	7540	0.42	0.480	0.903	0.08	0.980	1.261	-	-	1.261	0.524	0.005	-	-	-	-	-	0.800
Putnam	Colonial Plaza Condominium Assn, Inc.	Putnam WPCA	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Marika's Place	Putnam WPCA	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Stonewall Commons of Putnam	Putnam WPCA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Village Restaurant & Lounge	Putnam WPCA	NC	49	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Darigan-Barr, Inc.	Putnam WPCA	NTNC	89	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Preschool and Childcare, LLC.	Putnam WPCA	NTNC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Chrysler Dodge Jeep	Putnam WPCA	NTNC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Crystal Lake Condominiums	SCWA	C	184	0.014	-	0.014	-	0.014	-	0.014	0.050	-	-	0.050	-	-	-	-	-	0.036
Salem	Salem Manor Condominiums, System #1	SCWA	C	32	0.002	-	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	0.006
Salem	Salem Manor Condominiums, System #2	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.002	-	-	0.002	-	-	-	-	-	0.000
Salem	Burnett's Country Gardens	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Fox Farm Brewery	SCWA	NC	25	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Salem	Henny Penny (Hendels Inc.) Salem	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Salem Farms Campground, Inc.	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Free Public Library	SCWA	NC	28	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Town Hall	SCWA	NC	41	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #1	SCWA	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #3	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Colonial Center	SCWA	NTNC	110	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Harris Brook Commons	SCWA	NTNC	60	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Indian Field Coop Campground Assn., Inc.	SCWA	NTNC	685	-	0.024	0.024	-	0.024	-	0.024	-	-	-	-	-	-	-	-	-	-
Salem	Quality Daycare & Co-Op Nursery	SCWA	NTNC																		

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Thompson	CTWC - Thompson System	CTWC	C-Large	1364	0.079	0.041	0.120	0.012	0.132	0.387	-	-	-	0.387	-	-	-	-	-	0.255	
Thompson	Justice Resource Institute, Inc.	CTWC	C	56	0.004	-	0.004	-	0.004	0.005	-	-	-	0.005	-	-	-	-	-	0.001	
Thompson	Marianapolis Prep School - St Johns	CTWC	C	128	0.010	-	0.010	-	0.010	0.015	-	-	-	0.015	-	-	-	-	-	0.006	
Thompson	Marianapolis Prep School -St Alberts	CTWC	C	51	0.003	-	0.003	-	0.003	0.003	-	-	-	0.003	-	-	-	-	-	0.000	
Thompson	Quinebaug Mobile Home Park	CTWC	C	205	0.015	-	0.015	-	0.015	0.050	-	-	-	0.050	-	-	-	-	-	0.035	
Thompson	Thompson Hill Water Co - Paula Lane Div	CTWC	C	85	0.006	-	0.006	-	0.006	0.007	-	-	-	0.007	-	-	-	-	-	0.001	
Thompson	292 Riverside Drive - Thompson	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	773 Quinebaug Road	CTWC	NC	37	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Four Corners Pub	CTWC	NC	29	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Koinonia School of Sports	CTWC	NC	40	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Lord Thompson Manor	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Country Store	CTWC	NC	108	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Pond S.P./Park Well	ESA Unassigned	NC	83	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Quinnatasset Country Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Rollies Variety	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson House of Pizza	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Rod & Gun Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway-Concession & Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Tri-State Baptist Church	CTWC	NC	157	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Valley Springs Sportsman Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	West Thompson Lake Campground	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	White Horse At Vernon Stiles Inn	CTWC	NC	25	-	0.003	0.003	-	0.003	0.003	-	-	-	-	-	-	-	-	-	-	
Thompson	Ivanhoe Tool & Die Co Inc	CTWC	NTNC	40	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Marianapolis Prep School - Admin/School	CTWC	NTNC	266	-	0.005	0.005	-	0.005	0.005	-	-	-	-	-	-	-	-	-	-	
Thompson	Numa Tool Co Inc	CTWC	NTNC	80	-	0.003	0.003	-	0.003	0.003	-	-	-	-	-	-	-	-	-	-	
Union	Travelers Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Union	Union Weigh Station	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Union	Union Elementary School	CTWC	NTNC	80	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	CTWC - SDC Water	CTWC	C	216	0.005	-	0.005	-	0.005	0.050	-	-	-	0.050	-	-	-	-	-	0.045	
Voluntown	Voluntown Housing Authority	CTWC	C	42	0.003	-	0.003	-	0.003	0.004	-	-	-	0.004	-	-	-	-	-	0.000	
Voluntown	17 Beach Pond Road	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Chucky's Mobil	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #1	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #3	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Claudias Restaurant & Town Liquor Store	CTWC	NC	29	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Nature's Campsites, LLC	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Pachaug S.F./Mount Misery Pump House	CTWC	NC	30	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Riverside Mall (Town Pizza)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Sunnys Market	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Baptist Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Fire Station	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Town Hall	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Elementary School	CTWC	NTNC	365	-	0.004	0.004	-	0.004	0.004	-	-	-	-	-	-	-	-	-	-	
Waterford	Waterford Country School, Inc.	Waterford Utilities Commission	C	180	0.014	-	0.014	-	0.014	0.019	-	-	-	0.019	-	-	-	-	-	0.006	
Waterford	Waterford Utilities Commission	Waterford Utilities Commission	C-Large	17000	1.020	1.639	2.659	0.462	3.120	-	3.320	-	3.320	-	0.200	-	-	3.320	-	0.000	
Waterford	Connecticut Humane Society - Waterford	Waterford Utilities Commission	NC	43	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Waterford	The Williams School Ballfield	Waterford Utilities Commission	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Windham	Douglas Manor	Windham Water Works	C																		

Table B-5: Eastern PWSMA - 20-Year (2030) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2030 Residential Demand	2030 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2030 Total ADD	Water Sold to Other Utilities	2030 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Woodstock	Woodstock Valley Marketplace	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Crabtree & Evelyn, Ltd.	AWC	NTNC	208	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Woodstock	Linemaster Switch Corp	AWC	NTNC	178	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	
Woodstock	Northwood Childcare	AWC	NTNC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Rogers Corp - Poron Well	AWC	NTNC	90	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Woodstock	Solair Recreational League - Pavilion	AWC	NTNC	93	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Academy	AWC	NTNC	2188	-	0.039	0.039	-	0.039	-	0.039	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Elementary School	AWC	NTNC	636	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Middle School	AWC	NTNC	511	-	0.008	0.008	-	0.008	-	0.008	-	-	-	-	-	-	-	-	-	

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Ashford	Ashford Hills Apartments	CTWC	C	136	0.010	-	0.010	-	0.010	0.037	-	-	0.037	-	-	-	-	-	-	0.027	
Ashford	Ah 1 LLC (Mar-Lea)	CTWC	C	50	0.004	-	0.004	-	0.004	0.016	-	-	0.016	-	-	-	-	-	-	0.012	
Ashford	Ah 3 LLC (Woodlawn)	CTWC	C	96	0.007	-	0.007	-	0.007	0.050	-	-	0.050	-	-	-	-	-	-	0.043	
Ashford	Birch Hills Condominiums	CTWC	C	132	0.010	-	0.010	-	0.010	0.050	-	-	0.050	-	-	-	-	-	-	0.040	
Ashford	CTWC - Ashford Park Division	CTWC	C	334	0.018	-	0.018	-	0.018	0.050	-	-	0.050	-	-	-	-	-	-	0.032	
Ashford	CTWC - Pompey Hollow Division	CTWC	C	32	0.003	-	0.003	-	0.003	0.033	-	-	0.033	-	-	-	-	-	-	0.031	
Ashford	Evangelical Christian Center - Main	CTWC	C	42	0.003	-	0.003	-	0.003	0.015	-	-	0.015	-	-	-	-	-	-	0.011	
Ashford	Perry Hill Estates Apartments Inc.	CTWC	C	144	0.011	-	0.011	-	0.011	0.050	-	-	0.050	-	-	-	-	-	-	0.039	
Ashford	Ashford Dari Bar	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Motel	CTWC	NC	25	-	0.002	0.002	-	0.002	0.002	-	-	-	-	-	-	-	-	-	-	
Ashford	Camp Connri	CTWC	NC	319	-	0.016	0.016	-	0.016	0.016	-	-	-	-	-	-	-	-	-	-	
Ashford	Church of Latter Day Saints	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Evangelical Christian Center - Rec Center	CTWC	NC	150	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp (#2)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Hole In The Wall Gang Camp-Main System#1	CTWC	NC	335	-	0.017	0.017	-	0.017	0.017	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster - Well #2	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	June Norcross Webster (Cafeteria Well)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	P&D Realty, LLC	CTWC	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Rm's Bar & Grill	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	Saint Philip Church Rectory	CTWC	NC	26	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Smitty's, LLC	CTWC	NC	28	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Ashford	St. Phillip The Apostle (Activity Ctr)	CTWC	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Westford Congregational Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Ashford	Ashford Elementary School	CTWC	NTNC	673	-	0.007	0.007	-	0.007	0.007	-	-	-	-	-	-	-	-	-	-	
Ashford	Brialee Rv & Tent Park	CTWC	NTNC	100	-	0.004	0.004	-	0.004	0.004	-	-	-	-	-	-	-	-	-	-	
Borah	Norwich Public Utilities	Norwich Public Utilities	C-Large	563	0.039	0.640	0.678	0.060	0.739	-	0.739	-	-	-	-	4.615	3.877	-	-	-	-
Borah	Acorn Acres Campground-System 1: Tennis	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres Campground-System 2: Laundry	Norwich Public Utilities	NC	30	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Acorn Acres, Inc.	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Bestway Convenience Store	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Childrens Dental Association	Norwich Public Utilities	NC	110	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Lake Road Plaza	Norwich Public Utilities	NC	28	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Leffingwell Baptist Church	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Little Brook Plaza	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Borah	Revelation Church	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Borah	Hillandale Farm, Ct, LLC	Norwich Public Utilities	NTNC	88	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Manor	CTWC	C	30	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	-	0.005	
Brooklyn	Gorman Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	0.027	-	-	0.027	-	-	-	-	-	-	0.025	
Brooklyn	CTWC - Crystal System	CTWC	C-Large	2324	0.163	0.160	0.322	0.036	0.358	-	0.358	0.690	-	-	-	-	-	-	-	0.332	
Brooklyn	Americas Best Value Inn	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Country Club/Golf Course	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Market	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Brooklyn Pizza Restaurant	CTWC	NC	37	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Cozy Corner Restaurant	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Golden Lamb Restaurant	CTWC	NC	45	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Hanks Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Our Lady of La Salette Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sacred Heart Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Brooklyn	Sorels Garage	CTWC																			

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Colchester	Gaia Gardens	Colchester Sewer & Water Commission	C	276	0.021	-	0.021	-	0.021	-	0.021	0.036	-	-	-	-	-	-	-	0.0	
Colchester	Knob Hill Condominiums	Colchester Sewer & Water Commission	C	84	0.006	-	0.006	-	0.006	-	0.006	0.029	-	-	-	-	-	-	-	0.01	
Colchester	CTWC - Westchester Hills Condominium Assn.	Colchester Sewer & Water Commission	C	225	0.017	-	0.017	-	0.017	-	0.017	0.046	-	-	-	-	-	-	-	0.01	
Colchester	CTWC - Amston Lake Division	Colchester Sewer & Water Commission	C	18	0.001	-	0.001	-	0.001	-	0.001	-	-	-	0.001	-	-	-	-	-	
Colchester	752 Middletown Road - Colchester	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Colchester Bible Baptist Church	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Day Pond S.P./Beachwell	Colchester Sewer & Water Commission	NC	83	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Day Pond S.P./Upper Picnic Area	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Hung Won II, LLC	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Khyberly Kassem, Md	Colchester Sewer & Water Commission	NC	26	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Marias Pizza Palace Restaurant	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Papa-Zs & Sons Pizza	Colchester Sewer & Water Commission	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Priam Vineyards	Colchester Sewer & Water Commission	NC	28	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Colchester	Salmon River State Park	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Scotties Frozen Custard	Colchester Sewer & Water Commission	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	State Police Fleet Maintenance	Colchester Sewer & Water Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Strip Mall On Middletown Road	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Two Brothers Wine & Spirit	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	Westchester Congregational Church	Colchester Sewer & Water Commission	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Colchester	The Caring Community of Ct, Inc.	Colchester Sewer & Water Commission	NTNC	90	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Colchester	Tri-Town Shopping Plaza	Colchester Sewer & Water Commission	NTNC	82	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	East Lyme Water & Sewer Commission	East Lyme Water & Sewer Commission	C-Large	20503	1.333	1.403	2.736	0.369	3.105	-	3.105	2.501	-	-	2.501	-	-	-	-	(0.60)	
East Lyme	Camp Niantic By The Atlantic:System 1	East Lyme Water & Sewer Commission	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 1	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 2	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Girl Scouts of CT - Camp Pataquansett 3	East Lyme Water & Sewer Commission	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
East Lyme	Inncom International	East Lyme Water & Sewer Commission	NTNC	75	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Eastford	Evangelical Christian Center - Main	AWC	C	42	0.003	-	0.003	-	0.003	-	0.003	0.015	-	-	0.015	-	-	-	-	0.0	
Eastford	Camp Nahaco - Dining Hall Camp	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Charlie Brown Campground	AWC	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Eastford	Charlie Brown Campground-Rec Hall	AWC	NC	75	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Congregational Church of Eastford	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Baptist Church- Activity Center	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Natchaug State Park/Lower Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Natchaug State Park/Upper Picnic Well	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Eastford	Nickerson Park Campground	AWC	NC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Eastford	Peppertree Camping	AWC	NC	34	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Eastford	Eastford Elementary School	AWC	NTNC	225	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	
Eastford	Whitcraft Corporation	AWC	NTNC	272	-	0.005	0.005	-	0.005	-	0.005	-	-	-	-	-	-	-	-	-	
Franklin	Norwich Public Utilities	Norwich Public Utilities	C-Large	1862	0.127	0.376	0.503	0.045	0.548	-	0.548	-	-	-	-	-	-	-	-	-	
Franklin	10 Route 32 - Franklin	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	107 Route 32	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	260 Route 32	Norwich Public Utilities	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	7-Eleven #32517	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	96 Route 32	Norwich Public Utilities	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Arrowhead Acres, LLC.	Norwich Public Utilities	NC	63	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Dw Transport & Leasing, Inc.	Norwich Public Utilities	NC	38	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Mobil	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Municipal Complex	SCWA	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Wildlife Management Area	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Giddings Rec. Park Pavilion	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Giddings Recreation Concession Stand	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	Thames Valley Academy of Gymnastics	Norwich Public Utilities	NC	37	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Franklin	The Plant Group - Head House	SCWA	NC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Commons	Norwich Public Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	
Franklin	Franklin Elementary School	SCWA	NTNC	300	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Franklin	Hilltop Realty, LLC.	SCWA	NTNC	39	-	0.001	0.001	-	0.001	-	0.001	-</td									

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD	
Groton	Mystic Medical Group	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Groton	Old Mystic Baptist Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Groton	Comcast Cablevision	Groton Utilities	NTNC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Groton Board of Education	AWC	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Medtronic Xomed (Merocel Facility)	Groton Utilities	NTNC	50	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Mystic Business Park, LLC	Groton Utilities	NTNC	55	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Groton	Precious Memories Daycare Center	AWC	NTNC	169	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Hampton	Goodwin Conservation Center	ESA Unassigned	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Mini Mart	AWC	NC	39	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Our Lady of Lourdes Catholic Church	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Hampton	Eastconn Central Administration	AWC	NTNC	65	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Hampton	Hampton Elementary School	AWC	NTNC	220	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Conrads Park	CTWC	C	60	0.005	-	0.005	-	0.005	0.009	-	0.009	-	0.009	-	-	-	-	-	0.004	-	
Killingly	Country Acres Park	CTWC	C	48	0.004	-	0.004	-	0.004	0.017	-	0.017	-	0.017	-	-	-	-	-	0.013	-	
Killingly	Cranberry Bog Apartments	CTWC	C	72	0.007	-	0.007	-	0.007	0.008	-	0.008	-	0.008	-	-	-	-	-	0.000	-	
Killingly	CTWC - Crystal System	CTWC	C-Large	6124	0.428	0.421	0.850	0.094	0.944	0.944	1.800	-	1.800	-	-	-	-	-	-	0.856	-	
Killingly	Fall Brook Mobile Home Park	CTWC	C	98	0.007	-	0.007	-	0.007	0.007	0.007	0.005	-	0.005	-	-	-	-	-	(0.002)	-	
Killingly	Westview Nursing Care & Rehab Ctr, Inc.	CTWC	C	140	0.011	-	0.011	-	0.011	0.012	-	0.012	-	0.012	-	-	-	-	-	0.002	-	
Killingly	CTWC - Plainfield System	CTWC	C-Large	60	-	0.003	0.003	-	0.003	0.750	-	0.750	-	0.161	-	-	-	-	-	0.586	-	
Killingly	1075 North Main Street - Killingly	CTWC	NC	30	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	430 Ledge Road	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	474 Putnam Pike	CTWC	NC	46	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	610 Wauregan Road	CTWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Church of The Nazarine	CTWC	NC	150	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Cumberland Farms Store #4632	CTWC	NC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Four Gs Pizzeria	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Hide Away Cove Campground	CTWC	NC	100	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-	
Killingly	Mozzarellas of Killingly, Inc	CTWC	NC	35	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Ou812, LLC - 165 Hartford Turnpike	CTWC	NC	33	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Killingly	Stateline Camp Resort-Well #1	CTWC	NC	50	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-	
Killingly	The Gathering Place Restaurant & Pizza	CTWC	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Zips Diner Inc	CTWC	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	60 Hartford Pike	CTWC	NTNC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-	
Killingly	Eastconn	CTWC	NTNC	87	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Frito-Lay	CTWC	NTNC	700	-	0.025	0.025	-	0.025	-	0.025	-	-	-	-	-	-	-	-	-	-	
Killingly	Killingly High School & Agricultural Ctr	CTWC	NTNC	1400	-	0.035	0.035	-	0.035	-	0.035	-	-	-	-	-	-	-	-	-	-	
Killingly	Killingly Hwy Dept Garage	CTWC	NTNC	68	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-	
Killingly	Rogers Corp - Rogers Well	CTWC	NTNC	250	-	0.009	0.009	-	0.009	-	0.009	-	-	-	-	-	-	-	-	-	-	
Lebanon	Aquarion Water Co of CT-Lebanon Division	Town of Lebanon	C	208	0.007	0.001	0.008	0.001	0.009	0.009	0.030	-	0.030	-	-	-	-	-	-	0.021	-	
Lebanon	Carefree Homeowners Association	Town of Lebanon	C	172	0.007	-	0.007	-	0.007	0.007	0.008	-	0.008	-	-	-	-	-	-	0.001	-	
Lebanon	CTWC - Lebanon Elderly Div.	Town of Lebanon	C	67	0.001	-	0.001	-	0.001	0.001	0.011	-	0.011	-	-	-	-	-	-	0.010	-	
Lebanon	Village Hill Apartments	Town of Lebanon	C	36	0.003	-	0.003	-	0.003	0.003	0.003	-	0.003	-	-	-	-	-	-	0.000	-	
Lebanon	CTWC - Amston Lake Division	Town of Lebanon	C	446	0.014	-	0.014	-	0.014	0.014	0.050	-	0.050	-	-	-	-	-	-	0.036	-	
Lebanon	Norwich Public Utilities	Norwich Public Utilities	C-Large	22	0.002	0.120	0.121	0.011	0.132	0.132	4.748	-	4.748	-	4.615	-	-	-	-	-	-	-
Lebanon	903 Exeter Rd - Lebanon	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-	
Lebanon	Fire Safety Complex	Town of Lebanon	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-						

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North Stonington	Mystic Koa, Highland Orchard Rv	Town of North Stonington	NC	33	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Baptist Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Ch - Worship Hall	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Bible Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Grange #138	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Shell Station (Hendels)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Xtra Mart	Town of North Stonington	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Spicer Plus (Food & Fuel/Dunkin Donuts)	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	St Thomas More Catholic Church	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	Stardust Motel	Town of North Stonington	NC	25	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Infirmary	Town of North Stonington	NC	39	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Knollwood	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Lodge	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - Main Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Stonington Institute - North Building	Town of North Stonington	NC	77	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Subway - N Stonington	Town of North Stonington	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
North Stonington	411C Norwich Westerly Rd	Town of North Stonington	NTNC	100	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
North Stonington	Kidds & Co., LLC	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	North Stonington Christian Academy	Town of North Stonington	NTNC	78	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Second Baptist Church	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Tinaco Plaza, LLC	Town of North Stonington	NTNC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
North Stonington	Wood Pond (West 1&2)	Town of North Stonington	NTNC	70	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Countryside Drive Association	Norwich Public Utilities	C	96	0.007	-	0.007	-	0.007	-	0.007	0.011	-	-	0.011	-	-	-	-	-	0.004
Norwich	Norwich Public Utilities	Norwich Public Utilities	C-Large	43561	2.203	1.553	3.756	0.334	4.090	-	4.090	-	-	-	-	4.928	1.750	-	-	-	(0.912)
Norwich	Pleasure Valley Mobile Home Park	Norwich Public Utilities	C	328	0.016	-	0.016	-	0.016	-	0.016	0.050	-	-	0.050	-	-	-	-	-	0.034
Norwich	Sunny Waters Mobile Home Park	Norwich Public Utilities	C	303	0.023	-	0.023	-	0.023	-	0.023	0.050	-	-	0.050	-	-	-	-	-	0.027
Norwich	7-Eleven #32524	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Church of Jesus Christ of Latter Day Sai	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Leomilts Petroleum, Inc.	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Dog Pound	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Mohegan Park - Group Pavilion	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Aesthetic Dentistry	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	Norwich Worship Center	Norwich Public Utilities	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Norwich	The Norwich Fish & Game Assoc., Inc.	Norwich Public Utilities	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Norwich	Montessori Discovery School	Norwich Public Utilities	NTNC	88	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Plainfield	Arno Drive LLC	CTWC	C	33	0.002	-	0.002	-	0.002	-	0.002	0.024	-	-	0.024	-	-	-	-	-	0.021
Plainfield	CTWC - Gallup System	CTWC	C-Large	3698	0.184	0.126	0.310	0.052	0.362	-	0.362	0.862	-	-	0.862	-	-	-	-	-	0.500
Plainfield	CTWC - Plainfield System	CTWC	C-Large	2054	0.102	0.026	0.128	0.009	0.137	-	0.137	-	-	-	0.137	-	-	-	-	-	-
Plainfield	Jumbo Apartments	CTWC	C	35	0.003	-	0.003	-	0.003	-	0.003	0.012	-	-	0.012	-	-	-	-	-	0.009
Plainfield	Moosup Garden Apartments	CTWC	C	210	0.012	-	0.012	-	0.012	-	0.012	0.049	-	-	0.049	-	-	-	-	-	0.037
Plainfield	Moosup Manor	CTWC	C	27	0.001	-	0.001	-	0.001	-	0.001	0.029	-	-	0.029	-	-	-	-	-	0.028
Plainfield	Moosup Pond Terrace, LLC	CTWC	C	46	0.003	-	0.003	-	0.003	-	0.003	0.050	-	-	0.050	-	-	-	-	-	0.046
Plainfield	Pickett Road Apartments	CTWC	C	25	0.002	-	0.002	-	0.002	-	0.002	0.006	-	-	0.006	-	-	-	-	-	0.005
Plainfield	Westview Terrace Mobile Home Park	CTWC	C	60	0.005	-	0.005	-	0.005	-	0.005	0.011	-	-	0.011	-	-	-	-	-	0.006
Plainfield	10 Putnam Road	CTWC	NC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Plainfield	1019 Norwich Road	CTWC	NC	25																	

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Pomfret	The Owls Nest Day School	AWC	NTNC	38	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Lincoln Park Elderly Housing	AWC	C	80	0.003	-	0.003	-	0.003	-	0.003	0.003	-	0.003	-	-	-	-	-	-	0.000
Preston	Norwich Public Utilities	Norwich Public Utilities	C-Large	318	0.022	0.880	0.902	0.080	0.982	-	0.982	-	-	-	-	-	-	-	-	-	-
Preston	Preston Plains Water Company	Town of Preston	C	417	0.020	0.095	0.116	0.010	0.126	-	0.126	0.031	0.018	-	0.049	-	-	-	-	-	0.050 (0.078)
Preston	Strawberry Park	Town of Preston	C	950	0.071	-	0.071	-	0.071	-	0.071	0.100	-	-	0.100	-	-	-	-	-	0.029
Preston	Amos Lake Beach - System #1:Pavilion	Town of Preston	NC	35	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Amos Lake Beach-System 2:Campground Well	Town of Preston	NC	40	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Brookside Cafe	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Calvary Baptist Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Citgo Gas Station - Preston	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Dunkin Donuts	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Flemings Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Hidden Acres Campground	Town of Preston	NC	75	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Preston	Lu - Macs Package Store	Town of Preston	NC	32	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston City Congregational Church	Town of Preston	NC	49	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 10 Lincoln Rd	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Community Park - 13 Rt 117	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Public Library	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	Preston Senior Center	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Town Hall	Town of Preston	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Preston	St Catherine of Siena	Town of Preston	NC	29	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	St James Episcopal Church	Town of Preston	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Preston	Preston Veterans Memorial School	Town of Preston	NTNC	500	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	-
Putnam	Matulaitis Nursing Home	Putnam WPCA	C	254	0.019	-	0.019	-	0.019	0.050	-	-	0.050	-	-	-	-	-	-	-	0.031
Putnam	Putnam Water Pollution Control Authority	Putnam WPCA	C-Large	7706	0.414	0.471	0.885	0.075	0.960	-	1.261	-	-	1.261	0.524	0.005	-	-	-	-	0.820
Putnam	Colonial Plaza Condominium Assn, Inc.	Putnam WPCA	NC	40	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Marika's Place	Putnam WPCA	NC	29	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Stonewall Commons of Putnam	Putnam WPCA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Village Restaurant & Lounge	Putnam WPCA	NC	49	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Putnam	Darigan-Barr, Inc.	Putnam WPCA	NTNC	89	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Preschool and Childcare, LLC.	Putnam WPCA	NTNC	36	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Putnam	Putnam Chrysler Dodge Jeep	Putnam WPCA	NTNC	30	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Crystal Lake Condominiums	SCWA	C	184	0.014	-	0.014	-	0.014	-	0.014	0.050	-	-	0.050	-	-	-	-	-	0.036
Salem	Salem Manor Condominiums, System #1	SCWA	C	32	0.002	-	0.002	-	0.002	-	0.002	0.008	-	-	0.008	-	-	-	-	-	0.006
Salem	Salem Manor Condominiums, System #2	SCWA	C	25	0.002	-	0.002	-	0.002	-	0.002	0.002	-	-	0.002	-	-	-	-	-	0.000
Salem	Burnett's Country Gardens	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Fox Farm Brewery	SCWA	NC	25	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	-
Salem	Henny Penny (Hendels Inc.) Salem	SCWA	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	-
Salem	Salem Farms Campground, Inc.	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Free Public Library	SCWA	NC	28	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Salem Town Hall	SCWA	NC	41	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #1	SCWA	NC	50	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Witch Meadow Lake Campground - Well #3	SCWA	NC	25	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Colonial Center	SCWA	NTNC	110	-	0.002	0.002	-	0.002	-	0.002	-	-	-	-	-	-	-	-	-	-
Salem	Harris Brook Commons	SCWA	NTNC	60	-	0.001	0.001	-	0.001	-	0.001	-	-	-	-	-	-	-	-	-	-
Salem	Indian Field Coop Campground Assn., Inc.	SCWA	NTNC	685	-	0.024	0.024	-	0.024	-	0.024	-	-	-	-	-	-	-	-	-	-
Salem	Quality Daycare & Co-Op Nursery	SCWA	NTNC</																		

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Thompson	CTWC - Thompson System	CTWC	C-Large	1433	0.083	0.042	0.125	0.012	0.137	0.387	-	-	-	0.387	-	-	-	-	-	0.250	
Thompson	Justice Resource Institute, Inc.	CTWC	C	56	0.004	-	0.004	-	0.004	0.005	-	-	-	0.005	-	-	-	-	-	0.001	
Thompson	Marianapolis Prep School - St Johns	CTWC	C	128	0.010	-	0.010	-	0.010	0.015	-	-	-	0.015	-	-	-	-	-	0.006	
Thompson	Marianapolis Prep School -St Alberts	CTWC	C	51	0.003	-	0.003	-	0.003	0.003	-	-	-	0.003	-	-	-	-	-	0.000	
Thompson	Quinebaug Mobile Home Park	CTWC	C	205	0.015	-	0.015	-	0.015	0.050	-	-	-	0.050	-	-	-	-	-	0.035	
Thompson	Thompson Hill Water Co - Paula Lane Div	CTWC	C	85	0.006	-	0.006	-	0.006	0.007	-	-	-	0.007	-	-	-	-	-	0.001	
Thompson	292 Riverside Drive - Thompson	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	773 Quinebaug Road	CTWC	NC	37	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Four Corners Pub	CTWC	NC	29	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Koinonia School of Sports	CTWC	NC	40	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Lord Thompson Manor	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Country Store	CTWC	NC	108	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Quaddick Pond S.P./Park Well	ESA Unassigned	NC	83	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Quinnatasset Country Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Rollies Variety	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson House of Pizza	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Rod & Gun Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Thompson Speedway-Concession & Garage	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Tri-State Baptist Church	CTWC	NC	157	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	Valley Springs Sportsman Club	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Thompson	West Thompson Lake Campground	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	White Horse At Vernon Stiles Inn	CTWC	NC	25	-	0.003	0.003	-	0.003	0.003	-	-	-	-	-	-	-	-	-	-	
Thompson	Ivanhoe Tool & Die Co Inc	CTWC	NTNC	40	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Thompson	Marianapolis Prep School - Admin/School	CTWC	NTNC	266	-	0.005	0.005	-	0.005	0.005	-	-	-	-	-	-	-	-	-	-	
Thompson	Numa Tool Co Inc	CTWC	NTNC	80	-	0.003	0.003	-	0.003	0.003	-	-	-	-	-	-	-	-	-	-	
Union	Travelers Restaurant	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Union	Union Weigh Station	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Union	Union Elementary School	CTWC	NTNC	80	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	CTWC - SDC Water	CTWC	C	216	0.005	-	0.005	-	0.005	0.050	-	-	-	0.050	-	-	-	-	-	0.045	
Voluntown	Voluntown Housing Authority	CTWC	C	42	0.003	-	0.003	-	0.003	0.004	-	-	-	0.004	-	-	-	-	-	0.000	
Voluntown	17 Beach Pond Road	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Chucky's Mobil	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #1	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Circle "C" Campground - Well #3	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Claudias Restaurant & Town Liquor Store	CTWC	NC	29	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Nature's Campsites, LLC	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Pachaug S.F./Mount Misery Pump House	CTWC	NC	30	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Riverside Mall (Town Pizza)	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Sunnys Market	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Baptist Church	CTWC	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Fire Station	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Town Hall	CTWC	NC	25	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Voluntown	Voluntown Elementary School	CTWC	NTNC	365	-	0.004	0.004	-	0.004	0.004	-	-	-	-	-	-	-	-	-	-	
Waterford	Waterford Country School, Inc.	Waterford Utilities Commission	C	180	0.014	-	0.014	-	0.014	0.019	-	-	-	0.019	-	-	-	-	-	0.006	
Waterford	Waterford Utilities Commission	Waterford Utilities Commission	C-Large	17000	1.020	2.022	3.042	0.528	3.570	-	3.770	-	3.770	-	0.200	-	-	3.770	-	0.000	
Waterford	Connecticut Humane Society - Waterford	Waterford Utilities Commission	NC	43	-	0.001	0.001	-	0.001	0.001	-	-	-	-	-	-	-	-	-	-	
Waterford	The Williams School Ballfield	Waterford Utilities Commission	NC	25	-	0.000	0.000	-	0.000	0.000	-	-	-	-	-	-	-	-	-	-	
Windham	Douglas Manor	Windham Water Works	C																		

Table B-6: Eastern PWSMA - 50-Year (2060) Water Demands and Water Movement by Town

Town	Public Water System Name	ESA Holder	Classification	Service Area Population	2060 Residential Demand	2060 Non-Residential Demand	Demand Subtotal	Unaccounted-for Water	2060 Total ADD	Water Sold to Other Utilities	2060 System ADD	Available Water (ADD) from Sources	Available Water (ADD) from Interconnections	Committed Water to Others	Available Water (ADD) for System	Intra-System Transfers In	Intra-System Transfers Out	Inter-System Transfers In	Inter-System Transfers Out	Water Purchased from Other Utilities	Surplus / Deficit for ADD
Woodstock	Woodstock Valley Marketplace	AWC	NC	25	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Crabtree & Evelyn, Ltd.	AWC	NTNC	208	-	0.004	0.004	-	0.004	-	0.004	-	-	-	-	-	-	-	-	-	
Woodstock	Linemaster Switch Corp	AWC	NTNC	178	-	0.006	0.006	-	0.006	-	0.006	-	-	-	-	-	-	-	-	-	
Woodstock	Northwood Childcare	AWC	NTNC	32	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Rogers Corp - Poron Well	AWC	NTNC	90	-	0.003	0.003	-	0.003	-	0.003	-	-	-	-	-	-	-	-	-	
Woodstock	Solair Recreational League - Pavilion	AWC	NTNC	93	-	0.000	0.000	-	0.000	-	0.000	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Academy	AWC	NTNC	2188	-	0.039	0.039	-	0.039	-	0.039	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Elementary School	AWC	NTNC	636	-	0.007	0.007	-	0.007	-	0.007	-	-	-	-	-	-	-	-	-	
Woodstock	Woodstock Middle School	AWC	NTNC	511	-	0.008	0.008	-	0.008	-	0.008	-	-	-	-	-	-	-	-	-	



APPENDIX C

ADJUSTMENT OF CT SDC MUNICIPAL POPULATION PROJECTIONS



C. ADJUSTMENT OF CT SDC MUNICIPAL POPULATION PROJECTIONS

The Connecticut State Data Center (CT SDC) town population projections extend until 2040 and are reported in five-year increments. In order to develop a population projection for the 5-year planning horizon (2023), a linear interpolation between 2020 and 2030 data was used. In order to extend the CT SDC town population projections to 2060, the following analysis was performed:

- Compare the population projection in 2040 to the population projection in 2030:
 - If the population was decreasing in a town from 2030 to 2040, then the 2060 population was assumed to be consistent with the 2040 population to simulate an eventual recovery from declining conditions. In other words, the population decline experienced from 2030 to 2040 was expected to continue past 2040, but eventually rebound back to 2040 population levels by 2060. This presents a conservatively high estimate of population where population declines could conceivably continue through 2060.
 - If the population was increasing in a town from 2030 to 2040, then the population was assumed to be stable or increasing through 2060. An analysis was performed of the population increase per year from 2015 to 2020, 2020 to 2030, and 2030 to 2040 and a linear relation was fitted through the data to the year 2060 to determine the projected population increase through 2060. For some communities, the rate of population increase per year slowed from 2020 to 2040, while for others the rate of population increase per year increased from 2020 to 2040. In the event that the slowing rate of population increase resulted in reduced population in the town, the projected population was set equal to the 2040 population. If the increasing population resulted in an increased population that was more than 20% greater than the 2040 population, the 2060 result was capped at a 20% increase.

Table C-1 presents a comparison of the CT SDC town population projections, the population increase per year for each period, and the 2023 and 2060 population projection based on the methods above.

Table C-1. Eastern PWSMA Population Projections

Municipality	2010 Census Population	2015 CT SDC Population Projection	2018 CT SDC Population Projection	2020 CT SDC Population Projection	2023 CT SDC Population Projection	2030 CT SDC Population Projection	2040 CT SDC Population Projection	2060 Population Projection	Population Increase per Year (2015-2020)	Population Increase per Year (2020-2030)	Population Increase per Year (2030-2040)	2015 Estimated Water Demand (mgd)*	2023 Estimated Water Demand (mgd)*	2030 Estimated Water Demand (mgd)*	2060 Estimated Water Demand (mgd)*
Ashford	4,317	4,376	4,396	4,409	4,399	4,377	4,159	4,159	7	-3	-22	0.328	0.330	0.328	0.312
Bozrah	2,627	2,714	2,766	2,800	2,855	2,983	3,089	3,198	17	18	11	0.204	0.214	0.224	0.240
Brooklyn	8,210	8,581	8,804	8,952	9,135	9,562	10,033	10,435	74	61	47	0.644	0.685	0.717	0.783
Canterbury	5,132	5,225	5,241	5,251	5,215	5,132	4,835	4,835	5	-12	-30	0.392	0.391	0.385	0.363
Chaplin	2,305	2,285	2,250	2,227	2,175	2,052	1,782	1,782	-12	-18	-27	0.171	0.163	0.154	0.134
Colchester	16,068	16,195	16,194	16,194	16,207	16,237	15,925	15,925	0	4	-31	1.215	1.216	1.218	1.194
East Lyme	19,159	19,233	19,198	19,174	19,069	18,825	18,225	18,225	-12	-35	-60	1.442	1.430	1.412	1.367
Eastford	1,749	1,775	1,783	1,789	1,787	1,781	1,700	1,700	3	-1	-8	0.133	0.134	0.134	0.128
Franklin	1,922	1,921	1,908	1,899	1,870	1,803	1,661	1,661	-4	-10	-14	0.144	0.140	0.135	0.125
Griswold	11,951	12,381	12,636	12,806	13,026	13,540	13,900	13,900	85	73	36	0.929	0.977	1.016	1.043
Groton	40,115	39,899	40,153	40,322	40,325	40,332	38,622	38,622	85	1	-171	2.992	3.024	3.025	2.897
Hampton	1,863	1,853	1,832	1,818	1,782	1,697	1,485	1,485	-7	-12	-21	0.139	0.134	0.127	0.111
Killingly	17,370	17,695	17,867	17,982	18,067	18,266	17,948	17,948	57	28	-32	1.327	1.355	1.370	1.346
Lebanon	7,308	7,289	7,213	7,163	7,057	6,808	6,317	6,317	-25	-36	-49	0.547	0.529	0.511	0.474
Ledyard	15,051	14,889	14,781	14,709	14,546	14,167	13,315	13,315	-36	-54	-85	1.117	1.091	1.063	0.999
Lisbon	4,338	4,302	4,270	4,249	4,190	4,051	3,730	3,730	-11	-20	-32	0.323	0.314	0.304	0.280
Montville	19,571	19,576	19,559	19,548	19,434	19,168	18,356	18,356	-6	-38	-81	1.468	1.458	1.438	1.377
New London	27,620	28,025	28,623	29,022	29,581	30,885	31,875	32,094	199	186	99	2.102	2.219	2.316	2.407
North Stonington	5,297	5,288	5,238	5,205	5,097	4,845	4,250	4,250	-17	-36	-60	0.397	0.382	0.363	0.319
Norwich	40,493	42,632	44,092	45,066	46,640	50,312	54,765	63,231	487	525	445	3.197	3.498	3.773	4.742
Plainfield	15,405	15,440	15,438	15,437	15,361	15,183	14,645	14,645	-1	-25	-54	1.158	1.152	1.139	1.098
Pomfret	4,247	4,400	4,481	4,535	4,604	4,764	4,906	4,949	27	23	14	0.330	0.345	0.357	0.371
Preston	4,726	4,656	4,586	4,539	4,456	4,262	3,898	3,898	-23	-28	-36	0.349	0.334	0.320	0.292
Putnam	9,584	9,917	10,119	10,253	10,422	10,815	11,038	11,038	67	56	22	0.744	0.782	0.811	0.828
Salem	4,151	4,157	4,120	4,095	4,014	3,826	3,454	3,454	-12	-27	-37	0.312	0.301	0.287	0.259
Scotland	1,726	1,767	1,774	1,779	1,772	1,754	1,642	1,642	2	-3	-11	0.133	0.133	0.132	0.123
Sprague	2,984	2,988	2,993	2,996	2,999	3,007	2,928	2,928	2	1	-8	0.224	0.225	0.226	0.220
Sterling	3,830	4,142	4,315	4,430	4,568	4,890	5,197	5,285	58	46	31	0.311	0.343	0.367	0.396
Stonington	18,545	18,301	18,017	17,827	17,458	16,598	15,224	15,224	-95	-123	-137	1.373	1.309	1.245	1.142
Thompson	9,458	9,556	9,583	9,601	9,599	9,595	9,390	9,390	9	-1	-21	0.717	0.720	0.720	0.704
Union	854	889	904	914	921	936	944	944	5	2	1	0.067	0.069	0.070	0.071
Voluntown	2,603	2,586	2,536	2,502	2,429	2,260	1,875	1,875	-17	-24	-39	0.194	0.182	0.170	0.141
Waterford	19,517	19,341	19,081	18,908	18,522	17,621	15,996	15,996	-87	-129	-163	1.451	1.389	1.322	1.200
Windham	25,268	26,086	27,132	27,829	29,219	32,463	38,255	45,906	349	463	579	1.956	2.191	2.435	3.443
Woodstock	7,964	8,125	8,174	8,206	8,193	8,164	7,860	7,860	16	-4	-30	0.609	0.615	0.612	0.590
Total	383,328	388,485	392,056	394,436	396,994	402,961	403,224	420,204				29.136	29.775	30.222	31.515

*At 75 gallons per person per day



APPENDIX D

SUMMARY OF SMALL COMMUNITY SYSTEM OPTIONS

Table D-1. Small Community Water System Capacity Scores and Potential Options for Improving Capacity

Small Community PWS Name	PWS ID	Town	TOTAL SCORE	Technical Score	Managerial Score	Financial Score	Option A	Option B	Option C	Option D
ARNIO DRIVE LLC	CT01099141	PLAINFIELD	62	65	81	40	X		X	
ASHFORD HILLS APARTMENTS	CT00300111	ASHFORD	47	30	70	40	X	X		
BIRCH HILLS CONDOMINIUMS	CT0030041	ASHFORD	57	60	72	40	X	X		
BROOKLYN MANOR	CT0190051	BROOKLYN	55	65	60	40	X	X		
BROOKWOOD APARTMENTS	CT1699011	WOODSTOCK	57	50	82	40	X	X		
CAMPBELL HEIGHTS APARTMENTS - SYSTEM #2	CT0229031	CANTERBURY	49	25	81	40	X	X		
CAREFREE HOMEOWNERS ASSOCIATION	CT0710011	LEBANON	67	50	71	80	X	X		
CLASSEE WATER SYSTEM - LATIMER POINT	CT1378011	STONINGTON	57	50	81	40	X		X	X
COLONIAL EFFICIENCY APARTMENTS	CT0590071	GROTON	55	45	81	40	X		X	X
CONRAD'S PARK	CT0690071	KILLINGLY	55	45	81	40	X		X	X
COUNTRY ACRES PARK	CT0690061	KILLINGLY	64	80	71	40	X	X		X
COUNTRY MANOR	CT1120041	POMFRET	35	5	61	40	X	X		
CRANBERRY BOG APARTMENTS	CT0690141	KILLINGLY	53	50	70	40	X	X		
CRYSTAL LAKE CONDOMINIUMS	CT1210021	SALEM	62	75	72	40	X	X		
DEER RUN SUPPLY	CT0860051	MONTVILLE	42	25	60	40	X	X		
EVANGELICAL CHRISTIAN CENTER - MAIN	CT0037001	ASHFORD	51	40	72	40	X	X		
FALL BROOK MOBILE HOME PARK	CT0690051	KILLINGLY	57	50	81	40	X	X		
FAWN RIDGE ASSOCIATION INC.	CT1699081	WOODSTOCK	50	40	71	40	X	X		
GAIA GARDENS	CT0280041	COLCHESTER	66	30	74	95	X	X		
GIBSON HILL PARK	CT1360074	STERLING	53	50	70	40	X	X		
JUMBO APARTMENTS	CT1094201	PLAINFIELD	65	75	81	40	X		X	X
JUSTICE RESOURCE INSTITUTE, INC.	CT1419071	THOMPSON	53	45	60	55	X	X		
KITEMAUG ORCHARD ASSOCIATION, INC.	CT0860041	MONTVILLE	52	45	72	40	X		X	
LAKESIDE MANOR APARTMENTS	CT0860091	MONTVILLE	68	85	80	40	X	X		
LAKEVIEW MOBILE HOME PARK	CT0580031	GRISWOLD	55	65	61	40	X	X		
LISBON MOBILE HOMES	CT0730031	LISBON	64	80	71	40	X		X	X
LONGVIEW ESTATES, LLC	CT0220011	CANTERBURY	62	85	60	40	X	X		
MAR-LEA PARK APTS	CT0030061	ASHFORD	64	80	71	40	X		X	X
MATULAITIS NURSING HOME	CT1160021	PUTNAM	67	40	81	80	X	X		
MEADOWS APARTMENTS	CT0861021	MONTVILLE	42	25	62	40	X		X	X
MOOSUP GARDEN APARTMENTS	CT1090221	PLAINFIELD	64	80	73	40	X		X	X
MOOSUP POND TERRACE, LLC	CT1099181	PLAINFIELD	57	50	82	40	X		X	
MOUNTVIEW APARTMENTS	CT0861051	MONTVILLE	51	30	82	40	X		X	X
NORTHSTONE GARDENS	CT1021001	NORTH STONINGTON	44	20	71	40	X		X	X
OAKDALE HEIGHTS ASSOCIATION, INC	CT0860031	MONTVILLE	59	75	61	40	X	X	X	
OAKRIDGE GARDENS, LLC	CT0860171	MONTVILLE	57	90	40	40	X		X	X
OAKRIDGE VILLAGE	CT0860211	MONTVILLE	65	85	71	40	X		X	X
PERRY HILL ESTATES APARTMENTS INC.	CT0030021	ASHFORD	49	35	72	40	X	X		
PICKETT ROAD APARTMENTS	CT1090271	PLAINFIELD	57	60	71	40	X	X		X
PLEASURE VALLEY M.H.P. - SYSTEM #1	CT1041001	NORWICH	65	85	71	40	X			X
PLEASURE VALLEY M.H.P. - SYSTEM #2	CT1041021	NORWICH	65	85	71	40	X			X
PLEASURE VALLEY M.H.P. - SYSTEM #3	CT1041031	NORWICH	64	80	71	40	X			X
QUINEBAUG MOBILE HOME PARK	CT1411041	THOMPSON	51	30	82	40	X	X		

Table D-1. Small Community Water System Capacity Scores and Potential Options for Improving Capacity

Small Community PWS Name	PWS ID	Town	TOTAL SCORE	Technical Score	Managerial Score	Financial Score	Option A	Option B	Option C	Option D
ROGERS MOBILE HOME PARK - GROTON	CT0597021	GROTON	54	50	71	40	X		X	X
ROSELAND TERRACE ASSOCIATION, INC.	CT1690021	WOODSTOCK	46	35	64	40	X		X	X
ROUND HILL LLC - WELL# 1	CT0731021	LISBON	63	80	70	40	X	X		
ROUND HILL LLC - WELL# 2	CT0731031	LISBON	62	75	70	40	X	X		
SALEM MANOR CONDOMINIUMS, SYSTEM #1	CT1210011	SALEM	54	60	62	40	X		X	X
SALEM MANOR CONDOMINIUMS, SYSTEM #2	CT1219111	SALEM	54	50	72	40	X		X	X
ST. THOMAS MORE SCHOOL-MAIN SYSTEM	CT0861251	MONTVILLE	69	80	71	55	X		X	X
ST. THOMAS MORE SCHOOL-THE COVE	CT0868011	MONTVILLE	69	80	71	55	X		X	X
STRAWBERRY PARK	CT1140471	PRESTON	51	40	74	40	X	X		
SUNNY WATERS MOBILE HOME PARK	CT1040091	NORWICH	69	85	82	40	X		X	X
THOMPSON HILL WATER CO - BEECHWOOD ACRES	CT0867071	MONTVILLE	61	30	72	80	X		X	X
THOMPSON HILL WATER CO - PAULA LANE DIV	CT1410661	THOMPSON	51	10	62	80	X	X		
TUNNEL HILL MOBILE HOME PARK	CT0731011	LISBON	61	45	82	55	X	X		
VILLAGE HILL APARTMENTS	CT0711001	LEBANON	69	85	80	40	X	X		
VOLUNTOWN HOUSING AUTHORITY	CT1479021	VOLUNTOWN	62	45	61	80	X	X		
WESTCHESTER HILLS CONDOMINIUM ASSN.	CT0280031	COLCHESTER	57	50	82	40	X		X	
WESTVIEW TERRACE MOBILE HOME PARK	CT1090161	PLAINFIELD	42	25	60	40	X	X		X
WOODLAND APARTMENTS	CT1121011	POMFRET	56	45	82	40	X	X		
WOODLAWN APARTMENTS, LLC	CT0030051	ASHFORD	59	65	72	40	X	X		
WYNDHAM PARK APARTMENTS	CT1630021	WINDHAM	50	60	50	40	X	X		

Note: NR means that a system was not evaluated using the Capacity Development Tool. Such systems were assumed to have moderate capacity

Option A: Conduct internal improvements and remain a small independently owned community water system

Option B: Pursue acquisition by larger utility and remain a satellite water system under new ownership and management

Option C: Interconnect with larger or more viable community water system to ensure redundant supply source

Option D: Interconnection and eventual consolidation with larger or more viable community water system