

# **Connecticut**

## **Drought Preparedness and Response Plan**



**Submitted to the Connecticut Water Planning Council  
July 7, 2022 DRAFT**

The Interagency Drought Workgroup is responsible for administering the Connecticut Drought Preparedness and Response Plan and consists of representatives from:



Department of Agriculture



Office of Policy & Management



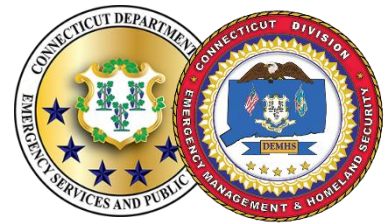
Department of Public Health



Department of Energy and Environmental Protection



Public Utilities Regulatory Authority

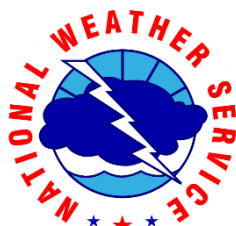


Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security

With technical assistance from:



U.S. National Weather Service



U.S. Geological Survey

Public information and drought updates can be found at [www.ct.gov/waterstatus](http://www.ct.gov/waterstatus)

Cover Photo: Colebrook River Lake in Colebrook, CT, as seen on September 22, 2017.  
Credit: CT Department of Energy and Environmental Protection, Bureau of Water Protection and Land Reuse

## *Glossary of Acronyms:*

CGS	Connecticut General Statutes
CIRCA	Connecticut Institute for Resilience and Climate Adaptation
CLEAR	Center for Land Use Education and Research
COG	Council of Governments
DCP	Department of Consumer Protection
DEEP	Department of Energy and Environmental Protection
DEMHS	Division of Emergency Management and Homeland Security
DESPP	Department of Emergency Services and Public Protection
DEWS	Drought Early Warning System
DoAg	Department of Agriculture
DPH	Department of Public Health
IDW	Interagency Drought Workgroup
NIDIS	National Integrated Drought Information System
NOAA	National Oceanographic and Atmospheric Administration
NWS	National Weather Service
MDL	Municipal Drought Liaison
OPM	Office of Policy and Management
PURA	Public Utilities Regulatory Authority
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WPC	Connecticut Water Planning Council
WUCC	Water Utility Coordination Committee

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## EXECUTIVE SUMMARY

The *Connecticut Drought Preparedness and Response Plan* (“Drought Plan”) provides state and local decision-makers and public water suppliers with a set of formal operating procedures and administrative guidance for proactive drought planning and response. The Drought Plan is designated as a support plan within the [State Response Framework](#), Connecticut’s umbrella emergency management operations document.

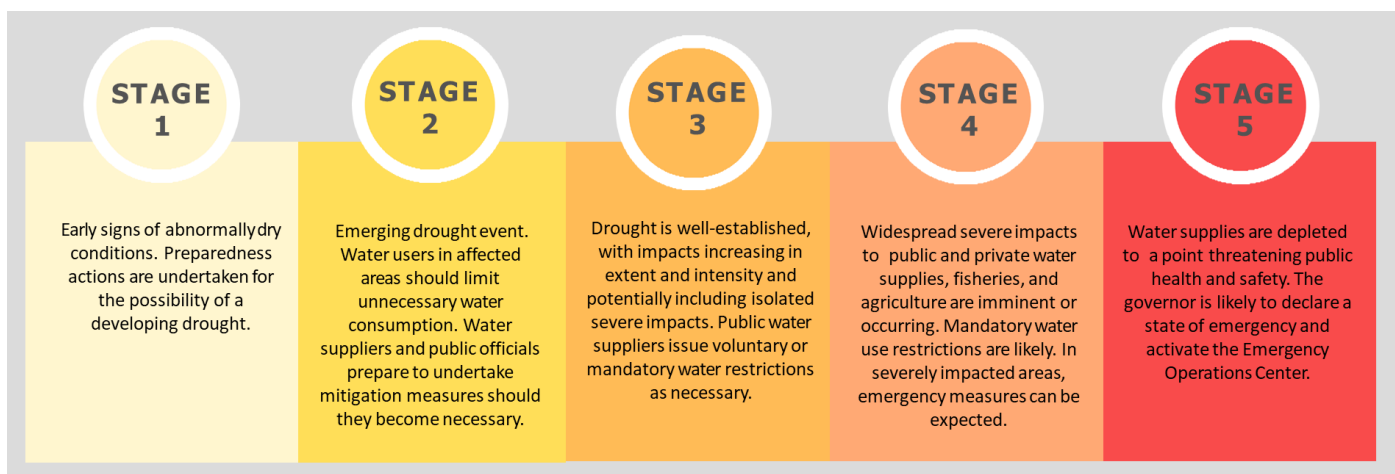
The State Interagency Drought Workgroup (IDW), consisting of representatives from six state agencies, is responsible for facilitating the planning and response activities of the Drought Plan. Subject matter experts from two federal agencies provide technical assistance to the IDW.

The Drought Plan has the following objectives:

1. Describe what preparations should be in place prior to a drought declaration in order for the state and local municipalities to act when it becomes necessary;
2. Define criteria and guidelines for the IDW to assess the severity of drought conditions (“drought stage”) in a given area and recommend appropriate actions.
3. Identify the state, regional, local, federal, and private sector entities that are primarily responsible for undertaking drought management actions;
4. Provide a guide for entities to undertake drought management actions for which they are responsible, in the areas of coordination, public outreach, assessment, and preparedness;
5. Define communication strategies to integrate activities of the responsible parties;
6. Identify a progression of water use restrictions that may be implemented at the state or local level; and
7. Promote effective mobilization of public and private resources to manage drought mitigation efforts.

There are several long-term planning and preparedness strategies that should be in place in anticipation of droughts before they occur. Such strategies fall under the categories of coordination and management, public outreach and education, and data collection and monitoring. Section 4.2 summarizes these strategies by category. Some fundamental strategies include: designating a municipal drought liaison (MDL) in each municipality, promoting industry and public awareness of appropriate conservation activities, expecting all water withdrawers to prepare water supply contingency plans, and ensuring a clear understanding of authority for mitigating drought conditions and enforcing water use restrictions. It is critical that each municipality adopt a water use restriction ordinance in order to establish such authority.

Section V of the Drought Plan identifies five stages of increasingly dry conditions:



The five drought stages differ from the drought stage nomenclature used in water supply plans prepared by public water suppliers. This change is intended to better distinguish the State Drought Plan — which uses a broad range of drought indicators — from the more targeted water supply plans tailored for specific public water supplies. It is possible for a public water supplier to suffer from a drought-related water deficit without the geographic area containing such public water supplier being designated in drought under the Drought Plan, and vice-versa. Individuals served by public water suppliers must be cognizant of the context of messages coming from their public water suppliers, and from municipal and state officials, as they may not always be uniform. Conversely, public water suppliers and public officials have a duty to be clear of the context of their messages and how they relate to each other via well-constructed press releases and other means.

For each of the five stages, the Drought Plan lists criteria, also called indicators, which the IDW consider when identifying the intensity and geographic scope of drought. Criteria include precipitation, groundwater levels, streamflow, reservoir levels, Palmer Drought Severity Index, Crop Moisture Index, Vegetation Drought Response Index (only available during growing season), fire danger, United States Drought Monitor intensity level, and weather forecasts. The IDW makes recommendations for drought designations in a particular region(s) of the state guided by these criteria, but because droughts are not an exact science, professional judgment is crucial in making such recommendations. Several criteria are specific to a certain type of drought (e.g. agricultural versus hydrological) or time of year. The criteria are re-assessed periodically by the IDW as conditions warrant. The IDW may choose to consult other qualitative information beyond the listed criteria.

Section V lists suggested mitigation actions and preparations appropriate for each drought stage, categorized by type. The actions necessary and the recommended mitigation measures increase in magnitude as drought conditions worsen. It should be noted that it may not be appropriate to take every action listed in the table for a particular stage of drought. Actions listed under a particular drought stage may be appropriate at a later stage, or vice-versa.

At such time when the drought criteria, or other qualitative information when warranted, signal that drought conditions are improving, the IDW considers whether to scale back the state's drought declaration(s) to a lower stage of drought. Section VI describes post-drought activities to assist in the drought recovery and restoration of resources affected by drought, taking into consideration resource maintenance and long-term sustainability.

# I. PURPOSE AND SCOPE

## 1.1. Background

Droughts are known to occur in Connecticut, despite the fact that the state typically receives plentiful precipitation. The most severe drought in the state's recorded history occurred during a multi-year period from 1961—1969, when much of the northeastern United States grappled with devastated agricultural crops, dry river beds, and depleted drinking water supplies. In the time since then, expanding population and increasing water demands have made the state even more vulnerable to the effects of drought.

Following a historically significant drought in 1980—1982, an independent drought task force was created under executive power to actively monitor conditions and issue recommendations. In 1999, the state recognized a need to develop a set of formal operating procedures and administrative guidance to improve the function, effectiveness, and predictability of future drought response. Consequently, the drought task force was re-established as the Interagency Drought Workgroup (IDW), a collection of agencies assigned with developing and administering a Connecticut Drought Preparedness and Response Plan ("State Drought Plan" or "Drought Plan").

State agencies represented on the IDW are:

- [Office of Policy and Management](#) (OPM) (lead agency/chair)
- [Department of Agriculture](#) (DoAg)
- [Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security](#) (DESPP/DEMHS)
- [Department of Energy and Environmental Protection](#) (DEEP)
- [Public Utilities Regulatory Authority](#) (PURA)
- [Department of Public Health](#) (DPH)

The United States Geological Survey (USGS) and the National Weather Service (NWS) provide technical assistance to the IDW. Appendix A contains a listing of drought-related agency functions and responsibilities.

## 1.2 Overview

The purpose of the State Drought Plan is to:

- Recommend a framework for a coordinated approach to the assessment of, and response to, drought conditions as they develop;
- Set forth guidance on drought action levels and the appropriate response actions that should occur as drought conditions change; and
- Preserve a balance between essential water uses during a period of water supply deficiency (e.g. water used to satisfy federal, state, and municipal public health and safety requirements, water used for firefighting, and water needed to maintain natural ecosystems).

The Drought Plan provides guidance to assess and to minimize the impacts of a drought for all water users in Connecticut. The Drought Plan is applicable even if a declaration of drought is restricted to a local area. To accomplish the above-stated purpose, the Drought Plan:

1. Describes what preparations should be in place prior to a drought declaration in order for the state and local municipalities to act when it becomes necessary;
2. Defines criteria and guidelines for the IDW to assess the severity of drought conditions in a given area and recommend appropriate actions.



3. Identifies the state, regional, local, federal, and private sector entities that are primarily responsible for managing drought-related activities;
4. Provides a guide for entities to undertake drought-related activities for which they are responsible, in the areas of coordination, public outreach, assessment, and preparedness;
5. Defines communication strategies to integrate activities of the responsible parties;
6. Identifies a progression of water use restrictions that may be implemented at the state or local level; and
7. Promotes effective mobilization of public and private resources to manage drought mitigation efforts.

The IDW is responsible for determining what level of concern is warranted based on observed and forecasted conditions, communicating concerns to the Governor and agency commissioners, and facilitating implementation of the Drought Plan.

Appropriate mitigation actions vary depending on the type of drought (hydrologic, agricultural, or meteorological), the resources most affected, the variability in the relative severity of impacts experienced in different areas of the state or by different water suppliers, and the time of year. Because every drought situation is unique, the Drought Plan allows for maximum flexibility by the IDW in responding to a drought, serving as a menu of possible actions rather than a regimented sequence of events. Conditions are evaluated as soon as data become available so that the IDW may recommend appropriate mitigate actions or adapt them to address specific needs.

In the face of changing climate, technological advancements, and increasing development pressures, the most prudent measures to address drought, and the agencies or individuals responsible for implementing those measures, will likely change over time. As new data and approaches for drought management become available, they should be incorporated in future updates to the Drought Plan. The IDW meets at least biennially to review the Drought Plan, evaluating long-term preparedness strategies and reviewing agency functions as needed. Additionally, the IDW may consider and recommend amendments to the Drought Plan.

### *1.3 Statutory Authority*

Although there is no legislation specifically authorizing the adoption of a State Drought Plan, it has historically functioned under the existing authority of the executive branch. The [Connecticut Water Planning Council](#) (WPC), established in 2002 by Public Act 01-177 (CGS Sec. 25-33o), oversees development and adoption of the Drought Plan. The WPC first adopted the Drought Plan in 2003, followed by this revised version in 2018. Future revisions to the Drought Plan will be undertaken in coordination with the State Water Plan to be adopted pursuant to CGS Sec. 22a-352 as amended by Public Act 14-163 and Executive Order No. 66 as issued by Governor Malloy.

The IDW implements the Drought Plan independently from the WPC, within existing resources from its member agencies. State agencies, public water suppliers, and municipalities are expected to redirect resources from non-critical programs in order to prioritize drought planning and response, when appropriate. In more advanced stages of drought, emergency resources may be called upon. However, a robust implementation of every long-term preparedness recommendation included in the Drought Plan is unattainable without resources dedicated specifically for such implementation.

When a drought occurs, the Drought Plan calls upon the authority of various existing statutes and agency regulations pertaining to drought, drinking water quantity and quality, environmental protection, and utility operations, as well as the powers granted to the Governor during emergency declarations. Collectively, these authorities provide state agencies and others with the regulatory and enforcement capabilities to effectively manage and respond to water shortages and environmental and public health hazards as they develop. Municipalities are encouraged to enhance the state's drought mitigation capacity by adopting



water use restriction ordinances that would provide a conservation enforcement mechanism in the event of a water supply shortage. A model water use restriction ordinance is featured in Appendix B.

## II. INTRODUCTION

### 2.1 Definition of Drought

A drought is a prolonged period of abnormally low precipitation, often combined with abnormally high evaporation, that adversely affects the water resources of a given geographic area. It is not typically a distinct event that has a clearly defined beginning and end (such as a storm); nor does it affect all water resources or users equally. According to Victor Miguel Ponce of San Diego University, “drought is more than a physical phenomenon or natural event. Its impact results from the relationship between a natural event and demands on the water supply, and it is often exacerbated by human activities.”<sup>1</sup>

As mentioned in the [2011 Connecticut Climate Change Preparedness Plan](#), recent climate change studies predict that drought—as well as flooding rains—will become increasingly frequent and severe in the future. Although much less sudden than a hurricane or earthquake, droughts can have similar widespread social, economic, and environmental consequences, requiring the response of numerous parties.

The duration of a drought, from onset to recovery, can occur over any time period from weeks to years, and the severity level can fluctuate over time. There are three distinct types of drought: meteorological, hydrologic, and agricultural. It is possible to experience more than one type of drought at the same time.

- A meteorological drought occurs when measurable precipitation is below normal and may or may not result in a hydrologic or agricultural drought, or both, depending on the time of year it occurs and other weather factors. Depending on the season, it may affect fire danger.
- A hydrologic drought is characterized by low stream flow and by low reservoir and groundwater levels. Depending on the season and water demand, it may or may not affect water supplies.
- An agricultural drought occurs when inadequate precipitation and excessive evapotranspiration deplete the soil moisture necessary to sustain crops and vegetation, resulting in serious damage and economic loss to agriculture. An agricultural drought occurs during the growing season and may worsen and recover more quickly than a hydrological drought. It is characterized by the Palmer Drought Severity Index, the Vegetative Drought Response Index, or the Soil Moisture Index. It may affect the terrestrial ecosystem. As with a hydrologic drought, it may or may not affect water supplies, although it can significantly increase demands on water systems for outdoor water uses.

The consequences of a drought depend on the severity of the water deficiency, the season in which it occurs, and the demand for water. Drought conditions can affect the availability of water, obtained from either a reservoir or from groundwater wells, including private wells. Low streamflow can affect aquatic life because of reduced habitat or water quality issues, such as warmer water temperatures. In addition, drought conditions can increase the risk of wildfire danger.

It is not unusual for a given period of water deficiency to represent a more severe drought of one type than another type. For example, a prolonged dry period during the early summer may substantially lower the yield of crops due to a shortage of soil moisture in the plant root zone (agricultural drought), but have little effect on groundwater storage that was replenished the previous spring (hydrologic drought). In addition, it is not unusual for the severity of drought to differ by geographic location within the state.

The demand for water in a particular area can affect the severity of drought impacts in that area. Typically, water use is highest during the summer due to outdoor domestic, agricultural, and commercial water use. Summer is also when stream flows and groundwater levels typically are lowest because of evaporation and

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<sup>1</sup> [http://ponce.sdsu.edu/three\\_issues\\_droughtfacts01.html](http://ponce.sdsu.edu/three_issues_droughtfacts01.html)

transpiration by plants. Conversely, if it is very dry at a time of year when relatively little water is used, the effects are not as noticeable. Because drought impacts are most prevalent when there is an imbalance of water availability and demand, both must be considered.

## 2.2 Stages of Drought

The State Drought Plan identifies five drought stages of increasingly dry conditions:

- [Stage 1](#)  
Stage 1 is a preliminary preparedness stage intended to advise state, regional, and local officials, and public water suppliers of potentially worsening drought conditions and to re-establish lines of communication. Typically, this stage is activated in response to early signals of abnormally dry conditions and serves as a “heads up” for the possibility of a developing drought. There is no expectation for a broad public notice of a Stage 1 declaration. Specific criteria thresholds are not defined for Stage 1 as the decision to begin focusing on a possible developing drought is based on the IDW’s professional judgment.
- [Stage 2](#)  
Stage 2 represents an emerging drought event, potentially impacting water supplies, agriculture, or natural ecosystems. Impacts from a Stage 2 drought are typically limited or isolated in nature and are likely to be felt first in the most water-constrained settings. At Stage 2, government officials and public water suppliers in affected areas should be engaged and preparing to undertake mitigation activities should they become necessary. Data collection and reporting activities are increased, where appropriate, and communication and coordination becomes a priority. Stage 2 is the first publicly announced stage of drought.
- [Stage 3](#)  
At Stage 3, a drought event is well-established across a significant area, with impacts increasing in extent and intensity and potentially including isolated severe impacts. At Stage 3, the tone of public messaging is intended to convey the more serious nature of conditions, and preparations are made for the possibility of widespread emergency response, should conditions continue to worsen.
- [Stage 4](#)  
At Stage 4, widespread severe impacts to water supplies are imminent or already occurring, with negative economic and ecological impacts. Depending on the time of year, there might be a complete loss of some crops. Mandatory water use restrictions are likely, particularly regarding non-essential outdoor uses. In the most severely impacted areas, public officials and public water suppliers can be expected to undertake emergency measures. The Governor is likely to consider convening the Unified Command to coordinate the drought response and an emergency declaration is possible.
- [Stage 5](#)  
A Stage 5 drought declaration corresponds to an emergency situation for part or all of the State. Public water and firefighting supplies are depleted to a point threatening public health and safety. The Governor is likely to declare a state of emergency and activate the State Emergency Operations Center.

The names of the stages differ from those used in utility water supply plans so as not to confuse the public when public water suppliers declare a particular drought stage representing their unique water supply and demand conditions.

## 2.3 Categories of Water Supply

Water users in Connecticut obtain their water from a variety of sources:

- municipal/public suppliers
- regional/quasi-public suppliers
- investor-owned suppliers
- privately-owned suppliers
- on-site private wells
- stream, lake, and pond withdrawals (non-potable water)

The Drought Plan uses the term “public water” for any supplied water (not from a private well) in accordance with Department of Public Health (DPH) definitions. To assure a safe and adequate supply of drinking water, DPH regulates any public water system supplying groundwater or surface water, or both, to 15 or more connections or 25 or more persons daily at least 60 days of the year. This regulation is accomplished through numerous state laws and regulations that address public drinking water quality and quantity.

Each public water supplier has a unique water system that may include one or more reservoirs, one or more groundwater wells, or both. These sources vary in capacity. In addition, the geographical area of the watershed and the local geologic and hydrologic conditions affect the water available and how each water system responds to a drought.

Any public water supplier defined in [Section 25-32d](#) of the Connecticut General Statutes (CGS) that supplies water to at least 1,000 people or at least 250 customers is required to prepare and submit to DPH a water supply plan that includes a “water supply emergency contingency plan.”<sup>2</sup> Such plan identifies responses for four drought stages — Drought Advisory, Drought Watch, Drought Warning, and Drought Emergency — and includes identification of trigger levels which initiate each stage based on the projected water supply availability and demand situation.

With this update of the State Drought Plan, the plan uses stage names that differ from those used in water supply plans. In part, this is in order to avoid confusion between broad drought declarations made under the State Drought Plan and targeted drought declarations that a public water supplier issues specifically for its customers within a defined supply area. For this reason, all water users must pay attention to information issued by the State (based on this plan), their municipality, and their public water supplier, as applicable.

Private well owners are encompassed by the State Drought Plan, but might also be subject to municipal ordinances, where adopted. Private wells vary greatly in design and hydrogeological characteristics. As there is no practical method to continually monitor the amount of available groundwater everywhere in the state, assessing the potential impact of drought on private well users is extremely challenging. Historically, droughts have resulted in increased work for well drillers and public health officials, who receive requests to hydrofrack or deepen existing wells that have run dry. This is an example of qualitative, ancillary information that may be collected by the IDW to more fully understand the impact of a drought. Private

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<sup>2</sup> For further information on Water Supply Plans, see Sections 25-32d-1a through 25-32d-6 of the [Regulations of Connecticut State Agencies](https://eregulations.ct.gov) (<https://eregulations.ct.gov>)

well owners should always use water conservatively during a drought and heed any recommendations or instructions issued by local authorities or by the State in accordance with the Drought Plan.

## *2.4 Data Resources and Decision-Making Criteria*

The following criteria are routinely monitored by the IDW for the purposes of analyzing conditions leading up to and during a drought and used to recommend appropriate mitigation actions:

Quantitative criteria include:

- [Cumulative precipitation](#)
- [Groundwater levels](#)
- [Streamflow](#)
- [Drinking water reservoir levels](#)
- [Palmer Drought Severity Index](#)
- [Crop Moisture Index](#)
- [Vegetation Drought Response Index](#) (available only during growing season),
- [Fire danger](#)
- [U.S. Drought Monitor](#)

Qualitative or auxiliary criteria include, but are not limited to:

- Groundwater trends
- Streamflow trends
- Overall public water supply status, including reservoir and wellfield trends
- Number of public water suppliers that have issued voluntary and mandatory water conservation orders
- Number of public water suppliers with unique water supply situations
- Number of requests for private well deepening or fracking
- Agricultural reports
- Weather forecasts
- Northeast Drought Early Warning System (DEWS)

Much of the quantitative criteria are publicly available data from state and federal agencies that are mandated to collect, analyze, and distribute these data. For example, the U.S. Geological Survey continuously monitors streamflow and groundwater levels, the National Weather Service continuously monitors cumulative rainfall and weather conditions, and the Connecticut Department of Public Health routinely receives and compiles reservoir and production well conditions from public water suppliers.

The data used to analyze drought conditions may represent a single location (such as a streamflow gage) or a broad land area (such as Palmer Drought Severity Index). The IDW assesses data on a regional basis to determine if a drought declaration will be recommended for one or more areas of the state.

Members of the IDW are expected to identify additional information each respective agency can provide to create a complete view of conditions across the state. Such information may include qualitative data and field observations, such as fisheries and forestry reports, to inform the decisions made by the IDW. Anyone with pertinent drought impact information should be encouraged to contact the IDW via the contact information listed on the drought information website, [www.ct.gov/waterstatus](http://www.ct.gov/waterstatus).

The National Integrated Drought Information System (NIDIS) was authorized by Congress in 2006 for the purpose of interstate and interagency coordination and integrated drought research that builds upon

existing federal, tribal, state, and local partnerships to create drought early warning systems (DEWS) across the nation. As defined by NIDIS, a DEWS utilizes new and existing networks of federal, tribal, state, local and academic partners to make climate and drought science accessible and useful for decision makers; and to improve the capacity of stakeholders to monitor, forecast, plan for, and cope with the impacts of drought. Following an intense drought in parts of the Northeast in 2016, NIDIS hosted collaborations with stakeholder agencies from northeastern states, including representatives from Connecticut, to develop the first ever strategic plan for the [Northeast DEWS](#).

The initial NE DEWS strategic plan issued in 2018 was updated as the [2022-2026 Northeast DEWS strategic plan](#) released on June 1, 2022. That planning process identified five priorities that the Northeast DEWS network will initially focus on:

- Continue to build a comprehensive understanding of drought indicators/indices used in the Northeast, to better demonstrate their value, limitations, business sector relevance, seasonal and geographical application.
- Expand drought observations (such as monitoring dry wells and soil moisture conditions) and utilize data sets (such as snow survey data) that can help build a robust drought impact reporting system. This system should include a citizen science information component and contribute to a regional-scale response framework.
- Expand partnerships with local and federal emergency management agencies, Tribal nations, and the private sector, to more effectively build drought resilience and drought response resources across sectors and communities.
- Improve collaboration, coordination, and communication among partners in the NE DEWS network to support information-sharing.
- To support the drought planning and plan evaluation cycle, increase opportunities for planners to share drought-related lessons learned both within and across the DEWS, sectors, tribal, state, and local agencies.

The priorities and actions identified in that plan will be reassessed during the life of the plan. The IDW recognizes the need to be an active participant in the Northeast DEWS and Strategic Plan. With a goal of future integration of the Northeast DEWS into the State Drought Plan, the IDW will collaborate with NIDIS and Connecticut's strategic partners in surrounding states to develop activities and work towards outcomes which improve Connecticut's early warning capacity, understanding of drought-related impacts, and long-term drought resilience.

### III. DROUGHT MANAGEMENT

#### 3.1 Drought Management Areas

The intensity and impact of drought can vary across surprisingly short distances, so the IDW relies on drought management areas to signal variations of drought within the state. By default, the IDW demarcates drought management areas by county: Litchfield, Hartford, Tolland, Windham, Fairfield, New Haven, Middlesex, and New London. This geography is used primarily because NWS often reports weather and climatological data by county, and because NWS issues most of its weather-related hazard messaging by county. As a result, most residents know which county they belong to, an advantage when informing the public about differences in drought intensity across geographies.

The IDW is not bound to the use of counties and, if there is sufficient justification, the IDW may, using its professional judgement, demarcate drought management areas using other political or geographical boundaries, such as portions of counties, watersheds, DEMHS emergency management areas, or municipal boundaries. Arbitrary demarcations for drought management areas may also be used. This flexibility proves useful because drought is dynamic, having the ability to become severe over a hyperlocal area, sometimes called a micro-drought.

#### 3.2 IDW Organizational Structure and Meeting Schedule

The Commissioners of Agriculture, Emergency Services & Public Protection, Energy & Environmental Protection, and Public Health, the Chairman of the Public Utilities Regulatory Authority, and the Secretary of the Office of Policy & Management, or their designees, are voting members of the IDW. Each appointing authority shall also designate an alternate voting member to serve when the primary voting member is unavailable. The Secretary of the Office of Policy and Management, or the Secretary's designee, shall chair the IDW and is responsible for scheduling meetings.

The Water Planning Council shall designate an employee of an agency represented on the IDW to serve the role of State Drought Coordinator. Under the leadership of the State Drought Coordinator, staff of agencies represented on the IDW shall share responsibility for administrative tasks, ensuring communications and reporting protocols are followed, facilitating meetings, administering the online Drought Information Portal, and related tasks. Each agency may designate additional staff to attend meetings as subject matter experts or for administrative assistance, as needed. Such additional staff are not IDW members.

A schedule of monthly meetings for each calendar year shall be adopted annually and be posted on the state public meeting calendar as required by state law. A public notice listing the times, dates, and locations of each meeting shall be posted on the Drought Information Portal website. Meetings may be conducted virtually. All meetings of the IDW shall be public and follow Freedom of Information Act requirements. Meetings of state agency staff assigned to carry out work assignments, planning functions, or other business shall not constitute a public meeting and do not require public notice or participation.

Individual meetings may be cancelled by the chair if warranted, except that the IDW shall meet at least annually to reaffirm membership and responsibilities and other tasks as warranted, including receiving any public input. A quorum of members must be present to conduct business at each meeting. Special or emergency meetings may be scheduled and conducted in accordance with procedures and rules established by state law.

### 3.3 Implementation

The State Drought Coordinator shall ensure all monitoring data is updated monthly and review such data for signals of developing drought, in accordance with the criteria established under Section V. Whenever the State Drought Coordinator becomes concerned about dry conditions via routine monitoring or other internal or external sources, he or she shall contact the IDW Chair and undertake the following sequence of actions:

1. The State Drought Coordinator shall prepare a drought condition report that summarizes conditions by drought management area and contains relevant data.
2. At the next regular or special meeting, the IDW shall assess and discuss the drought conditions report and any other appropriate data to determine whether dry conditions warrant a declaration(s) of drought for any drought management area, consistent with the thresholds specified in Section V of this plan. The IDW may cite professional judgement in its determination, if not consistent with the thresholds specified in Section V. A determination to recommend such declaration(s) shall be supported by a majority of member agencies on the IDW.
3. OPM shall transmit any such recommendations of the IDW to the Office of the Governor. The Office of the Governor may accept, reject, or modify the recommendations of the IDW. State agencies shall commit the resources necessary to undertake mitigation actions outlined in Section V. Responsibilities that are not already clearly assigned shall be delegated to appropriate member agencies based on subject matter expertise, statutory and regulatory authorities, and availability.
4. Whenever a drought declaration is active, the chair shall schedule meetings as necessary to re-evaluate conditions and implement mitigation actions associated with each drought stage, as guided by Section V.
5. The IDW shall determine whether to recommend upgrading or downgrading any active drought declarations, following the same decision-making protocols in 2-4 above.

During times of no drought, the IDW shall meet not less than biennially for the purpose of reviewing and implementing long-term drought preparedness activities in Section IV, and to review any changes in agency staffing or resource demands that affect the IDW. The IDW may, at any time, create and oversee one or more independent working groups consisting of staff from state, local, and/or private entities for the purpose of conducting drought preparedness exercises or activities, or for other drought preparedness needs as the IDW may determine.

### 3.4 Emergency Management

Under the National Incident Management System (NIMS) Emergency Support Function System, the Office of Policy and Management is designated the primary state agency in a drought event. When conditions reach Stage 3, the Governor may consider convening his/her Unified Command in accordance with the [State Response Framework](#) (SRF) prepared by the Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security (DEMHS). The Governor's Unified Command is comprised of the key state agencies and public sector partners relevant to a particular potential or actual emergency. If conditions reach Stage 5, many necessary response functions may be coordinated under the SRF, including activation of the State Emergency Operations Center and National Guard to centralize planning and response operations.



In the event the State Emergency Operations Center is activated, the IDW continues to implement the State Drought Plan and will provide data analysis, reporting, and recommendations to the governor and State emergency management directors. However, emergency management operations are coordinated through DEMHS under SRF protocols.

### *3.5 Reporting and Documentation*

A drought is a significant historical event. As such, it is critical that the event is recorded and well-documented. All IDW meeting materials, including agendas, minutes, data and conditions reports, communications, maps, and any other relevant materials shall be posted and archived on the Drought Information Portal website in accordance with the Freedom of Information Act. News articles, external press releases, guidance from public water suppliers, and other documents should be saved and archived as practical. A timeline of events should be created, beginning with the first declaration of drought by the IDW and ending when the drought declaration is terminated.

## IV. LONG-TERM PLANNING AND PREPAREDNESS

In addition to ongoing water conservation practices, proactive drought planning will help Connecticut's residents prepare for and mitigate future droughts.

Droughts can vary widely in duration, severity, location, and local impact. Their effects will vary depending on the time of year; summer droughts typically will have a greater impact than winter droughts. However, a winter drought may limit groundwater recharge and reservoir refilling, which may affect water availability the following spring and summer if conditions do not improve.

Adequate drought response is predicated on long-term, continued planning, preparation, and well-thought policy that becomes part of the overall management of the water resources of the state, well before any declaration of a drought. The State Water Plan to be adopted by the Connecticut General Assembly in accordance with CGS Sec. 22a-352, and as required to be implemented pursuant to Executive Order No. 66, will assist the state achieve its vision of maintaining sustainable, healthy, and balanced water resources for all water users, and in doing so will make the state better prepared for times of drought.

### *4.1 Long-term Planning & Preparedness: Fundamental Strategies*

#### *Water Supply Plans*

Each major public water supplier must prepare a water supply plan that indicates ongoing water conservation actions as well as an emergency contingency planning component. The plan includes triggers for water conservation during any water supply concern, including various stages of drought. In addition, Water Utility Coordinating Committees (WUCCs), in the preparation of their regional water supply plans, are required to evaluate water conservation. The State Drought Plan supplements these planning requirements and covers water users (private well owners) that would not fall under an individual public water supply plan.

#### *Conservation Activities*

Ongoing water conservation activities are critical to the long-term management of water resources in the state and should be a primary consideration in all water management decisions and strategies. During a water emergency, there may be insufficient lead-time to undertake major water-saving improvements. Water conservation is more important than ever due to increasing demands on water supplies, increased runoff and less infiltration from urbanized watersheds, and the high costs and difficulties in developing new water supplies. In addition, anticipated precipitation, extreme heat, drought, and runoff impacts associated with climate change will add to the concern. For these reasons, the general public should adopt water conservation practices.

Connecticut has a longstanding history of engaging in water conservation planning activities. There have been a number of accomplishments that have resulted in the state being better prepared to conserve water and mitigate drought impacts:

- Public water suppliers that serve over 1,000 people or 250 customers have prepared Water Supply Plans, as mandated by CGS Sec. 25-32d. These plans have a water conservation component and an emergency contingency plan component and outline actions to be taken in response to local public water supply conditions. (In 2016 there are approximately 80 water suppliers required to have prepared Water Supply Plans; this number fluctuates due to mergers and/or sales of companies.);
- Water conservation efforts are an important consideration in water supply diversion permitting under CGS Section 22a-369.
- Public Act 94-144 requires certain public water suppliers to distribute water conservation educational information to their customers annually. DPH has also published guidelines on water conservation;

- Public Act 89-303 requires the sale of only low flow devices, such as shower heads and toilets;
- Public Act 89-266 requires certain public water suppliers to make available, free of charge, many low flow devices to encourage customers to retrofit their residences with water conserving devices; and
- Public Act 13-78 requires that PURA and the WPC identify and recommend water conservation programs, and establishes conservation-related principles that DEEP and municipal legislative bodies must consider when setting water company rates.

### *Enforcement*

The State can enforce water use restrictions only when the governor orders an emergency declaration (Stage 5 Drought). Therefore, municipal authority is necessary to enforce local conservation measures at earlier stages of drought. Most municipalities do not have water use restriction ordinances in place that would allow them to enforce mandatory water conservation measures during droughts and other water emergencies.

Legislation passed in 2014 (Public Act 14-168) encourages municipalities to adopt a water use restriction ordinance. As an aid to municipalities, the IDW provided a model ordinance as seen in Appendix B. There is a need to develop multiple model ordinances to address differing water systems, supply needs, and governmental structures in each community; however, doing so is outside the scope of the Drought Plan. In addition to the model ordinance, municipalities may use elements of this plan, including Appendix C, for guidance when developing a local water use ordinance tailored to their specific needs. In municipalities that have private wells, the ordinance should also include homeowner responsibilities. An important component of such an ordinance would be the requirement for adequate coordination between the municipality and the public water supplier(s) that serves the community. Representatives of several local departments or boards, including, but not limited to, selectmen, health district, police and fire, land use, and conservation, as well as the business community, should be parties to drafting the ordinance, along with the local public water supplier. The local ordinance should be included in the municipality's hazard mitigation and emergency preparedness plans. The State will continue to promote and encourage the use of local water conservation and drought management ordinances.

### *Coordination & Management*

A platform for efficient and adequate coordination and management is arguably the most important aspect of drought preparedness. There are multiple entities (public and private) responsible for managing water resources in the state; therefore, coordination hinges on communication among state, regional, and local agencies and public water providers, and the timely dissemination of clear and succinct information to the public. It is essential that each municipality designate a municipal drought liaison (MDL) who acts as the municipality's primary point of contact. Every municipality already has an Emergency Management Director (EMD). The designated EMD may be a good fit for the role of MDL based on experience and funding offered from the state through the federally matching Emergency Management Performance Grant. If the role of a MDL is filled by another municipal official (e.g., public works director), that individual will maintain a regular communications flow with the municipal EMD. DEMHS maintains a list of regularly updated MDLs and EMDs.

Each municipality also has a Local Emergency Operations Plan, which includes the identification of a local Unified Command to address a particular emergency. In addition, the state is divided into five state Division of Emergency Management and Homeland Security Emergency Planning Regions, which each convene a Regional Emergency Planning Team (REPT) made up of all the municipalities in the region, and draft and implement a Regional Emergency Support Plan following the National Incident Management System (NIMS). This existing emergency management structure can provide the platform for drought coordination and situation management.

Connecticut residents get their water from a variety of sources; some have public water and some are self-supplied. In addition to information disseminated from the State, individuals and municipalities who have public water should look to their water supplier for information pertinent to their supply area.

In order to coordinate messages, each public water supplier should communicate with DPH when its drought triggers have been reached or a water supply emergency has occurred. This communication should occur as soon as possible and include a list of the mitigating steps being taken by the public water supplier.

Each municipality has access to the State's Emergency Notification System, commonly referred to by the vendor's proprietary name, Everbridge, which allows a municipality to send emergency messaging to the public free of charge.

#### *Public Outreach & Education*

Public outreach and education are critical components of long-term drought preparedness. Public water suppliers should periodically provide customers with information about their water—where it comes from, how to ensure its quality, and how to use it wisely. Conservation of water should be part of this education. Public water suppliers should identify large users and encourage them to adopt water conservation practices. Outdoor water use is the largest component of water demand during the summer. Education should include discussion of best management practices (BMPs) for various industries and for homeowners. A directory of BMPs is available in Appendix D.

#### *Data Collection & Monitoring*

Accurate, geographically distributed, readily accessible data are crucial to enable scientifically based recommendations for drought declarations. Existing data should be assessed to identify gaps and plans should be made to fill those gaps over time. In the absence of actual data, modeling may be utilized to fill some of the gaps. This augmented network of data-gathering sites, operated by various state, federal and local agencies and organizations must be funded, maintained, and utilized in order for the IDW to obtain the necessary information. These data are used in conjunction with qualitative information obtained from each member agency's contacts and the professional judgment of its staff. When conditions warrant, increased monitoring will be needed to make informed recommendations on the progression of the drought.

The ability to accurately assess current conditions and to predict the future status of a drought depends upon extensive long-term monitoring and data collection, as well as reliable forecasts of hydrology and weather. Drought management requires continuous monitoring of factors indicating the onset, extent, and duration of water deficiency conditions. The IDW needs real-time weather, streamflow, groundwater, reservoir, and soil moisture information to compare with a reliable historical record in order to inform recommendations.

### *4.2 Long-Term Planning & Preparedness: Ongoing Activities*

Droughts can have widespread social and economic significance that require the response of numerous parties. As a result, drought response requires long-term, continued planning and preparation that becomes part of the overall management of the water resources of the state, well before any declaration of drought. The chart on the following page lists long-term planning and preparedness activities that are critical for effective implementation of the Drought Plan. The IDW shall meet at least once biennially to review progress with long-term planning and preparedness actions. After a drought occurs, this section should be amended to reflect lessons learned.

Long-Term Planning & Preparedness Activities		
Coordination & Management	State Agencies coordinated through the Interagency Drought Work Group	Routinely evaluate the adequacy of current executive branch legislative authorities and propose any necessary changes.
		Develop and maintain mechanisms to assess opportunities for proactive drought mitigation working with significant environmental, public health, and economic interests.
		Develop and maintain a database of water suppliers to assess needed assistance in an emergency and communicate vital information.
		Maintain a chart of non-essential water uses relative to the stages of drought and time of year.
		Identify or develop and promote drought mitigation strategies and best management practices for use in the planning, development, and operation of water-intensive facilities.
		Promote use of WebEOC, a web-based emergency communication resource that can be used when a utility has reached its drought criteria. Develop and regularly update a guidance document for using the WebEOC.
		Emergency preparedness officials should maintain familiarity with federal agencies, regional, municipal, and water utility emergency officials and their capacity for assistance.
		Maintain a process for public water systems to report any changes in status such as triggers identified in water supply plans or asset management plans.
		Develop a communication plan with small water suppliers.
		Provide outreach to municipal officials to educate them on the importance of local participation in preparing for a drought; integrate drought education into existing presentations.
	Municipalities/ Local Officials	Designate an MDL, a single individual who is the primary point of contact for a municipality. The MDL should be identified in a municipal water ordinance and contact information should be sent annually (or whenever there is a change) to DPH, DEMHS, and other state agencies, as well as to local water utilities, as appropriate. The MDL should be familiar with the water supply plans serving his/her community.
		Involve water utilities in the development, review, and adoption of local water ordinances to ensure that enforcement of water conservation is a coordinated effort. Work with regional Councils of Governments (COGs) as appropriate to assist with identifying and eliminating barriers to implementing model water use ordinances.
		Work collaboratively with water utilities and heavy water users to implement drought mitigation strategies and best management practices for use in the planning, development, and operation of water-intensive facilities.
	Water Suppliers	Ensure contact information is sent annually (or whenever there is a change) to DPH and to MDLs.
		Water systems that are not required to have a water supply plan should develop an alternative plan that outlines procedures for a drought or water supply emergency.
		Work collaboratively with municipalities and heavy water users to implement drought mitigation strategies and best management practices for use in the planning, development, and operation of water-intensive facilities.
		Work with municipal officials when developing or updating water supply plans. Such plans should be coordinated with any municipal water ordinances and lay out an organized process for communicating with all water users — public and private — during a drought.
		Prepare an asset management program over the short-term and long-term to assess the systems and plan for improvements, including water sources, infrastructure, and operation; such information should be provided to DPH in order to allow for assessments in an emergency.
		Repair or improve infrastructure to reduce the amount of unaccounted for water. Assess dam leakage at reservoirs and, if necessary, undertake repairs where feasible.
Chart continues on next page.		

<b>Public Outreach &amp; Communication</b>	<i>State Agencies coordinated through the Interagency Drought Work Group</i>	Promote the use of water-conserving devices and appliances and seek building code changes as appropriate.
		Prepare educational materials (e.g. flyers, websites, ads, etc.) so that they are quickly and readily available for distribution during a drought.
	<i>Municipalities/ Local Officials</i>	Encourage low-impact design (LID) for new development and existing infrastructure; these practices may include stormwater infiltration systems to recharge aquifers.
	<i>Water Suppliers</i>	Routinely promote water conservation and distribute educational materials to customers; e.g. promoting "water-sense" fixtures.
		Provide assistance such as water-use audits to large customers in detecting and fixing water leaks, and in the installation of additional water conservation devices.
		Implement smart-metering where practical, which will provide more frequent water usage data to customers and the ability to adjust rates during a drought.
<b>Data Collection, Monitoring, &amp; Preparedness</b>	<i>State Agencies coordinated through the Interagency Drought Work Group</i>	Continuously identify new or better sources of information to use for drought monitoring.
		Periodically assess validity of historical drought monitoring benchmarks in light of anticipated climate change impact on drought length and severity.
		Develop guidelines, using statistical analysis as appropriate, for the most appropriate and reliable drought indices by user categories, including: water utilities, agriculture, ground water, and surface water. Such guidelines should address both seasonal variations and long-term trends.
		Identify emergency sources of water that can be made available as temporary water supplies during a water emergency.
		Develop and maintain a database incorporating all relevant data from all relevant sources.
		Maintain up-to-date lists of approved water haulers, approved bottled water purveyors, and licensed well drillers.
	<i>Municipalities/ Local Officials</i>	Collect and monitor data and information on local conditions and the impacts on affected critical services and water demands on a continuous basis.
	<i>Water Suppliers</i>	Regularly monitor and track drinking water supplies and demand, especially when supplies are below normal and/or demand is strong.
		Use historic data to inform the decision-making process and predict likely outcomes.
		Periodically assess the benefits of new interconnections and underutilized water supplies as a means to ensure a stable and resilient supply network.

## V. DROUGHT DECLARATION & RESPONSE

This section identifies a list of criteria thresholds intended to guide the IDW's identification of drought stages. The tables in this section provide a selection of possible drought mitigation actions appropriate for each stage of drought. The mitigation actions necessary and the restrictions implemented increase in frequency and significance as drought conditions worsen. The IDW may use professional judgement in determining whether it is appropriate or necessary to take all mitigation actions listed for a particular stage. As a drought worsens, all actions corresponding to earlier stages of drought should continue to be considered.

It is not possible to specify numerical thresholds for all potential drought criteria because of the many factors, both natural and man-made, that can affect or be affected by the availability of water and water-use patterns. Therefore, qualitative and other auxiliary data and sound subject matter expertise are crucial for guiding the IDW's recommendations.

Each drought stage is described in the colored boxes on the following pages, in order of increasing severity, and includes defining thresholds for drought criteria used in assessing conditions. It should be understood that the specified thresholds are not absolute, but are intended to guide the IDW in determining the severity of the drought being experienced. For example, because each drought is unique, it is possible that a particular drought stage could be triggered by less intense conditions experienced over a longer duration, or by more intense conditions experienced over a shorter duration.



## Stage 1

### Defining Criteria:

Stage 1 is a preliminary preparedness stage that serves to alert the parties who should be prepared to respond to potentially worsening drought conditions. The primary target audience includes state, regional, and local officials and public water suppliers. Typically, this stage is activated upon the first signals of impacts from abnormally dry conditions. There is no expectation for a broad public notice of a Stage 1 declaration.

Specific criteria thresholds are not defined for Stage 1 as the decision to begin focusing on a possible developing drought is based on the IDW's professional judgment.

### Stage 1 Recommended Mitigation Actions

Coordination & Management	State Agencies coordinated through the IDW	Pay attention to all aspects of agency operations that could indicate impending drought conditions; communicate and meet as needed.
		Delegate duties and responsibilities as necessary to assure information flow among state agencies.
		Designate agency spokesperson(s) to coordinate interaction with the public and expedite information referrals.
		Submit drought assessment reports as necessary to agency heads.
		Designate an individual to be the contact person for receiving and compiling drought-related information.
	Municipalities / Local Officials	MDLs provide DPH with current contact information. If no MDL exists, designate a local official competent in water supply issues as the MDL and provide contact information. MDL maintains regular communications flow with local emergency management director.
	Water Suppliers	Designate a point contact person for communication with municipalities and the state. Provide up-to-date contact information to DPH to ensure the communication of vital information and assess needed technical and financial assistance in an emergency.
Public Outreach & Education		The Below Normal Conditions stage is intended to initiate internal communication and awareness among the IDW and other decision makers, in response to observations or reports that warrant heightened awareness of conditions. Communication with the public is not planned at this time.
Data collection, monitoring, & preparedness	State Agencies coordinated through the IDW	Continue to regularly monitor the primary indicators of drought; systematically collect, analyze, and disseminate real-time drought-related information.
		Identify geographic extent of dry conditions and determine affected areas.
		Plan what staff and/or funding could be made available, if necessary, to support increased monitoring activities.
		Verify that all monitoring networks and drought information websites are functioning and include relevant, up-to-date information.
		Review database of contact information for public water suppliers and municipal water coordinators and update as needed.
		Update database/map of public water suppliers that have requested voluntary conservation and/or have placed mandatory water restrictions.

## Stage 2

### Defining Criteria:

A decision to issue a Stage 2 declaration is guided by the following drought criteria thresholds, as well as any other ancillary data:

Precipitation	Two-month total below 65% of average
Groundwater	Two out of three months below the 25 <sup>th</sup> percentile
Streamflow	Two out of three months below the 25 <sup>th</sup> percentile
Reservoirs	Average levels less than 80% of normal
Palmer Drought Severity Index	-2.0 to -2.99
Crop Moisture Index	-1.0 to -1.99, abnormally dry
VegDRI (seasonal)	Pre-drought conditions
Fire Danger	Moderate
U.S. Drought Monitor	Intensity level D1-D2

This stage was formerly called: Incipient Drought

### Stage 2 Recommended Mitigation Actions

Coordination & Management	State Agencies coordinated through the IDW	Alert MDLs and water suppliers of conditions.
		Coordinate with MDLs, local health directors, and water suppliers to promote water conservation, monitor local situations, and report problems.
		Offer technical assistance to water utilities experiencing problems to assist with system management and promotion of water conservation with specific measures tailored to each water utility. Assist water utilities in strengthening supply-side and demand-side conservation measures.
		Survey MDLs and assess municipal drought preparedness. • Advise municipalities to review appropriate ordinances to enable the enforcement of water conservation if needed in the future and to coordinate with water utilities, when pertinent. • Advise water utilities to implement their coordination plans with their municipalities.
	Municipalities / Local Officials	Water coordinator MDL and water suppliers should review communications protocol and coordinate on any public announcements (this could involve multiple communities).
		Alert key town officials (police & fire chiefs, health director, chief executive officer, emergency management director, public works, parks & recreation, superintendent of schools) about conditions.
		Notify municipal public works departments and fire responders to consider suspending all unnecessary exercises that require fire hydrants to be opened.
	Water Suppliers	Communicate with MDLs about local conditions, concerns, and any changes to the status of water supply. Consider postponing discretionary water consuming maintenance, repair work, and shutdowns.
Public Outreach & Education	State Agencies coordinated through the IDW	Provide information to weather forecasters and other media to encourage public interest stories and facilitate dissemination of drought information to the public.
		Compile information on water conservation tips to homeowners, e.g., "Water Efficiency Measures for Residents," and "Water Efficiency Measures for Landscaping," in preparation for distribution through the Internet, public service announcements, and other timely mailings should the drought worsen.
		Increase awareness of the state's drought information website.
	Municipalities / Local Officials	Work with state agencies to prepare information on water conservation tips for future dissemination to water users through the Internet, newspapers, public service announcements, and other timely mailings.
		Issue guidance document for private well users who may require assistance with well repairs or enhancement and make this available via the Internet.
	Water Suppliers	Consider issuing voluntary conservation appeals to all customers.

		Respond to customer complaints and problems related to drought conditions.
<b>Data collection, monitoring, &amp; preparedness</b>	<i>State Agencies coordinated through the IDW</i>	Continue to monitor the primary indicators of drought, increasing the frequency as needed. Include qualitative data. Prepare new assessment reports as conditions change.
		Review activities of neighboring states through websites, and in coordination with National Weather Service and
		Survey local health departments, well drillers, and the Department of Consumer Protection concerning well drilling activity related to dry conditions.
		Monitor WebEOC for activities related to dry conditions.
		Review and implement, as needed, the plan for managing potential forest fire hazards and threats.
		Review water supply systems that have historically had adequacy problems, "target systems," and provide technical assistance as needed.
		Review reservoir storage reports of the systems that use surface water supplies and consider more frequent reservoir level reporting for selected systems.
		Verify database accuracy of approved water haulers, approved bottled water purveyors, licensed well drillers, and upload lists to the state drought management website.
	<i>Municipalities / Local Officials</i>	MDL should review any local sources of data on wells, dry hydrants, fire conditions, etc., and communicate to the appropriate state agencies.
	<i>Water Suppliers</i>	Monitor local water supplies and collect data more frequently as needed.
		Begin preparing for the possibility of bringing alternative/secondary supply systems online.
		Investigate any deviation from normal use registered on production meters.
		Review water supply emergency contingency plan triggers and mitigation activities; update if necessary.

## Stage 3

### Defining Criteria:

A decision to issue a Stage 3 declaration is guided by the following drought criteria thresholds, as well as any other ancillary data:

Precipitation	Three-month total below 65% of average
Groundwater	Four consecutive months below the 25 <sup>th</sup> percentile
Streamflow	Four out of five months below the 25th percentile
Reservoirs	Average levels less than 70% of normal
Palmer Drought Severity Index	-3.0 to -3.99
Crop Moisture Index	-2.0 to -2.99, excessively dry
VegDRI (seasonal)	Moderate drought conditions
Fire Danger	High
U.S. Drought Monitor	Intensity level D2-D3

This stage was formerly called: Moderate Drought

### Stage 3 Recommended Mitigation Actions

<b>Coordination &amp; Management</b>	<i>State Agencies coordinated through the IDW</i>	Declare a Stage 3 Drought and notify MDLs.
		Governor to consider convening Unified Command, including key state agencies and ESF 12 water companies, to review emergency plans and coordinate messaging. Consider establishing a Web EOC incident in order to track water issues.
		Contact each MDL to ensure understanding of the required role and responsibilities of a MDL.
		Commissioners require all state-owned facilities to enact water conservation measures and to review and update any specific drought/emergency plans.
		Communicate with the Army Corps of Engineers or other dam operators on possible use of impoundments for streamflow augmentation in locations where existing streamflow regulations are not adequately meeting the needs of fish and wildlife downstream.
		Initiate contact with federal agencies (FEMA/EPA/USGS/USDA/Corps) in order to identify federal assistance capabilities.
		Provide technical assistance to utilities on managing systems during dry conditions, including (a) administering expedited reviews of proposed system upgrades and alternative water supplies for drought-impacted community water systems; and (b) assist in the identification of emergency connections.
		Evaluate unused or underutilized high yield aquifers developable as temporary emergency water supplies including for non-potable uses.
		Disseminate generic press releases (DEMHS/OPM) and notification letters to water systems, local health directors, well drillers, etc.
		Direct state agencies to conserve water and repair leaks at state facilities.
	<i>Municipalities / Local Officials</i>	Municipal water supply coordinators should provide input to DPH on local conditions; for example, any change in status such as triggers identified in water supply plans or as defined by asset management plans, if any.
	<i>Water Suppliers</i>	Review operations to ensure that conservation efforts are maximized. Non-critical utility uses such as routine flushing, clearwell, clarifier or storage tank cleaning, meter testing and bleeders should be reviewed to eliminate, reduce or delay water use, where feasible.
		Preparation for mandatory conservation, including necessary enforcement mechanisms, will be initiated.
		Determine where temporary interconnections between water utilities are needed and coordinate with DEEP/DPH for expedited permitting.

		Consider preparations to activate “emergency” and “inactive” sources of water supply for potential use and coordinate with DPH.
<b>Public Outreach &amp; Education</b>	<i>State Agencies coordinated through the IDW</i>	Send letters to municipal officials requesting they urge residents to curtail outdoor watering.
		Hold news conference to announce activation of the Water Status website and information line to get information on water status and conservation measures.
		Target heavy water users and evaluate mechanisms for water use reduction. Use guidance provided in “Industrial/Commercial/Institutional Water Users – Planning Guidance for Water Conservation and Emergency Contingency Plans” and “Agricultural Water Users - Planning Guidance for Water Conservation and Emergency Contingency Plans”.
		Assist agricultural industry by determining possible issues, prospective situations, and remedial steps that can be taken, including the dissemination of information and technical assistance for irrigation improvements available under federal emergency programs to agricultural growers.
		Remind holders of registered water diversions of their legal responsibilities and conditions that are prerequisite to a suspension of minimum stream flow standards pursuant to CGS Sec. 22a-6 and RCSA 26-141a-4(b).
		Use the Internet, public service announcements and radio station broadcasts to urge residents and businesses to conserve water (provide conservation tips such as “Water Efficiency Measures for Residents,” and “Water Efficiency Measures for Landscaping”). Encourage water users to cooperate with local officials and utilities as conditions may be worse in specific areas, requiring greater efforts in accordance with adopted utility plan.
	<i>Municipalities / Local Officials</i>	Set a voluntary outdoor water use reduction for all residents and businesses.
	<i>Water Suppliers</i>	Voluntary conservation will be promoted in residential, commercial and industrial facilities to reduce demand from previous non-drought projected usage for the appropriate month.
<b>Data collection, monitoring, &amp; preparedness</b>	<i>State Agencies coordinated through the IDW</i>	Monitor implementation of individual water supply plans (through WebEOC or other means).
		Ensure municipal preparedness: <ul style="list-style-type: none"> <li>• Obtain feedback from large water systems concerning adequacy of municipal authorities in place for water emergencies.</li> <li>• Follow-up and provide technical assistance to towns regarding local ordinances (recommend model ordinances, authorities, and fines.)</li> </ul>
		Identify non-essential water uses during the Severe Drought Stage relative to time of year.
		Determine where temporary interconnections between water utilities may be needed, in accordance with CGS Sec. 22a-378.
		Initiate process for drafting Emergency Executive Order for the Office of the Governor.
		Assess and report agricultural impacts of worsening drought.
	<i>Municipalities / Local Officials</i>	Track and report problems related to the drought for both deep and shallow wells.
	<i>Water Suppliers</i>	Review adequacy of water monitoring and consumption records and invest in increased monitoring capabilities where needed.
		Evaluate potential funding needs for actions required under severe or extreme drought conditions to ensure the availability of adequate funding through budgets or emergency measures.
		Initiate increased reservoir level monitoring and reporting as directed by DPH.

## Stage 4

### Defining Criteria:

A decision to issue a Stage 4 declaration is guided by the following drought criteria thresholds, as well as any other ancillary data:

Precipitation	Five-month total below 65% of average
Groundwater	Six consecutive months below the 25th percentile
Streamflow	Six out of seven months below the 25th percentile
Reservoirs	Average levels less than 60% of normal
Palmer Drought Severity Index	-4 or less
Crop Moisture Index	-3 or less, severely dry
VegDRI (seasonal)	Severe drought conditions
Fire Danger	Very high
U.S. Drought Monitor	Intensity level D3-D4

This stage was formerly called: Severe Drought

### Stage 4 Recommended Mitigation Actions

Coordination & Management	State Agencies coordinated through the IDW	Declare a Stage 4 Drought and notify MDLs.
		Governor to consider convening Unified Command, including key state agencies and Emergency Support Function (ESF) 12 water companies, to review emergency plans and coordinate messaging. Coordinate communications strategy. Consider establishing a Web EOC incident in order to track water issues. Governor considers activating State Response Framework (SRF) upon consultation with State Emergency Management Director, DEEP, DPH, and OPM, including the ESF 12 Energy and Utility Annex. Governor considers declaring a civil preparedness emergency under Title 28. Consider activation of ESF12 Task Force and/or State Emergency Operations Center. Review state statutes and regulations for potential waiver under Conn. Gen. Stat. Section 28-9.
		Consider requesting a Presidential Emergency Disaster Declaration if direct federal assistance is required. Consider other sources of federal assistance.
		DEMHS Regional Coordinators to work with Emergency Regional Planning Teams (REPTs) in each emergency planning region to review plans including Regional Emergency Support Plan.
		If State EOC is activated, provide regular situation status reports to state and municipal partners, the Federal Emergency Management Agency and the US Army Corps of Engineers regarding drought impacts and response measures being taken by state and local officials.
		Issue emergency and temporary permits, as appropriate, and expedite drought-related emergency requests for water utility interconnections and access to alternative water sources in accordance with CGS Sec. 22a-378.
		DoAg should coordinate with USDA to assess agricultural impacts of worsening drought and provide federal relief/emergency assistance for farmers.
		Coordinate with water suppliers to bring "emergency" and "inactive" sources of water supply into production, including accessible and developable high yield aquifers.
		Encourage the activation of unused or underutilized water sources as temporary emergency water supplies for non-potable uses.
		Facility managers should implement water efficiency improvements at facilities.
		Prohibit aquifer pumping tests unless a) the test is associated with a groundwater remediation project, or b) the test is associated with a replacement well for a previously approved, allocated diversion source, or c) the test is associated with a drinking water supply well necessary to ensure uninterrupted water supply during a water supply emergency.
		Make recommendations to Governor on communications strategy.

		Expedite drought-related diversion permit applications and requests for temporary and/or emergency authorization.
	<i>Municipalities / Local Officials</i>	Direct MDLs to provide situation reports periodically. Identify to which agency these reports should be made, including to DEMHS Regional Coordinators if State Response Framework is activated.
	<i>Water Suppliers</i>	Initiate first phase of mandatory conservation. At this level, all unnecessary water usage will be banned. No outside hose usage will be allowed, nor are in-ground sprinkler systems to be used. A 20 percent reduction in usage from previous non-drought projections for the appropriate month will be targeted.
		A plan will be formulated in concert with state and local officials for strict rationing of water if a drought emergency should be reached. The needs of high priority customers, homes, commerce, and fire protection will be established and prioritized. Plans will be made for emergency service of drinking and cooking water by tanker to any areas where normal water service must be terminated.
		Coordinate with water suppliers to bring “emergency” and “inactive” sources of water supply into production, including accessible and developable high yield aquifers.
		Encourage the activation of unused or underutilized water sources as temporary emergency water supplies for non-potable uses.
		All possible supplementary water sources will be prepared for use. Coordination with local officials concerning alternative facilities for obtaining water will be initiated, as required.
<b>Public Outreach &amp; Education</b>	<i>State Agencies coordinated through the IDW</i>	Prohibit all outdoor watering and curtail other water uses as appropriate.
		Assist community water systems in exploring alternative sources of water for non-potable uses.
		Increase the degree of public education and information; increase the tone of seriousness in public service announcements, press releases, etc.
		Coordinate with Governor’s Infoline (United Way 211) to respond to public inquiries, through State EOC if activated.
	<i>Municipalities / Local Officials</i>	Increase the degree of public education and information; increase the tone of seriousness in public service announcements, press releases, etc. Coordinate messaging with local, regional, and state partners.
		Enforce or assist with enforcement of water use restrictions.
		Assist owners of residents with dry wells with obtaining permits to construct wells or evaluate the feasibility of connecting to a public water supply.
	<i>Water Suppliers</i>	Meet with individual, large, water-intensive industries to discuss water use cutbacks.
		Increase the degree of public education and information; increase the tone of seriousness in public service announcements, press releases, etc.
		Request municipalities to assist with enforcement of water use restrictions.
		Synchronize messaging with the State by notifying all customers, through business communication channels and the media, of drought declarations made by State officials, actions being taken by the State and by the water supplier, and on the implementation of mandatory conservation.
<b>Data collection, monitoring, &amp; preparedness</b>	<i>State Agencies coordinated through the IDW</i>	Determine, on a service area or broader geographic basis, the need to declare a public water supply emergency pursuant to Section 25-32b and direct appropriate water utility actions.
		Establish an event on WebEOC.
		Develop plans to deliver drinking water to key distribution stations within each municipality. Assess capability and finalize readiness plans for the mobilization of water distribution and storage equipment to armories and other designated locations. Explore alternative means of water delivery during outages.
		Identify and communicate with authorities to implement a ban of non-essential water uses during the Extreme Drought Stage (see Appendix C for guidance).
		Draft an Emergency Executive Order for the Office of the Governor.
		Prepare to request a Presidential Disaster Declaration.



		Determine the terms of the sale of any water pursuant to an order by DPH for the sale, supply or taking of any waters or the temporary interconnection of water mains for the transfer of water among water utilities.
		Expedite permitting of temporary interconnections in accordance with CGS Sec. 22a-378
	<i>Municipalities / Local Officials</i>	Increase public education and information as appropriate for this stage.
	<i>Water Suppliers</i>	Prepare timely water supply status reports for distribution to state and local officials as ordered/requested.

## Stage 5

### Defining Criteria:

A decision to issue a Stage 5 declaration is guided by the following drought criteria thresholds, as well as any other ancillary data:

Precipitation	Seven-month total below 65% of average
Groundwater	Eight consecutive months below the 25th percentile
Streamflow	Seven consecutive months below the 25th percentile
Reservoirs	Average levels less than 50% of normal or less than 50 days of supply
Palmer Drought Severity Index	-4 or less
Crop Moisture Index	-3 or less, severely dry
VegDRI (seasonal)	Extreme drought conditions
Fire Danger	Extreme
U.S. Drought Monitor	Intensity level D4

This stage was formerly called: Extreme Drought

### Stage 5 Recommended Mitigation Actions

Coordination & Management	State Agencies coordinated through the State Emergency Operations Center, Governor's Unified Command	Governor likely to activate the <a href="#">State Response Framework</a> prepared by the Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security, operating under the National Incident Management System, including activation of ESF 12 Energy and Utilities Annex. Governor likely to convene Unified Command, including key state agencies and Emergency Support Function (ESF) 12 water companies, to implement response actions and coordinate messaging. Coordinate communications strategy. Web EOC incident will be established if not already in order to track water issues. Governor likely to declare a civil preparedness emergency under Title 28, and/or a public health emergency under Title 19a and/or a water supply emergency under Title 22a. Governor likely to activate State Emergency Operations Center. ESF 12 Task Force activated. State Agencies recommend waiver of appropriate state statutes and regulations by Governor under Conn. Gen. Stat. Section 28-9.
		Declare a Stage 5 Drought and notify MDLs.
		Apply for a Presidential Emergency Disaster Declaration if direct federal assistance is needed; apply for a USDA Secretarial Disaster Declaration; apply for federal assistance and funding as appropriate. Track damages and costs related to drought for potential Presidential Major Disaster Declaration.
		Declare a public drinking water supply emergency and follow the procedures listed in the amendment to Section 25-32b in Section 3 of PA 14-163, as appropriate.
		Utilize authorities under a declared water supply emergency pursuant to Section 22a-378 to undertake actions as needed relative to approving temporary suspension of diversion permits, issuing orders for new diversions.
		Improve distribution and transmission of potable water; divert water from current sources; and bridge existing water systems, including the determination of appropriate methods for financing emergency drinking water operation.
		Issue permits and conditions for the use of Class B waters for potable water purposes, as necessary, on a case-by-case basis pursuant to CGS Section 22a-378 and Section 25-32(b).
		Secure emergency legislation and funding from the General Assembly as needed.
		Activate and staff the State Emergency Operations Center as deemed appropriate, working within the State Response Framework under the National Incident Management System. Activate appropriate elements of the CT National Guard as necessary.
		Coordinate enforcement on water use bans with municipal and state law enforcement.

		Administer the emergency transfer, sale, or lease of water throughout the state.
		Initiate transporting and distributing potable water to provide essential water to key municipal emergency potable water stations (trucking water and laying water pipe, as necessary).
		Order interconnections between water utilities as needed and where feasible in accordance with CGS Sec. 22a-378.
		Consider preserving (shut valves) remaining available water in select storage tanks for rationing or fire emergency. It may be necessary to set a storage minimum to be held for extinguishing fires, the amount needed depending upon the nature of the emergency and structures in the service area.
	<i>Water Suppliers</i>	Initiate a drought hazard rationing plan in cooperation with appropriate local and state officials. The plan will consider needs of high priority customers, homes, commerce and fire protection.
		Maximize use of alternative supplies.
<b>Public Outreach &amp; Education</b>	<i>State Agencies coordinated through the IDW</i>	Ban all non-essential water uses in accordance with CGS Section 25-32d.
		Consider closing the hunting/fishing season in accordance with CGS Sec. 26-25.
		Increase enforcement of open burning ban under CGS Sec. 23-49a, and/or prosecute violators with more severe penalties as allowed under statute.
		Close woodlands and brushlands to all persons except owners or tenants pursuant to CGS Sec. 23-50.
		Working through Governor's Unified Command and State EOC if activated, schedule a press conference to inform the public of the severity of the drought.
		Enforce compliance with mandatory drought restrictions.
	<i>Municipalities / Local Officials</i>	Process applications for exemptions or variances to mandatory drought restriction.
		End outdoor watering exceptions for new lawns; ban all lawn watering
	<i>Water Suppliers</i>	Coordinate provisions for emergency bathing services and emergency service of drinking and cooking water by tanker to any areas where normal water service must be cut off. Enforce mandatory rationing of water.
		Coordinate provisions for emergency bathing services and emergency service of drinking and cooking water by tanker to any areas where normal water service must be cut off. Enforce mandatory rationing of water.
<b>Data collection, monitoring, &amp; preparedness</b>	<i>State Agencies coordinated through the IDW</i>	Prepare, based on available information and professional judgement, recommendations for the Governor on additional action steps to take in a worse-case scenario if conditions do not improve and water supplies become critical.

## VI. DROUGHT RECOVERY

At such time when the drought criteria, or other information when warranted, signal that drought conditions are improving, the IDW will consider whether to scale back the drought declaration to a lower stage of drought. When considering the criteria for signs of improvement, special attention should be paid to groundwater levels, since they are more reliable for measuring long-term shifts in rainfall patterns and respond more gradually. Other criteria, such as streamflow, respond quickly to changing conditions and can be misleading during wet periods that may occur during a long-term drought. The IDW will rely on professional judgment guided by the drought criteria, when deciding whether to scale back a drought declaration.

With improving conditions, the IDW should continue to assess and recommend which drought mitigation actions (Section V) are appropriate. These actions should be communicated in the same fashion as when the drought was worsening.

### *6.1 Post Drought Actions*

The primary objectives during post-drought recovery are to maintain, as far as possible, the resources affected by drought, and to assist in the post-drought return and restoration of those resources, taking into consideration resource maintenance and long-term sustainability. These include:

- Administering available funding of federal long-term drought relief;
- Providing risk management programs to assess the financial condition of individual agricultural enterprises and give alternatives for operators to utilize in drought recovery;
- Following-up with drought-impacted community water systems to restore operations and to ensure that drought-driven system improvements and modifications are in compliance with applicable standards;
- Evaluating the effectiveness of the triggers as defined in utility water supply plans or asset management plan;
- Preparing an After-Action / Improvement Plan Report summarizing the drought-related issues for the governor and commissioners, to include an assessment of activities undertaken to mitigate drought impacts, successes realized and recommended improvements. This report should, at a minimum:
  - recommend appropriate amendments to state legislation and municipal ordinances;
  - recommend appropriate amendments to the State Drought Plan;
  - recommend programs to encourage efficient use of potable waters;
  - recommend the level of resource monitoring that is needed to establish accurate baseline conditions;
  - recommend improvements to economic impact assessment tools;
  - recommend improvements to drought impacted public water system's water supply plan drought triggers and actions;
  - describe lessons learned with all applicable entities; and
  - summarize the use of class B water sources and emergency reservoirs and wells

## APPENDIX A: DROUGHT MANAGEMENT RESPONSIBILITIES

Although all citizens are responsible for minimizing water use during a drought, managing drought is a responsibility shared by numerous organizations and agencies at all levels. Some of these organizations are responsible for data collection and dissemination, some are responsible for management and coordination, and some are responsible for declaring drought stages that allow access to financial or other assistance.

### LOCAL GOVERNMENT

Involvement of local government varies widely. A small number of communities have adopted local water use restriction ordinances, which enable enforcement of drought restrictions at the local level. Because currently this is the only mechanism for enforcement before a Drought Emergency is declared, it is important that all communities adopt such ordinances. A model ordinance is available to assist communities in developing one tailored to their situation (Appendix B).

### REGIONAL GOVERNMENT

Currently, Regional Councils of Governments (COGs) are not assigned specific responsibilities in drought preparedness and response outside of their roles in broader state emergency response preparedness. Nevertheless, drought conditions frequently exist in or are more intense in a portion of the state and, because of that, in combination with their close working relationships with local chief elected officials and with other regional entities, COGs might be considered an appropriate geographic level for drought response messaging and action.

In addition, all municipalities in the State are members of one of the five CT Division of Emergency Management and Homeland Security (DEMHS) Emergency Planning Regions: each region has a Regional Emergency Planning Team (REPT) to which each municipality belongs, and on which each Emergency Support Function is represented. These REPTs meet regularly to address all-hazard emergency planning issues. The REPTs also create regional emergency support plans that are used to provide mutual aid support in times of emergency.

### STATE OF CONNECTICUT

#### Governor (OTG)

- Provide overall direction of state agency drought response, including convening Governor's Unified Command as needed for a coordinated response.
- Close forestlands as necessary in extreme drought conditions pursuant to Sec. 23-50 Connecticut General Statutes (CGS)

#### Office of Policy and Management (OPM)

- Lead Interagency Drought Workgroup
- Lead implementation of the Drought Preparedness and Response Plan
- Coordinate state agency drought management activities

#### Department of Energy and Environmental Protection (DEEP)

*Administratively, DEEP includes the Public Utility Regulatory Agency (PURA)*

- Member of State Interagency Drought Workgroup
- During a declared water supply emergency, temporarily suspend a water diversion permit, impose conditions upon water diversion permit holders, and authorize a person or municipality to divert (or transfer) such quantities of water needed to ease emergency conditions (CGS Sec. 22a-378).
- Reduce regulated downstream release requirements in times of shortage (CGS Sec. 26-141b).

- Regulate open burning in or adjacent to woodlands and brushlands during a fire danger or drought emergency (CGS Sec. 23-49a).
- Close hunting/fishing season to prevent forest fires during dry conditions (CGS Sec. 26-25).

#### **Public Utilities Regulatory Authority (PURA)**

- Member of the State Interagency Drought Workgroup
- Determine the terms of the sale of any water sold pursuant a declaration of a public drinking water supply emergency by Commissioner of Public Health pursuant to Section 25-32b when the water utilities that are party to the sale cannot determine such terms or if one of such water utilities is regulated by PURA.
- Consider any special emergency regulations, which may be necessary and proper to ameliorate the present situation for those communities, which are served by private water utilities.

#### **Department of Public Health (DPH)**

- Member of State Interagency Drought Workgroup.
- Has jurisdiction over all matters concerning the purity and adequacy of any source of water and protects public health through regulatory oversight of public water systems and the provision of technical assistance pursuant to CGS Section 25-32(a).
- In consultation with DEEP and PURA, DPH may declare a public drinking water supply emergency upon receipt of information that a public water supply emergency exists or is imminent, pursuant to appendix D of CGS Section 25-32b.
- Implement Emergency Generator and Emergency Plan Regulations.
- Approve and use WebEOC for public water supply emergencies.
- Assess and respond to any impacts of water shortages on public health and on water utilities.
- Regulate permitting requirements for sale of excess water by any public water system to another public water system.
- Coordinate drought response actions with local health officials and utilities.
- Develop public education and outreach materials on conservation for the public.
- Assess any detrimental condition affecting supply adequacy and quality, pursuant to the Regulations of Connecticut State Agencies (RCSA) Section 19-13-B46.
- Require each community water supply system to maintain a supply in excess of system demands, and immediately implement conservation measures, as necessary pursuant to RCSA Section 19-13-B102 (o) and (p). RCSA Section 25-32d-1-(c)(5) also requires systems supplying water to 1,000 or more people to implement their required conservation and emergency contingency plans.
- Collect and analyze information on the status of public water supplies as the central resource for the compilation of data, coordination of activities, and information dissemination regarding instances of drought related water system failure.
- Regulate new sources of water supply.
- May identify and order the temporary emergency use of water sources.
- Work with water purveyors to develop emergency plans.
- Provide technical assistance to water utilities and local health departments and to private well users through local health departments. Also, relays drought information to the local health officers of the impacted communities.
- Lead agency with regard to monitoring public water supplies for drought impact.
- Oversight of community, transient non-community, and non-transient non-community water systems.

#### **Department of Emergency Services and Public Protection (DESPP), Division of Emergency Management and Homeland Security (DEMHS)**

- Member of the State Interagency Drought Workgroup.
- Maintain and implement the State Response Framework, including running the State Emergency Operations Center and coordinating response as directed by the Governor.
- Maintain a regularly updated contact list of municipal drought liaisons and emergency management directors
- Maintain the five DEMHS Regions, including Regional Emergency Planning Teams, to coordinate planning, response, and recovery at the local level.
- Prepare at the Governor's direction any requests to FEMA for federal assistance or a Presidential Emergency Declaration or Major Disaster Declaration.
- Establish a Web EOC incident as indicated.
- Provide precipitation and weather forecast data to State Interagency Drought Workgroup.
- Maintain the local branch of the National Warning System (NAWAS);
- Develop and maintain various types of emergency operations plans and hazard mitigation plans for state government;
- Provide technical planning assistance to communities as requested or as needed;
- Provide training programs for state and local municipalities in civil preparedness;
- Conduct emergency operations drills and exercises;
- Work with DEEP to administer the FEMA Unified Hazard Mitigation Grant Programs for the state.
- Coordinate with Governor's Info line (United Way 211) to respond to public inquiries; and
- Work with the Department of Public Health regarding the provision of emergency water and power equipment and water buffaloes for emergency use.

#### **CT Department of Agriculture (DoAg)**

- Member of the State Interagency Drought Workgroup
- Provide assistance to farmers suffering from drought.
- Provides data on Palmer Drought Severity Index, Crop Moisture Index and Vegetative Drought Response Index to Interagency Drought Workgroup
- Provide information on the impacts of a drought on the agricultural community.

#### **CT National Guard**

- Assist with emergency distribution of public water.

### **FEDERAL**

#### **Office of the President**

- Declare drought emergencies when necessary, allowing areas of the State to receive financial and other assistance from the Federal Emergency Management Agency.

#### **The National Oceanic and Atmospheric Administration (NOAA)**

- Track national and regional weather conditions.
- Provide drought data to the State of Connecticut via the National Weather Service (NWS).

#### **U.S. Geological Service (USGS)**

- Track streamflow and groundwater levels.
- Provide information on streamflows and groundwater levels to the State Interagency Drought Workgroup.

#### **U.S. Department of Agriculture (USDA)**



- Provide assistance to farmers suffering from drought.

## APPENDIX B: MODEL WATER USE RESTRICTION ORDINANCE

*Note: The following model water use restriction ordinance was included in the original 2003 State Drought Plan and has not been updated. While still a valuable resource for municipalities seeking to adopt a water use restriction ordinance, the Connecticut Water Planning Council recognizes that it contains numerous deficiencies, including language that would be inapplicable to or incompatible with some municipalities. The Water Planning Council intends to reconsider this model ordinance during implementation of the State Drought Plan.*

### Introduction

This is a model provided by the State of Connecticut for use in developing ordinances to restrict the use of water supplied by a public water supplier. It is for communities wishing to establish enforceable limitations on the use of water during emergencies and temporary periods of high water demand. Proposed restrictions included in the ordinance should be consistent with the schedule of drought response measures indicated in the individual Water Supply Plans of the water suppliers and with the Connecticut Drought Preparedness and Response Plan. Persons violating the ordinance would be subject to civil fines. The State believes it is important for municipalities to consider exemption procedures for the restrictions included within their ordinance. These or other exemptions may be appropriate due to the economic or public health impact of water use restrictions on specific industry or population sectors. Municipalities should give careful consideration to the type of uses granted exemptions and should consider conditioning those exemptions to ensure that those granted exemptions are operating in a water efficient manner.

If a water company is experiencing issues affecting its ability to consistently provide an adequate supply of water, implementing the model ordinance may not address the problem. In severe cases, a declaration of public drinking water supply emergency under Connecticut General Statute (C.G.S.) 25-32b should be requested from the Department of Public Health. A water company operating under a declaration of public drinking water supply emergency would be expected to enter a formal agreement with the Department of Public Health to aggressively pursue measures to increase safe yield such as implementing new sources of supply, regional interconnections, increasing storage capacity, and/or improved treatment and conveyance methods.

Local requirements for adopting ordinances may vary according to the terms of individual municipal charters. Consultation with municipality counsel is encouraged before adopting any ordinance. It is essential that municipalities coordinate their activities with one another when water companies cross municipal borders and there is also a critical need to ensure consistency between water companies when municipalities are served by more than one water company. To promote such coordination and consistency, it is strongly recommended that a Memorandum of Understanding (MOU) be drafted by all involved parties. The State makes no representation concerning the legal effect or validity of this model.

### 1.0 Authority

The municipality, under its powers pursuant to state law, has adopted this ordinance to protect public health and welfare. This ordinance implements the municipality's authority to impose water use restrictions, conditioned upon a state of water use restrictions or a declaration of public drinking water supply emergency issued by the Department of Public Health pursuant to C.G.S. 25-32b.

## **2.0 Purpose**

The purpose of this ordinance is to protect, preserve and maintain the public health, safety and welfare whenever there is in force a State of Water Use Restriction or State of Public Drinking Water Supply Emergency by providing for enforcement of any duly imposed restrictions, requirements, provisions or conditions imposed by the municipality or by the State of Connecticut.

## **3.0 Definitions**

Agriculture shall mean farming in all its branches as defined in C.G.S. Section 1-1(q).

Municipality means any town, consolidated town and city, consolidated town and borough, city, borough, and village.

Outdoor Watering shall mean any watering of decorative lawns, trees or shrubbery by water users.

Person means any individual, partnership, association, firm, limited liability company, corporation or other entity, except a municipality, and includes the federal government, the state or any instrumentality of the state, and any officer or governing or managing body of any partnership, association, firm or corporation or any member or manager of a limited liability company.

State of Public Drinking Water Supply Emergency shall mean a State of Public Drinking Water Supply Emergency declared by the Department of Public Health in consultation with the Department of Environmental Protection, and the Department of Public Utility Control under C.G.S. 25-32b.

State of Water Use Restriction shall mean a State of Water Use Restriction declared by the municipality pursuant to Section 4 of this ordinance.

Water Company means any individual, partnership, association, corporation, municipality or other entity, or the lessee thereof, who or which owns, maintains, operates, manages, controls or employs any pond, lake, reservoir, well, stream or distributing plant or system that supplies water to two or more consumers or to twenty-five or more persons on a regular basis provided if any individual, partnership, association, corporation, municipality or other entity or lessee owns or controls eighty per cent of the equity value of more than one such system or company, the number of consumers or persons supplied by all such systems so controlled shall be considered as owned by one company for the purposes of this definition.

Water Users shall mean all persons or municipalities using water from any public water source irrespective of that person's responsibility for billing purposes for use of the water.

## **4.0 Declaration of a State of Water Use Restriction**

The municipality, in consultation with the water company, or water companies, as may be appropriate, may declare a State of Water Use Restriction. Such a declaration should be, where appropriate, conditioned on the identification of an emergency or water shortage by the water company, the local health department, a state agency or the governor which could also include or be limited to the restrictions listed in Section 5. Public notice of a State of Water Use Restriction shall be given under Section 6 of this ordinance before it may be enforced. After implementation of any state of water use restrictions, the Department of Public Health and the Department of Environmental Protection should be notified in writing within 14 days of the implementation of restrictions. These restrictions can be phased-in to tailor them according to the severity and nature of the water supply emergency.

## **5.0 Restricted Water Uses**

A declaration of a State of Water Use Restriction shall include restrictions consistent with the response measures indicated in the individual Water Supply Plans of the water company and the Connecticut Drought Preparedness and Response Plan, as appropriate. These may include one or more of the following restrictions, conditions, or requirements limiting the use of water as necessary to protect the water supply except as provided in Section 11. The applicable restrictions, conditions or requirements shall be included in

the public notice required under Section 6. Please note, the following restrictions are listed to serve as examples of the types of water use restrictions that may be implemented:

- a) Automatic Sprinkler Use: The use of automatic sprinkler systems is prohibited, except lawn watering is permitted in order to establish and maintain newly laid sod or newly seeded grass associated with new construction, and the testing of a customer's newly installed or newly repaired sprinkler system by a commercial enterprise engaged in the installation or repair of lawn irrigation systems is permitted.
- b) Car washing: Car or vehicle washing is prohibited, except for the washing of vehicles performed by a commercial enterprise engaged in car washing.
- c) Loss of water from customer's service line: The loss of water through breaks or leaks within the customer's service line, private distribution system or plumbing for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of seventy-two (72) hours after the customer discovers such a break or leak or receives notice from the water company of a break or leak is a reasonable time within which to correct such break or leak or, as a minimum, to stop the flow of water from such break or leak.
- d) Off-Peak Outdoor Watering: Outdoor watering is permitted only during daily periods of low demand, to be specified in the declaration of a State of Water Use Restriction and public notice thereof. For example, limit outdoor watering to between 8:00 p.m. and 6:00 a.m. on \_\_\_\_ days (specify days). *(In general, restricting outdoor water use to between sunset and early morning is best for turf needs and coincides with off peak hours. Municipalities may choose to restrict water use to one or two days per week during specified hours.)*
- e) Other outdoor uses. The use of private wells or other outdoor uses not addressed in this ordinance that are, in the determination of the Director of Health, wasteful, are prohibited.
- f) Outdoor Watering Ban: Outdoor watering is prohibited, except the watering of agricultural products, sod at commercial sod farms, and the watering of nursery stock at nurseries or retail outlets is permitted.
- g) Outdoor Watering Method Restriction: Outdoor watering is restricted to bucket, can or hand held hose watering with automatic shutoff nozzle.
- h) Swimming Pools, Wading Pools, Hot Tubs, Spas, and Jacuzzis: Filling and topping off of swimming pools, wading pools, hot tubs, spas, and jacuzzis are prohibited, unless newly constructed or installed swimming pools, wading pools, hot tubs, spas, and jacuzzis that may be filled once upon completion of construction or installation
- i) Use of water for firefighting, health, sanitation, & medical purposes. The use of water for firefighting, health, sanitation, or medical purposes shall not be restricted. However, domestic water use conservation practices should be implemented wherever possible.
- j) Washing impervious surfaces. The washing or cleaning of streets, driveways, sidewalks or other impervious areas is prohibited.

## **6.0 Notification**

### **6.1 State of Water Use Restriction**

Notification of any provision, including any restriction, requirement or condition imposed by the municipality as part of a State of Water Use Restriction shall be published by the municipality in a newspaper of general circulation within the municipality, or by such other means reasonably calculated to reach and inform all users of water of the State of Water Use Restriction. Notification of the State of Water Use Restriction shall also

be provided to the Connecticut Department of Public Health, Department of Public Utility Control, and Department of Environmental Protection at the same time that notification is given.

#### **6.2 State of Public Drinking Water Supply Emergency**

When a State of Public Drinking Water Supply Emergency is declared by the Department of Public Health, the water company shall follow those procedures outlined in its approved Emergency Contingency Plan. In the event water use restrictions are necessary, the water company shall contact and consult with the affected municipality(s), in accordance with their Memorandum of Understanding (MOU). The municipality(s) would then declare a State of Water Use Restriction in accordance with Section 4.0 of this document. Appropriate notice to the public shall be provided in accordance with Section 6.0 of this document.

#### **7.0 Termination of a State of Water Use Restriction; Notice**

A State of Water Use Restriction may be terminated by a municipality upon a determination, in consultation with the water company, that the water supply shortage no longer exists. Public notification of the termination of a State of Water Use Restriction shall be given in the same manner as is required for notice of the municipality's declaration of its State of Water Use Restriction pursuant to Section 6.

#### **8.0 State of Public Drinking Water Supply Emergency; Compliance with DPH or DEP Orders**

Upon notification to the public that a declaration of a State of Public Drinking Water Supply Emergency has been declared by the Department of Public Health in consultation with the Department of Environmental Protection and the Department of Public Utility Control, no person shall violate any provision, restriction, requirement, condition of any order approved or issued by the DPH for the purpose of bringing about an end to the State of Public Drinking Water Supply Emergency.

#### **9.0 Enforcement and Penalties**

The municipality, [through its Water Commissioner, water superintendent, building inspector, local police or water company police] may enforce this ordinance. Any person violating this ordinance shall be liable to the municipality in the amount of up to \$100.00 for the first violation and up to \$200.00 for the second violation. Third and subsequent violations shall require a mandatory court appearance in addition to a fine assessment of up to \$500.00. Fines shall be recovered by indictment, or on complaint before the District Court, or by non-criminal disposition. In extreme cases, the municipality may order the water company to curtail water service. When enforcing water curtailment, consideration should be given to customers that have multiple tenants or at risk individuals.

#### **10.0 Severability**

The invalidity of any portion or provision of this ordinance shall not invalidate any other portion or provision thereof.

#### **11.0 Exemptions; Application for a waiver**

Any such water users that consider the restrictions, as imposed, to adversely affect their livelihood, health or sanitation, may make written application for a waiver. Any such application should be directed to the attention of the municipality. The municipality, in conjunction with the water company, will verify that the applicant is a user within the system and then forward the application, within three days, to the Director of Public Health who then makes the determination whether a waiver should be granted. This decision shall be made within three days of receipt of the application by the Director of Public Health.

## APPENDIX C: NON-ESSENTIAL USES

*Note: The following examples of non-essential water use restrictions formerly appeared as Section V in the 2003 Connecticut Drought Preparedness and Response Plan. Section V was not revised in the Drought Plan's 2018 update and appears here as an Appendix. It is recognized that it may contain outdated information. It may be of use to municipalities in drafting a water use restriction ordinance.*

During declarations of drought, if water use demands remain at levels that cannot be sustained under current and forecasted conditions despite the coordinated water management measures implemented in previous drought stages, targeted water use restrictions may be implemented. The types of non-essential uses and their degrees of curtailment will be determined at the time each drought stage is entered based upon the specific circumstances determined at that time.

The following non-essential use restrictions are intended to guide elected officials and government agencies when it becomes necessary to enact emergency water conservation measures during a drought. This approach should enable the proper authorities to determine at what point in each of the stages certain non-essential water uses should be curtailed or banned. A flexible approach is desirable so there would be no rigid “do’s” and “don’ts” that would entail unnecessary hardship during the various early stages of a drought. The State of CT Model Water Use Restriction Ordinance (Appendix B) provides a basis by which municipalities can implement this approach.

Unless otherwise determined, emergency restrictions and authorizations should apply equally to all water users in the affected regions, regardless of whether the water used is drawn from ground or surface water (such as a pond, lake, river or stream), a public water supplier, or a private well. However, the State Drought Preparedness and Response Plan does not prevent any local government from instituting water use restrictions that are more stringent, provided the local restrictions do not conflict with state or federal law. Hardship exemptions from the restrictions on water use imposed during an emergency may be obtained in accordance with procedures established by the local municipality.

Municipal and state law enforcement agencies shall be responsible for enforcement of non-essential water use restrictions.

## **Non-Essential Water Use Restrictions**

When drought conditions become severe, all residents, visitors, businesses and government agencies must fully comply in a cooperative effort to avoid a more serious water shortage by compliance with the following restrictive measures:

1. The serving of water in restaurants, clubs or eating places is prohibited, unless specifically requested by the patron.
2. The washing of any vehicles other than fire engines, and HAZMAT vehicles is prohibited, except in the following cases:
  - A. Washing of vehicles performed by a commercial enterprise engaged in car washing is permitted, provided the following requirements are met:
    1. Vehicles shall not be pre-rinsed except with recycled water;
    2. Rinse cycles shall be forty (40) seconds or less per vehicle. This may be accomplished by increasing conveyor speeds;
    3. Additional measures shall be implemented to minimize water use, such as reducing the size of water nozzles where possible and plugging all unnecessary out-flows;
    4. All fixtures and equipment shall be inspected for leaks on a daily basis. Necessary repairs shall be made immediately; and
    5. Water conservation awareness shall be encouraged by the car wash operators by the placement of posters and literature where customers and employees will have access to them.
  - B. Washing of vehicles at car dealerships is permitted, provided the following requirements are met:
    1. Except as set forth in 5. below, vehicles may only be washed just prior to delivery to customers or prior to placement in display showrooms;
    2. The amount of water used shall be the minimum necessary, and rinse time shall be no longer than 2 to 3 minutes;
    3. All hoses must not leak and shall be equipped with a hand-held nozzle that automatically shuts off when released;
    4. Wash and/or rinse water shall be recycled to the extent practicable; and
    5. New vehicles at a dealership may be washed in accordance with the conditions at 2. through 4. above once per month if necessary to preserve the vehicle's finish.
  - C. Washing of boats at boat dealerships and marinas is permitted, provided the following requirements are met:
    1. Except as set forth in 5. and 6. below, boats may only be washed just prior to delivery to customers or prior to placement in display showrooms;
    2. The amount of water used shall be the minimum necessary, and rinse time shall be no longer than 2 to 3 minutes per area washed;
    3. All hoses must not leak and shall be equipped with a hand-held nozzle that automatically shuts off when released;
    4. Wash and/or rinse water shall be recycled to the extent practicable;
    5. Boat bottoms may be cleaned using a powerwasher in accordance with 2., 3., and 4. above.
    6. New boats at a dealership may be washed in accordance with the conditions at 2. through 4. above once per month if necessary to preserve the boat's finish;
    7. Boats at a marina may be washed to remove salt spray and for sanitary reasons;
    8. Marine engines may be flushed with fresh water; and
    9. Trailered boats must be washed at a commercial car wash.
3. The use of water for washing paved surfaces, such as streets, roads, sidewalks, driveways, garages, parking areas and patios is prohibited, except in the following cases:

- A. Water use for roadway milling, and for the preparation of asphalt street or driveway re-coating and sealing, is permitted, provided the amount of water used is the minimum necessary;
- B. Washing of paved surfaces at eating and drinking establishments is permitted for sanitation purposes, provided the amount of water used is the minimum necessary;
- C. Use of water for municipal street sweeping is permitted, provided that only non-potable water is used, the amount of water used is the minimum necessary; and an appropriate sign is prominently displayed on the street sweeping vehicle, clearly indicating that the water used is non-potable water; and
- D. Where the municipal or county health department deems that such washing is necessary to avert a threat to public health, and provided that the amount of water used is the minimum necessary.

4. The use of water for the flushing of sewers is prohibited, except in the following cases:

- A. Where non-potable water is utilized, provided that the amount of water used is the minimum necessary, and provided that an appropriate sign is prominently displayed, clearly indicating that the water used is non-potable water; and
- B. Where the municipal or county health department deems that flushing is necessary to avert a threat to public health.

5. The use of fire hydrants is prohibited, except in the following cases:

- A. As necessary for fire fighting or fire protection purposes;
- B. As necessary for testing or fire drills only if the testing or drill is deemed necessary in the interest of public safety by the municipal governing body and the applicable water purveyor, and is specifically approved by the municipal governing body and the applicable water purveyor;
- C. Where a commercial enterprise has traditionally used water from the hydrant with prior written permission from the applicable water purveyor, provided that such use is necessary for the maintenance of the business. If a hydrant is used in this manner, water usage shall be metered; and
- D. As necessary to maintain distribution system water quality.

6. The use of water for power washing of buildings, vehicles, pavement, or other surfaces is prohibited, except if the power washing is performed by a commercial enterprise engaged in power washing or where the power washing is required by law, as in the case of a dairy operator. A commercial enterprise performing power washing shall comply with all applicable limits relating to specific power washing activities. For example, a commercial power washing business engaged in washing cars at a car dealership shall comply with the limits for car washing at car dealerships set forth at 2B above.

7. The outdoor use of any water for ornamental or aesthetic purposes, including fountains, artificial waterfalls and reflecting pools, is prohibited, except if necessary to preserve or support wildlife, or for sanitary or structural purposes where draining is impractical.

8. The watering of lawns is prohibited except in the following cases:

- A. Lawn watering is permitted in order to establish and maintain newly laid sod or newly seeded grass associated with new construction (this exemption shall not apply to seeding over existing lawn areas), within the following limits:

1. The amount of water used shall be the minimum necessary to establish and maintain the grass;
  2. The watering is permitted for the first 45 days only, starting on the date of planting or of laying the sod. Documentation of the date of seed planting or sod laying shall be produced upon the request of the appropriate authorities;
  3. The watering may occur only between 6:00 A.M. and 9:00 A.M. and between 5:00 P.M. and 8:00 P.M.; and
  4. The watering shall not exceed 45 minutes per area watered on any one day, except that watering may be extended to one hour per area watered on the day that sod is laid. However, sod should not be laid when conditions are dry or are expected to become dry.
- B. Commercial application of fertilizers, pesticide or herbicides that require water usage should cease. If such application preceded the drought restriction the following limits should be imposed.
1. The amount of water used shall be the minimum necessary to ensure the appropriate absorption of the fertilizer, pesticide or herbicide;
  2. The watering is permitted for 2 days only, starting on the date that the chemical is applied. Documentation of the date of application shall be produced upon the request of the appropriate authorities;
  3. The watering may occur only between 6:00 A.M. and 9:00 A.M. and between 5:00 P.M. and 8:00 P.M.;
  4. The watering shall not exceed 45 minutes per area watered on any one day; and
  5. This exemption shall only be valid for a single chemical application once every three months.
- C. A commercial landscaper may water newly seeded or sodded grassed areas during normal seasonal working hours outside of the hours listed above, by a means designed and operated to assure effective conservation, provided that:
1. Watering is performed in accordance with the following practices. Water needs vary considerably among the turf grasses. Consider this when establishing a lawn, for it may significantly reduce irrigation needs during the summer.
    - Lightly water newly seeded or sprigged lawns at frequent intervals. Keep the seed or sprigs moist but not saturated during this initial growth period. This may require watering four or five times on hot, windy days.
    - The first 10 days to 2 weeks are especially critical. If young plants dry out, they may die. After a couple of weeks root system development should be well under way and the watering frequency can be slowly reduced. At about 1 month after seedling or sprigging the lawn it should be treated as an established lawn.
    - Water newly sodded lawns much like established lawns except more frequently. After the sod is applied, soak it with enough water so that the soil under the sod is wet to a depth of 2 to 3 inches. Each time the sod begins to dry out, re-soak it. Roots develop fairly rapidly and within 2 weeks or so the sod can be treated like an established lawn.
    - Ideally, a lawn should be watered just before it begins to wilt. Most grasses take on a dull purplish cast and leaf blades begin to fold or roll. Grass under drought stress also shows evidence of tracks after someone walks across the



lawn. These are the first signs of wilt. With careful observation and experience, one can determine the correct number of days between waterings.

- Early morning is considered the best time to water. The wind is usually calm and the temperature is low so less water is lost to evaporation. The worst time to water is late evening because the lawn stays wet all night, making it more susceptible to disease.
- When watering a lawn, wet the soil to a depth of 4 to 6 inches. Soil type affects the amount of water needed to wet soil to the desired depth.
- It takes about 1/2 inch of water to achieve the desired wetting depth if the soil is high in sand, and about 3/4 inch of water if the soil is a loam. For soils high in clay, an inch of water is usually necessary to wet the soil to the desired depth.
- If waterings are too light or too frequent the lawn may become weak and shallow-rooted, which in turn makes it more susceptible to stress injury.
- Use the following steps to determine the amount of water the sprinkler or sprinkler system puts out and check its distribution pattern at the same time.
- Determine the rate at which the sprinkler applies water to the lawn.
  - Set out three to five empty cans in a straight line going away from the sprinkler. Set the last can near the edge of the sprinkler's coverage.
  - Run the sprinkler for a set time such as 1/2 hour.
  - Measure the amount of water in each can.
  - Each can will contain a different amount of water. Usually, the can closest to the sprinkle will have the most water. The sprinkler pattern must overlap to get an even wetness of the soil. Use this information to find out how long it takes the sprinkler to apply 1 inch of water. For example, if the can contains about 1/4 inch of water after the sprinkler runs 1/2 hour, it would take  $4 \times 1/2$  or 2 hours to apply 1 inch.
- Run the sprinkler or sprinkler system long enough to apply at least 1 inch of water or until runoff occurs. If runoff occurs first:
  - Stop sprinkler and note running time.
  - Allow water to soak in for 1/2 hour.
  - Start sprinkler.
  - If runoff occurs, repeat above steps until at least 1 inch of water has been applied and allowed to soak into the soil.
- Do not water again until the lawn has completely dried out. (This usually takes 5 or 6 days.)
  - Apply enough water to wet the soil to a depth of 4 to 6 inches.
  - Avoid frequent light applications of water.
  - Water in early daylight hours.
  - Select a turfgrass with a low water requirement.
  - Avoid using soluble nitrogen fertilizers. (They promote high growth rates, which in turn, increase water requirements of the plant.)
- Many soils will not take an inch of water before runoff occurs. If this is a problem with a lawn, try using a wetting agent, also called a surfactant, which reduces the surface tension of water making it "wetter." This "wetter" water runs into the soil at a faster rate and goes deeper than water in a non-treated soil.
- There are a number of wetting agents available; apply them according to directions on their labels. If this does not solve to runoff problem, it may be necessary to apply 1/2 inch one day and 2 inches the next day.

2. During the initial 45 day grow-in period a sign shall be displayed on the front lawn of the property. The sign shall be at least four feet wide by four feet high, with lettering large enough to be clearly visible from the nearest road. The sign shall read:

AUTHORIZED LIMITED WATERING OF NEW LAWN

Company Name

Address

Telephone Number

3. Documentation of the planting date shall be produced upon the request of the appropriate authorities.

- D. Lawn watering is permitted if it is necessary for the revegetation of land in order to prevent soil erosion following earth-moving activities, provided that:

1. The amount of water used shall be the minimum necessary to accomplish the revegetation;
2. The activity is a construction-related project that complies with the *Connecticut Guidelines for Soil Erosion and Sediment Control, 2002*, of DEEP;
3. The watering is limited to the disturbed area; and
4. Documentation of the planting date shall be produced upon the request of the appropriate authorities.

- E. Testing of a customer's newly installed or newly repaired sprinkler system by a commercial enterprise engaged in the installation or repair of lawn irrigation systems is permitted, within the following limits:

1. The amount of water used shall be the minimum necessary to test the sprinkler system,
2. The test shall be limited to a maximum of ten (10) minutes per sprinkler zone, and
3. During the period of the test a sign shall be displayed on the front lawn of the property. The sign shall be at least four feet wide by four feet high, with lettering large enough to be clearly visible from the nearest road. The sign shall read:

AUTHORIZED LIMITED TESTING OF SPRINKLER SYSTEM

Company Name

Address

Telephone Number

- F. All lawn watering authorized herein shall use the minimum amount of water necessary.

- G. All lawn watering authorized herein shall be performed in such a way that no puddling or runoff of water occurs.

- H. All lawn watering authorized herein shall be performed in such a way that no paved surfaces are included in the area watered.

9. The watering of vegetation other than lawns is prohibited, except that the watering of trees, shrubs, and vegetable or flower gardens is permitted, using the minimum amount of water necessary, within the following limits:

- A. The water shall be applied with one of the following:

1. A watering can; or
    2. A hose that does not leak, and is equipped with a hand-held nozzle that automatically shuts off when released.
  - B. All watering authorized herein shall use the minimum amount of water necessary.
  - C. All watering authorized herein shall be performed in such a way that no puddling or runoff of water occurs; and
  - D. All watering authorized herein shall be performed in such a way that no paved surfaces are included in the area watered.
10. Watering of athletic playing fields, including those used by professional, college/university and youth league sports teams, as well as those owned or operated by public and private schools and parks, is permitted within the following limits:
- A. Watering may occur only between 8:00 P.M. and 6:00 A.M.;
  - B. Watering may not exceed 45 minutes per area watered on any one day;
  - C. No grass or dirt areas outside of the essential playing area may be watered;
  - D. Under no circumstances shall a water cannon be used; and
  - E. Water conservation measures shall be instituted to the maximum extent practicable.
11. The watering of agricultural food crops, sod at commercial sod farms, and the watering of nursery stock at nurseries or retail outlets is permitted and is exempt from restrictions at this time, provided that all watering is done in accordance with best management practices (See Appendix D), and:
- A. The use and diversion from all sources is less than 50,000 gallons per day and
  - B. Any use and diversion of 50,000 gallons per day or more authorized by CGS Section 22a-368 et al of the Water Diversion Policy Act.
12. The use of water for outdoor recreational purposes, not covered by paragraph 10, is prohibited, except that:
- A. Golf courses covered by a valid DEEP Water Diversion Permit or Registration may use water within the following limits:
    1. For tees, greens, and fairways, watering by sprinkler or other conserving mechanical means is permitted between 9:00 P.M. and 6:00 A.M, provided that the amount of water used is the minimum necessary for vegetation survival;
    2. Hot spot watering (syringing) with a hand held hose is permitted between 11:00 A.M. and 4:00 P.M., provided that no area is watered for more than 10 minutes per day;
    3. If seeding or resodding is necessary, newly seeded or sodded fairways may be watered between 9:00 A.M. and 4:00 P.M., provided that no area may be watered for more than 45 minutes on any given day;
    4. Rough or other grass areas not addressed above may not be watered by any means;
    5. Under no circumstances shall a water cannon be used;

6. Watering shall be done in accordance with Connecticut DEEP Best Management Practices for Golf Course, Special Water Report No. 37, Connecticut Institute of Water Resources, UCONN, and
  7. Under no circumstances shall total monthly cumulative water use exceed 50% of either the monthly allocated water for that golf course, or the average utilization rate the past 5 years, whichever is lower, based on the permit or registration issued by the Department. Metered usage from all water sources shall be submitted to the Inland Water Resource Division of DEEP on a monthly basis, within 7 days of the end of the calendar month.
- B. Golf courses that use treated wastewater only for irrigation are exempt from these restrictions.
- C. Watering of clay tennis courts is permitted, using sprinklers or hand-held watering devices, provided that watering occurs for no more than 10 minutes per day, between 8:00 P.M. and 6:00 A.M. and/or between 12:00 noon and 3:00 P.M.
- D. Filling of family, public and private swimming pools, including but not limited to outdoor hot tubs, spas, jacuzzis, is prohibited, except in the following cases:
1. Newly constructed or installed swimming pools may be filled once upon completion of construction, provided that, if the water is from the local municipal water purveyor, its use is approved by that purveyor;
  2. A pool that was drained prior to the declaration of the emergency may be refilled once;
  3. A pool that was not drained prior to the declaration of the emergency may not be drained and refilled unless the draining is necessary in order to make structural or other essential repairs, or draining is the only way that the pool can be adequately cleaned for healthy operations;
  4. If a pool requires repairs in order to preserve the structural integrity of the pool and/or its supporting infrastructure, the pool may be drained for repair and subsequently refilled one time only. A person seeking to use water for this purpose shall notify the local police, fire, and public works departments prior to draining the swimming pool to provide notice to authorities and provide for an opportunity for reuse in accordance with 5. below;
  5. Every reasonable effort shall be made to collect and re-use water drained from a pool, including use by the local fire department or public works department;
  6. Topping of pools (that is, adding water to a partially filled pool) is permitted, provided that the amount of water used is the minimum necessary to maintain the integrity of the pool's circulation and filtration system(s); and pools should only be drained if absolutely necessary.

## APPENDIX D: LINKS TO BEST MANAGEMENT PRACTICES

### [EPA Water Management Plans](#)

<https://www.epa.gov/greeningepa/water-management-plans-and-best-practices>

*Environmental Protection Agency*

*February, 2016*

### [Golf Course Best Management Practices](#)

[http://www.ct.gov/deep/lib/deep/water\\_inland/diversions/golfcoursewaterusebmp.pdf](http://www.ct.gov/deep/lib/deep/water_inland/diversions/golfcoursewaterusebmp.pdf)

*CT DEEP*

*July, 2006*

### [Industrial Site Specific Conservation Best Management Practices](#)

<http://www.twdb.texas.gov/conservation/BMPs/Ind/doc/2.2.pdf>

*Texas Water Development Board*

*February, 2013*

### [Irrigation Water Management \(Code 449\)](#)

[http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs144p2\\_051336.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_051336.pdf)

*United States Department of Agriculture – Natural Resources Conservation Service*

*October, 2012*

### [Landscape Irrigation Best Management Practices](#)

[http://www.irrigation.org/uploadedFiles/Standards/BMPDesign-Install-Manage.3-18-14\(2\).pdf](http://www.irrigation.org/uploadedFiles/Standards/BMPDesign-Install-Manage.3-18-14(2).pdf)

*Irrigation Association & American Society of Irrigation Consultants*

*May, 2014*

### [Nursery Production Best Management Practices](#)

<http://www.twdb.texas.gov/conservation/BMPs/Ag/doc/7.1.pdf>

*Texas Water Development Board*

*November, 2014*

### [Turf and Landscape Irrigation Best Management Practices](#)

[http://www.irrigation.org/uploadedFiles/Resources/BMP\\_Revised\\_12-2010.pdf](http://www.irrigation.org/uploadedFiles/Resources/BMP_Revised_12-2010.pdf)

*Water Management Committee, Irrigation Association*

*December, 2010*

### [Residential Best Management Practices](#)

<http://www.cuwcc.org/Portals/0/Document%20Library/Resources/Publications/BMP%20Guidebooks/Residential%20BMP%20Guidebook.pdf?timestamp=1416507756791>

*California Urban Water Conservation Council*

*December, 2008*

## APPENDIX E: GLOSSARY OF STATUTES AND REGULATIONS

The following legally-granted authorities enable state, regional, and local officials to effectively plan for, respond to, and mitigate the impacts of drought in Connecticut.

<b>Statute or Regulation Citation</b>	<b>Section Title of Statute or Regulation</b>	<b>Summary of the Responsibility or Authority Granted</b>
CGS Section 19a-131	Declaration of Public Health Emergency by Governor.	A public health emergency is defined as one in which a communicable disease or contamination is occurring or imminent.
CGS Section 19a-2a	Powers and Duties.	Establishes the powers and duties of the Commissioner of Public Health.
CGS Section 22a-358	Sale of water by public water system.	Provides the Commissioner of Public Health the authority to approve and mechanism to review for approval the sale of excess water from one public water system to another with stipulations including the restriction of water usage by the purchasing community water system in accordance with the emergency contingency provisions of the applicant water supply plan.
CGS Section 22a-378	Water supply emergency. Violation of water supply emergency order.	Provides the Commissioner of DEEP with the power to temporarily suspend water diversion permits and enforce such suspensions.
CGS Section 23-49a	Declaration of burning ban; special burning permit; penalty; exemptions.	Restricts open burning when forest fire danger is high or when a drought emergency is declared by the State Forest Fire Warden.
CGS Section 23-50	Closing of forests by the Governor.	Governor may close public woodlands and bushlands by reason of extreme drought or other hazardous conditions.
CGS Section 25-32	Department of Public Health jurisdiction over and duties concerning water supplies, water companies and operators of water treatment plants and water distribution systems.	DPH authority to oversee drinking water.
CGS Section 25-32a	“Consumer” and “water company” defined.	Defines the terms consumer and water company.
CGS Section 25-32b	Public drinking water supply emergency.	Provides the Commissioner of Public Health the authority to declare a public drinking water emergency and stipulate some actions that can be authorized.
CGS Section 25-32d(a) thru (e)	Water supply plans.	Sets which water companies are required to submit a water supply plan, to whom the plan is submitted, and the content of the plan including contingency procedures for the shortages of water.

CGS Section 25-32g	Orders to correct immediate threats to public water supplies.	Provides the Commissioner of Public Health the authority to issue an order to discontinue, abate, alleviate or correct any actions that threatens the quality or adequacy of any source of water supply.
CGS Section 25-32l	Inclusion of educational material on water conservation may be required in the water supply plans.	Provides the Commissioner of Public Health the authority to require in a water supply plan, the inclusion of a description of a water companies program to provide education material or information on water conservation to residential customers.
CGS Section 25-32o	Water Planning Council: Composition, duties, advisory group, report.	Establishment of the Water Planning Council including its composition and duties.
CGS Section 28-11	Taking of property during emergency.	During civil preparedness or public health emergency, Governor may in the event of shortage or disaster, take possession of certain private real or personal property.
CGS Section 28-16	Stockpile of Supplies.	DESPP Commissioner can stockpile supplies in anticipation of, among other things, "any disaster."
CGS Section 28-7f	Governor's Powers in Event of Serious Disaster or Emergency.	Can authorize temporary use of civil preparedness forces.
CGS Section 28-9	Governor's Powers for Civil Preparedness Emergency.	Ability to declare emergency; can modify or waive agency laws, regulations or rules; can order forces into action; can take such other steps as are reasonably necessary in the light of the emergency to protect the health, safety, and welfare of the people of the state.
CGS Section 3-1	Governor's General Powers and Duties.	General supreme executive power of the Governor.
CGS Section 42-231	Governor's Emergency Powers for Supply Emergencies.	In the event of a shortage, or threatened shortage, Governor may proclaim a supply emergency exists and impose price restrictions or rationing of the items in short supply.
RCSA Section 19-13-B102	Standards for Water Quality of Public Drinking Water.	Various drinking water requirements that may be utilized during a drought.
RCSA Section 19-13-B102(m)	Emergency powers.	Provides the Commissioner of Public Health the authority to declare a public drinking water emergency and stipulate some actions that can be authorized.
RCSA Section 19-13-B102(n)	Reservoir, ground water and water use monitoring.	Set requirements for public water systems to submit to the DPH reservoir and ground water readings, source information, and status at a frequency set forth by the Department.

RCSA Section 19-13-B102(o)	Supply capacity requirements.	Sets requirement for community water systems to maintain in excess of the demand of the system.
RCSA Section 19-13-B102(p)	Deliver capacity requirements.	Sets requirements for community water systems to maintain sufficient capacity for source of supply, treatment, pumping, transmission, and storage facilities in excess of the maximum flows.
RCSA Section 19-13-B46	Notification by water officials in water supply emergencies.	Notification by water officials to the Department in water supply emergencies.
RCSA Section 19-13-B51c	Interconnections.	Interconnections require prior approval from the Commissioner of Public Health.
RCSA Section 25-32d-1 thru d-6	Source Water Protection Measures.	Specifically, Section 25-32d-3(d)(10)(A)-(D) "Content of the Plan"- the content of the drought portion of a water system's water supply emergency contingency plan .
RCSA Section 25-33h-1	Coordinated water system plans.	Provides for the establishment of and responsibilities of Water Utility Coordinating Committee (WUCC).
RCSA Section 26-141a-1 — 26-141a-8	Minimum Stream Flow Standards.	Regulations concerning flow of water from impoundments or diversions.
RCSA Section 26-141b-1 — 26-141b-8	Stream Flow Standards and Regulations.	Regulations establishing flow regulations for all river and stream systems.