THE RHODE ISLAND COMPREHENSIVE PLANNING STANDARDS
GUIDANCE HANDBOOK SERIES

GUIDANCE HANDBOOK #10:

PLANNING FOR WATER SUPPLY

Revised June 2018

The general assembly hereby establishes a series of goals to provide overall direction and consistency for state and municipal agencies in the comprehensive planning process [...] To promote orderly growth and development that recognizes the natural characteristics of the land, its suitability for use, the availability of existing and proposed public and/or private services and facilities, and is consistent with available resources and the need to protect public health, including drinking water supply, drinking water safety, and environmental quality.

The Rhode Island Comprehensive Planning and Land Use Regulation Act, RIGL subsection 45-22.2-3(c)(1)

ACKNOWLEDGEMENTS

The Rhode Island Comprehensive Planning Guidance Handbook Series is the result of over twenty-four months of cooperation and coordination among state agencies, local planners, and other professionals interested in helping cities and towns craft better comprehensive plans. The guidance development process was overseen by the Comprehensive Planning Advisory Committee, a dedicated group of planning, land use, legal, and community professionals who worked diligently to develop content on the comprehensive planning process and to review topical content as it was developed. Without this group the manual would not have become reality.

Additionally, the topical content for the guidance handbook series was developed in conversation with numerous experts. These knowledgeable individuals are the reason that the manual is helpful, user-friendly, and thorough.

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INTRODUCTION

This handbook is meant to be an accompaniment to the Rhode Island Comprehensive Planning Standards Manual ("the Standards Manual"), providing additional information on the water supply-related standards contained within the manual, as well as general guidance on planning for water supply. The Rhode Island Comprehensive Planning Standards Manual and the other guidance handbooks in the series can be found online at www.planning.ri.gov/statewideplanning/compplanning/.

This manual is split into three sections. Section 1 - General Information on Planning for Water Supply provides general information, including the purpose of doing so, relevant documents to review and ways to connect water supply and the other topical areas. Section 2 - Fulfilling the Standards provides information on satisfying the specific requirements presented in the Rhode Island Comprehensive Planning Standards Manual. Section 3 - Craft a Better Plan provides additional recommendations for addressing water supply within a comprehensive plan that are not required for State approval but would strengthen the plan's overall efficacy.

NOTES

In some cases, this guidebook presents "notes" that are relative to the content being discussed. Each note that occurs within the text will be tagged with a symbol to alert the reader to the note's purpose, as shown below.


This symbol is used to identify references to the Rhode Island General Laws (RIGL). Blue text within this note provides a link to the actual RIGL citation.


This symbol alerts the reader to something that is required for State approval.


This symbol alerts the reader to potential data sources.


The text following this symbol provides additional suggestions to enhance comprehensive plans.


This symbol alerts the reader to sample goals, policies and actions that would fulfill the requirements.


This symbol indicates general information that is secondary to the main point of the text, but could be helpful to the municipality.


This symbol alerts the reader to a cross-reference within the guidebook series. If a concept is mentioned in the text area and more information on the concept is available elsewhere in the guidebook series, this note will point the reader to where to find it.

This handbook includes standards for complying with the requirements of the Comprehensive Planning Act. A standard may: 1) reiterate a requirement found in the Act; 2) provide specifics to clarify a requirement of the Act; 3) describe processes that if followed will help ensure State approval; or 4) identify information that while not specifically required by the Act, has been identified as vital to supporting the intents of the Act. Those standards that describe processes or information not *required* by the Act are listed as recommendations.

SECTION 1. GENERAL INFORMATION ON PLANNING FOR WATER SUPPLY

WHAT IS WATER SUPPLY?

The term water supply refers to the ways in which drinking water is delivered to those who will use and/or consume it. Drinking water, also known as potable water, is water which is fit for consumption by humans. Rhode Island's residents and businesses use potable water for a variety of activities, including drinking, bathing, recreation and manufacturing.

Planning for water supply means determining how water is being delivered to residents and businesses, assessing issues with the supply of potable water, and setting a course of action for the proper management and protection of potable water resources. Planning for water supply also involves determining what will be done if drought conditions arise and how the municipality will respond to water- related emergencies. While the end goal is to ensure that water is available for consumption, there are many uses of potable water, such as irrigation and cooling, that should be considered when assessing availability.

It is important for comprehensive plans to discuss and assess the entire community's water usage and all of the sources of water supply. In many municipalities, the water that is consumed by residents, employees and visitors may or may not be under the jurisdictional control of the municipality, ranging from single private wells to small water systems to large public systems. The comprehensive plan must consider and assess all potable water usage, as described throughout this handbook.

WHY INCLUDE WATER SUPPLY?

> *"Water is the most important natural resource to the future of our state."*
>
> Rhode Island Water 2030, page 1-1

Fresh, potable water is not an unlimited resource, yet it is a critical resource, tied to survival, economic prosperity and quality of life. The State's water resources are vulnerable to over use, drought and pollution. To ensure the continued availability of potable water, water use must be carefully planned for and managed and water quality must be protected.

The State and its municipalities have a responsibility to be stewards of the resource, providing for the continued availability of potable water. Whether or not the municipality is served by a public water system, each municipality must plan for the community's water use and the protection of water sources.

The required content for related to water supply stems from the Rhode Island Comprehensive Planning and Land Use Regulation Act, RIGL subsections 45-22.2-6(b)(2) and 45-22.2-6(b)(8).

A NOTE ON UNDERSTANDING THE TERMINOLOGY

Much of what is required for a comprehensive plan centers on understanding the municipality's sources of drinking water. Drinking water can come from a self-supplied source, such as a private well, or from a public water supply system. Public water supply systems include more than one might expect and are not only the major public water supply systems that serve a community, but also minor systems that serve just a few buildings. To be classified as a public water system in Rhode Island by the Department of Health, the system must have either 15 service connections or regularly serve at least 25 individuals for 60 or more days of the year. Though called "public" systems, they can be either publicly or privately owned. For

example, a community well would be considered a public water system, as would a well that serves only a school or an office building. To determine potable water-related needs, the community must use a shared terminology, understanding that the assessment of water use and availability must look at more than just the water piped by major public water suppliers.

Throughout this chapter, the term "major public water supplier" is used when more information is required related to a specific major public water supplier. All other types of public water suppliers are to be considered "non-major public water suppliers" and, for the purposes of this chapter, are included with self- supply systems when data is required.

According to the RI Department of Health, Rhode Island has almost 500 public water systems. For more information about the different types of public water supply systems see Water 2030, page 1-7.

RELEVANT STATE GOALS AND POLICIES

Every comprehensive plan must be consistent with and embody the State's goals and policies for water supply as found in the State Guide Plan and the laws of the State. The goals and policies listed below represent the main themes of the State's goals and policies for water supply and are intended to provide focus as to which aspects of the State's goals and policies are most important for local comprehensive planning.

See the Rhode Island Comprehensive Planning and Land Use Regulation Act, RIGL subsections 45-22.2-6(b)(1) and 45-22.2-9(d)(3).

FROM THE STATE GUIDE PLAN

Protect drinking water supply resources.

Land Use 2025: Rhode Island's State Land Use Policies and Plan, Objective 4B, page 5-15

Integrate water resources and supply planning for water systems across intergovernmental and regional jurisdictions.

Rhode Island Water 2030, Goal IPP-2, page 3-81

Manage and plan for water systems that support sustainable, compact land use and concentrate development within the urban service boundary and or growth centers.

Rhode Island Water 2030, Goal IPP-3, page 3-81

Manage and plan for the sustainable water use and development of the water resources of the State.

Rhode Island Water 2030, Goal WRM-1, page 3-81

Protect and preserve the health and ecological functions of the water resources of the State.

Rhode Island Water 2030, Goal WRM-2, page 3-81

Ensure a reasonable supply of quality drinking water for the State.

Rhode Island Water 2030, Goal WRM-3, page 3-81

Ensure the protection of public health, safety and welfare and essential drinking water resources during water supply emergencies.

Rhode Island Water 2030, Goal WRM-4, page 3-81

FROM THE RHODE ISLAND GENERAL LAWS

To promote orderly growth and development that recognizes the natural characteristics of the land, its suitability for use, the availability of existing and proposed public and/or private services and facilities, and is consistent with available resources and the need to protect public health, including drinking water supply, drinking water safety, and environmental quality.

RI Comprehensive Planning and Land Use Regulation Act, RIGL subsection 45-22.2-3(c)(1)

It is a paramount policy of the state to protect the purity of present and future drinking water supplies by protecting aquifers, recharge areas, and watersheds;

Public Drinking Water Supply System Protection Act of 1997, RIGL subsection 46-15.3-1.1(a)(5)

All municipalities subject to chapter 22.2 of title 45, the Comprehensive Planning and Land Use Regulation Act. The executive summary of the water supply system management plan including the demand management goals and plans for water conservation and efficient use of water, of any water supplier providing service in any municipality, shall be incorporated in the services and facilities element of the plan for that municipality required by subdivision 45-22.2-6(8);

Public Drinking Water Supply System Protection Act of 1997, RIGL subsection 46-15.3-5.1(a)(1)

The decay of infrastructure and related construction due to deterioration or functional obsolescence can threaten the quality of supplies and, therefore, can endanger public health; thus it is necessary to take immediate and continuing steps to repair and replace the infrastructure used to deliver water supplies in order to restore water system facilities.

Comprehensive Clean Water Infrastructure Act of 1993, RIGL subsection 46-15.6-2(a)(5)

More efficient use of our shared water supply, especially by residential users, makes more water available for economic activity and for replenishment of stream flow, and is usually the most cost-effective and quickest way to maximize available water supply. Conservation must be a priority for successful water management.

Water Use and Efficiency Act, RIGL subsection 46-15.8-2(a)(6)

See also the Rhode Island Groundwater Protection Act of 1985, RIGL chapter 46-13.1, the Public Drinking Water Supply System Protection Act of 1997, RIGL chapter 46-15.3, the Comprehensive Clean Water Infrastructure Act of 1993, RIGL chapter 46-15.6, Management of the Withdrawal and Use of the Waters of the State, RIGL chapter 46-15.7, the Water Use and Efficiency Act, RIGL chapter 46-15.8, and the Public Water Supply Systems Act of 1995, RIGL chapter 46-30.

OTHER RELEVANT DOCUMENTS

Before beginning assessment of existing conditions, needs and trends, and before developing new goals, policies and actions, communities should review other state and local plans and other documents that are relevant to planning for water supply, including:

- The Water Supply System Management Plans (WSSMP) for all major public water suppliers that serve the municipality;
- "Rhode Island Water 2030," available at http://www.planning.ri.gov/documents/guide_plan/RI%20Water%202030_06.14.12_Final.pdf;

- The RI Department of Health's "SafeWater RI: Ensuring Safe Water for Rhode Island's Future;" available at http://www.health.ri.gov/publications/reports/2013EnsuringSafeWaterForRhodeIslandsFuture.pdf;
- The RI Department of Health's Source Water Assessments, available at http://www.health.ri.gov/water/about/yourwater/; and
- The New England Water Interstate Pollution Control Commission's "Protecting Drinking Water Sources in Your Community: Tools for Municipal Officials;" available at www.nelwpss.org.

STAKEHOLDERS TO INCLUDE

In addition to the general public, when discussing how best to plan for water supply, municipalities may benefit from involving:

- Representatives from water suppliers serving the municipality;
- Representatives from the Department of Health, Office of Drinking Water Quality;
- Representatives from the Department of Environmental Management, Office of Water Resources; and
- Representatives from the Water Resources Board.

MAKING CONNECTIONS THROUGHOUT THE PLAN

Though there are several specific topics that are required to be addressed within a comprehensive plan, it is important that municipalities not consider the topic areas in as segregated elements, but rather as pieces of a larger system. Everything within a community is connected in diverse and varied ways, all of which should be considered when crafting a comprehensive plan. The information provided below is intended to highlight a few of the ways that municipalities should think about the connected nature of the topic areas.

RELATIONSHIP TO LAND USE

Municipalities make decisions about where to grow and develop or redevelop in the comprehensive plan. Water supply should be considered when planning for future land uses. Municipalities should encourage land uses with low potential for impacting the quantity and quality of their potable water supply.

RELATIONSHIP TO NATURAL RESOURCES

Water is a natural resource, so it is no surprise that planning for water availability and planning for natural resources are integrally connected. Any steps that are made to preserve the community's natural resources are also steps that increase potable water quality, since the natural systems within a municipality are all related and connected. When planning for natural resource preservation, communities should consider conserving areas that will also support water quality and water supply goals.

SECTION 2. FULFILLING THE STANDARDS

STANDARD 10.1

IDENTIFY WATER-SUPPLY RELATED NATURAL FEATURES AND SENSITIVE WATER SUPPLY AREAS ON ONE OR MORE MAPS, INCLUDING:

a. Surface and sub-surface reservoirs used for potable water *(inclusion of "subsurface reservoirs is recommended)*;

b. Aquifers;

c. *(Recommendation)* Groundwater recharge areas; and

d. *(Recommendation*) Community and non-community well-head areas.

The comprehensive plan must include a map of water-supply related natural features and sensitive water supply areas (where applicable) that exist within the municipality. Municipalities may map the water-supply related natural features and sensitive areas in a way that best suits their needs. It may be beneficial to show these items on a single water-resource map, or combined with other natural resources, depending on what resources they have and how the community intends to use the information in the planning process.

Some of these may also be included in the list of natural resources that are required to be mapped, as described in Guidance Handbook #2 - Planning for Natural Resources and are revisited here for consistency.

DATA SOURCES

For more information on mapping for comprehensive plans, please visit www.planning.ri.gov/publications/comprehensive-planning-materials.php

The following RIGIS water supply data sets are recommended for this standard:

DATA SET NAME	DOWNLOAD LINK	ADDITIONAL NOTES
Groundwater Recharge Areas	groundwater recharge areas	n/a
Groundwater Reservoirs	groundwater reservoirs	n/a
Sole Source Aquifers	sole source aquifers	For aquifers.
Wellhead Protection Areas: Community	wellhead	For aquifers
Wellhead Protection Areas: Non-Community	non-community	For aquifers
Lakes and Ponds (1:5000)	lakes and ponds	n/a

DATA SET NAME	DOWNLOAD LINK	ADDITIONAL NOTES
Sole Source Aquifers		n/a
Streams (1:5000)	http://www.rigis.org/geodata/	n/a
Watershed Boundary Dataset	watershed boundary dataset	Municipalities have the option to use either the Hydrologic Unit Code Level 10 (HUC 10) or Hydrologic Unit Code Level 12 (HUC 12) data set

STANDARD 10.2

IDENTIFY EXISTING AND PROPOSED *(inclusion of "proposed" areas is recommended)* WATER SERVICE AREAS ON A MAP, IF APPLICABLE.

If the municipality is currently served by one or more public water supply systems, the existing water service areas must be shown on a map. Existing water service areas include both those areas that are actually served by a water supplier and those areas in which there exists a legal right for the supplier to serve. Additionally, if there are plans to expand any of the water supply systems to new areas of the community, the proposed service areas should also be shown on a map. To receive State approval, the areas of existing and proposed water service must be clearly delineated. If applicable, the map should also show the relative location of the State's Urban Services Boundary as set forth in Land Use 2025.

DATA SOURCES

To fulfill this standard, communities may want to use data from public water supply companies serving the municipality.

The following RIGIS data set is recommended for this standard:

DATA SET NAME	DOWNLOAD LINK
Urban Services Boundary	urban services boundary

STANDARD 10.3

DESCRIBE THE WAYS IN WHICH WATER IS PROVIDED TO THE COMMUNITY AND ANY PROPOSED FUTURE MODIFICATIONS *(inclusion of "proposed" modifications is recommended)* BY:

(Recommend including a. through c. to fulfill this standard)

a. Discussing the different types of water supply systems (major public water suppliers, minor public water suppliers, self-supply, etc.) that are in use within the municipality;
b. Discussing all of the water sources supplying water to the municipality (i.e. specific surface or ground water resource); and
c. Including, if one or more public water suppliers serve the municipality:
    i. Identification of the major public water suppliers, if any, that serve the community;
    ii. Identification of the type of each major supplier (regional, municipal, private, etc.);
    iii. Identification of the percentage of persons within the community that are served by each major public water supplier;
    iv. Identification of the average monthly and peak monthly amounts of water currently being supplied by each major public water supplier;
    v. Identification of the projected average monthly and peak monthly amounts of water that will be supplied by each major water supplier at the end of the 20-year planning horizon;
    vi. Discussion of the existing capacity of each major supplier's water infrastructure, as confirmed by the Rhode Island Water Resources Board in the most recently approved Water Supply System Management Plan (WSSMP), including the amount of water flow that the infrastructure can currently accommodate;
    vii. Discussion of any major projects and/or plans that have been proposed by each major public water supplier; and
    viii. Discussion of the municipality's coordination with the supplier(s), especially as it pertains to the municipal role in implementation of the WSSMP(s) with regard to water supply source protection, water availability, demand management, drought mitigation, and response, and water emergencies.

Every building in Rhode Island has access to potable water, though the ways in which potable water are delivered to buildings varies. Comprehensive plans must describe the various ways in which potable water is provided to the community. For more information about the different types of public water supply systems that may be in use within a municipality, see Rhode Island Water 2030.

DATA SOURCES

To fulfill this standard, communities may want to use the following data sources:

- Data from the RI Department of Health's Office of Drinking Water.
- Data from the Executive Summary of all relevant Water Supply System Management Plans.
- Data from the RI Water Resources Board.

STANDARD 10.4

ASSESS EXISTING AND FUTURE ISSUES CONCERNING THE SUPPLY OF POTABLE WATER TO THE MUNICIPALITY BY ASSESSING AND DISCUSSING ISSUES RELATED TO:

a. The general adequacy of water sources to meet current demands;
(Recommend b. through d. to fulfill this standard)

b. The quality of potable water sources;

c. The potential impacts of natural hazards and climate change; and

d. If served by one or more public water supplier, the capacity of public water infrastructure.

Comprehensive plans must acknowledge and discuss existing and future issues related to the supply of potable water to the municipality, both now and in the future.

ADEQUACY OF WATER SOURCES TO MEET CURRENT DEMANDS
(Standard 10.4a.)

All municipalities, whether served by a major public water supplier or not, must assess issues related to the adequacy of their water sources to meet current demands. Many municipalities throughout the state are currently experiencing issues related to the availability of water, especially during the summer or in drought conditions. To fulfill this standard, comprehensive plans must discuss whether the community has experienced any issues related to water availability.

If the community is served by a major water supplier, the Executive Summary of the Water Supply System Management Plan (WSSMP) should be consulted. Data may also be available from the Water Resources Board and the RI Department of Environmental Management that may assist in determining whether issues related to water availability exist. Where quantitative data is not available, or is insufficient, a qualitative assessment of adequacy may be appropriate.

QUALITY OF POTABLE WATER SOURCES
(Standard 10.4b.)

There are many factors that can affect the quality of potable water sources. Comprehensive plans should assess and discuss current and potential future chronic issues facing water quality, from general issues within the watershed to specific issues facing water sources. To determine the water quality issues that may affect the community's supply of potable water, consider the following guiding questions:

- What is the general quality of waters within the watershed, both potable and non-potable?
- What are the primary factors negatively affecting water quality?
- How is stormwater runoff from impervious surfaces impacting water quality?
- Are there any potable water sources within the municipality that are currently impaired?

- What is currently being done to improve water quality within the watershed?
- Are there areas of the community where sewers would be appropriate as a means of improving water quality?
- How will future land use decisions affect water quality, for example by increasing stormwater runoff?
- Is the quality of the potable water supply likely to change over the 20-year planning horizon?

IMPACTS OF NATURAL HAZARDS & CLIMATE CHANGE
(Standard 10.4c.)

As discussed in Guidance Handbook #12 - Planning for Natural Hazards & Climate Change comprehensive plans must consider the impacts of natural hazards, including changes in climate, on the community. Natural hazards and climate change will have impacts on the quality and availability of potable water which should be considered and discussed within the comprehensive plan. For example, it is projected that periods of drought will become longer, which will have a direct impact on the availability of potable water. Coastal municipalities may also be subject to inundation of coastal, private wells by salt water due to both storm surge and sea level rise, and wells may also be contaminated by inundation of on-site septic systems. Additionally, higher daily temperatures may lead to worsening water quality due to greater bacteria growth.

As with other topics that are required to be discussed in the comprehensive plan, the community has the option to organize the plan as best suits its needs. An assessment of the potential impacts of natural hazards and climate change with regard to the quantity and quality of potable water needs only to be discussed once, and may be organized within the plan in the manner of the community's choosing.

To determine the potential impacts of natural hazards and climate change on the community's ability to obtain potable water, consider the following guiding questions:

- Will the quality of the community's potable water sources be negatively impacted by natural hazards and climate change?
- Are the community's groundwater supplies vulnerable to salt water inundation? How many people and businesses are served by vulnerable groundwater supplies?
- Does the community host any water-reliant economic drivers, such as agricultural operations or certain types of manufacturing?
- How have drought conditions historically impacted the availability of potable water in the community? Given projected growth, are the impacts of drought conditions likely to affect more people and businesses in the future?
- What programs are in place to ensure water availability in the event of a drought?
- What programs are in place to mitigate the impacts of peak seasonal use and summer dry spells on water sources?

CAPACITY OF PUBLIC WATER INFRASTRUCTURE

(Standard 10.4d.)

Municipalities must be able to understand how much water they have to use. If they are served by a public water supplier, then assessing the capacity of the public water infrastructure within the community will help them understand this question. Water infrastructure is designed to allow a certain amount of water flow to pass from one point to another. Comprehensive plans should discuss whether increases in water demand may require more water flow than the current water infrastructure was designed to handle. To determine whether the capacity of public water infrastructure may be an issue for the desired land use in the community, consider the following guiding questions:

- Have the WSSMPs that serve the community identified any major issues with the capacity of water supply infrastructure?
- Given anticipated future water needs, is it likely that current water infrastructure will be able to handle the future water demand?
- If necessary, how will the community fund an upgrade of under-sized infrastructure?

DATA SOURCES

The following RIGIS data set is recommended for this standard:

DATA SET NAME	DOWNLOAD LINK
Groundwater Quality Standard	water quality monitoring

Additionally, communities may want to use the following data sources:

- The RI Department of Environmental Management's Integrated Water Quality Monitoring and Assessment Report, which can be found at http://www.dem.state.ri.us/pubs/305b/index.htm.
- Data from public water suppliers and their Water Supply System Management Plans.
- Data from the RI Water Resources Board.
- Consumer Confidence Reports, available from local public water suppliers or through the U.S. Environmental Protection Agency at http://water.epa.gov/lawsregs/rulesregs/sdwa/ccr/index.cfm.
- Local tax assessor's data, to obtain data regarding businesses that use potable water.
- The data sources listed for the various standards of Guidance Handbook #12 - Planning for Natural Hazards and Climate Change.

STANDARD 10.5

INCLUDE GOALS THAT EMBODY THE STATE'S GOALS FOR WATER SUPPLY AND POLICIES TO SUPPORT EACH GOAL.

The goals and policies of the State call for integrated planning and sustainable management of the State's potable water resources, protection of water quality, maintenance of water infrastructure and the efficient use of the State's shared water supply. To further these goals at the local level, comprehensive plans must include one or more goals that ensure the provision of safe and reliable water supplies while protecting the public health, safety, and welfare of their citizens, and policies to support each identified goal. To determine the goals and policies that would best serve the municipality, communities may want to consider the following guiding questions:

- Which aspects of planning for water quality and supply are most critical to the municipality?
- What are the municipalities' priorities related to achieving sustainable usage of the State's shared water resource?

For more information on the difference between goals, policies and implementation actions, see Guidance Handbook #1 - The Comprehensive Plan 101.

SAMPLE GOALS

- Per capita use of water will not exceed the state average.
- The municipality will strive to be good stewards of the State's shared water resource.
- Our community will efficiently and effectively use its share of the State's shared water resource.
- Water quality within the municipality will be improved and protected.

SAMPLE POLICIES

- Reduce overall demand for potable water.
- Ensure adequate water supply for any new planned areas of growth.
- Protect water sources within the community.
- Manage and conserve essential potable water resources in times of emergencies and/or shortages.
- Support major public water supplier demand management initiatives.
- Encourage coordination between the municipal water department, RIDEM, and the RI Department of Health to establish procedures for well monitoring for sodium and other pollutants that might contaminate water supplies on individual properties within Special Flood Hazard Areas and areas projected to be inundated by sea level rise.
- Consider water availability in planning for build-out.

STANDARD 10.6

Include implementation actions within the Implementation Program that address meeting future demands. *(Recommend a. through d. to fulfill this standard)*

a. Promoting water conservation and the efficient use of water in both the public and private sectors.
b. Improving or preserving water quality.
c. Planning and preparing for drought conditions.
d. Responding to water emergencies.

a. Promoting water conservation and the efficient use of water in both the public and private sectors.

All municipalities, regardless of whether they are facing issues of water availability, need to work to reduce water usage through water conservation. To this end, comprehensive plans should include implementation actions that seek to increase water conservation in both the public and private sectors. To determine which implementation actions may be appropriate for the community, consider the following guiding questions:

- What programs are currently in place within the municipality to promote water conservation?
- How can the municipality increase water conservation in municipally-owned buildings?
- Are there specific pieces of equipment, infrastructure or other municipally-owned water-users that could be replaced or retrofitted to increase water efficiency?
- For communities with major public water suppliers, how can the municipality assist in implementing the suppliers' WSSMPs, particularly in relationship to conservation?
- What role can the municipality play in enforcing restrictions on water usage?

SAMPLE ACTIONS

- Implement water reduction strategies that deal with dry summers and droughts in coordination with major public water suppliers and the RI Water Resources Board.
- Implement water efficient municipal practices (e.g. building maintenance), particularly in the summer.
- Adopt outdoor watering ordinances that are more effective than odd/even watering days, such as twice a week watering, watering prohibitions during summer months and limiting the number of automatic sprinklers for new developments.
- Work with land trusts and others holding conservation easements to encourage agricultural producers leasing these lands to develop and implement water use conservation plans for their operations.
- Require that all expansions of water supply infrastructure meet municipal design requirements.
- Require that expansions of water supply infrastructure be planned in a way that accommodates future growth of adjacent parcels.
- Amend municipal regulations to allow the use of wastewater treatment facility discharge for non-potable uses, such as irrigation of municipal lands.

b. Improving or preserving water quality.

As discussed earlier, water quality can be affected by many factors, from runoff of rainwater, from impervious surfaces to bacterial growth due to higher temperatures. It is the municipality's responsibility to improve and/or preserve water quality in the watersheds that intersect with the municipality. Based on the assessment of water quality issues, comprehensive plans must include implementation actions that address the issues identified. Communities may wish to consider the following guiding questions when determining the implementation actions that would best serve the municipality:

- How can municipal land use decisions better reflect the water quality issues of the watershed?
- What programs are currently in place to improve or preserve water quality? How effective are these programs? Is there a need for additional programs and/or resources?
- With whom should the municipality partner to improve water quality?

SAMPLE ACTIONS

- Implement standards and strategies aimed at recharging groundwater and reducing runoff, such as reductions in impervious cover, better soil erosion protection, and low-impact development stormwater management.
- Compile data from local on-site wastewater treatment system permits for properties within projected sea level rise areas to understand groundwater systems in that area, and maintain a record of damage or impacts after coastal flood events or other tidal inundation.
- Maintain record of properties within Special Flood Hazard Areas and areas projected to be inundated by sea level rise that report groundwater seepage into their basements.
- Coordinate with State and federal entities, as well as academic institutions to encourage study and research into the groundwater dynamics in coastal neighborhoods.
- Adopt a wastewater management district.
- Establish a stormwater management program.
- Adopt a "zero-runoff" ordinance.
- Conduct outreach and education for citizens on the actions they can take to protect their own private well and the watershed/wellhead protection area.

c. Planning and preparing for drought conditions.

Drought can have a major impact on the availability of potable water for a community's use. It is the responsibility of the municipality to plan and prepare for drought conditions so that water will continue to be available for consumption in the event of a drought, even if availability is limited. Therefore, comprehensive plans should include implementation actions that seek to minimize the effects of drought conditions through proper planning and preparation. To determine the implementation actions that may be appropriate for the municipality, consider the following guiding questions:

- Given the likely impacts of drought as assessed, how can the municipality plan to minimize the effects of drought?

- For communities with public water suppliers, what responsibility does the municipality have in implementing the suppliers' WSSMPs, particularly in relationship to drought management?
- What drought mitigation actions can the municipality directly implement?

SAMPLE ACTIONS

- Review current drought management procedures, identify problem areas and develop recommendations for more effective drought mitigation.
- Quantify demand associated with growth centers, local economic initiatives and develop strategies to provide adequate water for growth, even in drought conditions.
- Evaluate the water needs of new development and explore options to require and/or demonstrate net zero impact on summer demand.
- Incorporate resource availability and supply and demand estimating, particularly peak estimating into local planning and land development regulations.
- Implement water reduction strategies that deal with dry summers and droughts in coordination with major public water suppliers and the RI Water Resources Board.

d. Responding to water emergencies.

Water emergencies, such as contamination of potable water supply sources and severe drought conditions, require immediate response and communication with those affected. Every municipality has a responsibility to plan for responding to water emergencies in order to minimize the negative impacts to the community. Comprehensive plans should include implementation actions that address responding to such emergencies in a timely and efficient manner. When considering the implementation actions that may be most effective for the municipality, consider the following guiding questions:

- What has been the historic response to water emergencies? Has it been effective? What could have been done better?
- What role does the municipality have in responding to water emergencies, versus any public water suppliers serving the community?
- What communication channels does the municipality have available to it that may assist in effectively responding to water emergencies?

SAMPLE ACTIONS

- Review current water emergency response procedures, identify problem areas and develop recommendations for more effective water emergency response.
- Begin periodic communication with major public water suppliers to be sure of individual agency roles in water emergencies.
- Develop a water emergency response plan, including roles and responsibilities of the various entities involved and communication with the public.

SECTION 3. CRAFT A BETTER PLAN

RECOMMENDATION 10.7

Include implementation actions within the Implementation Program that address:

COORDINATING WITH THE WATER SUPPLY SYSTEM MANAGEMENT PLANS OF ANY MAJOR PUBLIC WATER SUPPLIERS SERVING THE MUNICIPALITY, IF APPLICABLE.

Water Supply System Management Plans (WSSMPs) and community comprehensive plans should be coordinated and complimentary. The RI Water Resources Board requires that draft WSSMPs be provided to municipalities served by the supplier for review and assurance that the WSMMP is consistent with the comprehensive plan. While WSSMPs primarily focus on the role and responsibilities of the water supplier, they may also include goals, policies, projects or actions that would benefit from, or even require, municipal initiative in order to be successfully achieved.

In these situations, the comprehensive plan are encouraged to demonstrate consistency with the WSSMPs that are applicable to the community through the inclusion of specific implementation actions that support or align with those found within the WSSMP. Communities are especially encouraged to identify any actions that require municipal action or cooperation in order to be successful.