

State of California
The Natural Resources Agency DEPARTMENT OF WATER RESOURCES
Division of Regional Assistance, Water Use and Efficiency Branch

Urban Water Management Plan Guidebook 2020



DRAFT August 2020

Gavin Newsom
Governor
State of California

Wade Crowfoot
Secretary for Natural Resources
The Natural Resources Agency

Karla Nemeth
Director
Department of Water Resources

Copies of this report are available from:

State of California

Department of Water Resources P. O. Box 942836

Sacramento, CA 94236-0001

Any questions about this guidebook or its contents can be submitted to:

wue@water.ca.gov

This Guidebook is also available on DWR's website at: XXXXXX

DRAFT

State of California

Gavin Newsom

California Natural Resources Agency

Wade Crowfoot, Secretary for Natural Resources

Department of Water Resources

Karla Nemeth, Director

Cindy Messer Chief Deputy Director

Michele Banonis Assistant Chief Deputy Director

Spencer Kenner
Chief Counsel

Michael Sabbaghian
Deputy Director
Security and Emergency Management

Erich Koch
Deputy Director
Flood Management and Dam Safety

Anecita Agustinez
Government and Community Liaison

Erin Mellon
Assistant Director
Public Affairs Office

Kasey Schimke
Assistant Director
Legislative Affairs

Katherine S. Kishaba
Deputy Director
Business Operations

Ted Craddock
Deputy Director
State Water Project

Krisopher Tjernell
Deputy Director Integrated Water Management

John Andrew and Jeanine Jones
Assistants to the Deputy Director

This report was prepared under the direction of

Art Hinojosa, Manager

By

Water Use and Efficiency Branch

Peter Brostrom Chief Assisted by

Sabrina CookEnvironmental Program Manager I
Julia Ekstrom.....Senior Environmental Scientist, Supervisor
James Campagna.....Office Assistant

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DISCLAIMER

This guidebook was prepared by DWR to aid urban water suppliers who must comply with the requirements of the California Water Code Section I, Part 2.55 and Part 2.6. Urban water suppliers subject to the requirements are solely responsible for compliance with the requirements and may use this guidebook if they choose. DWR has voluntarily opted to provide this guidebook to make complying with the Water Code simpler for urban water suppliers and to assist these suppliers in creating a useful planning document.

For assistance interpreting the content of this document, please contact California Department of Water Resources Water Use Efficiency staff at uwmp_help@water.ca.gov.

Preface

The 2020 Urban Water Management Plan guidebook (Guidebook) is offered to help Suppliers prepare their UWMP in a way that is consistent with the legal requirements. It also provides guidance for preparing an ‘enhanced’ planning document that may be more useful to Suppliers, other resource planners, or policy- and decision- makers. This Guidebook has been revised from the 2015 version to reflect the changes in law, recommend analytical protocols, reflect variations between the 2015 and 2020 cycles, and to improve the guidance based on feedback from urban water suppliers and other stakeholders. The 2020 UWMP Guidebook has been updated from the 2015 Guidebook to reflect the new legislation, and to potentially improve the usefulness of a Supplier’s 2020 UWMP. To remain consistent with the 2015 UWMP guidebook, this 2020 UWMP Guidebook is structured by topic and written in the order recommended for Suppliers to organize their own UWMP.

New to this Guidebook is that each chapter includes an introductory section to describe the purpose and importance of covering the topic (Importance), how to focus on the essentials required (Focus), how to enhance covering the topic using recommended and best practices (Enhancements), and new requirements since the previous 2015 UWMPs (New Requirements).

Associated workbooks and tools are provided to assist Suppliers in preparing information for electronic submittal through DWR’s WUEdata portal. This Guidebook will reference these tools and workbooks as described below. SBx7-7 Verification Form. Each Retail Urban Water Supplier must implement goals of the Water Conservation Act of 2009, also known as the SB X7-7, to reduce urban per capita water use by 20-percent by December 2020. To comply, Retail Suppliers that are preparing a 2020 UWMP must provide a baseline and urban water use target in GPCD. This workbook includes the series of tables to show compliance.

Submittal Tables. This workbook includes only the DWR standardized submittal tables updated for new legislation and dates. Those tables applicable to retailers or wholesalers only are labelled with an *R* or *W*, respectively. Those table names without an *R* or *W* apply to both retailers and wholesalers.

Potable and Non-Potable Submittal Tables. These are included as optional in the same workbook with the submittal tables for Suppliers that choose to report potable and non-potable supply and use separately. Those tables applicable to retailers or wholesalers only are labelled with an “R” or

“W”, respectively. Those table names without an “R” or “W” apply to both retailers and wholesalers.

Planning Tool. This workbook tool is an optional tool Suppliers can use to report and assess water use and supply and conduct the Reliability Assessment and Drought Risk Assessment on monthly to annual time increments. Results from this tool can be used to populate the Submittal Tables.

Potable and Non-Potable Planning Tool (P-NP Planning Tool). This workbook tool is the Planning Tool that allows for separate reporting and calculations of potable and non-potable use and supplies. Results from this tool can be used to populate the optional potable/non-potable Submittal Tables.

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Acknowledgements

This guidebook was prepared with assistance from: Tully & Young, Stantec Consulting Services, Inc., the technical stakeholder UWMP Guidebook Development Workgroup, and DWR Climate Change Program.

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Abbreviations and Acronyms

ACS	American Community Survey
Act	Urban Water Management Planning Act
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
CCR	California Code of Regulations
CDP	census designated place
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
CPUC	Public Utilities Commission
Delta	Sacramento-San Joaquin Delta
DMM	Demand Management Measures
DOF	California Department of Finance
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
eAR	Electronic Annual Reporting System
ERP	Emergency Response Plan
GPCD	gallons per capita per day
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
HOA	Home owners' associations
IRWM	Integrated Regional Water Management
LAFCO	Local Agency Formation Commission
Legislature	State of California Legislature
<i>Methodologies</i>	<i>Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use</i>
NAICS	North American Industry Classification System

NOAA	National Oceanographic and Atmospheric Administration
P-NP	Potable/Non-Potable
PWSID	Public Water System Identification Number
R-GPCD	Residential GPCD
RUWMP	Regional Urban Water Management Plan
SGMA	Sustainable Groundwater Management Act
State Water Board	State Water Resources Control Board
Suppliers	Emergency Response Plan Suppliers
SWP	State Water Project
target	2020 Urban Water Use Target
UWMP	Urban Water Management Plan
Water Code	California Water Code
WSCP	Water Shortage Contingency Plan
WUEdata	Water Use Efficiency Data

UWMP 2020 Draft

Chapter 1

1.0 Urban Water Management Plan Introduction and Overview

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Act). The law required an urban water supplier (Supplier), providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet annually, to adopt an Urban Water Management Plan (UWMP) every five years demonstrating water supply reliability in normal, single dry, and multiple dry years. The original Act also required the California Department of Water Resources (DWR) to provide a report to the California Legislature on the status of water supply planning in California.

Since the Act was passed, it has undergone significant expansion and revision since the last UWMP Guidebook was prepared in 2015 (Water Code as of February 2020 attached as Appendix A and revisions shown in Appendix B). Prolonged droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions not only affect each Supplier's water reliability determinations, but also the broad picture of statewide water reliability overseen by DWR, the State Water Resources Control Board (State Water Board), and the State of California Legislature (Legislature). Accordingly, the Act has grown to address changing conditions and it guides California's water resource management.

Importance

A UWMP is the legal and technical water management foundation for Suppliers throughout California. A well-constructed UWMP can save Suppliers time and money and it provides the Supplier's staff, the public, and elected officials with an understanding of past, current, and future water conditions and management. The UWMP integrates local and regional land-use planning, regional water supply, infrastructure, and demand management projects, as well as statewide issues of concern like climate change and regulatory revisions. In short, the UWMP gathers, characterizes, and synthesizes water-related

information from numerous sources into a plan with local, regional, and statewide practical utility.

Thoughtful urban water management planning provides an opportunity for a Supplier to integrate supplies and demands in a balanced and methodical planning platform that addresses short-term and long-term water planning conditions. In so doing, a Supplier will:

- Assess changes in natural hydrology, climate, and groundwater conditions.
- Anticipate the implications of regional, state, and federal regulations.
- Understand supply conditions and water use variability.
- Identify regional constraints on or opportunities for shared water resources.
- Integrate local land-use changes, development, plans, and population growth.
- Prepare for water shortages and unforeseen calamities.
- Anticipate infrastructure improvements.
- Recognize project funding needs and opportunities.

The UWMP provides a Supplier with a reliable water management action plan that can be confidently referred to continuously, as conditions change and management decisions arise. Importantly, UWMPs prepared throughout California provide DWR, the State Water Board, and the Legislature with a picture of statewide water reliability. For these reasons, it is important that a UWMP be thoughtfully prepared.

Focus

Preparing a UWMP requires addressing these water-planning fundamentals:

1. Preparing a detailed look at current and future water use, including assessing and error-checking available baseline data and examining long-term planning documents like municipalities' General Plans and Specific Plans.
2. Analyzing potable and non-potable water supplies, including reviewing water rights and contracts, assessing water deliveries, ascertaining restrictions on water availability under certain

regulatory and hydrological conditions, and other opportunities or limitations explained in documentation for each water supply.

3. Analyzing water supply reliability by integrating the water use analyses with the water supply analyses to provide a water service reliability picture under normal conditions, single dry-year conditions, and five consecutive dry years through at least 2040.
4. Preparing a realistic Drought Risk Assessment by including integrated water supplies and projected water use in a hypothetical five-year drought condition; and
5. Developing an effective Water Shortage Contingency Plan that specifies opportunities to reduce demand and augment supplies under numerous, and even unpredictable, water shortage conditions.

A UWMP that meets statutory reporting requirements will also reflect short-term and long-term land-use planning assumptions and goals, account for specific plan and infill development projects over the course of the UWMP planning period, and it will allow the Supplier to handle the dynamic nature of water supplies and demands through sound water-shortage contingency planning.

Synthesizing the linkages between land-use planning, water supply planning, and regional or statewide issues such as climate change, can make a Supplier's UWMP a valuable water management and planning tool to guide the Supplier's governing body and managers. The UWMP also helps inform the state and the Supplier's customers about its water management practices.

If a UWMP's fundamentals are accurate, then other management actions may also become apparent, such as the effectiveness of water shortage contingency planning, necessary infrastructure improvements or emergency interties with neighboring Suppliers, trends in water reliability conclusions related to climate change or regulatory conditions, and opportunities to obtain funding for water management projects.

Enhancements

A Supplier's UWMP is a primary document for local planning and action as well as for statewide water supply-reliability data accumulation and analysis. However, Suppliers can choose to go beyond Legislative requirements by adding additional detail to better characterize

conditions to improve their water reliability assessments, drought risk assessments, and use of the UWMP for addressing local, regional, and statewide water planning and management issues. This may also include the incorporation of planning considerations, in the case of emergency supply interruptions, as well as improved alignment with other municipal or regional planning documents.

Some UWMP enhancements to consider are:

- ***Adjust Timelines and Granularity for Assessing Supplies, Demands, and Reliability.*** Existing law requires UWMPs to assess annual water supplies, demands, and reliability for current and future conditions through a 20-year planning horizon, but it does not specify the interval for creating those assessments.

Water supplies and water use can experience high variability when viewed on a smaller time step (e.g., monthly, bimonthly, seasonal) compared to annual totals. This means that there may be water management issues that are not apparent when reporting just the required annual totals. Because of this potential variability, where feasible, Suppliers are strongly encouraged to use a smaller time step (more granularity) when describing water use and supply, and in evaluating water supply reliability and drought risk.

Additionally, the required 20-year UWMP planning horizon results in a gap between the five-year UWMP cycles that limits the UWMPs utility for land-use planning actions and California Environmental Quality Act (CEQA) compliance during those gap years (2021-2025). Expanding the UWMP planning horizon to 25-years can bridge this gap. This would allow for 2021-2025 projects and analyses to still have 20 years of UWMP assessments to work with.

- ***Incorporate Advanced Planning for Urban Water Use Objectives.*** Current California Water Code (Water Code) now requires Suppliers to develop urban water use objectives for certain sectors, in order to meet their target water use calculated in the previous plan. These water use objectives will not be developed until 2023, and the first report will require information on what demand management measures (water conservation measures) Suppliers will implement to meet their stated objectives. In their 2020 UWMPs, Suppliers are

encouraged to describe demand management measures implemented, or planned for implementation, to meet anticipated urban water use objectives.

- **Analyze and Describe Potential Cultural Changes in Use Patterns.** Changes in cultural use patterns, such as urban cannabis cultivation and stay-at-home 2020 pandemic-related orders, may alter urban water use patterns and affect current and future water conservation accounting and analysis. Current water data may reflect a temporary or long-term change in water use and could affect evaluation of near-term and long-term management considerations. As such, each Supplier is encouraged to consider adding a description of any such changes and potential effects in its UWMP.
- **Demonstrate Sustainable Growth and Economic Strength Interdependencies.** Reliable water supplies can strengthen economic conditions and foster sustainable growth. Urban infill developments, commercial developments, or new residential developments require secure sources of water supply. These developments, in turn, improve water supply reliability through infrastructure improvements that reduce water losses, implementation of current building code requirements that foster water-conserving features, and expanded opportunities for water reuse and recycling. Expanded development opportunities—available because of a reliable water supply—help strengthen local economic conditions. The UWMP can demonstrate the reliability of water supplies and how that might affect local growth and the economy.
- **Evaluate Water Assets and Infrastructure Opportunities.** The UWMP is an ideal platform to consider additional opportunities to manage water assets to enhance a Supplier's long-term water reliability and other management objectives.

A careful accounting of supplies, uses, and reliability can inform actions for retaining conserved water assets or for leveraging water assets for environmental improvements or financial gain. The more detailed and reliable the accounting, the better able a Supplier is to gauge how much extra or short water supplies may be in any given situation. This information can allow Suppliers to make sound management decisions regarding asset management and infrastructure planning to help mitigate long-

term water management conditions attributable to climate change, regulatory change, and local water quality conditions.

For example, where surplus water conditions exist for a Supplier under certain circumstances, these water assets can be used for alternative purposes like instream flow and habitat enhancement, or crisis-related supplies for neighboring urban purveyors, which stabilize the environment or enhance regional water reliability.

In summary, the UWMP can provide the ultimate water planning document for Suppliers. The UWMP can be a robust management document that guides each Supplier's governing decisions, helps the public and elected officials understand the Supplier's water system and risks, enhances statewide data gathering and analysis, and addresses the specific water issues unique to each Supplier. The document is best prepared to provide practical and effective water management guidance and not simply completed to meet the minimum statutory criteria.

New Requirements

There are numerous additional requirements passed by the Legislature for 2020 UWMPs, updating the 2015 UWMP guidance. Although individual sections of this UWMP Guidebook will detail these changes, major new requirements include:

- ***Five Consecutive Dry-Year Water Reliability Assessment***
The Legislature modified the dry-year water reliability planning from a "multiyear" time period to a "drought lasting five consecutive water years" designation. This statutory change requires a Supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This Guidebook provides in-depth recommendations for addressing this requirement change in the Water Use assessment presented in Chapter 4, the Water Supply analysis presented in Chapter 6, and the Water Reliability determinations in Chapter 7.
- ***Drought Risk Assessment*** The California Legislature created a new UWMP requirement for drought planning in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change. The Drought Risk Assessment (DRA) requires a Supplier to assess water supply reliability over a five-year period from

2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years. Chapter 7 provides guidance on completing the DRA based on the Water Use information in Chapter 4, Water Supply analysis in Chapter 6, and the Water Reliability determinations in Chapter 7.

- **Seismic Risk** The Water Code now requires Suppliers to specifically address seismic risk to various water system facilities and to have a mitigation plan (see Chapter 8). An important aspect of this provision is the intersection of water supply infrastructure planning with a county or regional hazard mitigation plan.
- **Water Shortage Contingency Plan** In 2018, the Legislature modified the UWMP laws to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides a Supplier with an action plan for a drought or catastrophic water supply shortage. Although the new requirements are more prescriptive than previous versions, many of these elements have long been included in WSCPs, other sections of UWMPs, or as part of a Supplier's standard procedures and response actions (see Chapter 8). Many of these actions were implemented by Suppliers during the last drought, to successfully meet changing local water supply challenges. The WSCP will also have statewide utility for DWR, the State Water Board, and the Legislature in addressing extreme drought conditions or statewide calamities that impact water supply availability.
- **Groundwater Supplies Coordination** In 2014, the Legislature enacted the Sustainable Groundwater Management Act to address groundwater conditions throughout California. Water Code now requires Suppliers' 2020 UWMPs to be consistent with Groundwater Sustainability Plans, in areas where those plans have been completed by Groundwater Sustainability Agencies.
- **Lay Description** The Legislature included a new statutory requirement for Suppliers to include a lay description of the fundamental determinations of the UWMP, especially regarding water service reliability, challenges ahead, and strategies for managing reliability risks. This section of the UWMP could be viewed as a go-to synopsis for new staff, new governing

members, customers, and the media, and it can ensure a consistent representation of the Supplier's detailed analysis.

1.1 Recommended UWMP Organization

DWR recommends, but does not require, that a Supplier use the organization outlined below to prepare its 2020 UWMP. This Guidebook is organized in the same sequence as the recommended UWMP organization. Some of the regular tables in this 2020 Guidebook are from the 2015 Guidebook, with previous tables updated for new requirements or applicable years and others removed, as appropriate, for the 2020 cycle. Additional tables have also been added to accommodate new requirements. There are also tables that are referred to as worksheets. These are marked differently than the regular DWR water use and supply tables because the worksheets are not required; they are instead offered as a tool to help suppliers combine the detailed information on characterizing both supplies and uses, in order to construct assessments of reliability and drought under the set of required scenarios.

Chapter 1 – UWMP Introduction and Lay Description. This chapter can be used to provide a discussion on fundamentals of the UWMP and provides the newly required lay description.

Chapter 2 – Plan Preparation. This chapter can be used to provide information on the processes used for developing the UWMP, including efforts in coordination and outreach.

Chapter 3 – System Description. Suppliers may use this chapter to describe their system. This description may include maps of the service area, an explanation of the service area and climate, detail on their public water system(s), and an overview of the Supplier's organizational structure and history.

Chapter 4 – Customer Water Use. This chapter could be used to describe and quantify the current and projected water uses within the Supplier's service area.

Chapter 5 – Conservation Target Compliance. In this chapter, Suppliers can describe their compliance with the 2020 per-capita water conservation mandate. Suppliers can show their 2020 per-capita target value that was adopted in their 2015 UWMP, and their compliance value based upon actual 2020 customer water use. New Suppliers, or Suppliers with significant water distribution system

changes, can also provide the target and baseline calculations and information in this chapter.

Chapter 6 – System Supplies. In this chapter, Suppliers can describe and quantify their current and projected potable and non-potable water supplies. The Supplier can also provide a narrative description of each supply source and quantify the supply availability for each supply source identified.

Chapter 7 – Water System Reliability. This chapter can be used by Suppliers to describe their water system reliability through at least a 20-year planning horizon. This description must be provided for normal, single dry year, and five consecutive dry years. This chapter can also include the DRA. The water system reliability differs from the DRA by allowing a different basis for characterizing the five consecutive dry years.

Chapter 8 – Water Shortage Contingency Planning. In this chapter, Suppliers can provide a structured plan for dealing with water shortages, incorporating prescriptive information and standardized action levels, along with implementation actions in the event of a catastrophic supply interruption.

Chapter 9 – Demand Management Measures. Suppliers are encouraged to use this chapter to communicate their efforts to promote conservation and to reduce demand on their water supply; specifically including a narrative describing efforts to implement several demand management measures.

Chapter 10 – Plan Adoption, Submittal, and Implementation. Suppliers may use this section to describe and document the steps taken to make its UWMP publicly available, as well as the steps taken to adopt and submit its UWMP in accordance with the Water Code. This chapter can also describe the Supplier's plan to implement the UWMP.

Appendices – Each Supplier may have information that is best appended to the 2020 UWMP, to support and further clarify information included in the main chapters. Providing additional information as appendices strengthens the plan and offers a complete and well-supported planning document.

1.2 UWMPs in Relation to Other Efforts

A UWMP is prepared by local Suppliers that have the in-depth and practical knowledge of their water systems. The information contained

in each Supplier's UWMP reflects the operations of its system in the context of the Supplier's customers, supplies, and service area. This local planning and preparation remains the fundamental focus of the UWMP.

In addition to the local Supplier focus, the UWMP requires coordination with other planning agencies and is most effective when integrated with other planning efforts. Land-use planning agencies, such as cities and counties, prepare General Plans and Specific Plans that affect a Supplier's analysis provided in its UWMP, and vice versa. Moreover, Water Master Plans, facilities' plans, Recycled Water Master Plans, Integrated Regional Water Management Plans, Regional Climate Action Plans, Groundwater Sustainability Plans, AB 3030 Groundwater Management Plans, local or regional Hazard Mitigation Plans, and others need to be synthesized with a Supplier's UWMP to ensure a holistic planning process.

Such a regional, cross-sector planning process can help the Supplier better meet requirements, maintain consistency with other processes, and create stronger water management and insight overall for regions throughout the state. As such, DWR strongly encourages Suppliers to use other planning processes and documents when developing their UWMPs, consulting with other planning agencies during the preparation of the UWMP and providing the final UWMP to other planning agencies to consider, furthering those agencies' planning objectives.

1.3 UWMPs and Grant or Loan Eligibility

In order for a Supplier to be eligible for any water grant or loan administered by DWR, the Supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines. Suppliers are encouraged to seek guidance on the specifics of any state funding source from the respective funding agencies. The following sections of the Water Code are pertinent to Suppliers considering pursuit of grants or loans.

Water Code Section 10608.56

(a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

Water Code Section 10656

An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.

California Code of Regulations Section 596.1 (b)(2)

“disadvantaged community” means a community with a median household income that is less than 80 percent of the statewide annual median household income.

1.4 Demonstration of Consistency with the Delta Plan for Participants in Covered Actions

Other related actions may also be included in the UWMP that support statewide water planning objectives. One such item is the opportunity for those Suppliers that anticipate participating in, or receiving water from, a proposed project (covered action) to demonstrate consistency with the Delta Plan’s policy to reduce reliance on the Sacramento-San Joaquin Delta (Delta). Covered actions include, but are not limited to, projects such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta, per California Code of Regulations, tit. 23, Section 5003. Detailed guidance on demonstrating reduced reliance on the Delta will be provided in a subsequent Addendum, released at a future date.

1.5 Tips for UWMP Preparers

In addition to the UWMP guidance, descriptive outline, and suggested elements provided above, there are helpful tips that Suppliers can follow when developing UWMP documents. These tips include:

- **Use Previous UWMPs and Regional UWMPs** – Although the 2020 UWMP is considered an update to a Supplier’s previous UWMP, the 2020 UWMP should be an independent document. Suppliers should ensure that information carried forward from a previous UWMP is current. Suppliers should also seek to coordinate relevant information with Regional UWMPs or Wholesale Supplier UWMPs, where applicable. Summaries of this information, with citations or references to a Regional UWMP or Wholesale Supplier UWMP, are acceptable to maintain the UWMP’s flow and readability. Where appropriate, portions of another plan may be incorporated as an attachment or appendix to the Supplier’s 2020 UWMP.
- **Review the Legislative Changes Since the 2015 UWMP Cycle** – There have been numerous changes to UWMP laws since the 2015 cycle. Although this Guidebook has summarized the large-scale changes in this chapter and others, there are potentially other minor changes that may be highly relevant to

the preparation of a Supplier's 2020 UWMP. We encourage each Supplier to, at a minimum, review the legislative changes incorporated into Appendix A of this Guidebook, and to spend ample time reviewing those changes in the context of the information presented in this Guidebook.

- ***Follow the Notification and Adoption Processes for UWMP Development*** – The 2020 UWMP notification and adoption processes are detailed in Chapter 10. Although there are specific provisions about notifying local agencies after a draft plan has been prepared, the Legislature encourages the active involvement of diverse social, cultural, and economic elements of the population prior to and during preparation of both the UWMP and WSCP. In this way, the 2020 UWMP is understood by stakeholders before the adoption processes commence.
- ***If a Requirement Does Not Apply to a Supplier, State That in the UWMP*** – There are portions of the UWMP laws that simply do not apply to some Suppliers. For instance, where a Supplier is asked to quantify a supply of recycled water, but that Supplier does not have access to a supply of recycled water, then the Supplier may state that fact and move on to the next section. However, a Supplier should not dismiss a portion of the UWMP law without thoughtfully considering the application of each portion of the law as it applies to the Supplier's water service.
- ***Unique Situations May Require Explanation*** – Each Supplier may have unique situations that require further explanation beyond the statutory criteria or suggestions in this Guidebook. It is recommended that these unique situations be clarified by the Supplier via detailed information in the 2020 UWMP, or by attaching an explanatory appendix to the 2020 UWMP with a summary of the information. Referencing unique and meaningful materials for the Supplier's situation explains and may facilitate the Supplier's analysis and management actions.
- ***Importance of Narratives, Graphics, and Maps*** – Narrative descriptions, graphics, and maps included in the 2020 UWMP help explain complicated facts and data that might otherwise be embedded in tables and spreadsheets. The addition of materials that provide a reader with added means to look at quantitative

information may better inform the reader of a Supplier's water service reliability situation and associated management actions.

- **Using Summaries and Cross-References** – As appropriate, Suppliers are encouraged to summarize detailed information from other documents and provide cross-references in the 2020 UWMP, rather than restating copious data to add pages or complexity. To avoid plagiarism and guide the reader, summaries should cite any source documents, and cross-references may cite other chapters, sections, or appendices in a Supplier's UWMP.
- **Use the Checklist** – A checklist of specific UWMP requirements is included in Appendix F. The Supplier is asked to complete this checklist and enter the page number where the required element is addressed, in order to assist in DWR's review of the submitted 2020 UWMP.
- **Use the Guidebook Appendices** – The Guidebook appendices provide detailed information and specific recommendations for addressing important elements of the UWMP laws. For example, Appendix I provides recommendations for considering climate change conditions, Appendix K provides a suggested methodology for estimating future water use, Appendix M provides details to support recycled water characterization and tables, and Appendix O describes methods for energy intensity calculations. Each appendix contained in this Guidebook provides helpful information for addressing complex water planning issues.

Chapter 2

2.0 Plan Preparation

This chapter of the Guidebook intends to provide information on the processes used for developing an Urban Water Management Plan (UWMP), including efforts in coordination and outreach. This chapter details the importance of plan preparation, the merits of including enhanced material in a UWMP, and it provides specific guidance for preparing the document.

Importance

Preparing the UWMP in a transparent manner that is accessible for stakeholders is important for good water resources governance. By including public involvement opportunities, featuring adequate notifications and public hearings, it allows interested parties, stakeholders, and the public to submit comments and suggest revisions to the urban water supplier's (Supplier) plan for water reliability and future investments in local water purveying.

Focus

The California Water Code (Water Code) specifies several requirements for preparing a UWMP, including who is required to prepare a UWMP; how to prepare a UWMP, depending on whether the Supplier chooses to participate in a regional or individual planning effort; selection of reporting year-type; and coordination, notification, and outreach. This chapter can be used to document consistency with plan preparation requirements.

Enhancements

It is recommended, but not required, that a Supplier enhance their UWMP preparation through additional outreach or by providing longer review times than statutory requirements specify. This extended public engagement could allow for improved and more thorough feedback on different components of the plan.

New Requirements

There are no new plan preparation requirements from the 2015 UWMP guidance.

2.1 Plan Preparation

This chapter provides guidance on determining if a water supplier is required to prepare a UWMP and describes the various levels of regional coordination that an agency may employ. It also includes guidance and tables for two pieces of information to apply consistently throughout the UWMP: the use of a fiscal or calendar year, and the specific units of measure used by the Supplier to report water volumes.

Coordination and outreach are key elements in developing a useful and accurate UWMP. Working with neighboring water suppliers strengthens a region's ability to plan for drought and catastrophic events.

Coordination with city and county land use planning agencies can provide information on regional planning, demographics, and expected future development for determining future water use, supply, and reliability assessments. Notification to all interested parties and stakeholders allows those entities to provide information on aspects of the UWMP, to help in creating a more useful plan. It also lets these entities know about the different water management considerations that may affect their own decisions.

Because UWMP preparation and development can be accomplished in many ways, Suppliers may choose to include a summary of the process they used to prepare the UWMP. A Supplier may include such activities as designation of a planning team, holding public meetings, the extent of coordination with other agencies, use of this Guidebook, or the use of assistance from a consulting firm.

This chapter includes the following sections for guidance on preparing a UWMP:

- Basis for Preparing a Plan
- Regional Planning
- Individual or Regional Planning and Compliance
- Fiscal or Calendar Year and Units of Measure
- Coordination and Outreach

2.2 Basis for Preparing a Plan

The basis for preparing a UWMP is identified in the Water Code:

Water Code Section 10617

“Urban water supplier” means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems.

Water Code Section 10620

Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

Water Code Section 10621

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

All Urban Water Suppliers

In accordance with the Water Code, Suppliers with 3,000 or more service connections, or those supplying 3,000 or more acre-feet of water per year, are required to prepare an UWMP every five years.

If any Supplier is under this defined threshold for the year that an UWMP is due, but meets this threshold before the next reporting cycle, the Supplier is required to adopt an UWMP within one year after meeting the reporting threshold.

Suppliers can provide a brief discussion of the applicability of Water Code Section 10617, in regard to their requirement to submit a UWMP.

2.2.1 Public Water Systems

Water Code Section 10644

(a)(2) The plan, or amendments to the plan, submitted to the department ... shall include any standardized forms, tables, or displays specified by the department.

California Health and Safety Code 116275

(h) “Public Water System” means a system for the provision of water for human consumption through pipes

or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

All Urban Water Suppliers

Public water systems are the distribution systems that provide drinking water for human consumption. All public water systems are given a unique Public Water System Identification Number (PWSID).

These systems are regulated by the State Water Resources Control Board (State Water Board), Division of Drinking Water.

The California Health and Safety Code defines a public water system as described above.

Retail Only

Public water system data, reported by Suppliers to the State Water Board, is used to determine whether or not a retail Supplier has reached the UWMP reporting threshold of 3,000 or more connections or 3,000 acre-feet of provided water, per the public water system definition. This determination is done by reviewing the number of connections and volume of water supplied by each public water system. Those Suppliers with one or more public water systems that meet the above thresholds are considered an urban Supplier for purposes of submitting a UWMP.

Wholesale Only

Agencies that are exclusively or primarily wholesale Suppliers are not required to provide public water system information.

2.2.2 Suppliers Serving Multiple Service Areas/Public Water Systems

Many Suppliers within the state have more than one public water system. Such Suppliers may determine regional groupings and reporting for these systems based on internal planning requirements, geographic distribution, and similarities between systems. It is recommended that Suppliers specify which of the PWSIDs are covered within the UWMP, otherwise readers and data users will expect to see an analysis that includes all of the public water systems a Supplier is responsible for.

Table 2-1 Retail: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
TOTAL		0	0

Notes:

The names and numbers of each Public Water Supplier (drinking water only) that is managed by the Supplier and reported in a UWMP should be provided in Table 2-1 R. For Regional UWMPs (RUWMP), Suppliers will use multiple versions of Table 2-1 R; one for each participating Retail Supplier.

2.3 Regional Planning

All Urban Water Suppliers

Regional planning can deliver mutually beneficial solutions to all agencies involved by reducing costs for the individual agency, assessing water resources at the appropriate geographic scale, and allowing for solutions that cross jurisdictional boundaries.

Some of the other possible benefits, depending on the level of regional cooperation, can include:

- More reliable water supplies.
- Increased regional self-reliance.
- Improved water quality.
- Better flood management.
- Increased economic stability.
- Restored and enhanced ecosystems.
- Reduced conflict over resources.

In support of regional UWMPs and regional water conservation targets, the UWMP portion of the Water Code provides mechanisms for participating in area-wide, regional, watershed, or basin-wide urban water management planning.

2.4 Individual or Regional Planning and Compliance

All Urban Water Suppliers

Developing a cooperative 2020 UWMP may be a natural continuation of other regional coordination efforts, such as Integrated Regional Water Management (IRWM), or it may present an opportunity to begin regional collaboration.

Agencies may choose:

- **Individual Reporting** An agency develops an UWMP that reports solely on its distribution service area. Individual UWMPs address all requirements of the Water Code including water use targets and baselines (for SB x7-7 Water Conservation Act of 2009 reporting). The agency notifies and coordinates with appropriate regional agencies and constituents.
- **Regional Reporting** Working with an IRWM group, wholesaler, other retailers, or another regional entity, a Supplier becomes part of a regional group that may develop either a:
 - **Regional Urban Water Management Plan (RUWMP)** A regional group develops a RUWMP that reports on their combined regional service area. The RUWMP must address all requirements of the Water Code, but the requirements of SB X7-7 targets and baseline reporting may be addressed by each participating Supplier, through a Regional Alliance, or both (see section 2.3.2 below). RUWMPs submit data for multiple agencies, requiring duplication of many standardized tables. The submitter provides standardized tables for each participating Supplier and notates each of the copies with the name of the Supplier to which the table pertains.
 - **Regional Alliance** A regional group that develops a Regional Alliance addresses the requirements of SB X7-7 for planning, reporting, and compliance as a Regional Alliance for 2020 water use targets and baselines. This is done by completing the SB X7-7 Verification Form for a Regional Alliance, Option 1, 2, or 3. All other elements of the Water Code must be

addressed through either an individual or regional UWMP. Suppliers considering a Regional Alliance approach are strongly advised to read Methodology 9 of the *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (Methodologies) document for detailed guidance on how to proceed. The Methodologies document is located at <https://data.cnra.ca.gov/dataset/2015-urban-water-management-plans-uwmps-historic-information>.

2.4.1 Regional UWMP

Water Code Section 10620

(d)(1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

All Urban Water Suppliers

Suppliers may find it beneficial to collaborate with other Suppliers to develop a RUWMP.

The RUWMP must address all the requirements of the Water Code. The requirements of SBX7-7 may be addressed either by individual agencies, through a Regional Alliance, or both. Some elements of the RUWMP, such as each agency's supply and demand information, must be reported on an individual Supplier-by-Supplier basis within the RUWMP. Providing the sum of the supplies and demands from each Supplier in order to report the regional supply and demand is not required, although it may be included.

Other elements in the RUWMP may be reported as an aggregate of all the agencies' information, such as a regional Water Shortage Contingency Plan (WSCP) that clearly includes the actions and regional reliance of all Suppliers in response to a water shortage.

Each participating Supplier is required to adopt the RUWMP. Submitting each adoption resolution to the California Department of Water Resources (DWR) demonstrates compliance with this requirement.

If a Supplier participates in a RUWMP and also prepares its own individual UWMP, its governing board must adopt both the regional and individual plans.

Retail Only

Within the RUWMP, Suppliers may determine and report targets and baselines in one of two ways: either on a regional basis through a Regional Alliance (see section 2.3.2) or by each individual Supplier.

2.4.2 Regional Alliance

Water Code Section 10608.20

(a)(1) ...Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis as provided in subdivision (a) of Section 10608.28...

Water Code Section 10608.28

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under

this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

Retail Only

A group of Suppliers agreeing among themselves to plan, comply, and report as a region on the urban water use target requirements of SB X7-7 is referred to as a Regional Alliance. Each Regional Alliance will develop (or had developed previously in the 2015 plan) and demonstrate meeting its own set of 2020 urban water use targets.

A Regional Alliance allows Suppliers to work toward cooperatively developing programs and meeting regional water conservation targets, but not necessarily submitting a Regional Plan. Being a member of a Regional Alliance does not take the place of submitting an individual UWMP or RUWMP.

Note that an individual Supplier's compliance with its 2020 water use target will be assessed based upon how the individual retail Supplier performs relative to its individual target, or how the Supplier's Regional Alliance performs as a whole in relation to its respective regional target.

Detailed guidance for a Regional Alliance, including criteria for participating in a Regional Alliance, reporting requirements, calculation of regional targets, and compliance assessments, is found in Methodology 9 of the *Methodologies* document. This document is located here: <https://data.cnra.ca.gov/dataset/2015-urban-water-management-plans-uwmpps-historic-information>. Table 2-2 allows a Supplier to identify whether or not it is submitting its UWMP as part of a RUWMP or a Regional Alliance, or as an individual UWMP.

Table 2-2. Plan Identification Type

Table 2-2: Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
☐	Individual UWMP		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

2.5 Fiscal or Calendar Year and Units of Measure

2.5.1 Fiscal or Calendar Year

All Urban Water Suppliers

Water Code Section 10608.20

(a)(1) Urban retail water suppliers...may determine the targets on a fiscal year or calendar year basis.

All Urban Water Suppliers

Suppliers may report water data and assessments on a fiscal year or calendar year basis, but they must clearly state in the UWMP the type of year that is used for reporting. The type of year should remain consistent throughout the Plan. Suppliers should consider selecting the type of UWMP year based on how they standardly report information to meet other requirements, to simplify data consolidation and analysis.

DWR prefers that Suppliers report on a calendar year basis in order to ensure UWMP data is consistent with data submitted in other reports to the state. However, DWR also understands that for some Suppliers, fiscal year reporting ensures consistency with local, regional, and/or

financial reports. As such, Suppliers may report either calendar year or fiscal year data in the UWMP.

For Suppliers reporting on a fiscal year basis, table columns labeled with particular years signifies the end of each fiscal year. For example, a column labeled for the year 2020 denotes the fiscal year 2019-2020. The UWMP preparer should also identify in Table 2-3 the start date and month of the Supplier's fiscal year.

Table 2-3. Supplier Identification

Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☐	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP (select from drop down)	
Unit	
NOTES:	

2.5.2 Reporting Complete 2020 Data

All Urban Water Suppliers

2020 UWMPs are required to include the water use and planning data for the entire calendar year of 2020, if a Supplier is reporting on a calendar year basis. If a Supplier is reporting on a fiscal year basis, it may complete its 2020 UWMP at the end of its fiscal year, and include the water use and supply data for their fiscal year 2019-2020.

2.5.3 Units of Measure

All Urban Water Suppliers

Suppliers may use various units of measure when reporting water volumes, such as acre-feet, million gallons, or hundred cubic feet. Suppliers may report volumes of water in any of these units, but they must maintain consistency throughout the UWMP.

Table 2-3 (above) is used to report the units of measure that the Supplier will be using to report water volume throughout the UWMP.

Table 2-3 should be completed with the name of the Supplier, type of supplier, type of reporting year, and the units of measure. RUWMPs will use multiple versions of Table 2-3, one for each participating Supplier.

2.6 Coordination and Outreach

Water Code Section 10631

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

2.6.1 Wholesale and Retail Coordination

All Urban Water Suppliers

When a Supplier relies upon a wholesale Supplier (referred to as wholesale agency in Water Code above) for a water supply, both Suppliers are required to provide each other with information regarding projected water supply and demand, as described below.

These projections should be consistent with each Supplier's supply and demand projections as reported in the appropriate tables found in Chapter 4 and Chapter 6 of this Guidebook.

Retail Only

Retail Suppliers that receive a water supply from one or more wholesalers are required to provide their wholesaler(s) with their projected water demand from each source, in five-year increments, for 20 years, or as far as data is available.

Wholesale Only

Wholesale Suppliers are required to provide information to their customer Suppliers, identifying and quantifying water supplies available to those Suppliers from the wholesaler Suppliers, to the extent practicable. This information is to be projected in increments of five years, from 2020 through 2040, and for average, single, and five consecutive dry years.

Complete Table 2-4: Water Supplier Information Exchange. Retailers will use Table 2-4 R and Wholesale Suppliers use Table 2-4 W. RUWMPs will use multiple versions of Table 2-4 R; one for each participating Supplier.

Table 2-4 Retail: Water Supplier Information Exchange

Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
NOTES:

Table 2-4 Wholesale: Water Supplier Information Exchange

Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☐	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with Water Code Section 10631. Completion of the table below is optional. If not completed, include a list of the water suppliers that were informed.
	Provide page number for location of the list.
☐	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with Water Code Section 10631. Complete the table below.
Water Supplier Name <i>(Add additional rows as needed)</i>	
NOTES:	

2.6.2 Coordination with Other Agencies and the Community

Water Code Section 10620

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

Water Code Section 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan...

All Urban Water Suppliers

Suppliers must coordinate the preparation of their UWMP with other appropriate agencies in the area, to the extent practicable. In order to demonstrate that they have fulfilled the above Water Code provisions, a description of their outreach and coordination activities with other

agencies and the community, as described in Water Code Section 10620(d)(3) and Water Code Section 10642, can be included in this section.

Recommended

UWMP preparers are strongly encouraged to solicit participation from other agencies responsible for developing related reports or planning documents such as General Plans, Water Master Plans, Groundwater Management Plans, or Public Water System reports. Such coordination ensures consistency in planning and reporting. It is recommended that development of the WSCP component is also developed in collaboration with other Suppliers and governing organizations, per Water Code Section 10620(d)2, for which guidance is described in Chapter 8 of this Guidebook.

The following is a non-comprehensive list of agencies and organizations with which a Supplier may elect to coordinate:

- Public agencies
- Cities and counties that are served by an agency (required)
- Local wastewater and/or stormwater entities
- Regional boards/agencies
- School districts
- Economic development agencies
- Park districts
- Regional governments (e.g., Council of Governments, Association of Governments, Joint Planning Committees)
- Water management organizations
- Other urban water suppliers
- Water suppliers that share a common source
- IRWM groups
- Groundwater Sustainability Agencies and other groundwater management entities
- Watershed groups
- Residential customers
- Large commercial, industrial, and institutional water users

- Home owners' associations (HOA)
- Diverse elements of the population
- Building industry
- Native American tribes
- Chambers of commerce
- Environmental organizations
- Civic organizations

2.6.3 Notice to Cities and Counties

Water Code Section 10621(b)

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

All Urban Water Suppliers

(See also section 10.1.1 in this Guidebook)

Water Code Section 10621(b) requires that Suppliers notify cities and counties to which they serve water that the UWMP is being updated and reviewed. The Water Code specifies that this must be done at least 60 days prior to the public hearing. These notifications to cities and counties will be reported in Table 10-1 (See Chapter 10). Notification letters to cities and counties may be addressed to the city manager, county administrator, or to other local appropriate contacts for the water Suppliers' service area.

Recommended

DWR encourages water Suppliers to send this notification at the start of the UWMP process, well in advance of the required 60 days prior to the UWMP public hearing.

The Water Code only requires that the city or county be notified of the UWMP update, or of the initial preparation for new Suppliers. However, water Suppliers are encouraged to include the UWMP revision schedule, contact information of the UWMP preparer, and the location

where the UWMP can be viewed in the notification that is sent to the city or county.

DRAFT

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Chapter 3

3.0 System Description

An urban water supplier (Supplier) may use this chapter to describe their system in more detail. This description may include maps of the service area, an explanation of the service area and its climate, detail on their public water system(s), and an overview of the Supplier's organizational structure and history.

Water Code Section 10631.

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

Importance

A thorough description of a Supplier's water system and service area provides information to the reader and water managers that can help them understand various elements of water supply and demand and the geographic context covered by the service area. Documentation of system and service area characteristics also provides a record for the underlying data and information used for each Urban Water Management Plan (UWMP) analysis and accompanying management decisions.

Focus

Chapter 3 provides guidance for describing the Supplier's system, including a description of the service area, climate, projected population, and other factors that might affect water management planning. It also points to additional guidance for uncertainties, such as the potential impacts of climate change.

Enhancements

Inclusion of more detailed information than what is required can augment the utility of a UWMP. For example, describing how the UWMP overlaps with other local and regional plans can be useful for land use decision-making, allowing associated plans to incorporate consideration of water resources. Additional details on the Supplier history, operations, and organization can help staff, managers, and the public understand changes, progress, and how decisions are made.

New Requirements

There are notable new requirements for a UWMP beyond the 2015 guidance. California Water Code (Water Code) now requires the inclusion of service area socioeconomic information as part of the system description. It also requires coordination with land use agencies and a description of current and projected land uses within the service area. Additionally, Water Code now requires consideration of climate change impacts in the water use (Chapter 4), water supply (Chapter 6), and reliability (Chapter 7) assessments. As such, climate change conditions can be described in this section when addressing climate in Chapters 4, 6, and 7.

This chapter includes the following sections:

- General Description
- Service Area Boundary Map(s)
- Service Area Climate
- Service Area Population, Demographics, and Socioeconomics
- Land Uses within Service Area

3.1 General Description

All Urban Water Suppliers

Provide a description of the distribution system and service area of the Supplier. This description is best prepared in a manner that provides

sufficient information to facilitate the Supplier's management and decision-making processes.

Recommended

Suppliers are encouraged to include information on the organizational structure of the Supplier. This could include the Supplier's history, whether the Supplier is a public or private entity, a description of the Supplier's governance, and a history and description of any consolidations or annexations.

Consider including a narrative description of the proportion of the area that is already built-out versus areas of future development. This will provide a clearer understanding of the extent of land use in the Supplier's service area and where changes can be expected.

Descriptions of distribution systems' facilities, such as treatment plants, pumps, distribution lines, and operational constraints, can explain how the system operates; identifying portions that may be vulnerable to risk, targeting infrastructure improvements, and identifying opportunities to improve reliability.

Other documents, such as General Plans or Water Master Plans, may provide greater detail on these topics. Rather than repeating this detailed information, Suppliers may summarize the relevant information and provide a reference to the associated documents.

3.2 Service Area Boundary Maps

All Urban Water Suppliers

Water suppliers are encouraged to include service area boundary maps in the UWMP.

Recommended

Appropriate maps that are recommended for inclusion in the UWMP include:

- Potable Water Service Area – The boundary encompassing the entire potable water service area of the supplier. This may include multiple public water systems.
- Public Water System(s) – The boundary containing the distribution system(s) of the Supplier's Public Water System(s).

- Raw Water Distribution System – The boundary containing the raw water distribution system, as applicable. Note that this does not include any recycled water system(s).
- Recycled Water System – See section 6.5.3 in this Guidebook for guidance on mapping a recycled water system.
- Jurisdictional Boundary – This boundary includes the potable and non-potable distribution system boundary(ies) and any additional areas that fall within the water Supplier's jurisdiction.
- Service Area Changes – If there have been changes to the service area from the beginning of the baseline period through 2020, Suppliers are encouraged to submit maps that display these changes.

The California Department of Water Resources' (DWR) preference is to obtain electronic service area boundary maps. Note that electronic boundary maps will be needed to use DWR's Population Tool (see section 5.4.1.2). Electronic maps of all service areas by Public Water System Identification Number are organized by the California State Water Resources Control Board, and they can be downloaded from the California State Geoportal at:

<https://gis.data.ca.gov/datasets/waterboards::california-drinking-water-system-area-boundaries>. The UWMP preparer can then select their relevant service area(s) to include in a map. These are available in multiple mapping formats (KML, shapefile, geodatabase).

Alternatively, a preparer may use Google Earth, Google Maps, or other tools for drawing a boundary. Other resources to obtain electronic maps include a Local Agency Formation Commission (LAFCO), a local Council of Governments, a regional wholesale water supplier, a private consulting service, or a university within the region. If an electronic, geospatial map layer (such as a .shp or KML file) of the service area map is submitted, Suppliers are encouraged to include the following metadata:

- Map projection
- Contact information for the person that created the map
- Start and end dates for which the map is valid
- Constraints or other notes to share
- Attribute table definitions

- Digitizing base (e.g., USGS 7.5-minute quadrangle, or 1-meter resolution 2010 digital aerial photograph)

While maps showing individual distribution system facilities may enhance understanding of the planning area and how the system operates, including such maps in the UWMP is at the discretion of the Supplier.

3.3 Service Area Climate

Water Code Section 10631(a)

A plan shall... Describe the service area of the supplier, including ... climate.../block text

Water Code Section 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning... while accounting for impacts of climate change.

All Urban Water Suppliers

Suppliers are required to provide information that assists with understanding the area's climate and its possible impacts on water management. Suppliers may report climate information in a narrative format, tabular format (no standardized table is provided for this), or a combination of both.

Additionally, new to the 2020 UWMP, Suppliers must now also account for the impacts of climate change on supplies and supply reliability. Scientists and water managers are already observing the effects of climate change and identifying associated risks in water planning. A discussion of the effects of climate change on water demands, supplies, and reliability can be addressed in Chapter 4 (Water Use Characterization), Chapter 6 (Water Supply Characterization), and Chapter 7 (Water Service Reliability Assessment) of the UWMP; however, it may be relevant to summarize in this section the anticipated expected climate changes or scenarios used in Chapters 4, 6, and 7.

If there is more than one Public Water System in a UWMP or RUWMP, or if the service area is large with different climate areas, the UWMP preparer may report the different climates separately, or may provide climate information that averages the climatic conditions of the entire area.

Climate information can be obtained from several sources, including, but not limited to, the following:

- California Irrigation Management Information System (CIMIS)
<http://www.cimis.water.ca.gov>
- Western Regional Climate Information Center
- Weather stations in the service area
- National Oceanographic and Atmospheric Agency (NOAA)

Recommended

A climate description could include average reference evapotranspiration, temperature, and precipitation patterns, which can be used to inform outdoor water use characteristics and may be used for other water use and supply conditions. A description of any challenges associated with providing water in a particular climate may also be beneficial.

DWR recommends that Suppliers follow the guidance offered in Appendix I for the different approaches to considering climate change in the UWMP service area(s) and its potential impacts on supplies and use in Chapters 4, 6, and 7. Suppliers can also include a discussion of any planned actions to address noted vulnerabilities that are identified through the climate change assessment.

3.4 Service Area Population and Demographics

3.4.1 Service Area Population

Water Code Section 10631(a)

Describe the service area of the supplier, including current and projected population ...The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The Water Code does not require a specific methodology for projecting future populations, but it does require that the estimates of future population be based upon data from state, regional, or local service agency population projections.

All Urban Water Suppliers

Suppliers are required to report their current and projected service area populations in their UWMP. Standardized Table 3-1 (R or W, as appropriate) is used to report this information.

Source(s) of population projections data, and any qualifications on their use or accuracy, can be described in both the section narrative as well as in the table's notes section. If the Supplier does not use population projections directly from a standard source (e.g., a General Plan, or the local Council of Governments), but instead develops its own projections, the narrative should include a description of how these projections were developed.

Recommended

Describe the proportion of the service area that is already built-out versus the proportion that remains to be developed or redeveloped. This description is particularly useful for Suppliers that are fully built-out and expect a very low rate of population growth.

Retail Only

Retail Suppliers must report their 2020 population in two separate areas of the UWMP:

- Table 3-1 R: Population – Current and Projected, and
- SB X7-7 Table 3: Service Area Population.

If there are significant non-residential populations, such as seasonal populations based on vacation, agricultural, institutional, or commercial economies, provide a brief narrative describing this element of the population and how the Supplier's population estimates incorporated this element.

Recommended

Population calculations for SB X7-7 Table 3 require the use of a specific methodology (Methodology 2 of the *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*), whereas the population estimates for Table 3-1 have no such methodology. The *Methodologies* document is located at <https://data.cnra.ca.gov/dataset/2015-urba-water-management-plans-uwmpps-historic-information>). Because of the specific guidance provided for SB X7-7 Table 3, DWR recommends that the 2020

population calculated for SB X7-7 Table 3 be used to complete the 2020 population in Table 3-1 R.

Complete Table 3-1: Population – Current and Projected. RUWMPs will use multiple versions of Table 3-1 (R and/or W, as appropriate); one for each participating Supplier.

Table 3-1 Wholesale. Population - Current and Projected

Population Served	2020	2025	2030	2035	2040	2045(opt)

Notes:

Table 3-1 Retail. Population - Current and Projected

Population Served	2020	2025	2030	2035	2040	2045(opt)

Notes:

SB X7-7 tables are included in Appendix E and templates in Excel are located for download in the WUEdata Portal.

3.4.2 Other Social, Economic, and Demographic Factors

Water Code Section 10631

Describe the service area of the supplier, including... other social, economic and demographic factors affecting the supplier's water management planning.

All Urban Water Suppliers

Include a description of social, economic, and demographic factors that may affect water management and planning. Some factors Suppliers may choose to consider include: income and poverty levels, amount of unemployment, major languages spoken or cultural clusters, education levels, general health status and age distribution of population served, economic viability and types of non-residential uses, redevelopment and special tax districts, types and proportions of housing, age of buildings, and others. Recent trends or shifts in these factors may also affect water management and planning.

For example, the population density differences in the service area—such as a comparison of the number of single-family homes to multi-family homes, or large lots versus small lots—can help explain

unusually high or low water use. Two or more major languages spoken in the service area may indicate presence of different cultures with different water use patterns or needs. Income and poverty levels may provide an indication of the ability to implement water conservation programs. Economic viability may indicate potential to support programs for improved water supply reliability. Additionally, age of housing may affect saturation of water-efficient fixtures and appliances, with new houses and buildings built to new water conservation codes and older houses and buildings retaining older, less water-conserving features.

3.5 Land Uses within Service Area

Water Code Section 10631(a)

The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities...

Suppliers must describe both the current and projected land uses in the current and anticipated service area(s) and coordinate with local and regional land use authorities to identify the most appropriate land use information to use. In this section, Suppliers can describe their coordination activities, the land use authorities contacted, information received, and how that information was (or was not) used for their current and projected water supply, use, and reliability analyses. Coordination with both the regional and local land use authorities can help Suppliers identify the most appropriate land use projections to use in their analyses.

For example, coordination with a regional land use authority may provide Suppliers with information about how good General Plan land use estimates are for near- and long-term water resources planning. The regional land use authority may only have general estimates of projected development or population growth, and little to no information regarding specific development project applications or where land use changes are expected to occur and when. In this case, Suppliers may have to assume steady growth rates in all sectors to estimate future water use.

Because different water use sectors have different per capita water usage, it would be useful to understand how the service area land use is changing. Coordination with more localized land use authorities (e.g., a city planning department) may provide more detailed information on what is anticipated and when, based on development project applications, redevelopment initiatives, or other information available to the local land use authority. This could allow Suppliers to develop more refined growth and development scenarios that better estimate changes in different water use sectors over time. For example, anticipating if growth is primarily residential or commercial, or if new residential developments are multifamily or single-family, or determining what new landscape area is anticipated and where.

Various planning agencies, such as Association of Governments, may also provide demographic forecasts based on land use and coordination with regional and local land use authorities. Information provided by these entities may be useful in characterizing the Supplier's projected population, demographics, and land uses, depending on the relative size of the Supplier compared to the planning agency, granularity of their reporting and analysis, and forecast time steps. If electing to use this data, Suppliers will have to decide if the information provided is sufficient to characterize their current and projected service area land use for the five-year intervals specified, or if further coordination is reasonable.

Chapter 4

4.0 Water Use Characterization

This chapter provides guidance for describing and quantifying the urban water supplier's (Supplier) past, current, and future water use projections through at least the year 2040, to the extent that records are available.

A thorough characterization and analysis should provide a realistic prediction of future water use based upon a Supplier's past and current water use, combined with considerations of anticipated growth, new regulations, changing climate conditions, and trends in customer water use behaviors. A thorough analysis examines each water use sector for a variety of factors, then aggregates the information into a comprehensive projection of customer water use that becomes the foundation for integration with the Supplier's water supplies (see Chapter 6) to assess long-term water system reliability (see Chapter 7).

Importance

Accurately tracking and reporting past and current customer water use allows a Supplier to properly analyze use of its water supplies, conduct good resource planning, evaluate conservation programs and needs, and appropriately plan for infrastructure investments. Ultimately, information in this section will inform the retail Supplier's assessment of water system reliability and enable Suppliers to perform their Drought Risk Assessments (DRA)—a new requirement for 2020 Urban Water Management Plans (UWMP) (see Chapter 7). Additionally, accurately reported water use data facilitates the State of California's aggregation of information, which is used to assess statewide urban water use and water use trends.

Many planning agencies—whether local, regional, or statewide—rely upon Suppliers' water use reports and water use projections in order to ascertain water use and supply trends on a larger scale.

Assessments of future growth and related water use, done in coordination with local or regional land use authorities, provide essential information to assure that water use projections reflect anticipated future populations and land uses, reflect potential effects of

a changing climate, and may provide additional information on changing water use ethics throughout the customer community. As part of the recent statutory changes to the Urban Water Management Planning Act (Act), Suppliers are now required to coordinate with local or regional land use authorities as part of their water use projections to help improve the representation of future land use plans in the UWMP projections.

Focus

A Supplier's water use analysis should focus on precisely calculating water use for different water use sectors, and under varying conditions. Water uses vary depending upon geographical context, type of housing or commercial/industrial development, and hydrological conditions in any given year. Examining the Supplier's actual data over several time periods and from various sources, after sorting and scrubbing the data, and then drawing conclusions from that valuable data will allow a Supplier to provide an accurate picture of the water use in its service area. Moreover, future demand projections will be rooted in historical statistics, lending credence to the forecast.

For instance, rather than translating expected population increases into a linear increase in all water use sectors, the Supplier's analysis could consider historic rates of *new service connections* within each sector so as to understand the rate of anticipated growth, assess trends in new housing products being offered within the broader region (e.g., large homes on small lots, which have lower landscape water use), and understand how new residents will affect the need for non-residential services and commensurate water demands (e.g., new retail or new job center). An examination of each water use sector may also reveal that some sectors will decrease with urban growth (e.g., agriculture customers using potable supplies may be displaced by new residential customer use).

Many planning agencies rely upon Supplier's current water use reports and water use projections to ascertain water supply trends on a larger scale. As such, methodical data analysis by each Supplier allows this reliance to be more functional. Furthermore, Retail Suppliers and Wholesale Suppliers rely upon each other for important decisions that hinge on accurate use analyses. Wholesale Suppliers are ultimately reliant on Retail Suppliers for customer water use information. The Wholesale Supplier's customers are the Retail Suppliers, while the

Retail Suppliers serve the end-use customers that occupy and operate different residential and nonresidential land uses.

Essentials

This chapter focuses on detailing past, current, and projected water use for urban water Suppliers. Though much of the focus is for Retail Suppliers, the guidance is also relevant for most Wholesale Suppliers to assist in meeting the Urban Water Management Planning Act's legal requirements.

Retail Suppliers are encouraged to review Appendix K – Estimating Future Water Use, which provides an optional approach for projecting future water uses for both existing customers and future customers based on recent trends, new codes and ordinances, land use changes, and other water-use impacting factors. Appendix K allows Suppliers to calculate anticipated conservation savings for its existing customers, as well as predict the demands for new customers.

Appendix K also provides a method that can be used to reflect the outcome of required coordination with local or regional land use authorities by allowing unique land use classifications to be separately considered, as appropriate, to reflect varied water use factors (e.g., residential lot density or anticipated occupancy). The methodology described in Appendix K can be easily summarized into the more general water use sectors typically used for reporting to the State Water Resources Control Board (State Water Board) Division of Drinking Water's Electronic Annual Reporting (eAR) forms.

DWR has created a Planning Tool to facilitate the Supplier's development of projected water use and subsequent reporting in the 2020 UWMP Submittal Tables (see section 4.3). The Planning Tool Use Worksheet is provided as a unique spreadsheet to help Suppliers also address the new five-year DRA (refer to Chapter 7).

Enhancing

An enhanced retail-customer water use analysis would include analyzing subdivisions within each general water use sector to understand unique conditions and trends (e.g., ages and lot sizes of residential housing or large-lot versus strip mall commercial establishments). This can be accomplished by evaluating specific subsets of customer meter data to understand variances between similar land use types, variations in use across the months, and trends in total use. This may be particularly important in consideration of the

most recent prolonged drought. Further, a Supplier can compare water use estimates with neighboring Suppliers with similar conditions, to evaluate if their use is similar, or if additional factors could be considered (e.g., rates or demographics).

New Requirements

Several legislative changes were enacted since the 2015 UWMPs were completed. The new requirements must be addressed by Suppliers in the 2020 UWMPs, in addition to completing requirements from the older laws. Suppliers are encouraged to review the California Water Code (Water Code) statutory language related to water use requirements.

While there have been many changes, the critically important items are highlighted below:

- Suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land uses information for projecting water use in five-year increments, up to the year 2045. [Water Code Section 10631(a)]
- Suppliers shall provide a simple lay description of their projected water use for the foreseeable future. [Water Code Section 10630.5]
- Suppliers shall provide quantified distribution system losses for each of the five preceding years and whether or not the state standard was met. [Water Code Section 10631(d)(3)(A) and (C)]
- Both Wholesale and Retail Suppliers shall include a DRA for a drought period that lasts five consecutive water years, starting from the year following the assessment, which would be 2021 for this round of UWMPs (see Chapter 7). The DRA requires a comparison of water supplies with total projected water use. Therefore, the Supplier must produce a projected water use for the years 2021 through 2025 as part of the water use projections, up to the year 2040. [Water Code Section 10635(b)]
- Both Wholesale and Retail Suppliers will have to conduct an annual water supply and demand assessment on or before July 1 of each year, starting in 2022. The annual assessment will include current year unconstrained demand. Suppliers are encouraged to consider *unconstrained demand* as the expected water use in the upcoming year, based on recent water use, and before any projected response actions a Supplier may trigger

under its Water Shortage Contingency Plan (see Chapter 8).
[Water Code Section 10632.1]

The remainder of this chapter is divided into the following subsections:

- 4.1 Non-Potable Versus Potable Water Use
- 4.2 Past, Current, and Projected Water Use by Sector
 - 4.2.1 Water Use Sectors Listed in Water Code
 - 4.2.2 Water Use Sectors in Addition to Those Listed in Water Code
 - 4.2.3 Past Water Use
 - 4.2.4 Distribution System Water Losses
 - 4.2.5 Current Water Use
 - 4.2.6 Projected Water Use
 - 4.2.7 Characteristic Five-Year Water Use
- 4.3 Worksheets and Reporting Tables
 - 4.3.1 Optional Planning Tool Use Analysis Worksheet
 - 4.3.2 DWR 2020 UWMP Submittal Tables
- 4.4 Water Use for Lower Income Households
- 4.5 Climate Change Considerations

Many Suppliers have multiple state-licensed public water systems that have unique distribution systems and customer classes spread throughout the Suppliers' defined service area. These different distribution systems may have limited access to only certain Supplier-managed water supplies that may not physically be able to move between distribution systems. In these cases, it may be useful to characterize each public water system separately to assure the water system reliability analysis does not inadvertently comingle supplies that are only accessible to a particular public water system (refer to Chapter 7).

4.1 Non-Potable Versus Potable Water Use

Water Code requires a description and quantification of water uses in the service area. It also requires that recycled water use and potential use be described and quantified. In order to allow Suppliers to demonstrate consistency with recycled water reporting, Submittal Tables have been set up to quantify recycled water use and total

potable plus other non-potable water use separately from recycled water use.

However, information from this chapter and Chapter 6 will be used to prepare the reliability assessments in Chapter 7. In many cases, potable and non-potable (including recycled water) water supplies cannot be used interchangeably. Therefore, in order to ensure that reliability assessments do not comingle water supplies that cannot be practically or legally comingled, this Guidebook suggests separating water use data into two distinct tables—one for potable water use and the other for non-potable water use.

Potable water uses are served by the Supplier's potable water sources (sources that comply with Title 23 Drinking Water Standards). Non-potable water uses are served by the Supplier's non-potable water sources such as recycled water, remediated groundwater, or even untreated surface or groundwater supplies. In most circumstances where a Supplier could separately account for water uses served by non-potable supplies, the non-potable water use is served from a water distribution system that is separate from the Supplier's potable water distribution system. In these instances, Suppliers are encouraged to separately represent these past, current, and projected non-potable water uses from the potable water uses, summarized appropriately to facilitate analysis.

Suppliers electing to separately report potable and non-potable water use and supply should consider:

- **Uses are Not Static.** Suppliers that choose to report potable and non-potable uses separately should be mindful that water use may shift from one to the other. If, for instance, potable water was historically used to meet a landscape irrigation demand, then was converted to a non-potable system (e.g., recycled water), the *current* and *projected* water use may need to shift to the non-potable water system reliability analysis (refer to Chapter 7). Suppliers may also report or make note of *potential* non-potable water uses to understand where potable water savings may be achieved. However, although a significant amount of demand in a Supplier's service area may conceptually qualify as a potential non-potable demand, it may be practically difficult to deliver a non-potable supply to meet the identified potential non-potable use (e.g., it may be cost prohibitive to serve all urban park irrigation systems with recycled water).

Suppliers are encouraged to use caution when categorizing whether a certain projected water use can theoretically be met by a non-potable supply, if that supply is still part of planned future water supplies (refer to Chapter 6).

- **Direct Potable Reuse.** DWR recognizes that there are instances where Suppliers may place traditional non-potable supplies (such as recycled water) into groundwater aquifers and surface water sources that provide the source water for potable uses (e.g., direct potable reuse). In these situations, the Supplier will need to decide whether or not that water use is considered a potable or non-potable use. In other instances, the Supplier is encouraged to recognize the interrelationship between potential non-potable water uses (e.g., groundwater recharge with recycled water) where that non-potable use becomes a supply source to meet potable uses and to assure the separation is appropriately reflected in water use and water supply tables used for water service reliability analyses. The Supplier is encouraged to use its discretion to approach these circumstances as best meets its near-term and long-term water service reliability assessments.
- **Recycled Water Reporting.** Chapter 6 includes suggested approaches to characterize and assess non-potable water supplies—especially recycled water, which must be specifically addressed. Unless recycled water is the only component of non-potable water use and supply, it remains necessary to quantify and characterize recycled water use and supply separately.
- **Consistency.** Regardless of the approach to characterizing typical recycled water uses, other non-potable water uses, or raw water uses, the Supplier should be consistent in characterizing the supplies available to meet potable and non-potable uses and in describing past, current, and projected water uses and supplies.

For instance, if a Supplier anticipates having 5,000 acre-feet of recycled water available as a supply, spread equally from month to month, it should recognize that this non-potable supply may be limited to meeting only non-potable uses. If projected non-potable uses for the recycled water are less than 5,000 acre-feet (e.g., winter irrigation demand may be zero), the recycled water should not be commingled with potable supplies for purposes of

assessing water service reliability. Because the non-potable use may be minimal in certain months compared to the non-potable supply, the extra non-potable supply should not inadvertently be identified as a supply that is available to meet potable demands. During reliability assessments in Chapter 7 for single dry years and droughts lasting five consecutive years, this potential comingling can result in an incorrect water service reliability assessment.

Similar to the 2015 UWMP, if raw water use in 2020 was served with potable supplies, and it is part of the Total Potable Gross Water Use used to assess compliance with gallons per capita per day (GPCD) targets (see Chapter 5), it is still reported in Table 4-1 (presented later in this chapter). However, Suppliers are cautioned to potentially not include this water use in its categorization of potable water uses if the raw water supply served was not intended to be a potable supply.

DWR has prepared the Potable/Non-Potable (P-NP) Planning Tool to assist Suppliers that choose to separate potable from non-potable uses and supplies in their analysis. DWR has also prepared potable and non-potable optional tables within the Submittal Tables workbook for Suppliers that choose to report and submit separately for potable and non-potable uses and supplies.

Chapter 4 provides for reporting of both potable plus non-potable uses. Non-potable uses in Submittal Table 4-1 will be denoted as either *raw water* or *other non-potable* by using the column labeled *Level of Treatment* and selecting from the drop-down list. Recycled water must be distinguished from other water uses and it is addressed in Chapter 6, but a summary is included in Submittal Table 4-3 (R or W, as appropriate).

4.2 Past, Current, and Projected Water Use by Sector

Water Code Section 10635.

(a) Every urban water Supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with

the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Water Code Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following...

(2). The water use projections shall be in the same five-year increments described in subdivision (a).

(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections. (ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

All Suppliers

Suppliers must include in the UWMP current and projected water use in five-year increments for a period of at least 20 years, and ideally to the year 2045.

A Supplier must also make its determination of the reliability of its projected water supply(ies) based upon information that is reasonably available at the time the 2020 UWMP is prepared. Accurate and thorough water use information in this chapter will help the water service reliability assessment performed pursuant to Water Code Section 10635 (refer to Chapter 7).

Retail Only

Retail Suppliers shall identify water use, to the extent that records are available, for at least each of the 10 water use sectors identified in Water Code Section 10631(d). Suppliers are directed to use as many water use sectors as are applicable, to provide a better understanding of its projected water use. Section 4.2.2 provides a description of other water sectors Suppliers may wish to consider.

Some Retail Suppliers may also supply wholesale uses. If a retail Supplier's wholesale use does not exceed 3,000 acre-feet per year, the Supplier is not considered a wholesale Supplier, and it is not required to complete the Submittal Tables for a wholesale Supplier. This small volume of wholesale use would be reported in the Supplier's retail Submittal Tables 4-1 R and 4-2 R.

Suppliers should include a narrative description of how water uses are calculated and how water use projections are estimated. Suppliers may reference any documents used to show historical water use, calculate current water use, and estimate projected water use. The optional Planning Tool Use Worksheet has been provided to facilitate Suppliers' projections of future uses.

Wholesale Only

When reporting water uses in Submittal Tables 4-1 and 4-2, to provide information for their reliability assessment, Wholesale Suppliers will only report their direct uses. They will not report the uses of other agencies to which they provide water. For example, if a Wholesale Supplier sells water to a retailer and the retailer uses that water for their industrial customers, the Wholesale Supplier is only required to report the sale to the other agency in Submittal Tables 4-1 and 4-2. The Retail Supplier is responsible for reporting the uses of their water supply to the industrial customer in their own UWMP.

Wholesale Suppliers may, at their discretion, choose to also report an aggregation of all customer reported water uses by sector. This is not

required by Water Code and no Submittal Table is provided for compiled service area use by retail sector.

4.2.1 Water Use Sectors Listed in Water Code

Water Code Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

For purposes of the 2020 UWMPs, the following definitions are suggested for water sectors listed in the Water Code. The order of the sectors follows the order found in the Water Code. Retail Suppliers must use these sectors, at a minimum, to the extent records are available, to characterize their water use customers.

Additional sectors or subdivisions of these sectors can be included in the Planning Tool and Submittal Tables to allow a Supplier to reflect unique conditions that may apply to certain sectors or subsectors not listed here. For example, a Supplier may not have separate billing categories for Commercial and Institutional use. In this case, the Supplier may use the *Other* category and describe that it is the combined Commercial plus Institutional use.

If a sector is not applicable or no records are available, it is recommended that the Supplier address this situation in their text description. This ensures that readers of the plan and users of data are aware of why the Supplier did not report values for these sectors.

Often water use can be reported using the same water use sectors reported by the Supplier in reporting to the State Water Board Division of Drinking Water's eAR.

4.2.1.1 *Single-Family Residential*

A single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. This is a retail demand.

4.2.1.2 *Multi-Family*

Multiple dwelling units contained within one building or several buildings within one complex. This is a retail demand.

4.2.1.3 *Commercial*

A water user that provides or distributes a product or service. Water Code 10608.12(d). This is a retail demand.

4.2.1.4 *Industrial*

A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Water Code Section 10608.12(h). The following link is to the NAICS website: <http://www.census.gov/cgi-bin/sssd/naics/naicsrch>. This is a retail demand.

4.2.1.5 *Institutional (and Governmental)*

A water user dedicated to public service. This type of user includes, among other users, higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. Water Code Section 10608.12(i). This is a retail demand.

4.2.1.6 *Landscape*

Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. This is a retail demand.

4.2.1.7 Sales to Other Agencies

These are water sales made to another agency (referred to here as *water Supplier*). Projected sales may be based on projected demand provided by the receiving water Supplier. There is inherent uncertainty in future projections, therefore, any projected sales reported in the UWMP are for planning purposes only and are not considered a commitment on the part of the seller. This is a wholesale demand. Water suppliers will determine whether their demands are considered sales, transfers, or exchanges; reporting in the UWMPs will reflect the Suppliers' determination of these water demands. Some Retail Suppliers also supply water to other Suppliers. This is considered a wholesale demand.

4.2.1.8 Conjunctive Use

A management strategy where surface water is managed in conjunction with an underground aquifer. For purposes of the UWMP, conjunctive use is seen as a management strategy rather than as a water use. Do not use the sector *conjunctive use* as a water use. This type of water use would best be reported as groundwater recharge or as *Other*.

4.2.1.9 Groundwater Recharge

The managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge water is subsequently pumped out of the basin in the same year, that water will be reported by the Supplier as a supply from groundwater. This may be either a wholesale or retail demand.

4.2.1.10 Saline Water Intrusion Barriers

Injection of water into a freshwater aquifer to prevent the intrusion of saltwater. This may be either a wholesale or retail demand.

4.2.1.11 Agricultural

Water used for commercial agricultural irrigation. Note that water used for processing agricultural products (e.g., food, beverage, or textile manufacturing) may be considered industrial process water, rather than an agricultural water use. Industrial process water may be excluded from gross water use for SB X7-7 calculations (see Chapter 5). To be classified as industrial process water, the water use must fall

under Sector 31, 32, or 33 of NAICS code (search the 2017 NAICS Manual for additional information:

<https://www.census.gov/eos/www/naics/>). This may be either a wholesale or retail demand.

4.2.1.12 Distribution System Losses

Reporting of distribution system losses is required by the Water Code. See section 4.3 and Appendix L for details. This is a retail demand.

4.2.2 Water Use Sectors in Addition to Those Listed in Water Code

The water use sectors described below are not specifically listed in, nor required by the Water Code. These sectors may help some Suppliers, especially a Wholesale Supplier, account for the entirety of its water uses. Water use in these sectors is to be reported as appropriate and as records are available.

4.2.2.1 Exchanges

Suppliers will make a determination as to whether water sent to another Supplier is a sale, transfer, or exchange. This is a wholesale demand.

Water exchanges are typically water delivered by one water user to another water user, with the receiving water user returning the water at a specified time, or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or can include payment and the return of water. The water returned may or may not be an *even* exchange. Water can be returned on a one-for-one basis or by another arrangement (e.g., for each acre-foot of water received, two are returned).

4.2.2.2 Surface Water Augmentation

The planned placement of recycled water into a surface water reservoir that is used as a source of domestic drinking water supply (refer to Chapter 6, section 6.5 Recycled Water).

4.2.2.3 Transfers

Suppliers will make a determination as to whether water sent to another Supplier is a sale, transfer, or exchange. This is a wholesale use.

The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to

a transfer, sale, lease, or exchange of water or water rights. Transfers can be between neighboring Suppliers or across the state, provided there is a means to convey or store the water. A water transfer can be a temporary or permanent sale of water or a water right by the water right holder, a lease of the right to use water from the water right holder, or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts of the purpose of improving long-term supply reliability.

Some Retail Suppliers transfer water to other Suppliers. This is considered a wholesale use.

4.2.2.4 Wetlands or Wildlife Habitat

Water used for a managed environmental use to improve an environmental condition. This may be a wholesale or retail demand.

4.2.2.5 Other

Any water demand that is not adequately described by the water sectors defined above. When using the *Other* category as a water use sector, the agency is required to briefly describe the water uses reported in this category (e.g., firefighting). Examples include:

- The Supplier does not track, or may not project, water use by the individual sectors listed above.
 - o A Supplier does not track actual water demand, and/or project water demand, by individual sectors. Such Suppliers shall report their total demand in this category. Suppliers are required to report water use by sector to the extent that records are available.
 - o The Supplier combines commercial, industrial, and institutional into one sector called *CII*.
 - o A supplier combines their single-family and multi-family sectors into one sector that they define as *residential*.
- Unbilled, authorized consumption, such as water used for firefighting, line flushing, or other unbilled uses.

4.2.3 Past Water Use

Retail Only

While not part of the DWR UWMP Reporting Tables, the Water Code requires Retail Suppliers to *quantify* past water use. Past water use will

be valuable to Suppliers during development of projected uses as it helps a Supplier understand water use trends; effects of temporary use restrictions imposed during the most recent prolonged drought, and recovery from such temporary restrictions; effects of long-term demand management measures; and other pertinent water use factors. Suppliers may refer to reports filed with the State (e.g., eAR or Water Audits) to document water use that has taken place since completing the 2015 UWMP. The Planning Tool Use Worksheet includes the ability to record monthly to annual past water use for 2016 through 2019. Reporting this information directly in the Planning Tool may provide a useful context for the Supplier's recording of current use along with the analysis for at least the next 20 years (see section 4.3).

Wholesale Only

Wholesale Suppliers are not required to quantify past water use. However, past water use will be valuable to Suppliers during development of normal year, dry year, multiple dry year, and projected uses as it helps a Supplier understand water use trends, effects of temporary use restrictions imposed during the most recent prolonged drought, recovery from such temporary restrictions, effects of long-term demand management measures, and other pertinent water use factors.

4.2.4 Distribution System Water Loss

Water Code Section 10631(d)(1)

For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following...

(J) Distribution system water loss....

Water Code Section 10631(d)(3)

(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Retail Only

Distribution system water losses are the physical potable water losses from the pressurized water distribution system and the Supplier's storage facilities up to the point of delivery to the customer's system (e.g., up to the residential water meter) calculated using the American Water Works Association Method (Title 23 California Code of Regulations [CCR] Section 638.1 et seq.). This is the sum of American Water Works Association Method *real losses* and *apparent losses*.

In the 2020 UWMPs:

- Retail Suppliers must report their distribution system water loss for each of the five years preceding the plan update (Water Code Section 10631(d)(3)) in accordance with the rules adopted pursuant to Water Code Section 10608.34.
- Additionally, if the Water Loss Standard has been adopted before 2020 UWMP submittal, the UWMP must include data showing whether the Supplier met the standard or not.

Water loss data will be reported in Submittal Table 4-4 (R or W, as appropriate), presented later in this chapter (see section 4.3 – Worksheets and Reporting Tables) and the Water Loss Standard will be described in the narrative, as applicable.

Since 2016, Retail Suppliers are required to quantify their distribution system losses in accordance with CCR Section 638.1 et seq. An electronic copy of the audit in Excel format is to be submitted to DWR by October 1 of each year, using DWR's online submittal tool pursuant to CCR Section 638.5. As such, it may be that insufficient Water Loss Audit data, pursuant to the rules adopted under Water Code Section

10608.34, is available. In this situation, Suppliers are encouraged to estimate their water losses for the missing year(s) and note in the table and narrative that they are estimated values and the basis for estimation.

Projected water losses, reported in five-year increments for at least 20 years, must also be included in the UWMP to effectively evaluate water service reliability, and it is one of the water use sectors that requires reporting per Water Code Section 10631(d)(1). Estimated losses for 2020 can be included in the Planning Tool Use Worksheet, to facilitate analysis of projected water use.

Note, this section on reporting distribution system water loss differs from the discussion of distribution system real loss required by Water Code Section 10631(e)(1)(B) under Demand Management Measures (DMM) discussed in Chapter 9 of this Guidebook. This section requires estimation of water loss, whereas, the DMM in Chapter 9 requires retail water agencies to discuss how they will address water loss and how wholesale agencies will manage system assets.

Wholesale Only

Wholesale suppliers are not required to perform water loss audits and are not subject to the UWMP distribution system loss reporting required for Retail Suppliers under Water Code Section 10630(d)(1) or 10630(d)(3). However, it is recommended that estimated losses be reported in characterizing water years for reliability planning and projected water needs. Submittal Table 4-1 W provides the option to select water loss as a category to report on.

Submittal Table 4-1 Wholesale: Demands for Potable and Non-Potable Water - Actual			
Use Type (Add additional rows as needed)	2020 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only use types that will be recognized by the WUE data online submittal tool</i>	Additional Description (as needed)	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Sales to other agencies			
Transfers to other agencies			
Exchanges to other agencies			
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Retail demand for use by suppliers that are primarily wholesalers with a small volume of retail sales			
Losses			
Other Potable			
Other Non-Potable			
Other			
TOTAL			0
NOTES:			

4.2.5 Current Water Use

Current water use may be ascertained by analyzing information generally managed by the Supplier (e.g., meter data, billing records, and others) or any submitted recent eAR monthly reports. Current water use is entered into the DWR UWMP Submittal Table 4-1 (R or W, as appropriate) provided to record current gross water use, not including recycled water use; recycled water use is detailed in Chapter 6 and summarized in Submittal Table 4-3 (R or W, as appropriate) for total water use calculations.

Suppliers are encouraged to use the Planning Tool or P-NP Planning Tool Use Worksheet—especially Part 1: Current Gross Water Use. Information entered into the Planning Tool Use Worksheet can facilitate completing DWR's UWMP Submittal Tables. More importantly, the Planning Tool Use Worksheet can facilitate the Supplier's analysis

of projected water use by water use sector, because it is a consolidated location to record water use in a manner that helps visualize relationships between the past and future projected uses.

Retail Only

Current 2020 water use will also be used to demonstrate the retail Supplier's compliance with its 2020 per-capita water use target adopted in its 2015 UWMP, pursuant to Water Code Section 10608.24(b) (refer to Chapter 5).

4.2.5.1 Optional Planning Tool – Current Use

DWR has created an optional Planning Tool that Suppliers can use to record and assess their data. Each version of the Planning Tool Use Worksheet is separated into three parts and further explained in section 4.3, Worksheets and Reporting Tables, of this Guidebook. Part 1 can be used to record Current Gross Water Use. Suppliers can choose to separately report for potable and non-potable water use and supply using the P-NP Planning Tool, which provides separate Use Worksheet for potable and non-potable water uses. This tool can be used by Wholesale or Retail Suppliers; however, water use sectors will need to be modified to the appropriate categories for Wholesale Suppliers.

Planning Tool Use Worksheet Part 1: Current Gross Water Use

This portion of the Water Use Worksheet provides an opportunity to record the Supplier's 2020 water use by sector and by month (see section 4.2.1). Documenting water use by month is strongly encouraged because it helps to look at monthly water use trends to identify shortage conditions that may occur in any given month when completing the DRA (see Chapter 7). Even though the Planning Tool worksheets allow for monthly reporting, it can accommodate bimonthly, seasonal, and annual reporting by skipping columns or just by recording an annual value in the total column. If potable uses and non-potable uses are separated, the P-NP Planning Tool provides two Use Worksheets to accommodate this tracking.

The monthly values for each sector may be consistent with the Supplier's reporting to the State Water Board Division of Drinking Water through the eAR system if the Supplier has continued to report monthly. April 21, 2020, the State Water Board adopted a regulation to make monthly water use reporting mandatory for all water Suppliers, which is expected to take effect October 1, 2020.

The *distribution system water loss* value can also be derived from the eAR reports or from the Supplier's Water Audit Report required pursuant to CCR Section 700.1 of Title 23, Division 2, Chapter 7. Water Suppliers should have information from the Water Audit Report from at least 2016 through 2019, as required by Water Code Section 10631(d)(3) (see section 4.2.4).

Where data at the selected time step is not available (e.g., annual Water Loss Audit reports when using a monthly time-step), suppliers may choose any reasonable method to disaggregate or aggregate the data to accommodate the selected time-step (e.g., use monthly average water loss value for monthly time-step by dividing the annual water loss by 12). Notes should be provided in the narrative or tables regarding any adjustments.

The Water Code recognizes that some Retail Suppliers will need to include "sales to other agencies" if they have both retail and wholesale demands upon their water supplies. In such cases, the Supplier may choose to include the sale to other agencies as a separate line in the Use Worksheet and treat this water use as it would treat uses attributable to retail end-use.

When using the Planning Tool worksheets or Submittal Tables, shaded cells are automatically filled in based upon information entered into unshaded cells (e.g., monthly single-family residential water use is automatically summed for an annual total). Several pre-defined water use sectors are presented as required by the Water Code, but a Supplier is encouraged to reflect its unique water use sectors and add additional sectors (*Other*) as applicable, when projecting future water use (e.g., growth in a particular commercial industry, the anticipated benefits of demand management programs targeting only commercial water users). Appendix K provides further guidance on water use sectors. As noted above, Wholesale Suppliers will have to adjust the water use sectors as applicable.

4.2.6 Projected Water Use

Water Code Section 10635 (a).

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total

water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Water Code Section 10631

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available... The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

Water Code Section 10631(d)(4)

(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

All Suppliers

Projected water use can be determined by examining past and current water use trends, along with consideration of land use planning data, climate change (see section 4.6), and other factors relevant to sector-specific water use. Chapter 3 provides guidance regarding a Supplier's coordination with local land use agencies, specifically that Suppliers *"...shall coordinate with local or regional land use authorities to determine the most appropriate land use information..."* (Water Code Section 10631(a)). Land use information can be a primary basis for organizing current water use sectors and projecting future water use for each sector. Suppliers may reference any other documents used to estimate projected demands.

Suppliers are encouraged to use the Planning Tool Use Worksheet to: (1) organize and record current water use data, (2) record projected water use in five-year increments to 2040 (required) or 2045 (optional), and (3) develop projected water use for the next five consecutive years (e.g., 2021 through 2025) as the first step in preparing a Supplier's five-year water supply reliability assessment. As noted above, Suppliers are highly encouraged to report water use separately for potable and non-potable uses in order to better assess actual water supply reliability and drought risk.

Retail Only

Retail Suppliers are encouraged to use Appendix K, which provides a preferred methodology for projecting water use and allows Suppliers to reflect anticipated conservation savings for its existing customers, assess the Supplier's water use trends, and predict future demands for new customers that are subject to newer federal, state, and local water-use related codes, standards, and ordinances. Even if a Supplier does not use the methodology presented in Appendix K, Suppliers are encouraged to use the Planning Tool Use Worksheet.

4.2.6.1 20-Year Planning Horizon

All Suppliers

In accordance with Water Code Section 10635(a), all Suppliers will need to report their projected water use, in five-year increments through 2040. Suppliers are encouraged to project through 2045 to bridge the data gap between plan cycle years. If water use is not projected through 2045, there will be no 20-year projections available for land or water resources management planning between 2020 and 2025.

Retail Only

If a Retail Supplier receives water from a Wholesale Supplier, the Retail Supplier must provide their projected use of that supply to the Wholesale Supplier. Retail Suppliers are encouraged to also provide their Wholesale Supplier with information regarding the extent to which water use projections consider savings from codes, standards, ordinances, or transportation and land use plans along with applicable citations.

Additionally, in accordance with Water Code Section 10603(d)(2), Retail Suppliers must report their projections for each of the water use sectors identified in section 4.2.1.

4.2.6.2 Water Year Types

All Suppliers

For the water service reliability assessment, Suppliers will need to characterize the *normal* water use for estimating normal water supply reliability and reliability in the event of a single dry year. Suppliers may choose to characterize the *normal* year water use in whatever manner makes the best planning sense. Both *normal year* and *single dry year* data is reported in Submittal Tables 7-1, 7-2, and 7-3. Suppliers will also have to characterize a five-consecutive-year drought which is addressed in section 4.2.7.

4.2.6.3 Codes and Other Considerations Used in Projections

Retail Suppliers

- If available, water use projections must display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified.

- Suppliers must cite the code, standards, ordinances, or transportation and land use plans used in making the projections.
- Suppliers must indicate whether or not the water use projections considered savings from these (reported in Submittal Table 4-5 R).

Water savings from codes, standards, ordinances, and land use plans, also known as *passive savings*, can be reflected in the Planning Tool Use Worksheet for each year of the near-term, five-year projections, and for the longer-term incremental projections to 2045. These various factors generally decrease water use for new and future customers compared to existing customers. However, some ordinances and standards may also apply to existing customers, such as plumbing code changes that result in lower water use when existing customers replace fixtures and appliances. Suppliers are required to state the extent to which passive savings are considered in these water use projections. This will be noted in Submittal Table 4-5 R. Retail Suppliers are encouraged to review and use the methodology presented in Appendix K as it applies to assessing future conditions.

Submittal Table 4-5 R: Inclusion in Water Use Projections is used for reporting whether or not water use savings from codes, standards, ordinances, or transportation and land use plans were used to develop water use projections.

4.2.6.4 Optional Planning Tool – Projected Use

Each version of the Planning Tool Use Worksheet is separated into three parts, and then further explained in section 4.3 Worksheets and Reporting Tables in this Guidebook. If potable uses and non-potable uses are separated, the P-NP Planning Tool provides Use Worksheets to accommodate this tracking.

- Part 1: Current Gross Water Use (described in section 4.2.5)
- Part 2: Projected Gross Water Use
- Part 3: Estimating Gross Water Use for the Next Five Years

Planning Tool Use Worksheet Part 2: Projected Gross Water Use

This portion of the Planning Tool Use Worksheet allows Suppliers to record projected water use for each of the same sectors reported in Part 1. Appendix K provides additional guidance for performing water

use projections. As noted above, Wholesale Suppliers will need to modify the use sectors as applicable. Values in Part 2 are entered as annual quantities because the utility and feasibility of reporting smaller time-steps is not justified. As specified by the statutory language, water use projections based upon information developed pursuant to subdivision (a) shall be in five-year increments for at least 20 years. Suppliers are encouraged to project water uses to 2045, in order to provide additional functionality of the UWMP for other land and water planning activities. When projecting water use, Suppliers should consider the effects of codes, standards, ordinances, and land use plans, as well as the potential effects from climate change conditions, anticipated regulatory changes, and other locally applicable criteria. These additional considerations are further described in Appendix K.

Planning Tool Use Worksheet Part 3: Estimating Gross Water Use for the Next Five Years

Part 3 of the Planning Use Worksheet provides the Supplier with a useful template to record total gross water use anticipated for 2021 through 2025. The purpose of this water use projection is to allow Suppliers to provide a monthly water use baseline for evaluating the reliability of its water supplies during a prolonged drought in their water service reliability assessment and DRA (see Chapter 7).

Water use estimates developed in this part should reflect what the Supplier anticipates *prior* to implementing any short-term Water Shortage Contingency Plan (WSCP) demand reduction actions. In other words, the Supplier should use its normal water use budgeting process. If normal water use includes water conservation programs, either currently implemented or planned for implementation, estimated water use values would incorporate the effect of those conservation programs when reporting projected water use.

The Planning Tool Use Worksheet: Part 3 allows Suppliers to report anticipated changes to water use for each selected time-step for each subsequent year, beginning with adjustments to the 2020 recorded water use from the Planning Tool Use Worksheet: Part 1 to reflect expected water use for the same month or other time-step in 2021, 2022, and so on. Each subsequent year can be further adjusted as appropriate. While potentially unnecessary, adjustments could reflect several factors the Supplier anticipates may occur, such as: increases from growth, decreases from long-term conservation savings, effects of climate change, anticipated regulatory changes, and other locally

applicable criteria (e.g., temporary building moratoriums that could be in place during extreme droughts). Suppliers are therefore encouraged to be as realistic as possible, looking at water use trends during prior drought periods and understanding customer responses and other effects on water use that would be expected prior to the Supplier taking any WSCP actions.

4.2.7 Characteristic Five-Year Water Use

Water Code Section 10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following...

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period. [Emphasis added]

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

Water Code Section 10635(b) is a new requirement for the 2020 UWMPs.

A critical component of this new statutory language is the requirement to prepare a five-year DRA (refer to Chapter 7). This five-year DRA can also be used to provide the water service reliability assessment for a drought lasting five years.

DWR recommends that, as a first step, Suppliers estimate expected gross water use for the next five years without drought conditions (also known as *unconstrained demand*). These numbers can then be adjusted to estimate the five-years' cumulative drought effects. Suppliers that have completed the Planning Tool Use Worksheet: Part 3 will have already completed the first step.

Suppliers are encouraged to develop a realistic representation of water use that would be anticipated, absent any prescribed actions taken per its WSCP (see Chapter 8) and to record the monthly (or other time-step) projections in the Planning Tool Use Worksheet: Part 3. The more realistic these numbers are, the better prepared Suppliers can be in the event of a long-term drought.

Considerations:

- Some Suppliers are already implementing actions to reduce water use. In this case, the Suppliers may choose to consider that normal, unconstrained water use includes those actions and prepare their risk assessment and WCSP accordingly. Alternatively, the Supplier could estimate the water use without the *normal* conservation actions, include the *normal* conservation actions water shortage level 1 actions, and then consider that they are always operating at a level 1 water shortage. This alternative method would likely make it harder to use Chapter 4 data to inform the reliability and risk assessment; however, Suppliers are encouraged to use the protocols that best enable their management of water resources. In their UWMP, Suppliers should document the process and decisions made.
- Suppliers are encouraged to undertake the DRA using monthly characterization of supplies (see Chapter 6). If monthly characterization of supplies is used, the next five-years' projected uses should also be recorded monthly. This approach will help Suppliers identify if water service reliability of the estimated five-year drought period is a concern in any particular month(s) (e.g., annual supplies may appear sufficient, but summer month constraints and demands may lead to summer shortages).

Total gross water use for 2021, for example, can be developed by modifying the gross water use values for 2020 (recorded in the Planning Tool Use Worksheet: Part 1), taking into consideration the anticipated factors affecting water use, with each subsequent year further adjusted, as appropriate. Adjustments could reflect several factors the Supplier anticipates may occur, such as increases from growth, decreases from long-term conservation savings, effects of climate change, anticipated regulatory changes, and other locally

applicable criteria (e.g., temporary building moratoriums that could be placed during extreme droughts).

Because the DRA procedures presented in Chapter 7 intend to allow the Supplier to indicate likely benefits from triggered WSCP responses, the water uses projected for 2021 through 2025 should reflect anticipated use *prior to* expected benefits of WSCP responses. As noted above, these water usage values may still include water conservation actions already in place, planned actions, anticipated code changes, and other known or planned actions that would occur, regardless of whether or not there is a drought in effect.

4.3 Worksheets and Reporting Tables

Suppliers are encouraged to use the *Planning Tool Use Worksheet* to record current and projected water use as described in section 4.2. These worksheets are structured to facilitate the Supplier's completion of the DWR Submittal Tables, including the new DRA table (refer to Chapter 7). The Submittal Tables relevant to customer water use are introduced in this section and are similar to the tables Suppliers completed for their 2015 UWMPs, with some modifications to reflect Water Code changes, the 2020 timeframe, and to provide additional Supplier flexibility to assure the tables are functionally useful for the Supplier.

4.3.1 Optional Planning Tool Use Analysis Worksheet

The Planning Tool Use Worksheet is shown below. This is a tool DWR has provided to assist Suppliers in developing their 2020 UWMP, including the water service reliability assessment and DRA. Use of this tool is optional, there are no Submittal Tables that reflect the tool worksheets, and worksheet tables do not have to be submitted with the 2020 UWMP. However, Suppliers that use this tool are encouraged to include the worksheet tables in an appendix or the narrative of their 2020 UWMP.

In the companion P-NP Planning Tool, there are *Potable* and *Non-Potable* versions of the worksheets for Suppliers that choose to characterize their water use and analysis separately for these fractions. These worksheets are the same, except that the titles are different. Both the combined and separate worksheets will be available from DWR as an electronic spreadsheet for use by Suppliers.

Suppliers that choose to use the Planning Tool will need to input the appropriate values into the DWR electronic reporting Submittal Tables.

Planning Tool information will not automatically populate the Submittal Tables at this time because they are located in different Excel workbooks. Nonetheless, it remains a useful tool for reliability and risk assessments.

4.3.1.1 Planning Tool Use Worksheet – Part 1:

[illegible]

4.3.1.2 Planning Tool Use Worksheet – Part 2:

Part 2: Projected Gross Water Use				
2025	2030	2035	2040	2045 (opt)
0	0	0	0	0
0	0	0	0	

4.3.1.3 Planning Tool Use Worksheet (Potable) – Part 3:

Part 3: Estimating Gross Water Use for next 5 years [use of monthly data is recommended]														
For Drought Risk Assessment	Change from 2020													0
	2021 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0
	Change from 2021													0
	2022 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0
	Change from 2022													0
	2023 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0
	Change from 2023													0
	2024 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0
	Change from 2024													0
	2025 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0

Wholesale Only

Wholesale Suppliers are encouraged to also use the Planning Tool Use Worksheets to complete Submittal Tables 4-1 W and 4-2 W.

Wholesaler Suppliers will only report uses delivered to end user customers, such as its Retail Suppliers.

A Wholesale Supplier may report on the entirety of water use within its service area for each Retail Supplier sector by aggregating water uses reported from all Suppliers in the service area. Although Retail Suppliers are required to report water use to their Wholesale Suppliers, aggregated reporting of all water use within a Wholesale Supplier's service area is not required by Water Code, and no standardized table is provided for compiled service area demand. Wholesale Suppliers that report this aggregated service area demand may wish to include a non-standardized table for this data in their UWMP.

4.3.2 DWR 2020 UWMP Submittal Tables

The following tables are part of DWR's electronic reporting system for data input and are used by DWR to evaluate regional and statewide water use information and summarize data for DWR-required Legislative reports. These are the standardized tables for electronic submittal of a Supplier's 2020 UWMP. Suppliers can enter the requested data into each table, much of which can be populated from the Planning Tool Use Worksheet, if used. The tables described under the following subsections maintain data reporting between the Supplier's 2015 and 2020 UWMPs. However, several Submittal Tables have been modified to account for changes in the Water Code and to update the years as relevant. An Excel workbook, *Submittal Tables*, is

available for use in preparing tables for the 2020 UWMP and for electronic submittal.

Each worksheet in the Submittal Tables workbook contains two optional tables for Suppliers that choose to separate potable and non-potable supply, and to use for reporting and analysis. Values from these tables will be summarized in the associated Submittal Table. The separated tables are useful for reliability and risk assessment and can be included in the UWMP narrative, but there are no potable and non-potable separated Submittal Tables.

Examples of Submittal Table with Respective Optional Potable and Non-Potable Tables

Submittal Table 4-3 Retail: Total Gross Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable <i>From Tables 4-1R and 4-2 R</i>	0	160	0	0	0	0
Recycled Water Demand* <i>From Table 6-4</i>	0	0	0	0	2,040	0
TOTAL WATER USE	0	160	0	0	2,040	0
*Recycled water demand fields will be blank until Table 6-4 is complete.						
NOTES:						
OPTIONAL Table 4-3 Retail: Total Gross Water Use (Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water <i>From Tables 4-1R and 4-2 R</i>	0	110	110	110	110	110
TOTAL WATER USE	0	110	110	110	110	110
NOTES:						
OPTIONAL Table 4-3 Retail: Total Gross Water Use (Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Recycled Water Demand* <i>From Table 6-4</i>	0	0	0	0	0	0
Raw and Other Non-potable <i>From Tables 4-1R and 4-2 R</i>	0	0	0	0	0	0
TOTAL WATER USE	0	0	0	0	0	0
*Recycled water demand fields will be blank until Table 6-4 is complete.						
NOTES:						

There are separate Submittal Tables for Wholesale and Retail Suppliers. In the section below, where tables are different, each will be displayed. Where essential information is the same, only the Retail Supplier Submittal Table will be displayed.

4.3.2.1 Submittal Table 4-1: Total Gross Water by Sector - 2020

Submittal Table 4-1 (R or W, as appropriate) is used to report the Supplier's gross water use by sector for 2020 (fiscal year or calendar year). The Planning Tool Use Worksheet can be used to develop the values to fill in this table. If a Supplier does not use the Planning Tool Use Worksheet, Suppliers will need to develop these values on their own.

Suppliers can use the *Use Type* drop-down list to indicate the water use sector and *Level of Treatment When Delivered* drop down list to identify *Drinking Water*, *Raw Water*, or *Other Non-Potable Water*. Recycled water will be summarized in Submittal Table 4-3 (both R and W) and should not be included as part of gross water use in this table because it must be reported separately. Submittal Table 4-1 W for Wholesale Suppliers and Table 4-1 R for Retail Suppliers are shown below.

Submittal Table 4-1 Wholesale: Demands for Potable and Non-Potable Water - Actual			
Use Type (Add additional rows as needed)	2020 Actual		
Drop down list <i>May select each use multiple times</i> <i>These are the only use types that will be recognized by the WUE data online submittal tool</i>	Additional Description (as needed)	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Sales to other agencies			
Transfers to other agencies			
Exchanges to other agencies			
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Retail demand for use by suppliers that are primarily wholesalers with a small volume of retail sales			
Losses			
Other Potable			
Other Non-Potable			
Other			
TOTAL			0

Water Use Characterization

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type <i>(Add additional rows as needed)</i>	2020 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family			
Multi-Family			
Commercial			
Industrial			
Institutional/Governmental			
Landscape			
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Sales/Transfers/Exchanges to other agencies			
Sales/Transfers/Exchanges to other agencies			
Losses			
Other			
TOTAL			0

4.3.2.2 Table 4-2: Gross Water Use by Sector – Projected

Submittal Table 4-2 is used to report the Supplier's projected gross water use by sector for 2020 (fiscal year or calendar year) through at least 2040, and optionally through 2045. The Planning Tool Use Worksheet can be used to develop the values to fill in this table. If a Supplier does not use the Planning Tool Use Worksheet, Suppliers will need to develop these values separately.

Suppliers can use the *Use Type* drop-down list to indicate the water use sector and *Level of Treatment When Delivered* drop-down list to identify *Drinking Water*, *Raw Water*, or *Other Non-Potable Water*. The *Use Type* selection is different for Wholesale Suppliers compared to Retail Suppliers. Recycled water will be summarized in Submittal Table 4-3 and should not be included as part of gross water use in this table.

Submittal Table 4-2 for Wholesale Suppliers and Retail Suppliers are shown below.

Water Use Characterization

Table 4-2 Wholesale: Use for Potable and Raw Water - Projected						
Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool.</i>		2025	2030	2035	2040	2045 (opt)
Sales to other agencies						
Transfers to other agencies						
Exchanges to other agencies						
Groundwater recharge						
Saline water intrusion barrier						
Agricultural irrigation						
Wetlands or wildlife habitat						
Retail demand for use by suppliers that are primarily wholesalers with a small volume of retail sales						
Losses						
Other Potable						
Other Non-Potable						
Other						
TOTAL		0	0	0	0	0

Submittal Table 4-2 Retail: Use for Potable and Non-Potable Water - Projected						
Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2025	2030	2035	2040	2045 (opt)
Single Family						
Multi-Family						
Commercial						
Industrial						
Institutional/Governmental						
Landscape						
Groundwater recharge						
Saline water intrusion barrier						
Agricultural irrigation						
Wetlands or wildlife habitat						
Sales/Transfers/Exchanges to other agencies						
Sales/Transfers/Exchanges to other agencies						
Losses						
Other Potable						
Other Non-Potable						
Other						
TOTAL		0	0	0	0	0

4.3.2.3 Table 4-3. Total Gross Water Use (Potable and Non-Potable)

Total potable and non-potable gross water use can be entered into the appropriate rows of Submittal Table 4-3 from Part 2 of the Planning Tool Use Worksheet or from Submittal Tables 4-1 and 4-2 (R or W, as appropriate). Values from Submittal Table 6-4 will automatically populate the third line. If the Supplier does not separate potable and non-potable uses, the optional tables below the submittal table will not be populated.

The sum of these values represents the Supplier's total customer water uses for all of its potable and non-potable supplies. While the water service reliability analysis in Chapter 7 should evaluate reliability separately for potable and non-potable uses, it is useful for the

Supplier to represent its total overall customer water use in Submittal Table 4-3.

Submittal Table 4-3 is essentially the same for Wholesale Suppliers and Retail Suppliers. Only the table for Retail Suppliers is shown below.

Submittal Table 4-3 Retail: Total Gross Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable <i>From Tables 4-1R and 4-2 R</i>	0	0	0	0	0	0
Recycled Water Demand* <i>From Table 6-4</i>	0	0	0	0	0	0
TOTAL WATER USE	0	0	0	0	0	0
<i>*Recycled water demand fields will be blank until Table 6-4 is complete.</i>						
NOTES:						

4.3.2.4 Table 4-4: Preceding Five-Year Water Loss Audit Reporting

This table is completed using the values calculated in the AWWA worksheet and submitted to DWR for each of the prior five years. If estimates are used to provide the five-years of data, Suppliers can make note of that in the *Notes* section of the table. Regional UWMPs (RUWMP) will use multiple versions of Submittal Table 4-4; one for each participating supplier. Wholesale Suppliers do not have to perform water loss audits and are not required to report this in their 2020 UWMP.

Submittal Table 4-4 W is optional for Wholesale Suppliers. This optional table, along with the Retail Supplier's Submittal Table 4-4 R are shown below.

OPTIONAL Table 4-4 Wholesale: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
<i>* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.</i>	
NOTES:	

Submittal Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES:	

4.4 Water Use for Lower Income Households

Water Code Section 10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

California Health and Safety Code Section 50079.5 (a)

"Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families... In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

Retail Only

Retail Suppliers are required to include the projected water use for lower income households in their 2020 UWMPs. A lower income household has an income below 80 percent of area median income, adjusted for family size.

To address this requirement, Suppliers can: (1) determine the number of lower income single-family and multi-family housing units projected for the service area, as identified in the housing elements of the applicable land use agency's General Plans or other planning documents; (2) estimate the projected water use for those lower

income housing units; and then (3) verify that the expected water use for low income housing, as estimated above, was included in the projected water demands.

Submittal Table 4-5: Inclusion in Water Use Projections, allows Suppliers to record their consistency with this requirement. This table will indicate how future water savings estimates and lower income household demands are included in water use projections. RUWMPs will use multiple versions of Submittal Table 4-5 R; one for each participating Supplier. Wholesale Suppliers do not have to report on the projected water use for lower income households. Submittal Table 4-5 R for Retail Suppliers only is shown below.

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc.... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	
NOTES:	

4.5 Climate Change Considerations

Water Code Section 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

Water Code Section 10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following...

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

All Suppliers

All Suppliers must now include consideration of climate change in their water use and supply projections for their long-term water service reliability assessments and DRA.

Suppliers are encouraged to refer to Appendix I for guidance on incorporating climate change into water use projections. Including climate change analysis into a water use analysis can assist a Supplier in understanding the potential effects on long-term reliability, which in turn, allows Suppliers to proactively begin planning appropriate responses. For example, if current landscape types are maintained into the future, hotter and drier weather may lead to an increased demand in landscape irrigation—especially during spring and fall months—increasing the pressure on water supplies that may have availability restrictions during these periods.

DWR recommends including a section in this chapter describing what type and degree of climate change impacts were considered in the water use projections, and on what scientific or other information those projections are based. Suppliers that have participated in or conducted climate change vulnerability or risk assessments are encouraged to refer to them, and to attach them with the submission of their UWMP. Additionally, Groundwater Sustainability Plans may be a resource Suppliers can use to help identify potential effects of climate change.

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Chapter 5

5.0 SBX7-7 Baseline and Targets

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, the State of California is required to reduce urban per capita water use by 20 percent by the year 2020. California Water Code (Water Code) Section 10608.16(a) states: “The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.” In order to achieve this statewide objective, the California Legislature required each urban retail water supplier (Retail Supplier) subject to the Urban Water Management Plan Act to develop an urban water use target to help the state collectively achieve a 20-percent reduction. The Legislature stated that the cumulative results of each Retail Supplier’s reduction would meet the statewide legislative requirement.

Importance

In order to meet the urban water use target requirement, each Retail Supplier must determine its baseline water use as well as its target water use for the year 2020. The determination of baselines and targets may be done individually or regionally. Regional compliance with SB X7-7 is done via a Regional Alliance and is addressed in section 5.7.

The goal of the SBX7-7 Baseline and Targets chapter in the 2020 Urban Water Management Plan (UWMP) is to allow the Retail Supplier to provide a description of its methodology used to calculate its 2020 Urban Water Use Target (target), its baseline and how the baseline was calculated, and to allow the Retail Supplier to demonstrate its compliance with its target reduction by December 31, 2020. Compliance with the urban water use target requirement is verified in the SB X7-7 Verification Form submitted with the Retail Supplier’s 2020 UWMP. The SB X7-7 Verification Form is in Appendix E and summarized in Tables 5-1 and 5-2 in this chapter. Baseline and targets are reported in gallons per capita per day (GPCD).

GPCD terminology

When determining water use in an UWMP, two terms are often used interchangeably:

- Daily Per-Capita Water Use – the amount of water used per person per day. In the UWMP calculations, this is total water use within a service area, divided by population, and it is measured in gallons.
- GPCD – This is the “daily per-capita water use” measured in gallons. Therefore, the term commonly used when referring to “daily per-capita water use” is “gallons per capita per day” or *GPCD*.

It is important to distinguish GPCD (as used in UWMPs) from the Residential GPCD (R-GPCD) that is used in some reporting to the State Water Resources Control Board (State Water Board).

- GPCD is the total water use from all sectors within a service area (residential, commercial, institutional, and any others) minus allowable exclusions, then divided by the population. This is used in UWMPs.
- R-GPCD is only a part of the GPCD; it is the estimated residential water use in a service area divided by population.

Focus

Each Retail Supplier that is preparing a 2020 UWMP must provide a baseline and urban water use target in GPCD. For a Retail Supplier that prepared a 2015 UWMP, the Retail Supplier must use the baseline and target identified in its 2015 UWMP in order to determine whether the Retail Supplier met its per-capita water reduction obligation, with a few exceptions described in section 5.2.2. For a Retail Supplier that has not previously prepared an UWMP, the Retail Supplier must calculate its baseline in accordance with the statutory criteria and methodologies, and then determine whether it has met the 20-percent conservation mandate in the 2020 UWMP. All Retail Suppliers must complete an SBX7-7 Verification Form.

SBX7-7 Verification Form

The SB X7-7 Verification Form and tables for Retail Suppliers are available in Appendix E, for individual Retail Suppliers as well as for Regional Alliances. Not all tables will be needed for every Supplier. The applicable tables depend upon what method the Retail Supplier used for determining its baseline and water conservation target. The tables in the SB X7-7 Verification Form are in addition to the 2020 UWMP tables that are found throughout the Guidebook. All tables in the SB

X7-7 Verification Form have the prefix SB X7-7, followed by the table number.

Recommended

Calculation of baselines and targets is a very important but highly technical portion of the UWMP. To address the nontechnical audience, a Retail Supplier may choose to include a written overview that highlights the importance of these calculations, a reference to the California Department of Water Resources' (DWR) *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (Methodologies)*, and the Retail Supplier's efforts to meet these targeted reductions. This written component may help the lay reader assess the technical components that show the Retail Supplier's baseline and conservation target. The Methodologies document is located at <https://data.cnra.ca.gov/dataset/2015-urba-water-management-plans-uwmps-historic-information>.

The Water Code also requires Suppliers to develop urban water use objectives for certain sectors, in order to meet their target water use calculated in the previous plan. These water use objectives will not be developed until 2023, and the first report will require information on what demand management measures Suppliers will implement to meet their objectives. See Chapter 9 for guidance on demand management measures.

New Requirements

No new requirements were created for water use targets and baselines since the UWMP 2015. However, the 2016 update to the *Methodologies* document noted above is the most recent reference material for completing the requirements and guidance noted in this chapter. The details associated with each Supplier's obligation in meeting its 2020 urban water use target are summarized below:

- In the 2015 UWMP, Retail Suppliers demonstrated progress towards compliance with their established 2015 interim water use target.
- In the 2020 UWMP, each Retail Supplier will demonstrate compliance with its established 2020 Target.
- For a new Supplier, and for Suppliers with a distribution area that changed between 2015 and 2020, they must establish the

water use Baseline GPCD and 2020 Target and demonstrate compliance with its 2020 Target in the 2020 UWMP.

5.1 Guidance for Wholesale Suppliers

For purposes of identifying baselines and targets, the following definition applies:

Water Code Section 10608.12. (w) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Wholesale Only

Wholesale Suppliers are not required to calculate baseline, targets, or compliance GPCDs. However, they are required to provide an assessment of their present and proposed future measures, programs, and policies that will help the retail water suppliers in their wholesale service area to achieve their water use reduction targets (see Chapter 9).

The rest of Chapter 5 pertains to Retail Suppliers only.

5.2 Updating Calculations from 2015 UWMP to the 2020 UWMP

Water Code Section 10608.20 (g)

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Section 5.2 only applies to Suppliers that need to update their 2020 Target and/or Baseline because of changes to their distribution area (see section 5.2.2).

5.2.1 Update of Target Method

Retail Only

There are four different methods a Supplier can use to calculate their target. These are detailed in Appendix P of this Guidebook. Although Suppliers may have changed their target method used for calculating their 2020 Target in their 2015 UWMP, they must use the same target

method in their 2020 UWMP that they used in their 2015 UWMP, if they need to update values.

Suppliers that did not submit a 2010 or 2015 UWMP will need to calculate their baseline and target using the methods outlined in sections 5.3 through 5.7 and in Appendix P of this Guidebook.

5.2.2 Updating Baseline and Target GPCDs

Retail Only

Situations may occur between baseline period and the compliance year that may warrant a change in the calculated Baseline GPCD or 2020 Target. Methodology 4, of the *Methodologies* document discusses the situations where an adjustment to the Baseline GPCD or 2020 Target are permitted based on changes in the distribution area summarized below:

- **Distribution area expansion caused by mergers.** If Suppliers merge, or if one acquires a portion of another's service area, the Supplier can calculate a population weighted average of each systems' target for a single entity compliance target.
- **Distribution area contraction.** If a previously supplied portion included in the Baseline GPCD is removed from the distribution area before the compliance years, Suppliers shall recompute their Baseline GPCD after eliminating the removed portion for all baseline years.
- **Distribution area expansion by annexation of already developed areas.** For areas annexed between the baseline and compliance years, a water Supplier must determine base daily per capita water use, target water use, and compliance water use.
 - o Baseline GPCD for the annexed area is to be determined using the same baseline period as the Supplier's original service area (before the annexation), to the maximum extent data is available.
 - o Annexed areas are to be assigned a prorated target based upon the number of years between annexation and the end of 2020.

5.2.3 SB X7-7 Verification Form (Appendix E)

Retail Only

All Retail Suppliers are required to submit the standardized tables in the SB X7-7 Verification Form (see Appendix E) with their 2020 UWMPs. These standardized tables were available in 2015 and are required again in 2020, to demonstrate compliance with the Water Conservation Act of 2009.

A Regional Alliance must report the information from this chapter in the SB X7-7 Verification Form for a Regional Alliance, Option 1, 2, or 3. This form may be included in a Regional UWMP. See Appendix D and Methodology 9 of the *Methodologies* document.

The tables in the SB X7-7 Verification Form are distinguished from the other standardized tables in this guidebook by their name, which will always begin with the prefix SB X7-7, followed by the table number.

5.3 General Requirements for Baseline and Targets

Retail Only

General requirements for determining the baseline period, Baseline GPCD, Target Confirmation, and 2020 Target can be found in Appendix P.

5.4 Service Area Population

Water Code Section 10608.20(e) An urban retail water supplier shall include in its urban water management plan due in 2010...the baseline per capita water use...along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

Water Code Section 10644

(a)(2) The plan...shall include any standardized forms, tables or displays specified by the department.

Retail Only

In order to correctly calculate the compliance year GPCD, Retail Suppliers must determine the population that they served in 2020.

If available in time for a Supplier's calculations, the U.S. Census 2020 decennial data is the most defensible population data. Otherwise, it is recommended that Suppliers use California Department of Finance (DOF) data or American Community Survey 2018 or 2019 data, if available for the 2020 calculations. For those Suppliers that have other information about population counts, they can use what they consider the best available information for their service area.

The methodology for estimating a Retail Supplier's population is provided in Methodology 2 of the *Methodologies* document available at <https://data.cnra.ca.gov/dataset/2015-urban-water-management-plans-uwmpps-historic-information>. Additional guidance on population methodologies is provided below. All Suppliers may use the DWR Population Tool or a Persons-per-Connection calculation.

5.4.1 Department of Finance

Cities. Suppliers whose service area boundaries correspond by 95 percent or more with the boundaries of a city during the baseline period and the compliance year 2020 will be able to obtain population estimates from tables prepared by the DOF.

Census Designated Places. Suppliers whose service area boundaries correspond by 95 percent or more with the boundaries of a census designated place (CDP) during decennial census years will be able to obtain population estimates for those census years directly from tables prepared by the DOF. Population for non-census years may be calculated using the Persons-per-Connection method.

The DOF population tables can be found online at:
<http://www.dof.ca.gov/Forecasting/Demographics//Projections/>

5.4.2 U.S. Census Bureau American Community Survey

This method is used to determine population estimates for the non-census years, including 2020 until the 2020 U.S. Census data is released. The U.S. Census Bureau gathers data between the 10-year Census cycles through the American Community Survey (ACS), to provide more current statistical averages of an area by subsampling a portion of the area population. Depending on the size of the area, one-year or five-year averages are provided. The one-year average is only

provided for areas with populations of 65,000 or more, and the five-year average provides estimates for all areas. When using ACS data, it is important to use the same year's (or years') averages for the entire study area. As when using DOF data, ACS geographic boundaries and Supplier boundaries should correspond by 95 percent.

5.4.3 Persons-per-Connection

This method is used to determine population estimates for the non-census years, including 2020, until the 2020 U.S. Census data is released. Suppliers must already have population estimates for the census years in order to use this method. Number of service connections refer to the residential connections, except in the case where Suppliers have classified any residential (including multifamily residential) as any other category, such as commercial or mixed use.

1. For each census year that data is available, determine the number of persons-per-connection by dividing the total population by the number of service connections.
2. For non-census years, determine the persons-per-connection by interpolating between the census years or by using ACS data, if available.
3. If needed for the year 2020, use the same persons-per-connection that was calculated for the year 2015.
4. Determine the population for each non-census year by multiplying the number of service connections by the persons-per-connection for that year.

5.4.4 DWR Population Tool

DWR anticipates release of the updated free-online DWR Population Tool in adequate time for 2020 UWMP preparation. Any Supplier may use the DWR Population Tool, but it is particularly useful for Suppliers whose service area boundaries do not match to a city or CDP, and that cannot use DOF or ACS population data. The tool will use the U.S. Census data and electronic maps of the Supplier's service area (the tool will provide instructions for developing electronic maps) to obtain population data for census years. Using the number of Supplier service connections, the tool will then calculate the population for the non-census years.

5.4.5 Other Population Methods

Suppliers may estimate their population using other methods developed in-house, by a wholesaler, Association of Governments, consultant, university, or other entity. However, DWR must determine that the alternate method complies with the requirements of Methodology 9 of the *Methodologies* document and is at least as accurate as the methods recommended by DWR. The Supplier must provide a description of the method that provides enough detail for DWR to make this evaluation. DWR recommends that the Supplier seek a pre-review from DWR to assess the adequacy of any proposed alternate population methodologies.

Tables

Retail Only

All Retail Suppliers are required to complete SB X7-7 Table 2: Method for Population Estimates and SB X7-7 Table 3: Service Area Population.

5.5 Gross Water Use

Water Code Section 10608.12

(g) "Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
- (2) The net volume of water that the urban retail water supplier places into long term storage*
- (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier*
- (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article

Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

Retail Only

Detailed guidance for gross water calculations is found in Methodology 1: Gross Water of the *Methodologies* document.

Gross water use is a measure of water that enters the distribution system of the Supplier over a 12-month period (either fiscal year or calendar year) with certain allowable exclusions. These exclusions are:

- Recycled water delivered within the service area. Recycled water use has been excluded from all calculation of gross water, as reflected in the SB X7-7 tables. Water Suppliers are not required to report their recycled water use, nor demonstrate any reduction in recycled water use for purposes of SB X7-7.
- Indirect recycled water (see Methodology 1 from the *Methodologies* document, DWR 2016).
- Water placed into long-term storage (surface or groundwater).
- Water conveyed to another urban Supplier.
- Water delivered for agricultural use.
- Process water.

Gross water use must be reported for each year in the baseline periods as well as for 2020, the compliance year.

Tables

Retail only

There are several tables from the SB X7-7 Verification Form that are related to gross water calculations.

Suppliers that will deduct indirect recycled water and/or process water from their gross water will complete additional tables, as found in the subsections below.

- **Indirect Recycled Water Use Deduction.** If the Supplier uses indirect recycled water and will deduct it from their gross water

use, they must complete SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction.

- **Process Water Use Deduction.** The Process Water tables (SBX7-7 Table 4-D) are not on the DWR online submittal tool, but can be found on the DWR website as part of the SBX7-7 Verification Form at: <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans>. Suppliers that will be subtracting process water from their gross water use must submit additional tables SB X7-7 Table 4-C and one associated sub-table (SB X7-7 Table 4-C.1, SB X7-7 Table 4-C.2, SB X7-7 Table 4-C.3, or SB X7-7 Table 4-C.4), as well as SB X7-7 Table 4-D.

5.6 Baselines and Targets Summary

Retail Only

The SB X7-7 verification tables (see Appendix E), including detailed information about the baselines and targets, are to be submitted in the 2020 UWMPs in order to determine compliance with the Water Conservation Act of 2009.

Recommended

DWR recommends that the SB X7-7 Verification Form be submitted as an appendix to the UWMP. The summary information from the form can be reported in Table 5-1 R and included in the body of the UWMP.

Tables

Retail only

Complete Table 5-1 R: Baselines and Targets Summary.

Regional UWMPs may either submit:

- One version of Table 5-1 R, if complying as a Regional Alliance.
- Multiple versions of Table 5-1 R; one for each participating Retail Supplier.
- Both.

Table 5-1 Baselines and Targets Summary <i>Retail Supplier or Regional Alliance Only</i>				
Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	<i>From SB X7-7 Table 1</i>	<i>From SB X7-7 Table 1</i>	<i>From SB X7-7 Table 5</i>	<i>SB X7-7 Table 7-F</i>
5 Year	<i>From SB X7-7 Table 1</i>	<i>From SB X7-7 Table 1</i>	<i>From SB X7-7 Table 5</i>	<i>SB X7-7 Table 7-F</i>
*All values are in Gallons per Capita per Day (GPCD)				
NOTES:				

5.7 2020 Compliance Daily Per-Capita Water Use (GPCD)

Water Code Section 10608.12

(e) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period...

Water Code Section 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

5.7.1 Meeting the 2020 Target

Retail Only

Criteria and methods for determining compliance with the 2020 Target are detailed in Methodology 4 of the *Methodologies* document. Water Suppliers must calculate their actual 2020 water use (2019-2020 fiscal year or 2020 calendar year) to determine whether or not they have met their per-capita 2020 Target water use (as GPCD). All Retail Suppliers are required to complete SB X7-7 Table 9: 2020 Compliance and may discuss in their UWMP the factors affecting their achievement of their 2020 Target or exemptions for not meeting their 2020 Target.

New Suppliers

New Suppliers that did not submit a 2015 UWMP are required to calculate their Baseline GPCD and establish their 2020 Targets using the same methodology that apply to other Suppliers. Details on how to calculate these are included in Appendix P. However, when testing for

compliance, these Suppliers may prorate their 2020 Target depending on the year the water Supplier became subject to the requirement to prepare a UWMP and to determine its 2020 Target compliance.

Example:

As an example, if a Supplier is newly formed, it does not have to reduce usage by the 20 percent indicated, and therefore it will have a prorated reduction. In this case, a Supplier chooses a 2020 Target that is 20 percent below its Baseline GPCD, but it became subject to the requirements only as of 2017, and it may test compliance against a target that is 6 percent below its Baseline GPCD.

5.7.2 2020 Adjustments to 2020 Gross Water Use

Water Code Section 10608.24

(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4 This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers,

annexation, and other scenarios that occur between the baseline and compliance years.

Retail Only

As was the case in 2015, in 2020 there are several allowable adjustments that can be made to a Supplier's gross water use. These are detailed in the *Methodologies* document (Methodology 8: Criteria for Adjustment to Compliance Daily Per-Capita Water Use and Methodology 4: Compliance Daily Per-Capita Water Use).

Changes in the distribution area between the baseline period and the compliance year is addressed in Methodology 4 of the *Methodologies* document and in section 5.2.2 of this Guidebook. Suppliers must provide adequate documentation of their calculations and data to support any changes in baseline, targets, or adjustments to water use. This may require multiples of some tables in the SB X7-7 Verification Form or additional tables if using weighted averages. DWR recognizes that this may not be compatible with the Water Use Efficiency Data (WUEdata) Portal upload tool and will accept these additional tables as an attachment to the UWMP.

Extraordinary Events

If extraordinary events have affected institutional water use, Suppliers may choose to adjust their compliance GPCD. One example of an extraordinary event is that studies are indicating that under the unprecedented shelter-in-place requirement in California, because of COVID-19 precautions beginning in March 2020, it has affected urban water use (Cooley et al. 2020). This effect may have resulted in a shift in water use from one sector to another, but it may not have affected overall water use. In all cases of extraordinary events, it is important to adequately document the rationale and calculations leading to any adjustments. Table 5-2 R includes a space to document this consideration, along with other adjustments.

5.8 Regional Alliance

Retail Only

Suppliers that are choosing to comply with SB X7-7 requirements through a Regional Alliance must report the information from this chapter in the Regional Alliance Report. The report will include the SB X7-7 Verification Form for a Regional Alliance, Option 1, 2, or 3 (see Appendix E). DWR recognizes that the SB X7-7 Verification Form for a

Regional Alliance is not compatible with the WUEdata upload tool and will accept these tables as an attachment in WUEdata rather than as entries into the WUEdata tables. This report may be included in a Regional UWMP. See Appendix D, E, and Methodology 9 of the *Methodologies* document.

RETAIL ONLY

Table 5-2 Retail

Complete Table 5-2 R: 2020 Compliance.

Regional UWMPs may either submit:

- One version of Table 5-2 R if complying as a Regional Alliance.
- Multiple versions of Table 5-2 R; one for each participating Supplier.
- Both.

Table 5-2: 2020 Compliance							
Retail Supplier or Regional Alliance Only							
Actual 2020 GPCD*	Optional Adjustments to 2020 GPCD					2020 GPCD* (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2020? Y/N
	Enter "0" if no adjustment is made Methodology 8						
	Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2020 GPCD*		
				0	0	0	#REF!
*All values are in Gallons per Capita per Day (GPCD)							
NOTES:							

References

California Department of Water Resources. 2016. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*, Prepared for the Consistent Implementation of the Water Conservation Act of 2009, available at:

<https://data.cnra.ca.gov/dataset/2015-urban-water-management-plans-uwmps-historic-information>

Cooley, H., Gleick, P., Abraham, S. and Cai, W. 2020. Water and the COVID-19 Pandemic: Impacts on Municipal Water Demand.

Issue Brief Pacific Institute (July 2020), available at:

<https://pacinst.org/publication/coronavirus-impacts-on-municipal-water-demand/>

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Chapter 6

6.0 Water Supply Characterization

A thorough characterization and analysis of water supplies can provide a realistic reliability assessment of an urban water supplier's (Supplier) water assets under various hydrological and regulatory conditions. A thorough analysis examines surface water rights, water entitlements (i.e., contracts for water delivery), groundwater supplies, raw water supplies, and recycled water supplies. Moreover, it considers each water asset in the context of the infrastructure systems that convey water to the Supplier's service area—including infrastructure systems that are shared with other water suppliers. A detailed water supply analysis examines each water asset and then aggregates the information into a comprehensive picture of the Supplier's water supply portfolio.

Importance

The water supply analysis is critically important to Suppliers. The conclusions drawn about supply availability under various hydrological and regulatory conditions permeate all other components of the Urban Water Management Plan (UWMP). For example, an incorrect assessment of the availability of a single water supply under certain conditions, may impact a Supplier's short-term and long-term water management, and in the worst cases, cause a water shortage crisis that is not adequately anticipated in its Water Shortage Contingency Plan (WSCP). A thorough analysis also allows a Supplier to characterize each water asset in the context of longer-term issues like climate change and regulatory revisions. Accordingly, a meticulous water supply analysis will provide a Supplier with a reliable picture of the Supplier's water supply portfolio over the short-term and long-term planning horizons.

Focus

The water supply analysis focuses on characterizing each water asset in order to provide the information needed for reliability and risk assessments. The more accurately and detailed this characterization is, the better prepared a Supplier will be for managing their water

assets, assessing supply reliability, performing their Drought Risk Assessment (DRA), and preparing and implementing their WSCP.

Essentials

Suppliers will need to characterize each source of water supply and consider any information pertinent to the reliability and risk analyses, including changes in supply due to climate change. Suppliers will describe each source of supply's management in correlation with other identified supplies, a description of the measures being undertaken for any planned sources of supply, a current version of any groundwater sustainability plan (GSP) for groundwater supplies (as applicable), and opportunities for exchanges and transfers on long- or short-term basis. In essence, the water supply characterization is an assessment of each supply source's availability during a normal year, a single dry year, a drought period lasting five consecutive years, and future projections through 2040.

The more details addressed in a water supply analysis, the better. Some details that are important to be considered for each water asset include: point of diversion and place of use, regulatory issues (including regional agreements) that may impact a water asset in some way, any uncertainties in the water asset itself (like a water right permit versus a water right license) that may impact the reliability of the water supply, implications of GSPs under the Sustainable Groundwater Management Act (SGMA), specific contract language that may limit the water supply under certain conditions, trends in water supply deliveries illustrating increases or decreases in water supply reliability, and other issues that may illuminate any unique conditions related to a particular water asset.

Enhancing

Analyzing as many details as possible related to each water asset will better serve a Supplier in understanding the water supply portfolio's reliability. These detailed characteristics could include: the type of water right or entitlement, the priority date of the water asset, the diversion rate and annual diversion limit, groundwater extraction limits (like those potentially imposed under SGMA), the nature of a recycled or raw water supply and whether it is a potable or non-potable water supply source, interties between distribution systems with different supply sources, and any other special conditions attached to each water asset.

Additionally, when integrated with their water use characterization, combining the detailed characterizations of each water asset with a monthly, bimonthly, or seasonal analysis under the defined hydrological conditions can reveal a comprehensive representation of a Supplier's water supply portfolio that provides a clearer understanding of where and under what circumstances the potential for water shortages is greatest.

An enhanced water supply analysis would include analyzing the details of each water asset in the larger context of California's water system. For example, during the most recent critical drought, some appropriative water rights established before 1900 were curtailed and unavailable for use. A Supplier should characterize that extreme condition in the context of a changing climate, changing regulatory conditions, environmental water considerations and public trust uses, and the reasonable use doctrine under California's Constitution. Suppliers can also examine their water supplies for a 25-year period, through 2045, in order to improve the utility of the UWMP for other land use planning and regulatory compliance issues by bridging the gap between planning cycles. Together, the broader contexts and extended time horizon, can help reveal the long-term reliability of each water asset that a Supplier may rely on to support future growth.

It can also be useful to separate characterization of potable water supplies from non-potable water supplies and assess each separately. This separation can be important in characterizing supply reliability for minimum human safety standards, long-term water service reliability assessments' potential opportunities and constraints, assessing the DRA, and understanding the utility of water management actions incorporated into the WSCP. Comingling potable and non-potable water supplies may produce a false water supply reliability picture for a Supplier.

New Requirements

The new requirements for a water supply analysis are largely in the application of that analysis to the new DRA, WSCP, and consideration of climate change in future projections. In this section, the conclusions drawn from the water supply characterization integrate into a specific understanding of a Supplier's new drought risk in the DRA and inform the management and mitigation actions a Supplier must address in the newly required WSCP, along with consideration of climate change and coordination with land use and planning authorities for future

projections. For example, an analysis that concludes that a water supply portfolio is reliable under *all conditions conceivable* may have fewer supply augmentation actions or demand management actions in a WSCP. In this way, the water supply analysis conclusions translate into a realistic DRA and implementable actions listed in the WSCP in the event of water shortage conditions.

6.1 Water Supply Analysis Overview

California Water Code (Water Code) Section 10631(b)

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier [in five-year increments to 20 years or as far as data is available]¹ providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

Water Code 10631 (h)

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b),

¹ The bracketed information is placed in this section to clarify the precise meaning of the statutory section. The exact statutory language of Water Code 10631(b) is as follows: "Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following..."

available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.1.1 Specific Analysis Applicable to All Water Supply Sources

All Suppliers

To the extent practical, all Suppliers must:

- Identify existing and planned sources of water.
- Quantify these supplies over five-year increments through 2040.
- Describe, in detail, anticipated availability under normal, single dry, five-year droughts, and any other water year conditions described in the DRA.
- Describe the management of each supply in correlation with other identified supplies.
- Consider information pertinent to the reliability analysis, including climate change effects.

The narrative may include key technical and regulatory aspects of each water supply identified. For example, a Supplier would describe specific dates for diversion and use, maximum diversion rates, maximum monthly and annual diversion volumes, specific limitations described in the water right or contract, water quality issues, and any other special conditions relevant to each water supply that impact supply availability. While the statutory requirement is for 20 years, Suppliers are encouraged to assess future availability for 25 years to best address potential water supply analyses that may be incorporated into future documents, such as a Water Supply Assessment (Water Code Section 10910 et seq.), that may arise between 2020 and 2025.

As directed by new language in Water Code Section 10631, the quantification and narrative should be provided for *each source of water* used by the Supplier, even if the source(s) are only used during certain conditions (e.g., during a multiyear drought). Also, if multiple sources of water are described, the narrative must discuss the management of multiple supplies in relation to each of the other

supplies. It is strongly encouraged that each Supplier review all underlying documentation related to each water asset before developing the UWMP water supply section to confirm each identified supply's technical details.

The availability analysis must consider the historical drought hydrology, plausible changes in projected supplies under climate change (see section 6.9 and Appendix I), anticipated regulatory changes, and other locally applicable criteria. It is important for the narrative to also include any actions or projects that are anticipated to augment future water supply volumes. In addition to narratives characterizing existing supplies, Suppliers must also identify planned sources of water supply that may be developed in the future, and then describe the actions necessary to bring those water supplies to fruition.

The narrative is most useful when supported by real numbers that describe smaller time-step water supply volumes—instead of just annual volumes—to reflect any variability that may be applicable at various times of the year and under different hydrologic conditions. Therefore, Suppliers are encouraged to reflect monthly, bimonthly, or seasonal water supplies available in a normal year, single dry year, and droughts lasting at least five consecutive years in their quantification and narrative. For example, even in a normal year a contract water supply may be reduced below the listed contract amount based on conditions contained in the water supply contract. Moreover, the reduction may be different in a single dry year or over the course of five consecutive dry years altering the supply's monthly and annual availability. Similarly, a direct diversion appropriative water right may have limits on the months available for diversion throughout the course of a year and may be curtailed or otherwise limited in additional months during a single dry year or five consecutive dry years, depending upon drought length and severity. Consideration of smaller time-step variability can be carried forward into the annual five-year increment quantifications when using the optional Planning Tool Supply Worksheet (see section 6.1.2).

Suppliers may also have non-potable water supplies that may only be used to meet certain non-potable demands. These water supplies must be characterized separately since all sources must be identified and characterized. This can be important for reliability and risk assessments, depending upon the utility of the non-potable supply to meet potable or non-potable demands. If non-potable supplies, such

as raw water, recycled water, or remediated groundwater water, are introduced into sources used to serve potable needs, such as aquifers or large surface bodies feeding water treatment plants, Suppliers are encouraged to consider the supply as part of the list of available potable supplies and then to explain the activities in the water supply narrative. If such supplies are only available to meet non-potable demands, these supply sources still must be listed separately.

Section 6.2 of this chapter identifies the applicable Submittal Tables and provides more details on the narrative for different sources of supply.

Wholesale Only

Wholesale Suppliers are required to provide their quantification and characterization of normal year, single dry year, five consecutive dry years, and five-year interval projections to each retail customer.

Retail Only

Retail Suppliers may rely on the information provided by their Wholesale Supplier in quantifying and characterizing water year types for that water supply source.

Recommended

Retail and Wholesale Suppliers are encouraged to work collaboratively in identifying pertinent information, level of detail, and time-steps for characterization of wholesale water supplies.

Additionally, non-potable water supplies cannot be used to meet demands where potable water is required. Therefore, Suppliers are encouraged to track potable and non-potable water supplies separately in order to provide a better basis for the service reliability and drought risk assessments. In addition to the Submittal Tables, California Department of Water Resources (DWR) has provided tables to track potable and non-potable supplies separately. Use of these tables are optional, and information will need to be consolidated for the applicable Submittal Tables.

6.1.2 Other Characterization Considerations

Recommended

Suppliers may choose to describe the water system depicted in the UWMP with other illustrative sources. For instance, Suppliers may include maps depicting the water service systems, an overview of the

water delivery and conveyance infrastructure, and other important elements that help describe the Supplier's water system and inform a reader about supply availability. The Supplier may also include the names of any agencies responsible for water resource management and include a link or appendix of any related management plans.

The narratives and quantities characterized in Chapter 6 also provide the foundation for the Suppliers simple lay description regarding its water supply resources, as required by Water Code Section 10630.5.

6.1.3 Optional Planning Tool

All Suppliers - Optional

Collectively, the Supplier's water supply narrative can transfer directly into the optional Planning Tool Supply Worksheet, a master supply characterization spreadsheet that shows a Supplier's quantification of existing and planned monthly or other time-step water supplies and that consolidates current and future conditions for the normal, single dry, and droughts lasting at least five consecutive years. The optional PN Planning Tool Supply Worksheet allows for this detailed characterization for potable separate from non-potable supplies. Both optional PN Planning Tool worksheets also allow for inclusion of the Supplier's available supplies over the 25-year planning horizon for normal, single dry, and five consecutive dry year periods.

The optional PN Planning Tool Supply Worksheets are the preferred mechanism to quantify a Supplier's water supply availability because non-potable supplies cannot be used for potable uses when conducting the reliability analyses. However, the Planning Tool Supply Worksheet, which does not separate potable and non-potable water sources, still allows for each individual source to be characterized.

Suppliers who choose to use either of these tools can input values for each month, skip months, and input values for bimonthly or seasonal reporting, or input values into the annual total column. The optional Planning Tool Worksheet has two parts:

- *Part 1* separates each current water supply source and planned water supply source into a separate quantification spreadsheet and allows for up to monthly supply availability characterization in normal year, single dry year, and five consecutive dry years.
- *Part 2* allows the Supplier to project supply availability in five-year increments through optional 2045 under a normal year, single dry year, and five consecutive dry years that may also

include quantified climate change representations, expected regulatory revisions, and other locally relevant change assessments.

If each individual water supply source is accurately depicted in the Planning Tool Supply Worksheet, then a full representation of a Supplier's water supplies will inform the other parts of their 2020 UWMP. The following narrative qualitatively describes the Planning Tool Supply Worksheet. The P-NP Planning Tool is the same as the Planning Tool, except two Supply Worksheets are provided to separate potable and non-potable supplies and allow for easier tracking of individual non-potable supply sources.

6.1.3.1 *Parts and Layout*

The headings in the Planning Tool Supply Worksheet for potable water supplies are listed as follows: *Summary: Existing Supply Tables (current conditions)* and *Individual: Existing Supply Table (current conditions)*. Each individual supply controlled by the Supplier should be listed in its own separate section, *Individual: Existing Potable Supply Table*, when feasible.

All of the information provided in each individual potable supply table will be summarized in the *Summary: Existing Supply Tables*. The headings in the Planning Tool Supply Worksheet for non-potable water supplies follow the same format and are meant to capture all non-potable water supplies available to the Supplier.

The *Summary: Existing Supply Tables* also allows a Supplier to insert information derived from State Water Resources Control Board (State Water Board) Division of Drinking Water's Electronic Annual Reporting System (eAR) on the top line, if applicable. This can facilitate Suppliers' corroboration of their actual 2020 water supplies consistency in reported and representative values in different Supplier-completed documents.

In short, the Planning Tool Supply Worksheet provides Suppliers with a tool to quantify and project the (up to) monthly availability of its water supplies for each source, based upon an informed assessment of each water supply's attributes and limitations. The Planning Tool Supply Worksheet then becomes the analytical component that is paired against the water use analysis in Chapter 4, informs the water supply reliability findings in Chapter 7, guides the DRA in Chapter 7, and directs the WSCP in Chapter 8.

6.1.3.2 2020 Actual Use of Supply

For each water supply source listed, Suppliers should first complete the row titled *2020 Actual Use of Supply*. In this row, Suppliers will identify the monthly (or other time-step) amount of each water supply used in 2020. This information commonly is readily available from a number of water supply measurements and reporting sources. In addition to the eAR, these sources may include, among others, monthly reporting for the state and federal projects, reports of licensee or permit progress reports with the State Water Board, and groundwater well records or other groundwater reporting records maintained by local agencies and DWR.

6.1.3.3 Water Year Types

Using the information discerned from the water supply narrative, Suppliers can complete the monthly (or other time-step) projected water supply availability for each individual water supply under normal, single dry, and five consecutive dry year conditions. This information would incorporate the nuances associated with each individual water supply identified. The time-step quantified water supply for each individual water supply will then be summed into the *Total Annual Supply* column for each individual water supply. In addition, the time-step quantified water supply will be aggregated into the *Summary: Existing Potable Supply Tables* water supply representations as well as summarized for all water supplies in the *Total Annual Supply* column.

6.1.3.4 Projections

Suppliers may use the annual reporting numbers under the normal year, single dry year, and five consecutive dry year conditions to inform those projections for the future conditions noted in *Part 2* of the Planning Tool Supply Worksheet. The 2025 through 2040 (2045 is optional) projections not only consider the quantified conditions based upon a Supplier's annual supply summaries, but also may consider other issues—such as climate change, regulatory revisions, infrastructure improvements, and development of new water supplies—that are anticipated to occur in the future and directly affect an individual water supply. The climate change and regulatory revision issues are addressed in section 6.9 of this chapter. The new water supply, however, as shown in the Planning Tool Supply Worksheet and labeled *Planned Supply X* may be a supply that could be used to

augment future water supply availability and therefore may only have quantities included in the 2025 through 2045 projections.

Water Supply Worksheet (Potable and Non-Potable Combined) - Optional Planning Tool																								= auto-filled cell					
Indicate units: <i>[include pick list]</i>																													
Part 1: SUMMARY: Existing Supply Tables														<i>[use of monthly data is recommended]</i>										Part 2: SUMMARY: Existing and Planned Supplies					
Total Supply		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total	Total Supply		2025	2030	2035	2040	2045 (opt)								
eAR (for comparison)																													
2020 Actual Use		0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
Normal Year		0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
Single Dry Year		0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
Multi-Year Drought	2021 (1st year)	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
	2022 (2nd year)	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
	2023 (3rd year)	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
	2024 (4th year)	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
	2025 (5th year)	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	0								
Part 1: Individual: Existing Supply (current monthly conditions <i>[use of monthly data is recommended]</i>)														Part 2: Individual: Existing and Planned Supplies															
Supply Source		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total	Supply Source		2025	2030	2035	2040	2045 (opt)								
Source 1: <i>(describe source here)</i>																													
2020 Actual use of supply																													
Normal Year																													
Single Dry Year																													
Multi-Year Drought	2021 (1st year)																												
	2022 (2nd year)																												
	2023 (3rd year)																												
	2024 (4th year)																												
	2025 (5th year)																												
Source 2: <i>(describe source here)</i>																													
2020 Actual use of supply																													
Normal Year																													
Single Dry Year																													
Multi-Year Drought	2021 (1st year)																												
	2022 (2nd year)																												
	2023 (3rd year)																												
	2024 (4th year)																												
	2025 (5th year)																												

6.2 Narrative Sections for Supplier's UWMP Water Supply Characterization

The following sections in this chapter will provide further guidance on the water supply availability quantification and narrative required under the Water Code. These are discussed based on the type of water supply a Supplier may have and considerations when projecting future supplies.

- 6.2.1 Purchased or Imported Water
- 6.2.2 Groundwater
- 6.2.3 Surface Water
- 6.2.4 Stormwater
- 6.2.5 Wastewater and Recycled Water
- 6.2.6 Desalinated Water
- 6.2.7 Water Exchanges and Transfers
- 6.2.8 Future Water Projects
- 6.2.9 Summary of Existing and Planned Sources of Water
- 6.2.10 Special Conditions
 - (a) Climate Change Impacts
 - (b) Regulatory Conditions

(c) Other Locally Applicable Criteria

6.2.1 Purchased or Imported Water

All Suppliers

Suppliers may import or purchase water from other Suppliers or other entities. Suppliers will make their own determination as to whether a supply is purchased, imported, transferred, or exchanged. Suppliers may provide a narrative description of their purchased water Suppliers in this chapter and report volumes of purchased or imported water in Submittal Table 6-8 Water Supplies – Actual, and Submittal Table 6-9 Water Supplies – Projected. Submittal Table 7-1 is used to report the required *normal year*, *single dry year*, and *five-consecutive dry years* supplies as discussed in Chapter 7 of this Guidebook.

Suppliers may possess Contract Water Supplies, including *Water Supply Entitlements* or *Water Supply Agreements*, that are derived from local, regional, state, and federal water agencies. These contracts may include wholesale delivery contracts, contracts based upon state and federal water projects, and localized contracts between regional entities for surface or groundwater. Suppliers will make their own determination as to whether they use water contracts to divert and deliver water supplies to their customers.

In the narrative, Suppliers are encouraged to include key aspects of each water contract identified, such as: the name and date of the contract, contract expiration and renewal date, specific dates for diversion and use of the water assets subject to the contract, maximum diversion rates, maximum monthly or annual diversion volumes, specific limitations in the contract that affect use (e.g., dry year reduction provisions), water quality issues, and any other special conditions relevant to each contract water supply. If the contract water supply attaches to a specific water right, Suppliers may want to provide some information about the underlying water right that allows the contract supply to be available. Additional items like these details may be added at the discretion of the Supplier. The information contained in this section will inform the quantification of water supplies incorporated into the Planning Tool Supply Worksheet. When using the Planning Tool Supply Worksheet, contract terms and conditions may inform limitations on its availability under the various planning conditions.

6.2.2 Groundwater

Water Code Section 10631(b)(4)

If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(D) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

All Suppliers

Groundwater reporting requirements for the 2020 UWMP apply to any groundwater that a Supplier pumps from any groundwater source. For existing and planned groundwater supplies, the UWMP must provide an overview of the groundwater resource, the Supplier's reliance on the groundwater source, any groundwater management framework or strategies, and include documents that have been developed specifically for groundwater sustainability management such as GSPs under SGMA or AB 3030 Groundwater Management Plans. All new requirements for groundwater under SGMA apply to the 2020 UWMP cycle.

Suppliers may provide a narrative description of their existing and planned groundwater supplies in this chapter and report volumes in Submittal Table 6-8 Water Supplies – Actual and Submittal Table 6-9 Water Supplies – Projected. Submittal Table 7-1 is used to report the required *normal year*, *single dry year*, and *five-consecutive dry years'* supplies used in the services reliability and drought risk assessments.

If a Supplier does not use any groundwater as a source of supply, the Supplier can simply state this in their UWMP.

Recommended

A thorough basin description may include a map of the basin, a list of other known users of the basin, and a discussion of any known issues including changes in groundwater levels, water quality issues, yield, subsidence, or any information that may affect present or future groundwater use. DWR Bulletin 118, California's Groundwater (available at: <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118>) may be used to provide some background and general information for describing the basin(s) if more current information or a GSP is not available.

6.2.2.1 Basin Description

All Suppliers

The UWMP must include a description of the groundwater basin(s) used by the Supplier. A description of the Supplier's groundwater source includes the basin and subbasin name(s). If the Supplier pumps groundwater from fractured rock or volcanics, the Supplier may indicate that the source is fractured bedrock or volcanics. If Suppliers need additional guidance identifying the groundwater basin, they may contact DWR staff at: UWMPHelp@water.ca.gov.

Under Water Code Section 10631(b)(4), a Supplier that uses groundwater or plans to use groundwater as a source of supply must provide additional information on the nature and extent of each groundwater basin and the water supply availability from that basin. Specifically, Suppliers must provide all the following information:

- Current version of any GSP or alternative adopted under SGMA, any AB 3030 groundwater management plan adopted by the Supplier, or any other specific authorization for groundwater management (e.g., adjudication);
- A description of the groundwater basin or basins from which the Supplier pumps groundwater. The description must include:
 - o Adjudicated Basins: a copy of the adjudication order or decree (if applicable) and the amount of water that the Supplier has the legal right to pump; and
 - o Non-adjudicated Basins: DWR's priority designation for the basin from the most current bulletin and a detailed description of the efforts being undertaken by the Supplier to coordinate with groundwater sustainability agencies or management agencies to maintain or achieve sustainable groundwater conditions in accordance with a GSP or alternative adopted pursuant to SGMA.
- A detailed description of the location, amount, and sufficiency of groundwater pumped for the past five years, based on reasonably available information.
- A detailed description of the amount and location of groundwater that is projected to be pumped by the urban water Supplier based on reasonably available information.

Suppliers may attach a copy of any applicable adjudication decrees or GSPs as an appendix, and then summarize them in this section.

6.2.2.2 Multiple Groundwater Basins

All Suppliers

For Suppliers that pump water from more than one defined groundwater basin, the above basin descriptions are required for each groundwater basin. Therefore, Suppliers should list groundwater from each basin as a separate water supply, even though the wells may feed the same potable water distribution system.

Reporting on each groundwater source, separately, can also allow any unique constraints applicable to a groundwater basin to be reflected in the Supplier's narrative. For instance, a Supplier may have five wells in one groundwater basin and three in another basin. The basin with five wells may have constraints on the amount of groundwater available as defined in a GSP or have unique water quality consideration, while the other basin may not.

6.2.2.3 Other Considerations

All Suppliers

Groundwater supplies may also present other unique conditions that are distinguishable from surface water supplies. For example, in many cases a groundwater basin contains a total volume of water that is shared among the users of that groundwater basin. Although that entire water supply may be available for use, assessing other additional issues like the *sustainable yield*, as described in an applicable GSP, or the *safe yield*, developed under other planning documents, may provide context for the Supplier's available groundwater supplies.

In addition, considerations such as the number and physical capacity of wells, well system integration and operations, and interaction of groundwater systems with surface water supplies may provide insight for reliability assessments as described in Chapter 7. As such, Suppliers may wish to consider their groundwater supplies in the context of its overall system operations and shared supplies with other water users connected to the groundwater basin or basins. The information contained in this section will inform the quantification of water supplies incorporated into the Planning Tool Supply Worksheet.

6.2.2.4 Past Five Years

All Suppliers

The detailed description of the location, amount, and sufficiency of groundwater pumped for the last five years may be incorporated into Submittal Table 6-1 (below), which can be used to inform groundwater supplies' values in the optional Planning Tool Supply Worksheet or vice versa. To the extent practicable, each basin where pumping occurs should be separated as its own source in both Submittal Table 6-1 and the Planning Tool Supply Worksheet, if used. It is also recommended that each type of groundwater, potable or non-potable, be appropriately identified. For Suppliers that do not use groundwater, Submittal Table 6-1 provides a checkbox to indicate that fact.

The Submittal Table worksheets also allow Suppliers to track water supplies for potable and non-potable separately. Values from these tables are then rolled up into the Submittal Table that is used to prepare the information for electronic submittal through the Water Use Efficiency Data (WUEdata) Portal. Tracking potable and non-potable water supplies is optional, however images of these tables are included with the Submittal Table, below, for illustration purposes.

Submittal Table 6-1 – Groundwater Pumped in Last Five Years

Basin names in Submittal Table 6-1 (R or W, as appropriate) should be taken from DWR Bulletin 118.

Table 6-1 Retail. Groundwater Volume Pumped

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2016	2017	2018	2019	2020
Add additional rows as needed						
TOTAL		0	0	0	0	0
NOTES:						

OPTIONAL Table 6-1 Retail: Groundwater Volume Pumped Potable						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2016	2017	2018	2019	2020
Add additional rows as needed						
TOTAL		0	0	0	0	0
NOTES:						

OPTIONAL Table 6-1 Retail: Groundwater Volume Pumped Non-Potable						
☐	Supplier does not pump groundwater.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2016	2017	2018	2019	2020
Add additional rows as needed						
TOTAL		0	0	0	0	0
NOTES:						

6.2.3 Surface Water

All Suppliers

Water from streams, lakes, and reservoirs is considered a surface water supply for the purposes of the UWMP. If a Supplier uses, or plans to use, self-supplied surface water as part of its water supply, the volume of that supply will be reported in Submittal Table 6-8 Water Supplies – Actual, Submittal Table 6-9 Water Supplies – Projected, and Submittal Table 7-1 Basis of Water Year Data.

Surface water that is not self-supplied, such as purchases from a Wholesale Supplier, transfers, or exchanges, will be reported as *Purchased or Imported Water* in Submittal Tables 6-8 and 6-9. Submittal Table 7-1 is used to report the required *normal year*, *single dry year*, and *five-consecutive dry years* supplies for their service reliability and drought risk assessments. If a Supplier has more than one source of surface water, use additional rows in the table.

Suppliers may possess surface water rights that are derived from local surface water resources. These supplies may include water rights issued by the State Water Resources Control Board (State Water Board), pre-1914 appropriative water rights, pueblo water rights, or water rights derived from other sources, such as an adjudication or judicial decree. Suppliers will make their own determination as to whether they use water rights to divert and deliver water supplies to customers.

Recommended

The surface water narrative should include key aspects of each water right identified, such as: the water right number (e.g., appropriative right license number, statement of diversion and use number), specific dates for diversion and use, maximum diversion rates, maximum monthly or annual diversion volumes, specific limitations in the water right (e.g., Term 91), water quality issues, and any other special conditions relevant to each water supply. The information contained in this section can inform the availability of water supplies for the water service and drought risk assessments, as well as providing more detailed information when using the optional Planning Tool Supply Worksheet and Drought Risk Assessment Worksheet.

6.2.4 Stormwater

All Suppliers

Communities are increasingly implementing opportunities to beneficially use stormwater to meet local water supply demands. These actions are motivated by constrained local water resources, new regulations, and relieving strain on overburdened stormwater infrastructure. Beneficial uses can include blending with other waters supplies for groundwater recharge, redirecting it into constructed wetlands or landscaping, and diverting it to a treatment facility for subsequent reuse.

If stormwater is being intentionally diverted for beneficial reuse, that volume of stormwater can be reported as a water source in Submittal Tables 6-8 and 6-9, as well as in the optional Planning Tool Supply Worksheet. Submittal Table 7-1 is used to report the required *normal year*, *single dry year*, and *five-consecutive dry years* supplies for their service reliability and drought risk assessments.

Recommended

If using the Planning Tool, assessing the monthly or other time-step availability of stormwater is subject to some speculation based upon its connection to storm events. Historical stormwater collection in representative normal years, single dry years, and five consecutive dry years may be the best indicator of this supply availability in the future under similar conditions. The information contained in this section will inform the quantification of water supplies incorporated into the Planning Tool Supply Worksheet.

Surface water that is not self-supplied, such as purchases from a Wholesale Supplier, transfers, or exchanges, will be reported as *Purchased or Imported Water* in Submittal Tables 6-8 and 6-9.

6.2.5 Wastewater and Recycled Water

Water Code Section 10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*
- (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.*
- (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*
- (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.*
- (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.*

All Suppliers

To the extent available, Suppliers must include information in their UWMP on recycled water and its potential for use as a water source in their service area. There have been no legislative changes to the

Water Code regarding recycled water in the UWMP since the preparation of the 2015 UWMPs.

Municipal recycled water is municipal wastewater that has been treated to a specified quality to enable it to be used again for a beneficial purpose. The term *recycled water* is defined in the Water Code more broadly than *municipal recycled water*. For purposes of the UWMPs, recycled water means only municipal recycled water, that is, water that has been treated and discharged from a municipal wastewater facility.

There are two requirements treated municipal wastewater must meet to be classified as recycled water:

1. It must be reused beneficially, in a manner consistent with Title 22;
2. It must be reused in accordance with a Regional Water Quality Control Board permit such as National Pollutant Discharge Elimination System, waste discharge requirement, or water recycling requirement.

Both recycled water supplies and uses are presented in this section, which combines aspects of both Chapter 4 (System Water Uses) and Chapter 6 (System Supplies). Because recycled water is primarily maintained separately from the potable system, DWR prefers that agencies address both aspects of recycled water within one portion of an UWMP, which could be in Chapter 6 or a separate UWMP chapter. It is likely that this approach will be modified for 2025 UWMPs, as regulations for direct potable reuse are expected to be prepared in 2023.

Appendix M is included in this Guidebook to clarify uncertainty and variability in how recycled water is to be reported as a water supply in 2020 UWMPs. The following sections will address how to account for wastewater treatment and recycled water if multiple agencies are involved. It is also discussed in Appendix M.

This and other regional questions should be coordinated with other agencies in order to consistently represent the utility of the water supply for each individual Supplier. Suppliers are advised to review Appendix M before completing the recycled water supply section of the UWMP. The following sections are recommended for presenting recycled water information in an UWMP. The labeling provided here is

only provided as a reference and is not a required numbering system for the UWMP.

Beginning in 2019, recycled water data is required to be provided to the State Water Resources Control Board as part of a wastewater agencies permit requirements. That data can be accessed to support preparation of a 2020 UWMP.

Retail Only

Retail Suppliers are to include a discussion of wastewater collection and treatment and recycled water use in the UWMP as follows:

If recycled water is currently used or planned to be used in the service area of the Supplier,

- Address sections 6.5.1 through 6.5.5 of this chapter (described below).
- Complete Submittal Tables 6-2 to 6-6.

If recycled water is not used and there are no plans for use within the planning horizon of the UWMP,

- Address sections 6.5.1, 6.5.2, and 6.5.5 of this chapter (described below).
- Complete Submittal Tables 6-2, 6-3, and 6-6.

Wholesale Only

Wholesale Suppliers do not need to summarize wastewater generation or treatment within their service area unless it provides supplemental treatment to recycled water prior to distribution. However, each Wholesale Supplier does need to address recycled water as follows:

If recycled water is currently used or planned to be used in the service area of a Wholesale Supplier:

- Describe how recycled water is or will be used within the service area.
- If not directly involved with the treatment or distribution of recycled water, provide a list of the wholesale and retail wastewater facilities within the service area.
- If any supplemental treatment is provided by the Wholesale Supplier, complete Submittal Table 6-3 for the supplemental treatment only.

- If recycled water is treated or distributed by the Wholesale Supplier, complete Submittal Tables 6-4 and 6-5.

If recycled water is not used and there are no plans for use within the planning horizon of the UWMP, provide a summary statement to that effect.

6.2.5.1 Recycled Water Coordination

All Suppliers

Water Code Section 10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area...

The 2020 UWMP is to be prepared in coordination with wastewater, groundwater, planning, and other local water agencies that operate within the Supplier's service area regarding the existing and potential availability and uses of recycled water. This coordination may occur within the framework of an Integrated Regional Water Management Plan or other local or regional planning organization.

As a first step, Suppliers should identify the agencies collecting, treating, or discharging municipal wastewater both generated and treated within the Supplier's service area, and list them in the narrative with their roles indicated.

Other information that can be included in the UWMP to inform the availability and suitability of use may include, but is not limited to:

- Quality of wastewater and associated beneficial reuse opportunities
- Availability of wastewater for recycled water projects
- Constraints to use of existing recycled water or wastewater (e.g., distance from area of use, lack of distribution system, and other)
- Planned expansion or new treatment facilities
- Limiting permit conditions

6.2.5.2 Wastewater Collection, Treatment, and Disposal

Water Code Section 10633(a)

A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

Per Water Code, Suppliers must provide a general description of wastewater collection, treatment, and disposal within the service area. This information is reflected in Submittal Tables 6-2 and 6-3.

The Supplier may also describe the wastewater collection system and the recycled water supply with available maps or other physical descriptions. A Supplier can also provide reference via a website link or citation for a Recycled Water Master Plan that may be applicable to the Supplier's service area and then summarize applicable information in its 2020 UWMP.

Wastewater Collected Within the Service Area

Retail Only

This section summarizes collection and treatment of wastewater generated within a Supplier's service area. This information can set the stage for identifying infrastructure and operations opportunities and constraints for using recycled water as a supply source.

Describe how the agencies identified in Section 6.2.5.1, above, interact to collect wastewater within the service area, including any joint ventures or joint operations. For example, one agency collects wastewater and delivers it to another agency that operates the treatment facility.

Provide a general description of wastewater collection, treatment, and disposal within the service area in Submittal Table 6-2 R. Submittal Table 6-2 R summarizes information on collection of wastewater within the service area. This table is used for all wastewater **collected** within the service area, the extent to which that information is available.

To complete Submittal Table 6-2 R, Suppliers can contact owners and operators of each agency that collects or treats wastewater in the Supplier's service area to identify, to the best of the Supplier's ability and extent that information is available:

- The volume of wastewater collected within the service area.

- Identify the facility that treated the collected wastewater.
- Indicate if wastewater generated from outside the service area is treated within the service area.

Table 6-2 Retail. Wastewater Collected Within Area in 2020

Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐ There is no wastewater collection system. The supplier will not complete the table below.						
Percentage of 2020 service area covered by wastewater collection system <i>(optional)</i>						
Percentage of 2020 service area population covered by wastewater collection system <i>(optional)</i>						
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
Total Wastewater Collected from Service Area in 2020:		0				
NOTES:						

Regional UWMPs

Regional UWMPs will use multiple versions of Submittal Table 6-2 R, one for each participating Retail Supplier.

Recommended

Additional information that may be useful includes:

- An estimate, to the best of the Supplier's ability, of the amount of service area and population (in percentages) that is served by the wastewater collection system.
- If a third-party organization operates a facility under contract (yes or no).

Wastewater Treatment and Discharge Within the Service Area

Submittal Table 6-3 (R or W, as appropriate) identifies the volume of treated wastewater either recycled or disposed of within the service area. This may include wastewater that originated from outside of the Supplier's service area. This table is completed by Retail Suppliers for all wastewater treated or disposed of within the service area, to the

extent that information is available. If neither occurs, Suppliers do not have to complete this table.

Retail Only

If wastewater is not treated or disposed of within the service area, Submittal Table 6-3 R does not need to be completed. Instead, Suppliers can provide a narrative of the disposal and/or recycling of treated wastewater at the facility that receives the service area wastewater.

A new column has been added to Table 6-3 to enable water suppliers to provide information on in-stream flow requirements included in operational permits. Additional help on completing this table are include in Appendix M and in the annotated Excel table available in the WUEdata portal.

Wholesale Only

Wholesale Suppliers only complete Submittal Table 6-3 W if they provide additional treatment to recycled water, then complete Table 6-3 only for the water receiving supplemental treatment

Table 6-3 Retail. Wastewater Treatment and Discharge Within Service Area in 2020

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
☐ No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below.											
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area? <i>Drop down list</i>	Treatment Level <i>Drop down list</i>	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Add additional rows as needed											
Total							0	0	0	0	0
NOTES:											

6.2.5.3 Recycled Water System Description

Water Code Section 10633 (c)

A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

All Suppliers

Suppliers must describe the distribution and use of recycled water within the Supplier's service area. This section can be used to provide an overview of the current recycled water system and its operations in the Supplier's service area. Some factors include:

- Identification of each agency involved in the recycled water system collection, treatment, and distribution, including Wholesale Suppliers, retailers, special districts, or joint ventures.
- Information on system history and operation.
- Place of use.

Quantification and type of recycled water currently being used will be described in this section and reported in Submittal Table 6-4 (see section 6.2.5.4 of this Guidebook). If municipal recycled water is being intentionally identified as a potable or non-potable supply, that volume of recycled water can be reported as a water supply source in Submittal Table 6-8 (R or W), Submittal Table 6-9 (R or W), and in the optional Planning Tool Supply Worksheet.

Chapter 7 of this Guidebook will integrate recycled water with the water uses. To best assess service reliability and drought risk, potable recycled supply should be integrated with potable use and non-potable recycled water supply with non-potable use.

Recommended

If using the Planning Tool, it is recommended that the supply information from Submittal Table 6-4 (R or W) be appropriately categorized as either potable or non-potable in the Planning Tool Supply Worksheet and then listed as an independent source of supply following all of the monthly (or other time-step) availability assessments. The additional information can improve and support consistency in how UWMPs quantify recycled water and facilitate use of the data provided in the UWMPs. However, Submittal Table 6-4 still contains more detailed information, including the treatment-level recycled water source.

6.2.5.4 Potential, Current, and Projected Recycled Water Uses

Water Code Section 10633

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

All Suppliers

All Suppliers are to describe the quantity of current, potential, and projected recycled water uses within their service area.

- Current recycled water use must be compared to previous estimates of projected water use for 2020.
- Potential recycled water use is based on how much recycled water can be used for each of the potential beneficial uses within the Supplier's service area.
- Projected recycled water use will include estimates of how much recycled water use is expected to occur during the planning horizon.

The definition of recycled water (see Appendix M) includes the term *direct beneficial use*, which is defined as

California Code of Regulations, Title 22, section 60301.200 as:

The use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to water of the State.

Appendix M provides a more detailed and comprehensive discussion of how to apply these terms to recycled water.

A Supplier must also describe the quantity of treated wastewater in the Supplier's service area that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project. Any identified recycled water supply actually being used by the Supplier, or available to the Supplier, can be incorporated into Submittal Table 6-4 as either a current individual supply or a planned future supply. If the available recycled water supply is neither a current individual supply nor planned future water supply, Suppliers can provide a narrative on the availability of the supply and actions that could be taken to make the supply available to the Supplier in the future in Submittal Table 6-6 (described in section 6.2.5.5 of this chapter).

There is a retailer-specific and wholesaler-specific version of Submittal Table 6-4, which is consistent with the 2015 reporting tables, reflecting updated years as relevant. The comparison between projected and actual recycled water use is reported in Submittal Table 6-5.

Retail Only

To the best of their ability, a Supplier must describe and quantify the potential amount of recycled water that can be used within the Supplier's service area, as well as current and projected volumes and uses into the future. Retail Suppliers must provide their Wholesale Suppliers with their current, single dry year, five-consecutive year drought, and five-year projected water use information through 2040.

Potential beneficial use can be described by estimating the extent of that use within the service area and how much of that use could be supplied with recycled water. For example, Suppliers could estimate 1,000 acres of golf courses in the service area that could be supplied by 2,000 acre-feet of tertiary treated recycled water.

The narrative description of potential beneficial uses must also include a determination of the technical and economic feasibility of serving those uses. The actual use and projected use may be less than the potential use because of availability and delivery constraints.

Submittal Table 6-4 R is used to provide information on the current, projected, and potential beneficial use of recycled water. The total projected recycled water use for each of the five-year planning increments reported in Submittal Table 6-4 (both R and W) is also

included in Submittal Table 4-5 in Chapter 4. Complete Table 6-4 (R or W, as appropriate) for each beneficial use.

If more than one Supplier provides recycled water within the service area, separate tables may be included for each Supplier (e.g., duplicate Submittal Table 6-4 and refer to the resulting two tables as Table 6-4a and Table 6-4b, to correspond to data from two different recycled water Suppliers). Please refer to Appendix M before completing Submittal Table 6-4. Appendix M provides additional discussion on how recycled water should be quantified and discusses common errors in evaluating recycled water volume and uses.

The description of recycled water use accompanying Submittal Table 6-4 can include a narrative overview of the level or levels of treatment (there may be more than one) of recycled water used and the types of uses. This is important information for assessing the feasibility of expanded recycled water use.

Suppliers may also consider highlighting innovative uses of recycled water, or a particular organization that has demonstrated commitment to the use of recycled water, and may choose to provide information on the specific types of recycled water uses, including such information as crops irrigated or type of landscape irrigated.

Wholesale Only

For Wholesale Suppliers that provide recycled water, include the name of the retail agency and volume of water to which recycled water is or will be provided in Submittal Table 6-4 W. Beneficial uses do not need to be included because Wholesale Suppliers do not have to report on specific use sectors in their UWMP. Wholesale Suppliers that are not directly involved in recycled water do not need to complete Table 6-4, but in the recycled water section of the UWMP they should provide a list of the agencies that provide wholesale or retail recycled water within the Suppliers' service area. The volumes of recycled water these agencies provide in 2020 could be included, but it is not required.

Regional UWMPs

Regional UWMPs will use multiple versions of Table 6-4 and 6-5; one for each participating Supplier.

Submittal Tables

These tables are for all recycled water *used* within a Retail Supplier's service area.

Table 6-4 Retail. Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area											
☐ Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.											
Name of Supplier Producing (Treating) the Recycled Water:											
Name of Supplier Operating the Recycled Water Distribution System:											
Supplemental Water Added in 2020											
Source of 2020 Supplemental Water											
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity) <i>Include volume units</i>	General Description of 2020 Uses	Level of Treatment <i>Drop down list</i>	2020	2025	2030	2035	2040	2045 (opt)	
Agricultural irrigation											
Landscape irrigation (excludes golf courses)											
Golf course irrigation											
Commercial use											
Industrial use											
Geothermal and other energy production											
Seawater intrusion barrier											
Recreational impoundment											
Wetlands or wildlife habitat											
Groundwater recharge (IPR)*											
Surface water augmentation (IPR)*											
Direct potable reuse											
Other (Provide General Description)											
Total:					0	0	0	0	0	0	0

*IPR - Indirect Potable Reuse

NOTES:

Table 6-5 Retail. 2015 Recycled Water Use Projection Compared to 2020 Actual

Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual			
☐		Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below.	
Use Type		2015 Projection for 2020	2020 Actual Use
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Type of Use		
Total		0	0

NOTES:

These tables (Table 6-4 W and Table 6-5 W) are used for recycled water *provided* by Wholesale Suppliers.

Table 6-4 Wholesale. Current and Projected Retailers Provided Recycled Water Within Service Area

Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
☐	Recycled water is not directly treated or distributed by the supplier. The supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment <i>Drop down list</i>	2020	2025	2030	2035	2040	2045 (opt)
<i>Add additional rows as needed</i>							
Total		0	0	0	0	0	0
NOTES:							

Table 6-5 Wholesale. 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

Table 6-5 Wholesale: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☐	Recycled water was not used or distributed by the supplier in 2015, nor projected for use or distribution in 2020. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2015 Projection for 2020	2020 Actual Use
<i>Add additional rows as needed</i>		
Total	0	0
NOTES:		

6.2.5.5 Actions to Encourage and Optimize Future Recycled Water Use

Water Code Section 10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier... and shall include the following:

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the

installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Retail Only

Submittal Table 6-6 R is consistent with the same table in the UWMP 2015, containing the methods for expanding future recycled water use, where planned by the Supplier.

Table 6-6 Retail. Methods to Expand Future Recycled Water Use

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Total			0
NOTES:			

6.2.6 Desalinated Water Opportunities

Water Code Section 10631(g)

Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

All Suppliers

Suppliers are required to consider the potential for desalinated water as a water supply option. Suppliers should identify and discuss opportunities for development of desalinated water supplies from ocean water, brackish surface water, and brackish groundwater.

If the Supplier determines that there are no opportunities for use or development of desalinated water sources within the planning horizon

of the 2020 UWMP, the Supplier should clearly indicate that desalinated water is not being considered and discuss why.

Recommended

It is recommended that Suppliers indicate the level to which desalination is being considered by describing whether each potential desalination source is: (a) conceptual in nature, (b) likely to be developed, (c) almost certainly to be developed, or (d) in the process of being developed or in use at this time. The information included in Submittal Tables 6-8 and 6-9 and the optional Planning Tool Supply Worksheet should only be if it falls under categories (c) or (d), but Suppliers may choose to include less firm desalination opportunities in their narratives.

Many suppliers currently are desalinating groundwater or surface (ocean) water in California. In 2020 UWMPs, an optional table is provided for reporting of desalinated water supplies. In addition to this optional table, desalination is addressed in Table 6-1 (checkbox if desalination of groundwater is included) and as inputs to Tables 6-8 and 6-9. The optional table includes information on water source, salinity measurement (total dissolved solids, or TDS), and brine disposal. Desalinated groundwater reported in this table also is included in Table 6-1 and is included here to identify the extent current desalination. Surface water included in this table should be used as the input to Tables 6-8 and 6-9.

Optional Table 6-8ds: Source Water Desalination										
☐ Neither groundwater nor surface water are reduced in salinity prior to distribution.										
Plant Name or Well ID	Plant Capacity	Intake Type <i>Drop down list</i>	Source Water Type <i>Drop down list</i>	Influent TDS	Brine Discharge <i>Drop down list</i>	Volume of Water Desalinated in AFY				
						2016	2017	2018	2019	2020
Total						0	0	0	0	0
Notes:										

6.2.7 Water Exchanges and Transfers

Water Code Section 10631(c)

Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

All Suppliers

Describe any existing, planned, or potential future water exchanges or transfers. For purposes of the UWMP, a Supplier will make its own determination as to whether a water source is a purchase, import, exchange, or transfer.

The information contained in this section will inform the quantification of water supplies incorporated into Submittal Table 6-8 and 6-9, and optional Planning Tool Supply Worksheet. Suppliers are encouraged to only include those transfers and exchanges in the tables for which it has certainty of the quantity and availability. For instance, Suppliers should not just list *Transfer* as a generic supply option for dry conditions, absent evidence such as an agreement with another party, ability to describe past transfers or exchanges that are expected to be repeated in the future, or other substantiated evidence.

6.2.7.1 Exchanges

All Suppliers

Water exchanges are typically water delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or it can include payment and the return of water. The water returned may or may not be an *even* exchange; water can be returned on a one-for-one basis or by another arrangement (e.g., for each acre-foot of water received, two acre-feet are returned). There are numerous mechanisms to execute water exchanges that result in water supplies being available for a Supplier. Each current and/or planned exchange water supply is listed and quantified in Submittal Table 6-8: Water Supplies – Actual and Submittal Table 6-9 Water Supplier – Projected. If using the optional Planning Tool, exchanges should also be recorded in the Planning Tool Supply Worksheet.

6.2.7.2 Transfers

The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.

Temporary water transfers generally have a duration of one year or less while long-term water transfers have a duration of multiple years.

Transfers can be between Suppliers that are neighboring or across the state, provided there is a means to convey or store the water. A water transfer can be a temporary or permanent sale of water or a water right by the water right holder, a lease of the right to use water from the water right holder, or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts for the purpose of improving long-term supply reliability, including agreements that accommodate the single year transfer under pre-specified annual triggers, though the water only transfers occasionally or potentially not at all.

There are numerous mechanisms to execute water transfers that result in water supplies available for the Supplier. Each current and/or planned transfer water supply is listed and quantified in Submittal Tables 6-8 and 6-9. If using the optional Planning Tool, transfers should also be recorded in the Planning Tool Supply Worksheet.

6.2.7.3 *Emergency Interties*

Emergency interties are addressed in Chapter 7 Water Service Reliability and Drought Risk Assessment.

6.2.8 *Future Water Projects*

Water Code Section 10631 (f)

Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

All Suppliers

Provide a detailed narrative description of specific expected future projects and programs that the Supplier may implement to increase water supply reliability for a normal year, a single dry year or a drought period lasting five consecutive years. This will also include the anticipated timeline for implementation.

These projects or programs are included in Submittal Table 6-7 Expected Future Water Supply Projects or Programs. Include only those projects or programs that are expected to have a quantifiable increase in the Supplier's water supply and can reasonably be expected to be implemented within the 20-year planning horizon of the UWMP. Examples include desalination plants, recycled water treatment plants or infrastructure, or a known increase in a water right or contractual agreement. Capital improvement projects that do not increase the water supply should not be included in this section. For example, infrastructure projects to reduce system water losses would be included as a reduction in water use in Chapter 4. Additionally, Suppliers should avoid speculative projects or programs because they can mislead the service reliability and risk assessments described in Chapter 7 of this Guidebook.

Recommended

Suppliers are encouraged to report the quantitative annual volumes of the water supply in the optional Planning Tool Supply Worksheet.

Tables

Regional UWMPs will use multiple versions of Submittal Table 6-7, one for each participating Supplier (R and/or W, as appropriate).

Table 6-7 Retail. Expected Future Water Supply Projects or Programs

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Supplier <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
NOTES:						

Table 6-7 Wholesale. Expected Future Water Supply Projects or Programs

Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down list</i>	Expected Increase in Water Supply to Supplier
	<i>Drop Down Menu</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
NOTES:						

6.2.9 Summary of Existing and Planned Sources of Water*Water Code 10631*

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in

subdivision (a), providing supporting and related information, including all of the following...

(b)(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.2.9.1 Description of Supplies

All Suppliers

Suppliers will have already identified the existing and planned sources of supplies as described in sections 6.2.1 to 6.2.8 of this chapter. However, Suppliers must also describe the management of their various water supply sources as they relate to each other, if the Supplier has more than one supply source. In the narrative, Suppliers may describe how certain sources of supply are used in relationship to other supplies. For example, a groundwater supply source may be used only in the event of a surface water supply source shortage, or a certain surface water supply source may be used to augment groundwater supplies only when the surface water supply is above a certain volume.

6.2.9.2 Quantification of Supplies

All Suppliers

The actual source and volume of water for the year 2020 is reported in Submittal Table 6-8 (R or W): Water Supplies - Actual. Projected water supplies can be estimated based on historic average deliveries that are modified by special condition considerations (see section 6.2.10 of this chapter) and known or planned water supply development projects. Projected water supplies are reported in Submittal Table 6-9: Water Supplies-Projected. Suppliers can also report in these tables the volume of total water rights or total capacity, at their discretion. For some Suppliers, actual supplies and total water right or capacity will be identical.

Wholesale Suppliers are required to provide their Supplier customers with existing and planned water supply information. Suppliers can use their Wholesale Supplier information to characterize their projected water supplies for that source.

The State Water Project (SWP) Delivery Capability Report 2020 is also a source of data that can be used to estimate future water supplies from the SWP. This report provides SWP delivery capability under several possible scenarios that address changes in climate and hydrology, regulation, and facilities. The latest report is available at: <https://water.ca.gov/Library/Modeling-and-Analysis/Central-Valley-models-and-tools/CalSim-2>.

Because each source must be characterized separately, a Supplier's potable water supplies and non-potable water supplies that are planned sources of water in the Supplier's service area will be reported in separate rows.

Wholesale Only

Wholesale Suppliers are required to provide their Supplier customers with existing and planned sources of water available to them from the Wholesale Supplier over the same five-year increments (through 2040) and during various water-year types (normal, single dry year, and five-consecutive dry years).

Regional UWMP Only

Regional UWMPs will include multiple versions of Submittal Table 6-8 and 6-9, one for each participating Supplier (R and/or W, as appropriate).

Recommended

Suppliers are encouraged to provide water supply projections through 2045 in order to bridge the gap between plan cycle years. This would allow for a 20-year planning horizon water projections' analysis between 2020 and 2025 for use by other planning agencies.

The optional Planning Tool and P-NP Planning Tool Supply Worksheets provide a mechanism to incorporate these supplies into the Supplier's portfolio. The P-NP Planning Tool Supply Worksheet, under the heading *Planned Water Supply X* for potable supplies and *Planned Water Supply Y* for non-potable supplies can be used to capture the planned water supplies that will be used in the future. For each planned water supply, a separate Individual planned supply can be developed under the Planning Tool Supply Worksheet.

The Planning Tool Supply Worksheet provides an automatic summary of a Supplier's individual existing and planned sources of both potable and non-potable water supplies.

These summary tables incorporate the Supplier's characterization of each individual supply's monthly availability in a normal year, a single dry year, and drought periods lasting five consecutive years, and combines each individual supply into a summary table incorporating all supplies. In addition, *Part 2* of the Planning Tool Supply Worksheet summarizes each water supply in five-year increments from 2025 through 2045, allowing a Supplier to accommodate adjustments to existing supplies as well as include planned supplies that may be incorporated into the future supply picture. The information summarized in the Planning Tool Supply Worksheet can then be used to populate DWR's submittal tables supporting DWR's database (WUEdata Portal). The P-NP Planning Tool Supply Worksheet allows for tracking potable and non-potable supplies separately.

Submittal Tables

Regional UWMPs will include multiple versions of Submittal Table 6-8 and 6-9, one for each participating Supplier (R and/or W, as appropriate).

Submittal Table 6-8 is used to report current water supplies for each water supply source. Each supply source is listed and quantified separately, to the extent practicable. For example, if a Supplier has wells in two different groundwater basins, supplies from each groundwater basin are listed separately. The different groundwater

basins can be identified by selecting *Groundwater* in the *Water Supply* column for two different rows, then identifying the basin number in the, *Additional Detail on Water Supply* column in Submittal Table 6-8.

Table 6-8 Retail. Water Supplies – Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
Add additional rows as needed				
Total		0		0
NOTES:				

Table 6-8 Wholesale. Water Supplies – Actual

Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
Add additional rows as needed				
Total		0		0
NOTES:				

Water Supply Characterization

Projected supplies are listed in Submittal Table 6-9 (R or W) for each supply source, including groundwater supplies. If a Supplier has more than once source for each supply type, add additional rows as necessary and identify the supply source in the *Additional Detail on Water Supply* column. When listing groundwater sources, basin names should be taken from DWR's Bulletin 118 and listed in the *Additional Detail on Water Supply* column.

Projections are based on information that is reasonably available to Suppliers, including, but not limited to historical water supplies and trends analysis.

Note: For the purposes of the UWMP, water conservation is not considered a supply but should be reflected in a reduction in water use as described in Chapter 4 of this Guidebook.

Table 6-9 Retail. Water Supplies – Projected

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply <i>Drop down list</i> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
		<i>Add additional rows as needed</i>									

Table 6-9 Wholesale. Water Supplies – Projected

Table 6-9 Wholesale: Water Supplies — Projected											
Water Supply <i>Drop down list</i> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUdata online submittal tool</i>	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Total		0	0	0	0	0	0	0	0	0	0
NOTES:											

6.2.10 Special Conditions

Numerous special conditions may affect each Supplier's water supplies. In fact, each individual water supply may have specific conditions that may affect current or future supply characterization. As each water supply is considered and described, Suppliers can incorporate

reasonable assertions about climatological, regulatory, and other local conditions that may affect water supply availability—especially when considering the supply’s availability for the service reliability and drought risk assessments during single dry years and drought periods lasting five consecutive years. This section provides Suppliers with some guidance on addressing these conditions that can also be quantified in the optional Planning Tool Supply Worksheet *Part 2*.

6.2.10.1 Climate Change Effects

Climate change is a required consideration for Suppliers in their water supply analysis. There is a significant amount of new information emerging about climate change and how it affects the availability and reliability of water resources. Some Suppliers have initiated their own independent climate change analysis. Other Suppliers may find important and relevant information in applicable GSPs prepared by groundwater sustainability agencies (GSA) in accordance with SGMA. These GSPs often have modeled surface and groundwater supplies under various climate change scenarios. Suppliers may have to extract information, or request output for specific conditions pertinent to their situation, to make use of GSP information. For Suppliers that have not initiated their own analysis or that do not have suitable information available from a GSA, DWR has prepared climate change analysis recommendations that may be useful in estimating future water conditions in California. Guidance on a climate change analysis for examining individual water supplies is included in Appendix I of this Guidebook.

6.2.10.2 Regulatory Conditions and Project Development

Emerging regulatory conditions and planned future projects may also affect characterization of future water supply availability and analysis. For example, an emerging regulatory issue that may prove valuable in assessing current and future water supplies could include new or different regulatory requirements in the Regional Water Quality Control Plan, such as incorporation of elements in the Bay-Delta Water Quality Control Plan to reduce reliance on the Delta. These developments are emerging in the context of regulatory actions and the negotiation of voluntary settlement agreements with some Suppliers. Similarly, development of the Delta Water Conveyance systems project or other similar projects may affect future availability of an identified water supply.

6.2.10.3 Other Locally Applicable Criteria

Other locally applicable criteria may also affect characterization and availability of an identified water supply. For instance, a region may have a regional water management system that overlays the existing water rights and water contracts. The American River watershed has such an arrangement where flow criteria in the American River, embodied in a regional agreement, may affect the availability of a water supply even though the water right may be legally available for diversion under the terms of the water right or contract. In other instances, changes in regional water transfer rules may alter the availability of a water supply that had historically been readily available. These local conditions should be considered when analyzing the availability of each identified supply relied upon by a Supplier.

6.3 Submittal Tables Completion Using the Optional Planning Tool

The purpose of this section is to identify the information gathered in the Planning Tool Supply Worksheet that may be used to complete the DWR database tables below. The information gathered in the Planning Tool Supply Worksheet provides a much more detailed assessment of a Supplier's water portfolio that can be used to support DWR's existing water supply database, and it can be used to populate the Submittal Tables.

6.3.1 Submittal Table 6-1: Groundwater Volume Pumped

Submittal Table 6-1 is derived from the information developed in section 6.2. The connection of Table 6-1 to the Planning Tool Supply Worksheet is that the information related to groundwater volume pumped in Submittal Table 6-1 provides at least a portion of the water supply identified in the Planning Tool Supply Worksheet as *2020 Actual Use* as well as the row labeled *eAR (for comparison)*. The annual number depicted in Submittal Table 6-1 for 2020 is best disaggregated into monthly or other time-step pumping volumes that align with the time-step depicted in the Planning Tool Supply Worksheet.

Groundwater volumes pumped and depicted in Submittal Table 6-1 may also inform the normal year, single dry year, and five consecutive dry year groundwater supply determinations in *Part 2* of the Planning Tool Supply Worksheet.

6.3.2 Submittal Table 6-2 R: Wastewater Collected Within Service Area in 2020

Submittal Table 6-2 can be completed based upon information collected in section 6.4 of this Guidebook. If the collected wastewater represents a recycled water supply available, or potentially available in the future for use in the Supplier's service area, then the supply should be listed as an *Individual* potable or non-potable water supply in the appropriate Planning Tool Supply Worksheet.

6.3.3 Submittal Table 6-3 (R or W): Wastewater Treatment and Discharge Within Service Area in 2020

Submittal Table 6-3 (R or W) can be completed based upon information collected in section 6.4 of this Guidebook. If the collected wastewater represents a recycled water supply available, or potentially available in the future for use in the Supplier's service area, then the supply should be listed as an *Individual* potable or non-potable water supply in the appropriate Planning Tool Supply Worksheet.

6.3.4 Submittal Table 6-4: Recycled Water in Service Area

Submittal Table 6-4 (R and W) covers all recycled water used within the Supplier's service area, quantifying the amount of recycled water currently being used along with projected uses into the future. Regional UWMPs must use multiple versions of Submittal Table 6-4; one for each participating Supplier. Retail Suppliers and Wholesale Suppliers fill out slightly different tables, as shown below.

6.3.5 Submittal Table 6-5: 2015 Recycled Water Use Projection Compared to 2020 Actual

Submittal Table 6-5 (Retailers) should be completed by Retail Suppliers. Submittal Table 6-5 (Wholesalers) should be completed by Wholesalers. These do not correlate with the Planning Tool Supply Worksheet except for the total amount of recycled water currently used.

6.3.6 Submittal Table 6-6: Methods to Expand Future Recycled Water Use

Submittal Table 6-6 is to be completed by Retail Suppliers only, and it does not correlate with the Planning Tool Supply Worksheet.

6.3.7 Submittal Table 6-7: Expected Future Water Supply Projects or Programs

Submittal Table 6-7 (R or W, as appropriate) should be completed for both planned potable water supplies and planned non-potable water supplies. In the event that a Supplier has one or more planned potable supplies and one or more planned non-potable supplies, Submittal Table 6-7 may be used to account for both supplies. Information collected in the Planning Tool Supply Worksheet under the heading *Planned Water Supply X* and *Planned Water Supply Y* can be used to provide information to complete Submittal Table 6-7. For each planned water supply, a separate individual planned supply should be developed when using the Planning Tool Supply Worksheet. Information in the Planning Tool Supply Worksheet in the *Supply Source* column can be used to enter the *Name of Future Projects or Programs* in Submittal Table 6-7. The information in the *Total* column of the Planning Tool Supply Worksheet can be used to populate the *Expected Increase in Water Supply to Agency* column in Submittal Table 6-7 (R or W, as appropriate).

6.3.8 Submittal Table 6-8: Water Supplies – Actual

Submittal Table 6-8 (R or W, as appropriate) should be completed for both potable water supplies and non-potable water supplies. In the event that a Supplier has one or more potable supplies and one or more non-potable supplies, Submittal Table 6-8 may be used to account for both supplies. Information collected in the P-NP Planning Tool Supply Worksheet under the heading *Potable Supply Source* and *Non-Potable Supply Source* can be used to complete the *Water Supply* column in Submittal Table 6-8. Information in the *Total* column of the Planning Tool Supply Worksheet, as it aligns with each identified Supply Source, can be used to populate the *Actual Volume* column in Submittal Table 6-8. Alternatively, Suppliers could simply enter the value in the *Total* cell from the *2020 Actual Use* row and indicate it as *Other* in the Submittal Table 6-8 drop down list, with a reference to the Planning Tool Supply Worksheet.

6.3.9 Submittal Table 6-9: Water Supplies – Projected

Submittal Table 6-9 should be completed for both potable water supplies and non-potable water supplies. In the event that a Supplier has one or more potable supplies and one or more non-potable supplies, Submittal Table 6-9 may be used to account for both supplies. Information collected in *Part 2* of the P-NP Planning Tool

Supply Worksheet under the heading *Potable Supply Source* and *Non-Potable Supply Source* can be used to complete the *Project Water Supply* information in Submittal Table 6-9. Information in the *Individual: Existing and Planned Potable Supplies* and *Individual: Existing and Planned Non-Potable Supplies* columns of the Planning Tool Supply Worksheet, aligned with each identified Supply Source, can be used to populate the *Projected Water Supply* for Reasonably Available Volume in each five-year increment from 2025 through 2040 (2045 is optional) in Submittal Table 6-9. Alternatively, Suppliers could simply enter the value in the *Total* cell in the *Normal* row for each five-year increment, especially if numerous individual water supplies were included in the Planning Tool Supply Worksheet. The Supplier would indicate the value as *Other* in the Submittal Table 6-9 drop down list, with a reference to the Planning Tool Supply Worksheet.

Suppliers may also enter their determination of *Total Right or Safe Yield* values for each supply source in Submittal Table 6-9 if different than the *Reasonably Available Volume* listed, or if it's different than values entered into the Planning Tool Supply Worksheet. The Supplier's narrative of each water supply is recommended to explain the basis for any variance between *Reasonably Available Volume* and *Total Right or Safe Yield*.

Table 6-9 Water Supplies — Projected											
Water Supply <i>Drop down list</i> <i>May use each category that will be used in the WUE data online submission tool</i>	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
		2025	2030		2035		2040		2045 (opt)		
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
	Total	0	0	0	0	0	0	0	0	0	0

Values in “Reasonably Available” column from “normal year” value in Supply Worksheet

6.4 Energy Intensity

Water Code 10631.2. (a)

In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

- (1) An estimate of the amount of energy used to extract or divert water supplies.*
- (2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.*
- (3) An estimate of the amount of energy used to treat water supplies.*
- (4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.*
- (5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.*
- (6) An estimate of the amount of energy used to place water into or withdraw from storage.*
- (7) Any other energy-related information the urban water supplier deems appropriate.*

All Suppliers

New to 2020 UWMPs, Suppliers must include information that could be used to calculate the energy intensity of their water service. Required information is limited to that which is readily obtainable by the Supplier for the listed operations. Detailed guidance on estimating the energy usage by each operation are included in Appendix O. Appendix O also includes the three associated Submittal Tables (Submittal Tables O-1a, O-1b, and O-2) and one optional Table (Table O-1c). In the narrative, Suppliers should include any other energy-related information they deem appropriate; describe the methods and data used to measure, calculate, or estimate amounts in Submittal Tables; and they must include an estimation of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

Where full information cannot be obtained, Suppliers can provide the most information available. For example, Suppliers may not have the energy information to compare treated water and untreated water energy use. However, Suppliers would have information on how much of each type of water was produced and the equipment characteristics that could be used to estimate energy use either in the 2020 UWMP or

when more information is available (e.g., number and size of pumps, run times, other equipment used, and their general energy usage rates).

Water Code does not require a calculation of energy intensity; however, the Submittal Tables will automatically calculate the energy intensity, if all information is reported.

DRAFT

Chapter 7

7.0 Water Service Reliability and Drought Risk Assessment

7.1 Introduction

Assessing water service reliability is the fundamental purpose for an urban water supplier (Supplier) to prepare an Urban Water Management Plan (UWMP). Water service reliability reflects the Supplier's ability to meet the water needs of its customers, including end-use customers and retail urban suppliers, with water supplies under varying conditions. A Supplier's UWMP will consider the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that affect a Supplier's water supply and its customers' water uses. This analysis looks beyond a Supplier's past experience and considers what could be reasonably foreseen in the future. This chapter synthesizes the details imbedded in the other sections of a Supplier's UWMP, and it provides a rational basis for future decision-making related to supply management, demand management, and project development. In addition, this updated chapter includes a new requirement for a Drought Risk Assessment (DRA) that enables a Supplier to evaluate its risk under a severe drought period lasting for the next five consecutive years.

Importance

The water service reliability and risk assessments are critically important to Suppliers. The conclusions drawn about water service reliability affect Suppliers' short-term and long-term water management decisions. As a planning tool, the UWMP can assist Suppliers in addressing potential problems before they become acute problems whether by augmenting supplies or reducing demands. Moreover, the utility of the UWMP also encourages Suppliers to consider other water management conditions that may pervade under a longer planning horizon, such as climate change, development, or emerging technologies in desalination or water recycling.

The DRA, a new addition to the UWMP, offers Suppliers an opportunity to test their near-term reliability by assuming the next five consecutive

years are dry. This will be an important factor for consideration in developing demand management measures and water supply projects and programs to be included in the UWMP and water shortage level actions to be included in the Water Shortage Contingency Plan (WSCP) (see Chapter 8 – Water Shortage Contingency Plan of this Guidebook). Accordingly, the water service reliability assessment is the Supplier's final methodical outcome of assessing supplies and water uses that helps direct management actions, funding allocations, and project prioritization, and can help Suppliers forecast and begin planning for additional project development.

Focus

This section focuses on integrating a Supplier's water supply portfolio with its water use characterization. This integration brings together all UWMP elements into a succinct synopsis that depicts a Supplier's water service reliability for its customers. The reliability assessment highlights the incongruencies, if any, between a Supplier's supplies and customer water use, and influences the development of the Supplier's DRA described in this chapter, and the WSCP described in Chapter 8. The DRA is a specific planning action that assumes a Supplier is experiencing a drought over the next five years and addresses the Supplier's reliability in the context of presumed drought conditions. Together, the water service reliability assessment, DRA, and WSCP allow the Supplier to have a comprehensive picture of its short-term and long-term water service reliability and to identify the tools to address any perceived or actual shortage conditions.

Essentials

Accurately characterizing a Supplier's water service reliability under varying hydrological scenarios is the fundamental analytical result of a thoughtfully developed UWMP. Water service reliability requires assessing the combined investigative results from the Water Use Analysis in Chapter 4 and the Water Supply Analysis in Chapter 6. These analyses characterize the Supplier's water uses and supplies under varying hydrological and development conditions through at least a 20-year time horizon. Specifically, Suppliers analyze their water supplies and water uses under normal hydrological conditions, a single dry year condition, and at least five consecutive years of drought, and then project what conditions will look like for the next 20 years. Ideally, these water supply and use analyses fully represent projected variances that occur in both supply sources and customer use under

changed conditions, which include both short-term and long-term hydrological, regulatory, and development variables. Climate change presents an example of a long-term variable that must now be considered by a Supplier. The California Department of Water Resources' (DWR) proposed approach for the climate change analysis is described in Appendix I to this Guidebook.

Enhancing

An enhanced water service reliability assessment would include analyzing a Supplier's water service reliability on a monthly, bimonthly, or seasonal basis on a short-term basis, and annually beyond the 2040 timeframe. A shorter than annual time-step analysis for short-term conditions (through the five consecutive year drought) allows Suppliers to assess potential seasonal or limited-term vulnerability issues. Simply adding five years to the annual assessment, by extending the analysis through 2045, provides Suppliers with a platform from which to conduct water supply assessments and analysis for specific development projects and projects that require California Environmental Quality Act (CEQA) compliance in the five-year time period between UWMP updates. In addition, Suppliers may look to augment the water service reliability analysis by qualitatively addressing other opportunities to improve water service reliability. For example, it may be plausible to consider longer-term items like groundwater banking projects, localized water markets, or actions to capture and use conserved water.

Suppliers may want to consider looking at various levels of severity in short-term and long-term hydrological variables associated with annual characterization of water service reliability in order to evaluate water supplies and water uses under extreme conditions. Additionally, it may be important to separately assess the reliability for potable and non-potable water supplies, depending on local conditions, since non-potable supplies cannot necessarily be used in lieu of potable supplies, but it may also provide some relief in situations where potable water is serving non-potable uses.

New Requirements

The new UWMP requirements is manifest in the application of new criteria to the Water Use Analysis in Chapter 4, the Water Supply Analysis in Chapter 6, and the resulting water service reliability assessment in this chapter—including the requirement for a five-consecutive dry years analysis compared to the 2015 UWMPs, which

included only a three-year analysis. A new DRA is now also required under California Water Code (Water Code) Section 10635, and it must be prepared as a component of the 2020 UWMP. The DRA requires a methodical assessment of water supplies and water uses under an assumed drought period that last five consecutive years. The newly required WSCP is described in Chapter 8.

7.2 Water Service Reliability Assessment

Water Code Section 10635(a)

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

All Suppliers

Every Supplier must provide their expected water service reliability for a normal year, single dry year, and five consecutive dry years projections for 2025, 2030, 2035, and at least through 2040. Using the information gathered in the previous chapters, Suppliers can complete Submittal Tables 7-1 through 7-4, which have been updated for the new dates and new requirement for five dry years instead of three dry years specified in the 2015 UWMPs. In this section, Suppliers also provide a narrative describing the water service reliability determination, based upon the quantitative determinations shown in the Submittal Tables 7-1 through 7-4 (R or W, as appropriate). Note that each of the Submittal Tables 7-1 through 7-4 are offered for retailers and wholesalers separately.

For Suppliers choosing to perform their reliability assessment separately for potable and non-potable supply sources and uses, two optional tables are included in the Submittal Tables Workbook. These

optional tables will not be submitted, but they can be used to prepare and inform the Submittal Tables that combine potable and non-potable characterizations into one, overall reliability assessment. These optional tables may be included in the narrative at the Supplier's discretion. Refer to the recommendations in section 7.2.3 of this chapter for a discussion on separately characterizing potable and non-potable water service reliability.

Regional Only

Regional UWMPs (RUWMP) will use multiple versions of the Submittal Tables and prepare separate tables for each participating Supplier. However, RUWMPs may provide summary tables in the main document with the individual tables included as an attachment or appendix. When inputting data into the Water Use Efficiency Data (WUEdata) Portal, there may be limits on the number of tables that can be submitted. In these cases, the RUWMP summary table can be submitted through WUEdata with individual Supplier tables included in the UWMP attachments or appendixes.

7.2.1 Constraints on Water Sources

Water Code section 10631 (b)(1)

A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

All Suppliers

An analysis of reliability would not be complete or useful to the Supplier without pertinent information on the constraints to water supply sources. To the extent practicable, Suppliers should include a description of any constraints on their water supply that have been identified by the Supplier, such as inconsistent availability or water quality issues. Management strategies that have been, or will be, employed to address the constraint(s) would also be useful to include. This narrative description is critical to explaining the degree and probability of any constraint to a water source and in supporting the reliability assessment. When describing these constraints, Suppliers

that are both Retail and Wholesale Suppliers should identify if a constraint is applicable to their wholesale or retail (or both) operations.

If there is another section within the UWMP that describes a constraint on a particular water source and/or plans to supplement this source, there is no need to repeat this information in this section. Suppliers can refer the reader to the other sections within the UWMP that provide these details. However, it is useful to summarize the constraints to water sources in this chapter even if they have been fully documented elsewhere.

The estimation of inconsistent sources or constraints would be determined by the Supplier based on the information reasonably available or known by the Supplier at the time the 2020 UWMP is prepared, and as projected to the foreseeable future. The narrative can include information pertinent to the reliability assessment such as:

- A description of any particular circumstance(s) that would make a source inconsistent. For example, a legal, environmental, or climate factor.
- Known future constraints on water supplies, such as declining groundwater levels, sea level rise, or diminishing snowpack.
- A description of the quality of source water and how the water quality may affect water management strategies and/or supply reliability for the Supplier.
- Planned actions and water management strategies to address noted vulnerabilities and inconsistencies.
- A description of plans to supplement or replace these sources with alternative sources of water demand management measures, to the extent practicable.

Suppliers may choose to include the most recent Consumer Confidence Report for water supplies as an appendix.

A summary of the water quality information and other identified constraints from such documents such as the Climate Change Vulnerability Assessment, Groundwater Management Plans, Salt and Nutrient Management Plans, and other relevant documents, as applicable, can also be included.

Recommended

Maps, charts, graphs, or other visual tools are recommended when they can illustrate a supply issue.

7.2.2 Year Type Characterization

All Suppliers

Submittal Table 7-1 is used to report the characteristics of water supplies during the year types required for the water service reliability assessment.

7.2.2.1 Types of Years

There are three *Year Types* that must be included in the water service reliability assessment. These include:

- **Normal Year.** This condition represents the water supplies a Supplier considers available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available to the Supplier. In this Guidebook, DWR uses the terms *average* and *normal* interchangeably when addressing the water year type.
- **Single Dry Year.** The single dry year is the year that represents the lowest water supply available to the Supplier.
- **Five-Consecutive-Year Drought.** The five-consecutive year drought for the DRA would be the driest five-year historical sequence for the Supplier (Water Code Section 10612). For the water service reliability assessment, Suppliers are encouraged to use the same five-year sequence for their water service reliability assessment. However, they may choose to use a different five-consecutive year dry period such as the lowest average water supply available to the Supplier for five years in a row. Suppliers are encouraged to characterize the five-consecutive year drought in a manner that is best suited for understanding and managing their water service reliability.

Submittal Table 7-1 provides a column (*Base Year*) for identifying the year that is used to characterize each year type along with the associated volume of water and/or percentage of average supply it represents. Suppliers should also include in the narrative why certain years or averages were selected.

Tables

RUWMPs will include multiple versions of Submittal Table 7-1, at least one for each Supplier. Two versions of each of the Tables 7-1 through 7-4 are offered—one for retailers and the other for wholesalers. They are the same, other than the titles, unless otherwise mentioned here. To save space, only the retail version of the tables are shown in this chapter.

Many Suppliers have multiple water sources, and each may have a different hydrology resulting in different base years for each sources' year type. For example, an imported water source may have experienced its single driest year in the same year that a local water source experienced a normal year. Reporting of different base years for multiple water sources may be accomplished by including multiple versions of Submittal Table 7-1 and identifying which source is being characterized.

Table 7-1 Retail. Basis of Water Year Data (Reliability Assessment)

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020</i>	Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year			100%
Single-Dry Year			
Consecutive Dry Years 1st Year			
Consecutive Dry Years 2nd Year			
Consecutive Dry Years 3rd Year			
Consecutive Dry Years 4th Year			
Consecutive Dry Years 5th Year			
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES:			

7.2.2.2 Sources for Water Data

For State Water Project (SWP) contractors, information on water supply capacity under several scenarios is available in the latest SWP Delivery Capability Report available at:

<https://water.ca.gov/Library/Modeling-and-Analysis/Central-Valley-models-and-tools/CalSim-2>.

Weather information is available at:

- The National Weather Service Website:
<https://www.weather.gov/>
- California Irrigation Management Information System:
<https://cimis.water.ca.gov/>

- Western Regional Climate Center: <https://wrcc.dri.edu/>

Runoff data is available at:

- DWR (cdec) <https://cdec.water.ca.gov/>
- U.S. Geological Survey:
<https://maps.waterdata.usgs.gov/mapper/?state=ca>
- Operators of local dams and reservoirs

Groundwater information is available at:

- Local Groundwater Sustainability Agency
- State of California Sustainable Groundwater Management Website: <https://water.ca.gov/Programs/Groundwater-Management>
- California Statewide Groundwater Elevation Monitoring (CASGEM): <https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM>

7.2.3 Water Service Reliability

Water Code Section 10635(a)

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

All Suppliers

The water service reliability assessment combines the details of the Supplier's water use analysis in Chapter 4 and their water supply analysis in Chapter 6. Integration of these analyses provides Suppliers with a complete picture of both their short-term and long-term water

service reliability. Suppliers are to make the best determination of the reliability of their water supply(ies) based on what information is reasonably available at the time the 2020 UWMP is prepared. This chapter will demonstrate how to integrate the Supplier's water use and supply analyses in order to evaluate a Supplier's short-term and long-term water reliability.

The water service reliability assessment shall be based on the Supplier's complied information regarding the service area, water sources, water supply reliability, and water use as described in Water Code Section 10631, including available data from state, regional, or local agency population, development, and climate change projections within the service area of the Supplier. These factors should already be included in projecting water use and available supplies as identified in Chapter 4 and 6, respectively.

Submittal Tables 7-2, 7-3, and 7-4 are used to summarize the water supply reliability for normal (average), single dry year, and five-consecutive dry years, respectively, for 2025, 2030, 2035, and 2040, with 2045 included as an option. A brief narrative describing the information and process used to develop the supply and use reliability assessment should accompany each table. Summary information and location of details can be included with the tables when the detailed information is included in other locations.

Some factors to consider in the assessment include the potential for acquiring supplemental water supplies, potential for increased irrigation use because of low rainfall, expected demand reduction due to increased implementation of demand management measures, implementation of drought stages, savings from codes and standards, and increased drought messaging.

Recommended

If Submittal Tables 7-2, 7-3, or 7-4 show a surplus or a shortage when comparing projected supply and use, DWR recommends that the Supplier include a discussion of management actions that it may take in response to the surplus or shortage.

Separate Analyses for Potable and Non-Potable Supplies. It is highly recommended that Suppliers conduct the reliability analysis separately for potable and non-potable water uses. If supplies that physically or legally cannot be comingled (e.g., excess recycled water supplies produced in winter months may inadvertently be reflected as

available to meet potable water uses) are comingled in the analysis, it can result in an incorrect water service reliability determination. If Suppliers choose to characterize potable and non-potable supply and use in separate tables or tools, Suppliers should conduct their reliability assessments by comparing their potable water supplies with potable water use, and non-potable water supplies with non-potable water use. Where crossover between potable supplies serving non-potable water uses may occur, Suppliers should be very clear in characterizing this condition in the tools and tables and in the respective chapters in their 2020 UWMP, so that the two supplies are not comingled inappropriately.

Iteratively with DRA. Suppliers are also encouraged to conduct the water service reliability assessment iteratively with the DRA, discussed in the next section, to best identify and apply any adjustments to dry year supplies and uses that may not be reflected in the historical supply data and normal year use data. Suppliers that use the optional Planning Tool DRA Worksheet can readily adjust supplies and use, factoring in actions to reduce use and augment supplies for the different year-type reliability assessments.

Optional Planning Tool. The optional Planning Tool Use Worksheet, described in Chapter 4 and 6, is an analytical tool that can be used by Suppliers to represent water use, supplies, and to conduct the DRA. In that tool, Suppliers can record projected water use in the necessary increments and provide detail to best facilitate their water service reliability assessment. Similarly, the optional Planning Tool Supply Worksheet, described in Chapter 6, is an analytical tool Suppliers can use to characterize their water supplies in varying time horizons necessary to perform the required water service reliability analyses detailed in Water Code Section 10635. These tools include projections of use and supplies for each of the year types required for the water service reliability analysis. Information from the Planning Tool Use Worksheet and Supply Worksheet can be compared to gain an understanding of the Supplier's overall water service reliability throughout a year and under varying conditions. The Planning Tool also allows for Suppliers to more easily adjust use and supplies iteratively with the DRA. This facilitates characterization of single dry year and five-consecutive dry years' water use and supplies.

7.2.3.1 Water Service Reliability – Normal Year

All Suppliers

Submittal Table 7-2 is for characterizing a Supplier's normal year water service reliability. This table compares the normal year supply totals to the normal-year gross water-use totals for the 20-year projection horizon (an additional five-year projection through 2045 is optional but recommended). Data from Submittal Tables 4-3 and 6-9 are used to complete this table and will automatically be entered into Submittal Table 7-2, if Submittal Tables 4-3 and 6-9 are complete.

Tables

RUWMPs will use multiple versions of Submittal Table 7-2 (R or W, as appropriate).

For Suppliers choosing to characterize their water service reliability separately for potable and non-potable supplies, optional use tables are included in the Submittal Tables Workbook. Data from the separated tables can be directly input into Submittal Table 7-2. The separated tables will not be submitted, but they can be included in the narrative or an appendix.

Table 7-2 Retail. Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)	0	0	0	0	0
Demand totals (autofill from Table 4-3)	0	0	0	0	0
Difference	0	0	0	0	0
NOTES:					

Optional Table 7-2 Retail. Normal Year Supply and Demand Comparison – Potable

OPTIONAL Table 7-2 Retail: Normal Year Supply and Demand Comparison - Potable					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)					
Demand totals (autofill from Table 4-3)					
Difference					
NOTES:					

Optional Table 7-2 Retail. Normal Year Supply and Demand Comparison – Non-Potable

OPTIONAL Table 7-2 Retail: Normal Year Supply and Demand Comparison - Non-Potable					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)	0	0	0	0	0
Demand totals (autofill from Table 4-3)	0	0	0	0	0
Difference	0	0	0	0	0
NOTES:					

7.2.3.2 Water Service Reliability – Single Dry Year All Suppliers

Submittal Table 7-3 is for a Supplier's water service reliability assessments for a single dry year projected for the 20-year planning horizon (an additional five-year projection is optional but recommended). These tables are used to compare the single dry year supply total to an adjusted gross water-use total.

Both the single dry year water use and supply will have to be projected for the five-year intervals.

Water Use. The projected gross water use values reported in Submittal Table 4-3 represents normally expected customer water uses prior to any adjustments. As such, Suppliers may want to adjust the *normal year* total gross water use quantities prior to comparing

them to the single dry year supply values to reflect changes in usage that may occur during a dry year. Factors that may affect dry year normal water use include but are not limited to: (1) higher water use due to less rainfall and a greater reliance on applied irrigation water by customers, or (2) reduced water use as a result of Supplier-implemented temporary actions specified in its WSCP. Water use can be affected by many factors such as climate change, regulations, population change, development, and other factors, and are expected to already be included in the normal year projected water uses. Adjustment factors, rationale, and data should be clearly defined and explained in the narrative.

Water Supply. Water supply projections in Submittal Table 6-9 represent the projected supplies under normal conditions and cannot, therefore, be directly used for Submittal Table 7-3. Suppliers may choose to complete the single dry year analysis by using the same single dry year value for all years in the planning horizon. However, it is in the Supplier's best interest to estimate future single dry year water supplies considering the same factors used for assessing normal year supplies including, but not limited to, expected limits on supply sources that may affect dry year supplies, planned development of supplies for use during dry periods, overall changes in water supplies that may affect dry year supplies, and others. For instance, it may be expected that water supplies from a particular source, which was relied on for dry year supplies, will be reduced in the future, or that climate change is expected to further reduce dry year supplies in the future.

Recommended

In addition to the overall recommendations for the water service reliability assessment, in completing the single dry-year water service reliability assessment, it is recommended that Suppliers adjust their normal water use projections to account for changes in usage that may occur during dry year conditions, including effects from implementing WSCP actions, if applicable. It is also recommended that Suppliers adjust their single dry year water supply, quantified in Submittal Table 7-1, to reflect potential changes in potential dry-year supply availability during the 20-year planning horizon.

Tables

RUWMPs will use multiple versions of Submittal Table 7-3; one for each of its Suppliers.

If a Supplier chooses to use the optional Planning Tool, data for Submittal Table 7-3 may be pulled directly from the potable or non-potable versions of the Supply Worksheet (described in Chapter 6) and the Use Worksheet (described in Chapter 4).

For Suppliers choosing to characterize their water service reliability separately for potable and non-potable supplies, optional tables are included in the Submittal Tables Workbook. Data from the separated tables can be directly inputted into Submittal Table 7-3. The separated tables will not be submitted, but the information can be included in the narrative or an appendix.

Table 7-3 Retail. Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals					
Demand totals					
Difference	0	0	0	0	0
NOTES:					

7.2.3.3 Water Service Reliability – Five Consecutive Dry Years

All Suppliers

Submittal Table 7-4 is used for the Supplier's water service reliability assessment for five consecutive dry years, for each of the five-year projection increments out to at least 2040 (2045 projections are optional but recommended). This table is used to compare the five consecutive dry year supply totals to adjusted gross water-use totals for each of the five years in the projection horizon.

Similar to the adjustments made for the single-dry-year scenario, Suppliers may want to adjust the projected water use and supplies for what may happen during a future, longer-term drought. Under the five consecutive dry year scenario, Suppliers may wish to incorporate the triggering of WSCP drought response actions into the analysis as the dry years progress. For instance, maybe in the first year, a Supplier

may realize it may not actually trigger any special short-term water use reduction actions. But upon realizing the next year continues to be dry, the Supplier may trigger a WSCP Shortage Level with an anticipated percentage reduction in water use based on the planned response actions. The following drought years may trigger additional Shortage Levels and greater assumed reductions in water use or activation of a supply augmentation. Therefore, the Supplier may have a decreasing adjusted water use value in each subsequent year to reflect increasingly stringent WSCP Shortage Levels and increase in water supply that are used in Submittal Table 7-4 and in determining the water service reliability.

Recommended

In addition to the overall recommendations for the water service reliability assessment, in completing the single-dry-year water service reliability assessment it is recommended that Suppliers adjust their normal water use projections to account for changes in usage that may occur during dry year conditions, including effects from implementing WSCP actions, if applicable. It is also recommended that suppliers adjust their five-consecutive-dry-years water supply, quantified in Submittal Table 7-1, to reflect potential changes in five-consecutive-dry-years supply availability during the 20-year planning horizon.

Tables

RUWMPs will use multiple versions of Submittal Table 7-4, one for each of its Suppliers.

If a Supplier chooses to use the optional Planning Tool, data for Submittal Table 7-4 may be pulled directly from the potable or non-potable versions of the Supply Worksheet (described in Chapter 6) and the Use Worksheet (described in Chapter 4).

For Suppliers choosing to characterize their water service reliability separately for potable and non-potable supplies, optional tables are included in the Submittal Tables Workbook. Data from the separated tables can be directly input into Submittal Table 7-4. The separated tables will not be submitted, but they can be included in the narrative or an appendix.

Table 7-4 Retail. Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025	2030	2035	2040	2045 (Opt)
First year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Second year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Third year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fourth year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year (optional)	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

7.2.4 Description of Management Tools and Options*Water Code Section 10620(f)*

An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

All Suppliers

Provide a summary of the water management tools and options that are being implemented, or are planned for implementation, that maximize the use of local water resources and minimize the need to import water from other regions. This description may include actions such as increased implementation of demand management measures, increased use of recycled water, enhanced groundwater management, or improvements in regional water management and coordination.

Recommended

It is recommended that all Suppliers that are participating in, or may participate in receiving water from a proposed project that is considered a “covered action” under the Delta Plan—such as a multiyear water transfer; conveyance facility; or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta)—provide information in their UWMP to demonstrate consistency with the Delta Plan policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code of Regulations, Title 23, Section 5003). Guidance on how a Supplier may demonstrate consistency with the Delta Plan is included in Appendix C.

If the information shown in Table 7-2, Table 7-3, or Table 7-4 show a surplus or a shortage when comparing projected supply and use, DWR recommends that the Supplier include a discussion of management actions or programs it may implement in response to the surplus or shortage. Some factors to consider in the assessment are: the potential for acquiring supplemental water supplies, potential for increased irrigation demand because of low rainfall, expected demand reduction due to increased implementation of demand management measures, implementation of drought stages, savings from codes and standards, and increased drought messaging. It is also important to note that these considerations must be discussed in the Supplier's WSCP, as required under Water Code section 10632(a)(3).

Further, if a Supplier indicates that supply exactly matches expected water use, it may wish to provide a narrative that discusses the basis

for that determination (e.g., groundwater wells would only be pumped as needed to meet water use, even though the groundwater supply could produce more water). These important caveats can be useful when the UWMP is used for other planning or compliance analyses, such as a water supply assessment or a CEQA assessment.

7.3 Drought Risk Assessment

Water Code Section 10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

All Suppliers

This new provision of the Water Code directs Suppliers to prepare a DRA and include it in their 2020 UWMP. Water Code requires that the DRA include a description of the:

- Data and methods used
- Basis for the supply shortage conditions
- Determination of the reliability of each source
- Comparison of total water supplies and uses during the drought

In accordance with Water Code Section 10612, the DRA evaluation is based on the five driest consecutive years on record. However, Water Code Section 10635 also requires that the analysis include consideration for plausible changes in climate, regulations, and other locally applicable criteria. As such, the historic five driest consecutive years on record can be considered a starting point in the analysis that is informed by other factors and considerations. Suppliers can then use these estimated supply conditions to prepare the DRA analysis, assuming they occur over the next five years.

The DRA can be modified or updated on an interim cycle, if necessary. This allows Suppliers to modify the DRA as more information becomes available, supplies or uses change, and in the event of unforeseen circumstances.

A new Submittal Table 7-5 has been prepared for Suppliers to demonstrate water supply reliability during the long-term drought. Table 7-5 also provides an option for the Supplier to include additional supplies that may only be triggered by a particular declared water shortage level. If a Supplier chooses to include a supply in Submittal Table 7-5 in this manner, they would not include the same supply in Submittal Table 6-9, however Suppliers may choose to include this supply in Submittal Table 7-4 (Water Service Reliability Assessment). The optional Planning Tool DRA Worksheet has been designed to assist suppliers in preparing data for Submittal Table 7-5.

The DRA analysis provides Suppliers with an opportunity to contemplate management of their water supplies during stressed hydrologic conditions in relation to variations in customer water use. But most importantly, the DRA provides an opportunity to evaluate the functionality of its WSCP shortage response actions and understand the degree of response that may be necessary as it relates to

managing water supplies. This evaluation can help identify undesired risks and allow proactive steps to be taken prior to the next actual drought period lasting at least five consecutive years.

7.3.1 Data, Methods, and Basis for Water Shortage Condition All Suppliers

Suppliers must include in their DRA narrative a description of the data used. This can include information about the source(s) of data, tables and graphs that show historical trends, descriptions of research and data analysis that indicate potential future trends, decision-making process for determining supply shortage conditions, and any other supporting information that supports the reliability assessment and values used in Table 7-5. It may be that much of the data is already described in detail in other sections of the UWMP. However, because the DRA can be updated outside of the UWMP five-year plan cycle, a description of the data is required in the DRA.

Methods used in the analysis must also be described in the DRA, along with the basis for one or more supply shortage conditions. Methods would include the calculations, estimation techniques, adjustments made to the five-driest consecutive years for climate change, regulatory changes, and other locally applicable criteria; what supply shortage conditions were used and why; and any other information to report on how the analysis was conducted and what decisions were made in preparing the assessment.

For instance, a Supplier with a local surface water supply source may note that during the driest consecutive five-year drought this source was not available in the second year of the drought, resulting in a water supply shortage of 20 percent during the second year of the drought. Further, the Supplier may note that since then, a groundwater banking program has been implemented that allows the Supplier to withdraw sufficient groundwater to mitigate this shortage, but the WSCP only activates a 10 percent mitigation during the second year of a drought. As such, the DRA analysis would still show a 10 percent water shortage level that would have to be mitigated by demand reductions.

This section provides Suppliers with an opportunity to also indicate how realistic the DRA is (e.g., what the potential sources of error may be, data limitations, or what assumptions were used), as well as to provide explanations of unique or specific items considered in the

analysis and how these affect the overall DRA. Detailed data and methods that are used for the DRA can be included as an attachment and summarized in the DRA.

7.3.2 DRA Water Source Reliability

All Suppliers

Unlike the water service reliability assessment, the DRA must include an assessment of the reliability of each water source over the five-consecutive-year drought under a variety of water shortage conditions; the water service reliability assessment only requires an assessment of total water supply. The DRA reliability assessment is done by characterizing the expected quantity of each water supply source for each year of the five-year drought. It is in the best interest of a Supplier to accurately reflect the likelihood of supply availability under the drought conditions. Where uncertainty exist, Suppliers can make note of this in the narrative as well as in table footnotes. The reliability of water sources expected to be used to help mitigate water supply shortages, that would normally not be considered part of the Supplier's water portfolio (e.g., special transfer or exchange agreements), must also be described.

Retail Only

For Retail Suppliers, information on supply reliability obtained from each Wholesale Supplier they contract with can be used to inform the DRA water source reliability assessment.

7.3.3 Total Water Supply and Use Comparison

All Suppliers

New Submittal Table 7-5 is used for the DRA total water supply and use comparison. It is set up for Suppliers to assume that the next five years are a five-consecutive-year drought, calculates potential shortages (or surplus), and allows Suppliers to estimate shortfall mitigation from WSCP demand reduction measures and supply augmentation.

A shortage condition may indicate a water service reliability concern the Supplier may want to address with specific WSCP shortage response actions, as described in its WSCP prepared in Chapter 8. The relative magnitude of any surplus or shortage is important to consider (e.g., a shortage of 10 units for a gross water use of 10,000 units may be minor and inconsequential). Suppliers can then revisit their

representation of both individual supply sources and of the gross water use estimated for each year.

It is expected that the DRA will correlate with the WSCP water shortage actions and may be an iterative exercise where Suppliers adjust their water supply and use characterization as the practical timing and anticipated benefits of WSCP-defined water shortage level response actions (see Chapter 8) are evaluated. Additionally, five-consecutive years of any individual water shortage may have more of an affect than one year and Suppliers may need to consider such situations when developing their WSCP.

For instance, a Supplier may initially characterize the management of each supply during an extended drought using total water supplies as identified in Submittal Table 7-1. Comparison of this initial five-consecutive-year drought supply with projected water use from the WSCP and Submittal Table 4-3 may result in the Supplier returning to the initial water supply characterization and modifying how particular water supplies may be used across different years (e.g., the timing or percentage of State Water Project Contract carryover water supply used in drought year 2, versus drought year 3).

Recommended

Separate Potable and Non-Potable. While not required, Suppliers are encouraged to also prepare a DRA separately for potable and non-potable water service reliability during an extended drought to 2025. Such an exercise would enable an evaluation of whether the availability of non-potable supplies match the demand for those supplies. As is often the case, non-potable demands are simply landscape irrigation needs for public or private urban landscapes (e.g., parks, median strips, front yards). This type of water use generally has a cyclical water need—higher in the hotter, drier periods, and lower in the cooler, wetter periods. But often, the non-potable supply volume available is linear—consistent in volume day to day (e.g., from a tertiary wastewater treatment facility), although it may be somewhat reduced during long-term drought conditions. This often results in a surplus of supply in cooler months and a potential shortfall in hotter months.

During the recent drought experienced throughout California, tertiary treatment systems experienced a reduction in inflow due to indoor water conservation measures being implemented—reducing the influent to the plant. This resulted in an imbalance that caused some

Suppliers to evaluate whether the non-potable system needed to be augmented with Suppliers generally designated to potable users, or if the locations receiving the non-potable supply should cut back its demand (e.g., reduced irrigation of parks). Such conditions can be evaluated by the Supplier if they choose to also prepare a non-potable DRA. This would allow consideration of non-potable supply management that can also impact the determinations in the potable DRA.

Monthly or Other Time-Step. DWR recommends that Suppliers conduct their DRA on a time-step that best illuminates water supply and use constraints that may affect water shortage conditions. As noted in the discussion above for separating potable and non-potable supplies, supplies may not always be available when demands are high. As such, an annual supply-and-use comparison may indicate no shortage condition, but during certain times of year, water demands cannot be met by the available supply.

Optional Planning Tool. DWR recommends that Suppliers use the optional Planning Tool Workbook provided to assist Suppliers in evaluating water supplies and uses under a five-consecutive-year drought. Use of this tool can facilitate iterative exercises between characterization of water use, water supplies, and the DRA for the five-consecutive-year drought. Once comfortable with the representations, the Supplier will want to reevaluate narratives included in Chapter 6 for any particular water supply, to assure the narrative matches the plausible management of that particular supply during a drought period lasting for the next five years. If including a supply in Table 7-1, the Supplier is also encouraged to ensure the narrative in Chapter 6 and discussion of any response actions in Chapter 8 appropriately detail any management considerations for a WSCP-triggered supply. Use of the Planning Tool is detailed in section 7.3.4 of this chapter.

Tables

RWUMPs will complete multiple Submittal Tables 7-5, one for each supplier.

Suppliers should complete the *gross water use* and *total supplies* rows with the expected use and supplies without implementing any special actions per the Suppliers' WSCP. A shortage condition would indicate a water service reliability concern the Supplier may want to address with specific WSCP shortage response actions, as described in its WSCP prepared in Chapter 8.

Next, a Supplier can test varying levels of WSCP responses to manage or eliminate the shortage altogether by entering a supply augmentation benefit from a WSCP-triggered supply and a water use reduction savings that connects to the Supplier's response actions as defined in its WSCP. These shortage responses should align with those described in the Supplier's WSCP in Chapter 8. Submittal Table 7-5 then calculates revised surplus/shortage conditions that occur with implementation of the WSCP.

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Table 7-5. Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	Total
Gross Water Use	
Total Supplies	
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	#DIV/0!
2022	Total
Gross Water Use [Use Worksheet]	
Total Supplies [Supply Worksheet]	
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	#REF!
2023	Total
Gross Water Use [Use Worksheet]	
Total Supplies [Supply Worksheet]	
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	#DIV/0!
2024	Total
Gross Water Use [Use Worksheet]	
Total Supplies [Supply Worksheet]	
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	#DIV/0!
2025	Total
Gross Water Use [Use Worksheet]	
Total Supplies [Supply Worksheet]	
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	#DIV/0!

7.3.4 Optional Planning Tool Workbook

Recommended

The optional Planning Tool has been prepared to assist Suppliers in preparing their DRA. The Planning Tool Use and Supply Worksheets are used to help complete the DRA Worksheet. Although the worksheets allow for input of monthly data, monthly time-step data is not required; Suppliers can choose to use the Planning Tool with monthly, bimonthly, seasonal, or annual data. However, monthly data is recommended because some supply sources have restrictions on availability, and usage can vary month to month or seasonally. Using an annual total may give Supplier's an unrealistic indication of reliability if the annual totals look fine but during summer months there is water shortage. Additionally, for Suppliers that wish to assess potable and non-potable water supplies separately, the P-NP Planning Tool is made available.

The DRA evaluation may be an iterative exercise for each Supplier to allow for adjustments to the water supply characterization during an extended drought and to evaluate the practical timing and anticipated benefits of WSCP-defined shortage response actions (see Chapter 8). For instance, a Supplier with multiple water supplies may use the Water Supply Tool in Chapter 6 to initially characterize the management of each supply during an extended drought. Once this initial characterization is incorporated into the DRA Worksheet and compared with projected water use from the Use Worksheet: Part 3, the Supplier may want to return to the Supply Worksheet and modify how particular water supplies may be used across different years (e.g., the timing or percentage of State Water Project Contract carryover water supply used in drought year 2, versus year 3). The DRA Worksheet also provides an option for the Supplier to include additional supplies that may only be triggered by a particular declared water shortage level. If a Supplier chooses to include a supply in DRA Worksheet in this manner, it would not include the same supply in the Supply Worksheet.

Once comfortable with the representations, Suppliers will want to reevaluate narratives included in Chapter 6 for any particular water supply, to assure the narrative matches the plausible management of that particular supply during a drought period lasting for the next five years. If including a supply in the DRA Worksheet, Suppliers are also encouraged to ensure the narrative in Chapter 6, and discussion of any

response actions in Chapter 8, appropriately detail any management considerations for the WSCP-triggered supply.

The DRA Worksheet, presented below, can have both a potable and non-potable version to allow the Supplier to evaluate the water service reliability of both sources under presumed extended drought conditions through 2025. Additionally, the DRA Worksheet also allows for monthly reporting and analysis; however, while monthly analysis is highly recommended, it is not required and may not be applicable for some Suppliers. Suppliers are encouraged to follow the specific guidance below for evaluating their local water service condition.

7.3.4.1 *Instructions for Using the Optional Planning Tool Recommended*

The following steps describe the use of the Planning Tool DRA Worksheet. Suppliers are encouraged to use this method while preparing their DRAs. These steps apply to the analysis of both the potable and non-potable water services, if a Supplier has chosen to evaluate these services separately:

- **Step 1:** Copy and paste the monthly water supply summary values from the Planning Tool Supply Worksheet: Part 1 for each year into the *Total Supplies* row for each associated year in the DRA Worksheet. As noted previously, Suppliers may want to revisit the characterization of each individual supply during an extended drought period, as reflected in the Supply Worksheet, while performing its DRA. The revised summary values would need to be repasted into the DRA Worksheet as well.

Part 1: SUMMARY: Existing Potable Supply Tables													
Total Supply	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total
eAR (for comparison)													
2020 Actual Use	0	0	0	0	0	0	0	0	0	0	0	0	0
Normal Year	0	0	0	0	0	0	0	0	0	0	0	0	0
Single Dry Year	0	0	0	0	0	0	0	0	0	0	0	0	0
Multi-Year Drought													
2021 (1st year)	0	0	0	0	0	0	0	0	0	0	0	0	0
2022 (2nd year)	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 (3rd year)	0	0	0	0	0	0	0	0	0	0	0	0	0
2024 (4th year)	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 (5th year)	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 7-1. Supply Worksheet Data to Paste into the DRA Worksheet

- **Step 2:** Copy and paste the monthly total gross water use values from the Use Worksheet: Part 3 for each year into the *Gross Water Use* row for each associated year in the DRA Worksheet. Recall that these gross water-use values potentially

were modified for each year from the Supplier's representation of 2020 conditions (see the discussion of the Use Worksheet: Part 3 in Chapter 4 for further explanation).

Part 3: Estimating Gross Water Use (potable) for next 5 years

Change from 2020																		0
2021 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change from 2021																		0
2022 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change from 2022																		0
2023 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change from 2023																		0
2024 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Change																		0
2025 Gross Water Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Paste these values into DRA Worksheet

Figure 7-2. Use Worksheet Data to Paste into the DRA Worksheet

- **Step 3:** With the total monthly supply value and associated gross water-use value, the table will determine whether, *absent* any special actions initiated per the Suppliers WSCP, there would be an expected surplus or shortage. A shortage condition in any particular month, for any particular year, would indicate a water service reliability concern the Supplier may want to address with specific WSCP shortage response actions, as described in its WSCP prepared in Chapter 8.
- **Step 4:** Suppliers next evaluate any shortage conditions to determine if actions would likely be required to address the condition. The relative magnitude of any surplus or shortage magnitude for a particular month, in a particular year, can be evaluated relative to its overall gross water demand (e.g., a shortage of 10 units for a gross water use of 10,000 units may be minor and inconsequential)

If adjustments in supply and use are made or needed in the DRA, Suppliers should revisit their representation of both individual supply sources and the gross water use estimated for each year, as previously reported in the Supply Worksheet and Use Worksheet: Part 3. Steps 1 through 3 should be repeated to reflect any adjustments.

- **Step 5:** Under this step, Suppliers can test varying levels of WSCP responses to manage or eliminate the shortage

altogether. These shortage responses should align with those described in the Supplier's WSCP in Chapter 8.

When a shortage condition is unacceptable for any particular month (or other time-step) in any of the DRA years in DRA Worksheet, Suppliers can enter both a supply augmentation benefit from a WSCP-triggered supply, and a water use reduction savings that would correlate to the desired quantity of water use reduction for the particular month—that connects to the Supplier's response actions as defined in its WSCP. For instance, if the particular month's water use was estimated to be 10,000 units, and the corresponding supplies indicated a 1,000-unit shortage in that month, the Supplier may choose to enter its estimated additional water supply (if available) and its water use reduction benefits anticipated to occur with particular WSCP-triggered actions. The values would be entered into the corresponding month in the rows, as marked. These entries would automatically calculate a revised surplus/shortage condition that would occur *with* the WSCP actions.

The DRA Worksheet will also automatically calculate the corresponding *Resulting % Use Reduction from WSCP Action* for each time-step used, to help the Supplier evaluate such percentages in concert with stated reduction targets specified in its WSCP. The annual total percent-reduction target will be calculated from the total annual supply and water use values, to provide a comparison to the Supplier's anticipated standard water shortage levels as described in its WSCP.

In the portion of DRA Worksheet shown in Figure 7-3, this reduction is indicated in the columns as *#DIV/0!*. Once the Supplier has entered values in the table's other rows, a percentage for each month and the corresponding annual savings is calculated. This value will compare to the gross water use value to reflect an expected annual reduction target.

Planned WSCP Actions (use reduction and supply augmentation)														
WSCP - supply augmentation benefit														0
WSCP - use reduction savings benefit														0
Revised Surplus/(shortfall)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resulting % Use Reduction from WSCP action	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Figure 7-3. Excerpt of DRA Worksheet Showing Location of WSCP Adjustments

However, Suppliers should realize that a delayed implementation of WSCP shortage response actions will result in no change (especially no demand reduction) for the months (or other time-step) before

implementation. For instance, if a WSCP water shortage level is triggered by a Supplier in May, the Supplier cannot retroactively assume there was a water use reduction savings in the months January through April—thus each of those months should remain with zero values. This may mean that the remaining months need to have more aggressive water-use reduction targets to achieve an annual reduction target that aligns with the anticipated stage—if the Supplier does not have specified supply sources that may also trigger with the selected shortage level. The following three examples use fictitious values to illustrate this point.

In Figure 7-4: Example 1, the top portion of the DRA Worksheet for 2023 indicates surplus water in several months early in the year, but it predicts shortages in July through October (months 7 through 10). These shortages occur because of either inflexible constraints on the Supplier's water supplies or the Supplier configured its anticipated availability of supplies during 2023 (Year 3 of the five-year drought period). While the Supplier could return to the Supply Worksheet and adjust its expected management of individual supplies, to shift the surplus months to cover the shortage months, for purposes of this example, the supplies are assumed inflexible.

2023	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total
Gross Potable Water Use [Use Worksheet]	687	718	662	702	695	1,059	1,312	1,479	1,392	1,347	1,018	892	11,965
Total Potable Supplies [Supply Worksheet]	2,125	2,125	2,125	950	900	1,100	1,300	1,300	1,000	900	2,125	2,125	18,075
Surplus/Shortfall w/o WSCP Action	1,438	1,407	1,463	248	205	41	-12	-179	-392	-447	1,107	1,233	6,110
Planned WSCP Actions (use reduction and supply augmentation)													
WSCP - supply augmentation benefit													0
WSCP - use reduction savings benefit							12	179	392	447			1,030
Revised Surplus/(shortfall)	1,438	1,407	1,463	248	205	41	0	0	0	0	1,107	1,233	7,140
Resulting % Use Reduction from WSCP action	0%	0%	0%	0%	0%	0%	1%	12%	28%	33%	0%	0%	9%

Figure 7-4. Example 1 DRA Worksheet Scenario

In order to address the shortage in July through October, the Supplier enters an anticipated quantity of water use reduction to meet the anticipated shortage in each month. A corresponding percentage-reduction value is auto calculated to help the Supplier correlate the reduction quantities to target the shortage levels defined in its WSCP. These use-reduction quantities must translate to actions that water use customers would be expected to take during the corresponding month to achieve the desired savings. As indicated, the small shortage in July does not require customers to really take much action. However, due to the more extreme shortage in September and October, the Supplier will need customers to reduce their water use by 28 percent and 33 percent in each month, respectively. When

calculated on an average basis for the year, however, the annual shortage level is calculated at only 9 percent. This is due to most months needing no response, and a significant response needed for a short period.

In this second example, Figure 7-5: Example 2, the Supplier was able to shift management of some of its water supplies and then revised the corresponding information in the Supply Worksheet. The shortage becomes extended by another month and a little greater in July. While the monthly impact may increase, the resulting response needed in any particular month does not exceed 18 percent, with an annual shortage level of 6 percent. The consistency across the months for customer responses may be more manageable than under Figure 7-4: Example 1, but only if the Supplier was able to shift supplies to manage the shortfalls.

2023	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total
Gross Potable Water Use [Use Worksheet]	687	718	662	702	695	1,059	1,312	1,479	1,392	1,347	1,018	892	11,965
Total Potable Supplies [Supply Worksheet]	2,125	2,125	2,125	800	800	1,000	1,200	1,300	1,250	1,100	2,125	2,125	18,075
Surplus/Shortfall w/o WSCP Action	1,438	1,407	1,463	98	105	-59	-112	-179	-142	-247	1,107	1,233	6,110
Planned WSCP Actions (use reduction and supply augmentation)													
WSCP - supply augmentation benefit						59	112	179	142	247			0
WSCP - use reduction savings benefit													739
Revised Surplus/(shortfall)	1,438	1,407	1,463	98	105	0	0	0	0	0	1,107	1,233	6,849
Resulting % Use Reduction from WSCP action	0%	0%	0%	0%	0%	6%	9%	12%	10%	18%	0%	0%	6%

Figure 7-5. Example 2 DRA Worksheet Scenario

In both examples, only looking at the *annual* supply and water use values would result in the Supplier potentially believing there would not be a significant water service reliability issue to address, and potentially it would be unprepared with its WSCP to appropriately respond should this drought condition occur.

In a third example, shown in Figure 7-5: Example 3, the Supplier has both water-use reduction and temporary supply augmentation options that trigger under various levels of its WSCP. In this instance—a variation of the first example where the Supplier's other supply sources are inflexible—the Supplier has access to another supply, but only upon formal triggering of shortage responses as articulated in its decision process described in its WSCP (see Chapter 8). For instance, the Supplier may have conditions in place that only allow access to a supply when certain shortages occur (e.g., retrieving water from a regional groundwater bank or triggering a pre-arranged water transfer). In this example, the Supplier addresses the majority of shortage in September and October by using the supplemental supply, allowing water use reduction actions to remain constant throughout

the period. As a result, the water use reduction is about 10 percent for several months, with an annual value of 4 percent. The Supplier also uses about 560 units of the supply triggered by going into the particular WSCP shortage level. As noted previously, this particular supply would not be included in the supply values described in the Supply Worksheet, but it should be included in the Supplier's narrative in Chapter 6.

2023	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total
Gross Potable Water Use [Use Worksheet]	687	718	662	702	695	1,059	1,312	1,479	1,392	1,347	1,018	892	11,965
Total Potable Supplies [Supply Worksheet]	2,125	2,125	2,125	950	900	1,100	1,300	1,300	1,000	900	2,125	2,125	18,075
Surplus/Shortfall w/o WSCP Action	1,438	1,407	1,463	248	205	41	-12	-179	-392	-447	1,107	1,233	6,110
Planned WSCP Actions (use reduction and supply augmentation)													
WSCP - supply augmentation benefit								29	242	297			568
WSCP - use reduction savings benefit							12	150	150	150			462
Revised Surplus/(shortfall)	1,438	1,407	1,463	248	205	41	0	0	0	0	1,107	1,233	7,140
Resulting % Use Reduction from WSCP action	0%	0%	0%	0%	0%	0%	1%	10%	11%	11%	0%	0%	4%

Figure 7-6. Example 3 DRA Worksheet Scenario

The new Annual Assessment protocols that Suppliers will describe in its WSCP (see Chapter 8) will undertake a similar analytical exercise but will focus on actual, and not hypothetical, conditions that will analyze the upcoming water year. However, the DRA offers Suppliers an opportunity to test how its shortage response actions may actually address water use conditions in any given month and refine those shortage response actions as necessary to be well prepared to manage shortage conditions. This will improve the Supplier's responsiveness to actual drought conditions and improve the results of its Annual Assessment.

The Planning Tool Workbook methodology described above provides Suppliers with an opportunity to contemplate management of their water supplies during stressed hydrologic conditions in relation to the monthly (or other time-step) variations in customer water use. But most importantly, the DRA provides an opportunity to evaluate the functionality of its WSCP shortage response actions and to understand the degree of response that may be necessary in any given month, as it relates to managing the Supplier's water supplies. This evaluation can help identify undesired risks and allow proactive steps to be taken prior to the next actual drought period lasting at least five consecutive years.

Chapter 8

8.0 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP) is a detailed proposal for how an urban water supplier (Supplier) intends to act in the case of an actual water shortage condition. This plan is part of good drought policy even if a Supplier's water supply appears to have a low probability of shortage conditions, as it improves preparedness for droughts and other impacts on water supplies. The WSCP anticipates a water supply shortage and provides pre-planned guidance for managing and mitigating a Supplier's shortage. A well-structured WSCP allows real-time water supply availability assessment and structured steps designed to respond to actual conditions, to allow for efficient management of any shortage with predictability and accountability.

Importance

A water shortage may occur due to a number of reasons, such as population growth, climate change, drought, and catastrophic events. A water shortage means that the water supply available is insufficient to meet the normally expected customer water use at a given point in time. Drought, regulatory action constraints, and natural and man-made disasters may occur at any time. The WSCP is the Supplier's operating manual that is used to prevent catastrophic service disruptions through proactive, rather than reactive, management. This way, if and when shortage conditions arise, the WSCP allows the Supplier's governing body, its staff, and the public to identify and efficiently implement pre-determined steps to manage a water shortage.

The WSCP documents the process used by the Supplier to anticipate water supply disruptions and describes how the Supplier intends to address a water shortage. A Supplier may also be able to use their analysis and WSCP to help justify the projects, policies, and programs determined necessary to mitigate the risk of a water shortage condition. The audience for the WSCP is primarily the Supplier's decision-makers, management and operational staff, communications staff, and customers. However, other, non-water entities, such as cities, counties, state, and federal agency water managers, regulators

and decision makers; local media; and business community groups; will also likely be interested in key elements of the WSCP.

Focus

The WSCP is the Supplier's operations plan for water shortages and is best developed in a manner that is suited for a Supplier's specific conditions, constraints, and opportunities. Understanding water supply reliability, factors that could contribute to water supply constraints, availability of alternative supplies, and what effect these have on meeting customer demands provides the Supplier with a solid basis on which to develop appropriate and feasible response actions in the event of a water shortage.

To enable a Supplier to best adapt to and endure water shortage conditions, a WSCP identifies and addresses foreseeable and unforeseeable water supply risks facing a water system. For instance, in areas that are subject to specific natural disasters, such as earthquakes, the WSCP would anticipate such a disaster and prepare actions necessary to manage that situation. In other areas, for example, where a water supply is derived from a single water source, the WSCP would anticipate a condition where that water supply source is severely limited or even completely fails. In this latter example, the outage may occur for numerous foreseeable or unforeseeable reasons like fire, flood, system failure, and civil unrest. Regardless of the reason for the outage, a WSCP based on adequate details of demand reduction and supply augmentation measures that are structured to match varying degrees of shortage can help Suppliers understand what to expect during a water shortage situation.

Essentials

The starting point for a robust WSCP is a thorough and realistic water supply reliability analysis (see Chapter 7) that considers a Supplier's existing and planned customer water use (see Chapter 4) and supply (see Chapter 6). Certain elements of the WSCP are required by California Water Code (Water Code), including five specific response actions that align with six standard water shortage levels based on the Supplier's water supply conditions and shortages resulting from catastrophic supply interruptions. The WSCP also contains the Supplier's procedures for conducting an annual water supply and demand assessment, which is the written decision-making process for determining supply reliability each year, along with the data and methods used to evaluate reliability. The more accurately and

realistically Suppliers can identify their water supply reliability, under varying conditions of shortages including catastrophic events, the better prepared Suppliers will be in the event of water shortage conditions.

Accurately characterizing customer water use and understanding the factors affecting both use and supply provides a baseline that guides the functionality of short-term demand reduction options. Thoroughly vetting the availability and management of all water supplies, under varying hydrologic and regulatory conditions, unique water right or contract provisions, and infrastructure risks provides the necessary baseline information to develop supply augmentation measures to incorporate with short-term demand reduction responses for addressing shortage conditions.

Enhancing

The enhanced WSCP would provide more detailed and granular analysis of supply and demand. This may include monthly time-steps and specific analysis and response actions for specific areas in the distribution system, in order to precisely identify and manage water shortages.

The enhanced WSCP could provide significant details that validate precise volumes of water made available through short-term shortage response actions in the Supplier's service area. The details, along with monthly supply and demand characterization data, could highlight each individual shortage response action and assign a monthly volume to these actions to mathematically demonstrate the anticipated temporary demand reductions expected. These details may also identify the distribution between indoor and outdoor water use in order to provide a baseline that guides the functionality of short-term demand reduction options, such as imposing strict landscape irrigation limits.

Similarly, unequivocal water supply augmentation measures could be demonstrated through executed emergency water supply contracts, emergency coordination agreements among neighboring purveyors, and other alternative supply management actions. The details of these water supply augmentation alternatives could include quantified supplies attributable to each supply augmentation activity. These additional steps could provide a Supplier with a WSCP that can be relied upon for immediate implementation to minimize adverse impacts of the shortage.

New Requirements

In response to the severe drought of 2012-2016, new legislation in 2018 created a WSCP mandate replacing the water shortage contingency analysis under former law. While overlapping aspects of the prior law, the new requirements have several prescriptive elements a Supplier's WSCP must now include, such as:

- Key attributes of its water supply reliability analysis conducted pursuant to Water Code Section 10635. [Water Code Section 10632(a)(1)]
- Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage. [Water Code Section 10632 (a)(3)(A)]
- Locally appropriate "shortage response actions" for each shortage level, with a corresponding estimate of the extent the action will address the gap between supplies and demands. [Water Code Section 10632 (a)(4)]
- Procedures for conducting an annual water supply and demand assessment with prescribed elements. Under Water Code Section 10632.1, urban water Suppliers are required to submit, by July 1 of each year, beginning in the year following adoption of the 2020 UWMP, an annual water shortage assessment *report* to the California Department of Water Resources (DWR). [Water Code Section 10632 (a)(2)]
- Communication protocols and procedures to inform customers, the public, and government entities of any current or predicted water shortages and associated response actions. [Water Code Section 10632 (a)(5)]
- Monitoring and reporting procedures to assure appropriate data is collected to monitor customer compliance and to respond to any state reporting requirements. [Water Code Section 10632(a)(9)]
- A reevaluation and improvement process to assess the functionality of its WSCP and to make appropriate adjustments as may be warranted. [Water Code Section 10632(a)(10)]

These and other new requirements are described in the following Step-by-Step Guidance.

Step-by-Step Guidance: Water Shortage Contingency Plans

As part of its UWMP, Water Code Section 10632 requires Suppliers to prepare and adopt a WSCP that consists of each of the following elements:

- 8.1. Water Supply Reliability Analysis
- 8.2. Annual Water Supply and Demand Assessment Procedures
- 8.3. Six Standard Water Shortage Stages
- 8.4. Shortage Response Actions
- 8.5. Communication Protocols
- 8.6. Compliance and Enforcement
- 8.7. Legal Authorities
- 8.8. Financial Consequences of WSCP
- 8.9. Monitoring and Reporting
- 8.10. WSCP Refinement Procedures
- 8.11. *Special* Water Feature Distinction
- 8.12. Plan Adoption, Submittal, and Availability

Although the new requirements are more prescriptive than the *analysis* required in prior law, many of the elements have long been included in a Supplier's WSCP, in other sections of a Supplier's UWMP, or as part of Supplier's standard procedures and response actions. Suppliers implemented many of these procedures and actions during the last drought to successfully meet changing local water supply challenges. The new provisions envision all Suppliers will have a consistent set of prescriptive elements, though the details for each element may be unique to each Supplier.

A WSCP is a document that stands alone – meaning it should be created separately from the UWMP and amended, as needed, without amending the corresponding UWMP. The Supplier's 2020 WSCP must be included as part of the 2020 UWMP when submitted to DWR by July 1, 2021. The process for WSCP amendments and required public hearings can be found in Chapter 10. Reference documents for consideration in preparing the WSCP can be found in section 8.4.7 and at the end of this chapter in section 8.13.

WHOLESALE ONLY

Water Code Section 10620(c):

An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

This chapter may not apply to Wholesale Suppliers if they have not received the consent of all their member agencies.

8.1 Water Supply Reliability Analysis

Water Code Section 10632(a)(1)

The analysis of water supply reliability conducted pursuant to Section 10635.

The narrative in this section examines (a) the findings related to water system reliability conducted pursuant to Water Code Section 10635, and (b) the key issues that may create a shortage condition when looking at the Supplier's water asset portfolio. More specifically, this section provides a concise narrative, summarizing the Supplier's water supply analysis in Chapter 6 and its water reliability findings in Chapter 7, recognizing that the WSCP can be a stand-alone document that will be submitted with the 2020 UWMP.

The Supplier is encouraged to consider all issues—foreseeable or unforeseeable—that could lead to water supply shortages. For example, a Supplier that relies exclusively on groundwater may show that its water supplies are reliable under all statutorily required conditions, but that a low probability, high impact issue—like the sudden presence of an unforeseen toxin—may require shuttering the main groundwater pumping system and activating the WSCP. This section would provide the context for evaluation of threats to water supply reliability that are identified in the WSCP.

8.2 Annual Water Supply and Demand Assessment Procedures

Water Code Section 10632(a)(2)

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

Water Code Section 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water

from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

Beginning by July 1, 2022, each Supplier shall prepare and submit their annual water supply and demand assessment (referred to in this Guidebook as an Annual Assessment). The Annual Assessment will be due by July 1 of every year, as required by Water Code Section 10632.1. The Annual Assessment and associated reporting are to be conducted based on the Supplier's procedures detailed in the WSCP.

DWR is developing a stand-alone guidance document that will recommend practical procedures and analytical methods that may be used, at the Supplier's discretion, to effectively and efficiently comply with the Annual Assessment requirement. The Annual Assessment guidance will discuss varying water supply sources and water use conditions to help Suppliers develop their own procedures. Ultimately, the Annual Assessment guidance will be included as Appendix P to this Guidebook.

This section of the Guidebook offers general guidance for Suppliers regarding the Annual Assessment information that must be included in the WSCP, but it does not provide guidance on the Supplier-specific procedures themselves. Further, this section of the Guidebook does not provide guidance on the form or substance of Annual Assessment reports to be submitted to DWR by July 1, 2022.

As required by Water Code Section 10623(a), the Supplier's WSCP shall include its specific procedures—akin to its *instruction manual*—that describe annual steps and timing to complete the Annual Assessment, such that it can be consistently followed year-after-year, regardless of changing Supplier staff undertaking the steps. Water Code requires that the following shall be described by the Supplier in its WSCP for this element.

Decision-Making Process

The written decision-making process would describe the functional steps to formally *approve* the Annual Assessment determination of water supply reliability each year. For example, a Supplier's process may include a formal presentation to its elected body (e.g., at a Board or Council meeting) and request that the body vote on the findings of the Annual Assessment and appropriately trigger any

recommendations for specific shortage response actions resulting from the assessment.

Data and Methodologies

A description of key data inputs and Annual Assessment methodologies used to evaluate the water system reliability for the coming year, while considering that the year to follow would be considered *dry*. The characteristics of a *dry* year is at the discretion of the Supplier, but it should be adequately defined and ideally align with one of the WSCP water shortage levels.

This description must include key data inputs and methodologies for determining:

1. **Evaluation Criteria.** The locally applicable evaluation criteria that will be consistently relied on for each Annual Assessment.
2. **Water Supply.** Quantification of each source of water supply along with descriptive text.
3. **Unconstrained Customer Demand.** How will the Supplier determine anticipated customer water needs for the year *prior to* any special shortage response actions that may be necessary (i.e., the Supplier's expected customer water needs for the coming year or "unconstrained demand" as used in Water Code Section 10632(a)(2)(B)(i)). Customer water use ideally reflects the same methodology presented in Chapter 4 for projecting demand, while allowing for real-time adjustments to account for factors such as weather, prior-year conditions, anticipated new demands for the year, and other factors pertinent to the land use and customer use patterns known to the Supplier.
4. **Planned Water Use for Current Year Considering Dry Subsequent Year.** Evaluation of how anticipated supplies for the particular coming year will be used, while anticipating that the following year will be dry. Each year's assessment is informed by the characterizations in Chapter 6 and other current pertinent factors and considerations.
5. **Infrastructure Considerations.** Evaluation of how infrastructure capabilities and constraints may affect the Supplier's ability to deliver supplies to meet expected customer water use needs in the coming year. This would also include anticipated capital projects that may influence capabilities, such as repairs that may constrain capabilities (e.g., planned

treatment plant upgrades) or new projects that may add capacity (e.g., a new groundwater well or system intertie).

6. **Other Factors.** Suppliers are encouraged to describe any specific locally applicable factors that can influence or disrupt supplies, along with other unique local considerations that are considered as part of the Annual Assessment.

Since an Annual Assessment reflects the Supplier's specific circumstances, the procedures developed and consistently applied will likely vary among Suppliers—there is no formulaic requirement mandated by the state, only that specific elements are included. The focus of the Supplier's Annual Assessment is best based on actual forecasted near-term water supply conditions (for the next 12 months) to ensure appropriate shortage response actions are triggered in a timely manner with expected outcomes. This analysis contrasts with the Drought Risk Assessment (see Chapter 7), which has a longer-term, multiyear water supply reliability focus.

While the first Annual Assessment is not required to be submitted to DWR until July 1, 2022, Suppliers are encouraged to use the procedures documented in its WSCP to prepare and include the outcome of an Annual Assessment for 2021, and to present the results in their UWMP as an example.

Further, although the Annual Assessment must be submitted to DWR on or before July 1 of every year, an early Annual Assessment allows Suppliers and customers to identify uncertainties and prepare financially and logistically for any anticipated water supply constraints in the coming months. Therefore, Suppliers are encouraged to develop procedures, including decision-making processes, that facilitate early analysis and adoption.

8.3 Six Standard Water Shortage Levels

Water Code Section 10632(a)(3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local

conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Suppliers must include the six standard water shortage levels that represent shortages from the normal reliability. The shortage levels have been standardized to provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions. This is an outgrowth of the severe statewide drought of 2012-2016, and the widely recognized public communication and state policy uncertainty associated with the many different local definitions of water shortage stages.

The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition) and align with the response actions the Supplier would implement to meet the severity of the impending shortages. For example, in normal circumstances, a Supplier may meet its anticipated customer water use with 100 percent of its available supply. At a 10 percent shortage level, the Supplier must show its normally available supply is reduced by 10 percent, then identify locally appropriate shortage response actions (see Chapter 8.4) that would address the resulting gap—be those actions that seek temporary reductions in customer water use or actions that initiate alternative supplies not otherwise *normally* available to the Supplier. The same shortage considerations apply to the remaining statutorily mandated levels.

In concept, each of the six shortage levels represent an ever-increasing gap between *normally* available supplies and *normally* expected customer water use. Since water use and supply is typically variable on a monthly or seasonal basis, Suppliers are encouraged to develop the shortage evaluation and response actions on a monthly or

at least seasonal basis. The normally expected supply and water use reflects the characterization of each as presented in Chapter 7. Given these quantifiable gaps, the Supplier can then identify specific shortage response actions to address the anticipated magnitude of the shortage (see section 8.4).

Retaining Existing WSCP Shortage Levels

Water Code Section 10632 (a)(3)(B) authorizes Suppliers to continue using their own water shortage levels that may have been included in past WSCPs. If the Supplier chooses to continue to do so in its new WSCP, it must include a narrative or graphic describing the Supplier's water shortage levels in relationship to the six standard water shortage levels prescribed by statute. In other words, the Supplier must provide a *crosswalk* that clearly translates the Supplier's water shortage levels to those mandated by statute. An example crosswalk is provided in Figure 8-1.

2015 UWMP Stage	Supply Condition/ Shortage	2020 WSCP Level	Shortage Level
1 - Voluntary	Normal	1	≤ 10%
2 – Water Alert	Slightly Restricted (12%)	2	10 - 20%
3 – Water Warning	Moderately Restricted (20%)	3	20 - 30%
4 – Water Criteria	Severely Restricted (35%)	4	30 - 40%
5 – Water Emergency	Extremely Restricted (>50%)	5	40 - 50%
		6	>50%

Figure 8-1. Example of Corresponding Relationships Between a Supplier's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

8.4 Shortage Response Actions

Water Code Section 10632 (a)(4)

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Alignment with Water Shortage Levels

The Water Code specifies the types of shortage response actions to align with the shortage levels that must be included in the WSCP. When identifying and developing the specific response actions, it is recommended that Suppliers consider the availability and feasibility of a broad range of system infrastructure and operations changes, supply augmentation responses, customer-class or water use-specific demand reduction initiatives, and increasingly stringent water use prohibitions. The specific response actions will all depend on the severity of the shortage levels, local conditions, and will ideally be based on a quantitative analysis of the effectiveness of each action. In the WSCP, Suppliers can describe all of the water shortage response actions that they wish to consider for both demand reduction and the supply augmentation in this section.

Suppliers may consider aligning response actions to the six shortage levels by organizing response actions into a *toolbox*. Each level would represent one of the *drawers* in the toolbox. For each corresponding shortage level, the Supplier could have a corresponding drawer of specific *tools* that can be opened according to the expected duration and severity of the water supply interruption, with each drawer providing more tools to address ever-increasing anticipated gaps between normal supply and demand conditions. For example, the Level 1 drawer may contain response tools that can be expected to reduce overall water use by 10 percent. Level 2 expands some of the Level 1 tools and adds new tools, which together can be expected to reduce overall water use by 20 percent. A Supplier would need to align its quantitative understanding of results from each tool in each drawer so that the anticipated gap can be addressed in an orderly fashion. In this manner, the Supplier may choose to reserve the most

economically and politically costly tools for the most extreme contingencies.

8.4.1 Supply Augmentation

To the extent a Supplier has already described a supply that would be managed uniquely in response to shortages in other supplies—as described in Chapter 6 and pursuant to Water Code Section 10631(b)(2)—the Supplier may want to indicate that a particular supply augmentation response included in its WSCP has already been integrated into *normal* water management planning for shortage conditions. In this case, it may not be a response triggered by the WSCP's shortage level, but already represented in the determination of any gap between supply and customer water use (see section 8.3).

Suppliers should take care in counting a particular supply augmentation as a response action if it is already included in the management of its water supplies for reliability, dry conditions reliability objectives described in Chapter 6. For example, if a Supplier already intends to pump groundwater during dry conditions when a surface supply is constrained in order to help meet water system reliability objectives, then *triggering* the groundwater pumping under a defined shortage level may either be (1) redundant or (2) inaccurate, as the water shortage level already assumed the pumping was occurring, thus the pumping as a response action will not address the anticipated water shortage level gap.

General actions that are simply theoretical such as, “acquire water through water transfers” should be avoided as a response action because its effectiveness at reducing the gap between supply and demand cannot be estimated; the ability of the Supplier to obtain this water and how much can be obtained is unknown. However, specific actions such as, “acquire emergency dry year supply under Contract X with neighboring water supplier” would meet a reasonableness threshold.

Long-term new water supply development or supply reliability enhancement projects identified in Chapter 6, that are separate from the short-term management objectives, would generally be excluded from consideration as a response action. However, if the long-term water supply augmentation action has a short-term actionable component, then it would be applicable to use this source as a response action.

When describing augmentation measures, it is important to identify the water shortage level that triggers the augmentation, what the supply source(s) is, the amount of available supply, and the timing of supply availability. For example, if a supplier has access to a short-term surface water supply for its DRA supply augmentation portfolio, but these water supplies are only available during the winter months, it may not be useful in mitigating a water shortage condition that only occurs during summer months. However, this augmentation supply may be able to be used in the winter months to free up other water supplies that can then be used to meet summer water shortages. Alternatively, a Supplier may have access to an ample amount of augmentation supply on an annual basis, but that supply has an upper limit on the monthly supply available. If all of the water shortage occurs during a particular month or two, the monthly maximum supply availability may be insufficient to mitigate the water shortage condition. These conditions on the amount and timing of supply availability can affect how a Supplier can realistically activate this supply to mitigate water shortages.

8.4.2 Demand Reduction

There are a number of demand reduction measures a Supplier can implement as response actions to address shortage levels. Some of these may include public education and outreach campaigns, watering and other outdoor use restrictions, and rate structure changes. Other demand reduction actions, such as infrastructure improvements or installation of water-efficient appliances and fixtures would be implemented over a longer-term and may not be appropriate as a WSCP response action.

Supplier's may include standard or locally developed water use prohibitions such as outdoor irrigation restrictions by day, time of day, or location, and enforcement patrols and fines for *gutter flooding* or other customer water waste. For example, if the Supplier is seeking to address a 20-percent shortage through demand-reduction response actions, the Supplier should have reasonable certainty that the actions will equate to a 20-percent demand reduction.

For example, if the Supplier found that restricting outdoor irrigation to even or odd days had little measurable effect on overall water use, it may be better to consider other more effective response actions. The Supplier is encouraged to evaluate the likely monthly reduction a

certain action may cause so that it appropriately aligns expectations with what may be the actual reality during any given month.

A narrative description of the Supplier's chosen shortage response actions should include an indication of which actions would align with specific defined shortage levels. Many Suppliers have found that a table is the most effective means of showing which actions are included in each level and that may describe the approximate quantitative benefit anticipated from its implementation.

For possible temporary demand reduction to help address shortages, Suppliers should equate the shortage response action with the amount of demand that the Supplier is trying to reduce, in order to address the anticipated gap.

8.4.3 Operational Changes

In the WSCP, Suppliers should consider their operations and identify changes that can be implemented to address water shortage on a short-term basis. Some operational changes may be related to supply augmentation or demand-reduction response actions and can be addressed when describing those response actions. Other potential operations' response actions for a non-catastrophic water shortage that a Supplier may wish to consider include, but are not limited to:

- Improved monitoring, analysis, and tracking of customer water usage rates
- Alterations in maintenance cycles and plans in order to expedite infrastructure repairs and improve system efficiency

8.4.4 Additional Mandatory Restrictions

Implementation of mandatory restrictions can be an effective but unpopular method for reducing customer usage because it is associated with enforcement actions and penalties. Mandatory restrictions can include a number of items such as limitations on outdoor water use (timing, volume, location), limiting total residential water use, restrictions on using water for certain functions (e.g., car washing), and other restrictions.

8.4.5 Emergency Response Plan

Catastrophic water shortages must be included in the water shortage levels with appropriate response actions. It is recommended to describe in the narrative how the catastrophic shortages are tied to the water shortage levels. For catastrophic water shortage conditions, the

Supplier may have sufficient facilities and infrastructure to reroute around a temporary disruption. Suppliers can also schedule planned disruptions to occur when other supplies are not limited or access to an alternative supply is available. These may be already adequately addressed in the Supplier's Emergency Response Plan (ERP).

America's Water Infrastructure Act of 2018 Section 2013(b) requires community water systems serving populations greater than 3,300 to develop or update an ERP that incorporates findings of their risk and resilience assessment. An ERP describes strategies, resources, plans, and procedures utilities can use to prepare for and respond to an incident, natural or man-made, that threatens life, property, or the environment. Incidents can range from small main breaks or localized flooding to large scale hurricanes, earthquakes, or system contamination, among other examples. The State Water Board also offers ERP development guidance and requirements for those drinking water systems that serve more than 1,000 service connections.

Where applicable, a Supplier may choose to incorporate elements of its ERP in its WSCP, or to reference the ERP as appropriate for specific conditions and types of water shortages. In either case, Suppliers can include a copy of their latest ERP as an attachment to the WSCP for addressing many catastrophic water shortage conditions.

8.4.6 Seismic Risk Assessment and Mitigation Plan

Water Code Section 10632.5.(a)

In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local

hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

Per the Water Code Section 10632.5, Suppliers are required to assess seismic risk to water supplies as part of their WSCP. The plan also must include the mitigation plan for the seismic risk(s).

Pursuant to Water Code, the seismic risk assessment must include a description of the vulnerability of each of its water system(s) facilities. Note that many water distribution systems may have facilities or components that extend outside of the Supplier's service distribution area (e.g., transmission pipes, delivery canals, surface water diversion pumps). These facilities may or may not be owned or controlled by the Supplier. Suppliers are encouraged to also assess the vulnerability of these external facilities since failure of them would still ultimately disrupt the Supplier's ability to serve their customers.

The California Office of Emergency Services provides an online planning tool My Plan (<https://myplan.caloes.ca.gov/>) for local governments and others. This includes many layers related to seismic risk that can be explored by users. Maps include, but are not limited to, information on shaking hazards, landslide zones, liquefaction, and fault lines. Users can upload their own shapefile of existing facilities and the Supplier's service area to help explore and describe the seismic risks.

In lieu of conducting their own seismic risk assessment, which can be a lengthy process, suppliers can comply with the Water Code requirement by submitting the relevant local hazard mitigation plan or multihazard mitigation plan, if available. Use of such plans is advantageous to also be consistent with local land use planning.

Earthquakes are common, relatively well-tracked and studied in California, and are recognized as high probability occurrences in many regions across the state. Some Suppliers' facilities, more than others, may be better engineered to withstand seismic activity, especially if built or otherwise updated recently. Older facilities may be more vulnerable to seismic activity and therefore such associated risk may be considered higher by the Supplier. Though not specified in the Water Code, it is appropriate for the UWMP to include a description of the common components of risk, which are (1) the probability or likelihood of occurrence of seismic activity in the area of their system(s) facilities, and (2) the degree of impact on the reliability of the system's facilities and operations if seismic activity of a given size

(or sizes) were to occur. In this section the Water Code specifies the Supplier also must include a description of the plan for mitigating the seismic risks identified. This may be developed by the Supplier, such as for specific facilities, or it may be used from the existing hazard mitigation plans mentioned above, or a combination of both.

8.4.7 Shortage Response Action Effectiveness

For each specific Shortage Response Action identified in the plan, the WSCP must also estimate the extent to which that action will reduce the gap between supplies and demands. It is recommended that the efficacy of the proposed suite of response actions be analyzed on a month-by-month basis rather than on an average annual basis, in order to ensure an adequate response even in the months of highest water use. For example, it may be that a suite of response actions can result in 10-percent less annual use, but in any given month the shortage from *normal* water use in that month may be greater or less than the annual average shortage.

Suppliers can estimate effectiveness based on water use changes that have occurred historically in response to implementing water shortage actions. Suppliers may look to their recent experience (or that of other similarly situated Suppliers) during the drought of 2012-2016, to help quantify the magnitude of reduction benefit they may expect from a given action.

Resources and references listed below offer a sample of studies and insights regarding effectiveness of conservation measures and other shortage response actions, as well as examples of how to analyze their effectiveness. However, it is likely that Suppliers will have to adjust expected benefits for their own, unique local situation. Additional relevant references are listed in section 8.13.

American Water Works Association (AWWA) 2011. AWWA M60: Drought Preparedness and Response Manual. The AWWA M60, 72 pages. Available at: <https://www.awwa.org/Store/M60-Drought-Preparedness-and-Response-Second-Edition/ProductDetail/75759388>

California Department of Water Resources. 2008. Urban Drought Guidebook 2008 updated edition. 1-208. Available at: https://digitalscholarship.unlv.edu/water_pubs/3

California Urban Water Conservation Council 2015. Jumpstart Water Shortage Toolkit. Available at: https://calwep.org/wp-content/uploads/2019/03/Jumpstart-Water-Shortage-Toolkit_FULL.pdf

Dilling, L. et al. 2019. Drought in Urban Systems: Learning lessons for climate adaptive capacity. *Climate Risk Management* 23, 32-42. Available at: <https://www.sciencedirect.com/science/article/pii/S2212096318301530>

Katz, D. et al. 2015. Evaluating the Effectiveness of a Water Conservation Campaign: Combining experimental and field methods. *Journal of Environmental Management* 180: 335-343. Available at: https://www.researchgate.net/profile/Ann_Kronrod/publication/303687647_Evaluating_the_effectiveness_of_a_water_conservation_campaign_Combining_experimental_and_field_methods/links/59f8794e0f7e9b553ec0b077/Evaluating-the-effectiveness-of-a-water-conservation-campaign-Combining-experimental-and-field-methods.pdf

Maggioni, E. 2014. Water Demand Management in Times of Drought: What matters for water conservation. *Water Resources Research* (AGU). Available at: <https://doi.org/10.1002/2014WR016301> or <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2014WR016301>

Wang et al. Proactive Water Shortage Mitigation Integrating System Optimization and Input Uncertainty. *Journal of Hydrology* 571. Available at: https://www.researchgate.net/publication/331115367_Proactive_Water_Shortage_Mitigation_Integrating_System_Optimization_and_Input_Uncertainty

Unforeseen events and conditions can also lead to temporary or long-term water shortages. These could include situations such as wildfires, earthquakes, civil unrest, sudden adverse weather, critical infrastructure failure, and others. Recent responses to, or other experiences with managing any emergency or hazard that results in a water shortage and the associated water shortage level can be useful information for estimating effectiveness of WSCP strategies.

Essentially, the purpose of this section of the WSCP is to demonstrate to the Supplier's satisfaction that a given suite of shortage response actions can be expected to deliver the expected outcomes necessary to meet the requirements of a given shortage level. Specific local circumstances and administrative and political considerations should be acknowledged in the Supplier's description of shortage response actions. The Supplier has the discretion to determine which actions are considered *locally appropriate* (subparts A, B, and C of Water Code Section 10632 (a)(4)).

8.5 Communication Protocols

Water Code Section 10632 (a)(5)

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications

Timely and effective communication is a key element of water shortage contingency planning implementation. Per the Water Code, Suppliers must describe their communication protocols and procedures in the event of a water shortage. It is recommended that this cover methods and mechanisms used to inform their customers; the general public and interested parties; and local, regional, and state government entities. These may include social media posts, bill stuffers or newsletters, press releases, radio spots, television coverage, and blog posts.

The protocols and procedures in the WSCP must include specific communications protocols that would be triggered to address each particular shortage level and response actions implemented. This element is focused on communicating the water shortage contingency planning actions that can be derived from the results of the Annual Assessment, and it would likely trigger based upon the decision-

making process articulated by the Supplier under section 8.2. However, they would include emergency communications protocols to address earthquakes, fires, infrastructure failures, civil unrest, and other catastrophic events. The type and degree of communication will likely vary with each shortage level, thus predefined and actionable communication protocols will improve the Supplier's ability to message necessary events.

This is another element of the WSCP that is useful to summarize as part of a table indicating shortage levels, response actions, and communications protocols and processes for each shortage level.

8.6 Compliance and Enforcement

Water Code Section 10632 (a)(6)

For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

Retail Suppliers

If the Supplier is a retail water supplier, it should describe in this section how it will ensure compliance with and enforce provisions of the WSCP. The Supplier should describe the means it uses to ensure compliance and enforcement, including but not limited to:

- customer service, education, and communication programs
- water-waste patrols
- warning and citation protocols
- fines and surcharges
- policies and procedures related to treatment of irrigation malfunctions
- other Supplier responses

Suppliers can detail their protocols for treatment of first violations, second violations, third violations, and any progressively increasing actions associated with more egregious levels of violation in relationship to the six standard water shortage levels. This element must also include a description of any appeals and exemption processes. Where feasible, specific exemptions can be identified and defined. Where not feasible, the process to appeal or obtain and

exemption should be detailed. Suppliers are encouraged to develop necessary procedures, such as government codes or adopted ordinances, prior to needing to implement any shortage response actions.

8.7 Legal Authorities

Water Code Section 10632 (a)(7)

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

Water Code Section Division 1, Section 350

Declaration of water shortage emergency condition. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

This section is intended to disclose the legal authorities that the Supplier relies upon to implement the shortage response actions in section 8.4, and to enforce them relative to section 8.5. The narrative in this section should list all relevant statutory authorities, local ordinances and resolutions, and any water supply contract provisions to which the Supplier is subject.

Additionally, in their WSCP, Suppliers must include a specific statement that it, “shall declare a water shortage emergency,” or similar language to indicate that it is in accordance with Water Code Chapter 3 (commencing with Section 350) of Division 1 general provision regarding water shortage emergencies.

Additionally, this section must include a statement that the Supplier. “shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency” under California Government Code, California Emergency Services Act (Article 2, Section 8558). Including a list of and contacts for all cities or counties for which the Supplier provides service in the WSCP, along with developed coordination protocols, can facilitate compliance with this section of the Water Code in the event of a *local emergency* as defined in subpart (c) of Government Code Section 8558.

8.8 Financial Consequences of WSCP

Water Code Section 10632(a)(8)

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

Suppliers must include a description of the overall anticipated financial consequences to the Supplier of implementing the WSCP. This description must include potential reductions in revenue and increased expenses associated with implementation of the shortage response actions described in section 8.4. This should be coupled with an identification of the anticipated mitigation actions needed to address these financial impacts. Financial impacts may include items such as reduced revenue from reduced water use under the water shortage contingency plan level; increased staff costs for tracking, reporting,

and to patrol and enforce actions; and economic impacts associated with water dependent businesses in the Supplier's service area. Mitigation actions described in this section may include, but are not limited to:

- triggering of any drought rate structures or surcharges
- using financial reserves
- reducing operation and maintenance expenses
- deferring capital improvement projects
- reducing future projected operation and maintenance expenses
- increasing any fixed readiness-to-serve charge
- increasing any commodity charge and water adjustment rates to cover revenue shortfalls
- any other financial management mechanisms used by the Supplier

The Supplier can indicate which of the above mechanisms, and to what extent, are to be considered under each of the six standard water shortage levels described in section 8.3. This additional element of the WSCP can be summarized as part of a table indicating shortage levels, response actions, communications protocols, and costs or revenue losses for each water shortage level and/or response action.

8.9 Monitoring and reporting

Water Code Section 10632(a)(9)

For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

The Supplier must describe how it will monitor and report on implementation of its WSCP. Monitoring and reporting key water use metrics is fundamental to water supply planning and management. Monitoring is also essential to ensure that the response actions are actually achieving their intended water use reduction purposes, or if improvements or new actions need to be considered (see section 8.10). Monitoring for customer compliance tracking is also useful in enforcement actions. It should be noted that timing, frequency, and

metrics will likely be variable, depending on the metric being monitored, water shortage level, as well as enforcement action logistics. The State Water Board is already preparing regulation for monthly reporting of water production and other water uses, along with associated enforcement metrics. When finalized, these can be summarized in the WSCP and incorporated by reference.

8.10 WSCP Refinement Procedures

Water Code Section 10632 (a)(10)

Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

The Legislature recognizes that the WSCP is best prepared and implemented as an adaptive management plan. The Supplier should describe how it intends to use the results of its monitoring and reporting program, described in section 8.9, to evaluate the need for, and procedures to revise its WSCP. The Supplier should consider its WSCP as a dynamic tool that should be the subject of refinements as needed to ensure that its shortage response actions are effective and to produce the desired results. If certain procedural refinements or new actions are identified by Supplier staff, or suggested by customers or other interested parties, the Supplier should have an identified mechanism to evaluate their effectiveness, incorporate them into the WSCP, and implement them quickly at the appropriate water shortage level.

8.11 Special Water Feature Distinction

Water Code Section 10632 (b)

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

Water features that are not pools or spas are analyzed and defined separately from pools and spas in the WSCP. Non-pool or non-spa

water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations. Limitations to pools and spas may require different considerations compared to non-pool or non-spa water features. Suppliers may provide terminology in their WSCP that distinguishes water features from swimming pools, for example, using designations such as “decorative water features” and “recreational water features” and prepare response actions, enforcement actions, and monitoring programs for each, respectively.

8.12 Plan Adoption, Submittal and Availability

Water Code Section 10632 (a)(c)

The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

In this element, Suppliers can document their processes and steps to adopt, submit, implement, and amend the WSCP. In most cases, these processes will follow those used for the Supplier’s UWMP (Chapter 10). However, the WSCP may be periodically amended independently of the UWMP, as needed. With regard to any amendments of the WSCP, the Supplier can describe how and when notices are issued concerning the amendment process, including the public adoption hearing and how and when it notices affected cities, counties, and the public about the adoption process, and submittal of the UWMP to DWR, the California State Library, local libraries, and others. The Supplier can also describe how the plan has been *made available* to all of the cities and counties it serves no later than 30 days after it is adopted.

This section can be used to describe the adoption, submittal, and availability procedures to follow when updating the WSCP outside of the UWMP update cycle as a reference for subsequent amendments.

8.13 Resources and References

The following is a list of resources and references Suppliers may find helpful in developing their WSCP.

Alliance for Water Efficiency 2020. Use and Effectiveness of Municipal Irrigation Restrictions During Drought. Available at:
<https://www.allianceforwaterefficiency.org/impact/our-work/use->

[and-effectiveness-municipal-irrigation-restrictions-during-drought](#)

American Water Works Association (AWWA) 2011. AWWA M60: Drought Preparedness and Response Manual. The AWWA M60, 72 pages. Available at: <https://www.awwa.org/Store/M60-Drought-Preparedness-and-Response-Second-Edition/ProductDetail/75759388>

AWWA M19: Emergency Planning for Water and Wastewater Utilities. Outline link: Available at: <https://www.awwa.org/Portals/0/files/publications/documents/M19LookInside.pdf>

California Department of Water Resources. 2010. California Drought Contingency Plan. Available at: https://drought.unl.edu/archive/plans/Drought/state/CA_2010.pdf

California Department of Water Resources. Draft 2020. Handbook for Water Budget Development. Available at: <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Water-Budget-Handbook.pdf>

California State Water Resources Control Board. Emergency Response Plan Guidance for Public Drinking Water Systems. Available at: https://www.waterboards.ca.gov/drinking_water/certlic/drinking_water/documents/security/ddw_emergency_guidelines_0215.pdf

California Water Efficiency Partnership (CalWEP) 2020. Model Water Shortage Contingency Plans. Available at: http://toolbox.calwep.org/wiki/Model_Water_Shortage_Contingency_Plans

California Public Utilities Commission Drought Procedures Standard Practice U-40-W. Summarized by CalWEP here: Available at: http://toolbox.calwep.org/wiki/Model_Water_Shortage_Contingency_Plans#CPUC_Drought_Procedures_Standard_Practice_U-40-W Current text of law available at: <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=00001-01000&file=350-359>

- Vogt, J.V., Naumann, G., Masante, D., Spinoni, J., Cammalleri, C., Erian, W., Pischke, F., Pulwarty, R., Barbosa, P., Drought Risk Assessment. A conceptual Framework. EUR 29464 EN, Publications Office of the European Union, Luxembourg, 2018. ISBN 978-92-79-97469-4. doi:10.2760/057223, JRC113937; Available at:
<https://publications.jrc.ec.europa.eu/repository/handle/JRC113937>
- State of Washington 2011. Guidance Document: Preparing Water Shortage Response Plans. Available at:
https://www.watersupplyforum.org/docs/6/773f6f0d95152843a051c624d028d80d5841da51/Dept.ofHealth_PreparingWaterShortageResponsePlans1.pdf
- United Nations Development Programme. 2012. Drought Risk Management: Practitioner's Perspectives from Africa and Asia. Available at:
https://catalogue.unccd.int/36_Drought_Risk_Management.pdf
- U.S. Environmental Protection Agency. 2015. Planning for an Emergency Drinking Water Supply. Available at:
https://www.epa.gov/sites/production/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf
- Whilhite, D. Sivakumar, M., Pulwarty, R. 2014. Managing Drought Risk in a Changing Climate: The role of national drought policy. *Weather and Climate Extremes* 3: 4-13. Available at:
<https://doi.org/10.1016/j.wace.2014.01.002>

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Chapter 9

9.0 Demand Management Measures

Demand management is an integral part of sustainably managing water resources in California. As population continues to grow, demand for water typically increases. This increase in water demand, coupled with reduced supplies or shifts in supplies because of climate change and other factors, can jeopardize water reliability if no mitigation is in place. To better prepare for and reduce effects caused by these situations, implementing water use-demand management measures that help lower demands can improve the water service reliability and help meet state and regional water conservation goals. Reducing demands can also benefit Suppliers by reducing energy costs, putting the Supplier in a better position for its future water security.

Importance

This chapter provides the opportunity for water suppliers to communicate their efforts, to promote conservation and reduce demands on water supplies. It also offers Emergency Response Plan Suppliers (Suppliers) the opportunity to closely look at what has been implemented, what has worked, and what might be implemented for additional water savings. This type of analysis may help identify actions that require a longer-term implementation plan and budget, and that can inform their water demand forecasting analysis. Careful analysis of Demand Management Measures (DMM) may also help Suppliers in preparing their Water Shortage Contingency Plan (WSCP), which requires identifying how much a Water Shortage Level Action mitigates water shortage conditions.

Focus

The goal of the DMM section in a UWMP is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets.

Essentials

The California Water Code (Water Code) section addressing DMMs was significantly modified in 2014, to simplify, clarify, and update the

DMMs reporting requirements. The legislative changes enacted streamlining the Retail Supplier requirements to six general requirements plus an *other* category. For wholesalers, the requirements had been updated to three specific measures, an *other* category, as well as a requirement for a narrative description of asset management and Wholesale Supplier assistance programs.

Recommended

Several sections in this chapter recommend additional information to include in the UWMP to enhance the presentation of DMMs. These are clearly called out under the subsection heading of *Recommended*. As one example, it is recommended, but not required, that Suppliers preparing their 2020 UWMP consider what DMMs they will use to help meet their upcoming water use objectives. These objectives will not be developed until 2023, but the first report will require information on what DMMs Suppliers will implement to meet their objectives. As such, each Supplier is encouraged to consider aligning conservation management actions and the changing urban use patterns in order to consider these future obligations. Including this information in the 2020 UWMP will help Suppliers prepare for the future requirements.

New Requirements

There are no new requirements regarding DMMs since the 2015 UWMP Guidebook.

Contents

The following organization for this section is not required, but it is offered as guidance. Suppliers may use other types of organization, such as organizing by type of DMM.

This chapter contains the following sections:

- 9.1 Demand Management Measures for Wholesale Suppliers
- 9.2 Demand Management Measures for Retail Suppliers
- 9.3 Implementation over the Past Five Years
- 9.4 Planned Implementation to Achieve Water Use Targets
- 9.5 Members of the California Water Efficiency Partnership

9.1 Demand Management Measures for Wholesale Suppliers

Water Code Section 10631

(e) Provide a description of the (wholesale) supplier's water demand management measures. This description shall include all of the following:

(1)(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(ii) Metering.

(iv) Public education and outreach.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, (provide) a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

Wholesale Only

Following the Water Code, wholesale Suppliers must provide narrative descriptions of four specific measures, metering, public education and outreach, water conservation program coordination and staffing support, and other applicable DMMs, as well as a narrative of asset management and wholesale supplier assistance programs.

Additionally, wholesale Suppliers are required to address their DMM implementation over the past five years. Guidance on this requirement is described in section 9.3 of this chapter.

9.1.1 Metering

Wholesale Only

A Wholesale Supplier that is fully metered should state that fact in the UWMP. If a Supplier is not yet fully metered, they should discuss their plan for becoming fully metered.

Recommended

Suppliers are encouraged to include a discussion of their programs for meter replacement and/or calibration.

9.1.2 Public Education and Outreach

Wholesale Only

Describe the public education and outreach efforts by the Wholesale Supplier, if any. These may include actions that are taken to assist Retail Suppliers that are served by the wholesaler.

Examples include:

- Mass media campaigns encouraging conservation
- School education programs
- Information booths at fairs and public events
- Newsletters
- Informative websites, online tools, or social media
- Newspaper articles
- Other activities not listed here

9.1.3 Water Conservation Program Coordination and Staffing Support

Wholesale Only

Describe the activities of the Wholesale Supplier's water conservation coordinator, if any.

Recommended

The description may include the name and contact information of the water conservation coordinator(s), the number of staff in the program, and a description of program funding.

9.1.4 Other Demand Management Measures

Wholesale Only

This category provides Wholesale Suppliers the ability to report additional or innovative approaches to demand management that do not belong to the categories listed above.

If a Wholesale Supplier includes a discussion of rate structures or supply management as part of its demand management measure

discussion, it may provide detailed information of the rate structure in an appendix and then summarize the key points in the main body of the UWMP.

9.1.5 Asset Management

Wholesale Only

Provide a narrative description of the Wholesale Supplier's distribution system asset management program, including distribution system maintenance and improvements. Asset management programs will vary greatly from one Supplier to another, from responding to needed repairs as they arise, to sophisticated GIS mapping with a structured improvement and repair program.

Recommended

Provide, or reference, any appropriate documentation related to the Wholesale Supplier's asset management program.

9.1.6 Wholesale Supplier Assistance Programs

Wholesale Only

Provide a description of the Wholesale Supplier's assistance programs to the Retail Suppliers that it serves. This may include assistance with rebate programs, public education and outreach on water conservation, or other efforts to reduce water demand. It is not necessary to duplicate descriptions that may have been provided above. Suppliers may simply provide a reference to the section(s), as applicable.

9.2 Existing Demand Management Measures for Retail Suppliers

Water Code Section 10631

(e)Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

Retail Only

Describe the implemented DMMs for each of the listed DMMs. Suppliers are also required to describe the nature and extent of each DMM implemented over the past five years (discussed in section 9.3), in addition to those planned for meeting urban water use targets (discussed in section 9.4).

Recommended

It is recommended that Suppliers also report on specific DMMs in each category and examine their effectiveness to help in quantifying the demand reduction for mitigating water shortage conditions in their WSCP. Additionally, examining the feasibility of expanding the extent of DMM implementation may help in resource planning and demand forecasting.

9.2.1 Water Waste Prevention Ordinances

Retail Only

A water waste prevention ordinance explicitly states that the waste of water is to be prohibited. The ordinance may prohibit specific actions that waste water, such as excessive runoff from landscape irrigation or use of a hose outdoors without a shut off nozzle.

A water waste prevention ordinance is in place at all times and is not dependent on a water shortage for implementation. However, a water waste prevention ordinance may include increasingly restrictive prohibitions that may be implemented in response to water shortages as part of a WSCP.

If the Supplier has a water waste prevention ordinance in place, or another equivalent mechanism, it can be mentioned in the narrative and included as an attachment in the UWMP.

Recommended

Suppliers can include a water waste prevention ordinance in the first shortage level of their WSCP and this stage remains in place at all times. At higher water shortage levels, additional water waste prevention may be included in the ordinance to further restrict water waste.

9.2.2 Metering

Water Code Section 526

(a) Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract... shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.

Water Code section 527

(a) An urban water supplier that is not subject to Section 526 shall do both the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

Retail Only

A Supplier that is fully metered should state this in their UWMP. If a Supplier is not yet fully metered (Water Code requires full metering by 2025), they should discuss their plans for becoming fully metered in accordance with Water Code 527.

Recommended

Suppliers are encouraged to include a discussion of their programs for meter replacement and/or calibration, along with any planned or implemented improvements to their metering system.

Automatic Meter Reading (AMR), or high frequency (10-20 second) water use measurement devices that are employed within their service area offer several benefits for Suppliers. Advanced Metering Infrastructure (AMI)/AMR meters can enable Suppliers to more closely track water use, waste, and leaks on a timely basis. Additionally, higher-frequency measurement devices that may be deployed for customer use may assist in behavioral water conservation practices. Suppliers are encouraged to include a discussion of any innovative metering programs, such as AMI.

It is also recommended that a Supplier discuss its efforts to implement dedicated landscape meters and any programs to identify the landscape area and local addresses associated with the dedicated meter accounts. This will be important for compliance with future water use standards for large landscaped areas' dedicated meters as well as for calculating their future water use objectives.

Suppliers are encouraged to include a discussion of any significant submetering programs, especially landscape irrigation submetering, that they have implemented or plan to implement, along with any potential mechanism for tracking submetered water use.

9.2.3 Conservation Pricing

Retail Only

In this section, describe the pricing structure that is used by the water Supplier. A conservation pricing structure is always in place and is not dependent on a water shortage for implementation, although a conservation rate structure could include drought rate structures. See Appendix N for an example of a conservation rate structure that includes a drought rate structure to be implemented, as needed. Drought rate structures and surcharges are addressed in Chapter 8, Water Shortage Contingency Plan.

Conservation pricing sends a signal to customers regarding their water use. A common example of conservation pricing is a tiered rate structure where efficient water use is billed at a lower price and higher water use is billed at progressively higher prices. Another example is the use of water budgets, wherein each customer is given a water

budget and if that budget is exceeded, the customer must pay a penalty, or a higher water rate, for that portion of water that exceeds the water budget.

Suppliers may provide detailed information of their drought and/or conservation rate structures in an appendix, and then summarize the key points in the main body of the UWMP in the following sections, as applicable:

- Section 8.6 Compliance and Enforcement
- Section 8.8 Financial Consequences of WSCP
- Section 9.2.3 Conservation Rate Structures

Recommended

For those Suppliers undergoing, or intending to undergo, a change in their conservation pricing structure, it is recommended that plans for this change—including but not limited to the Proposition 218 election schedule and engineering documents—be summarized in this section.

9.2.4 Public Education and Outreach

Retail Only

Describe the Supplier's current and planned public education and outreach efforts.

This may include:

- Marketing of rebates and giveaways
- Communicating water use via water bills (e.g., increased frequency of billing, an easy to understand bill format, or bills that compare a customer's water use to the water use of similar customers)
- Providing school education programs
- Information booths at fairs and public events
- Newsletters
- Informative websites, online tools, or social media
- Newspaper articles
- Other activities not listed here

9.2.5 Programs to Assess and Manage Distribution System Real Loss

Retail Only

Describe the Supplier's current and planned programs to detect and repair distribution system leaks. A reference to the distribution system losses reported in Chapter 4 is appropriate to include here. Suppliers may also wish to include any schedule, finance plan, and budget information for plans and programs to reduce system losses.

Recommended

A Supplier is encouraged to include a description of routine and planned system maintenance to prevent losses.

A distribution system loss standard is being developed by the State Water Board. Suppliers are encouraged to consider how they may approach addressing a new standard.

9.2.6 Water Conservation Program Coordination and Staffing Support

Retail Only

Describe the coordination activities and staffing support of the water conservation program, if any.

This could include such information as the name and contact information of the water conservation coordinator(s), the number of staff in the program, and a description of program funding.

9.2.7 Other Demand Management Measures

Retail Only

This category provides Suppliers with the ability to report additional or innovative approaches to demand management that do not belong to any of the categories above. This may include rebate programs offered by the Supplier, facilitating leaks and repairs of customers' systems, tracking and targeting messaging and assistance to high-use water users, implementing improved billing programs to facilitate better tracking of water use, and others.

9.3 Implementation over the Past Five Years

Water Code Section 10631

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) ...a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

All Urban Water Suppliers

Suppliers are required to provide a narrative description addressing the nature and extent of each DMM implemented over the past five years, from 2016 through 2020. Each DMM listed in section 9.1 for Wholesale Suppliers and in section 9.2 for Retail Suppliers must be addressed.

Retail Only

Retail Suppliers should distinguish those DMMs that are implemented by a Wholesale Supplier on their behalf. This will avoid double counting DMM implementation.

Recommended

To address the *nature* of each DMM it is recommended that Suppliers describe the DMM program details such as the dollar value for individual toilet replacements, the process used to inform customers of a landscape water budget program, or the content of a school education program.

To address the *extent* of each DMM, it is recommended that Suppliers quantify the implementation of the DMM (e.g., the number of customers that have used the toilet rebate program, the number of large landscape accounts that have been assigned a water budget, or the number of school presentations given by the Supplier).

Additionally, it is recommended that Suppliers identify the available capacity remaining (e.g., the number of customers with inefficient toilets or the remaining large landscape areas without a water budget) as well as any constraints or opportunities for further extending the DMM (e.g., insufficient budget to implement more rebate programs, new AMI meters installed providing the opportunity to implement customer leak detection programs, or availability of a state grant program to improve the billing and water use tracking system)

9.4 Implementation to Achieve Water Use Targets

Water Code Section 10631

(f)(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

Retail Only

Using the list of DMMs in section 9.2, describe the DMMs that the Supplier implemented in order to achieve its water use targets (as described in Water Code Section 10608.20 and Chapter 5 Baselines and Targets).

Recommended

If a Supplier plans to implement or extend implementation of a DMM, the Supplier then describes its planning efforts, any legal or other opportunities or constraints, schedules, budgets, and finance plans.

Suppliers are encouraged to also describe any DMMs they plan to implement that will not have a material effect on achieving their water use targets.

9.5 Water Use Objectives (Future Requirements)

Water Code requires that Suppliers develop new water use objectives that are based on specific standards for certain water use sectors. These water use objectives will not be developed until 2023, and the first report will require information on what DMMs Suppliers will implement to meet their objectives. As such, each Supplier is encouraged to consider aligning conservation management actions and the changing urban use patterns in order to consider these future obligations.

Chapter 10

10.0 Plan Adoption, Submittal, and Implementation

This chapter provides guidance for addressing the California Water Code (Water Code) requirements for a public hearing, the Urban Water Management Plan (UWMP) adoption process, submitting an adopted UWMP and making it available to the public, plan implementation, and the process for amending an adopted UWMP.

Importance

Procedures for adopting and implementing the UWMP in a transparent and stakeholder-accessible manner is important for good governance of water resources. It is important for customers to have the opportunity to understand how water is managed and how reliable it is. Supporting a public process through adequate notifications and public hearings also allows for the interested public to submit comments and suggest revisions affecting reliability and future investments in local water management. Adopting the plan makes it part of the formal management of the Supplier, which is often important for justifying investment decisions and potential rate restructuring over the near- and long-term.

Focus

In this section of the UWMP, a Supplier creates a record of the process it followed to adopt and implement its plan, making the process and plan transparent and accessible to its customers and other public in compliance with the statute.

Essentials

The Water Code lays out several notification and other processes required to prepare and adopt the UWMP. Each process is described in this chapter below and includes the following steps:

- Notification of public hearing (section 10.2)
 - Notify cities, counties, and public
 - At least 60 days prior to public hearing
- Notification to the public (section 10.3)

- At least two notifications
- Published in a local newspaper at least once a week for two successive weeks.
- Public hearing and optional adoption (section 10.3)
 - Should allow for community input, considering economic impacts, and adopting a method for determining its urban water use target.
 - Can be combined with the adoption meeting as long as the public hearing is on the agenda before the adoption.
- Adoption (section 10.3)
 - The adoption hearing is for the governing body of the Supplier to formally adopt the plan.
 - The adoption resolution may be included as part of the UWMP (referring to web address or included as an attachment).
- Plan submittal (section 10.4)
 - Each Supplier must update and submit its 2020 plan to the California Department of Water Resources (DWR) by July 1, 2021.
- Plan availability (section 10.5)
 - No later than 30 days after adoption
 - Suppliers must submit the UWMP to the California State Library and all cities and counties within which the Supplier provides water.
- Amending an adopted UWMP and/or Water Shortage Contingency Plan (section 10.6)
 - If the Supplier amends an adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

Recommended

Suppliers are encouraged to host hearings and additional meetings, if useful, to engage with community members and other stakeholders on their UWMP development. Requirements in the Water Code specify the approval and input process at the end of developing the UWMP, but

community members and other stakeholders' input earlier can allow for Suppliers to incorporate their interests and experiences into the UWMP as it is being developed. Such early participation supports developing the UWMP in a transparent fashion, inform stakeholders about important considerations and conditions, and can better support inclusion of cross-sector and regional water interests, as well as social equity and other important considerations. Suppliers can also use this chapter to describe their plan to implement the UWMP.

New Requirements

Since 2015, the public processes for completing the UWMP have not been revised. However, the Water Shortage Contingency Plan is a new component of the 2020 UWMP that can be amended separately from the UWMP (see Chapter 8).

Contents

10.1 Inclusion of all 2020 Data

10.2 Notice of Public Hearing

10.3 Public Hearing and Adoption

10.4 Plan Submittal

10.5 Public Availability

10.6 Amending an Adopted UWMP

10.1 Inclusion of All 2020 Data

All Urban Water Suppliers

Current year information required by Water Code would include the year 2020. As such, 2020 UWMPs would include the water use and planning data for the entire year of 2020. This means that if a Supplier is reporting on a calendar year basis, the 2020 UWMP cannot be completed before the end of the calendar year 2020. However, if a Supplier is reporting on a fiscal year basis, they may complete their 2020 UWMP at the end of their fiscal year.

10.2 Notice of Public Hearing

All Urban Water Suppliers

Suppliers must hold a public hearing prior to adopting the Plan. The public hearing provides an opportunity for the public to provide input

to the plan before it is adopted. The governing body shall consider all public input.

There are two audiences to be notified for the public hearing: cities and counties, and the general public.

10.2.1 Notice to Cities and Counties

Water Code Section 10621

(b) Every urban water supplier required to prepare a plan shall...at least 60 days prior to the public hearing on the plan...notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

Water Code Section 10642

...The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area...

All Urban Water Suppliers

The following subsections provide guidance for the two required notices to cities and counties.

10.2.1.1 60 Day Notification

The Water Code states that cities and counties must be notified that the Supplier will be reviewing the UWMP and considering amendments to the Plan. This notice must be sent **at least** 60 days prior to the public hearing. (See also Guidebook section 2.5.3).

Recommended

In order to provide cities and counties ample opportunity to participate in the UWMP process, water agencies are encouraged to send this notification at the beginning of the UWMP planning process, well in advance of the required 60 days prior to the public hearing.

10.2.1.2 Notice of Public Hearing

The Supplier shall provide notice of the time and place of the public hearing to any city or county within which the Supplier provides water. This applies to both public and private water suppliers.

Recommended

The notices to the cities and counties should include the location where the 2020 UWMP can be viewed, the UWMP revision schedule, and contact information of the UWMP preparer.

Notification letters can be addressed to the City Manager, County Administrator, or other local contacts, as appropriate for the Supplier's service area.

10.2.1.3 Submittal TABLES**Submittal Table 10-1**

Complete Submittal Table 10-1: Notification to cities and counties. Regional UWMPs will use multiple versions of Table 10-1; one for each participating Supplier.

Table 10-1 Retail. Notification to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
	☐	☐
	☐	☐
	☐	☐
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
	☐	☐
	☐	☐

Wholesale Suppliers fill out Submittal Table 10-1 Wholesale: Notification to Cities and Counties

Table 10-1 Wholesale. Notification to Cities and Counties

Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☐	Supplier has notified more than 10 cities or counties in accordance with Water Code Sections 10621 (b) and 10642. Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.	
	Provide the page or location of this list in the UWMP.	
☐	Supplier has notified 10 or fewer cities or counties. Complete the table below.	
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
	☐	☐
	☐	☐
	☐	☐
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
	☐	☐
	☐	☐
NOTES:		

10.2.2 Notice to the Public*Water Code Section 10642*

...Prior to adopting either [the plan or water shortage contingency plan], the urban water supplier shall make both of the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code [see below]. The urban water supplier shall provide notice of the time and place of a hearing to

any city or county within which the supplier provides water supplies.

Government Code section 6066

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

All Urban Water Suppliers

The public hearing must be noticed in a local newspaper for two successive weeks (14 calendar days), at least two times, with at least five days between publication dates, as prescribed in Government Code section 6066. This notice must include time and place of hearing, as well as the location where the plan is available for public inspection.

In order to verify that this notification has taken place, the UWMP should include a copy of the public notices.

10.3 Public Hearing and Adoption

Water Code Section 10642

...Prior to adopting either, the [plan or water shortage contingency plan], the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon.

Water Code Section 10608.26

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target.

10.3.1 Public Hearing

All Urban Water Suppliers

The public hearing may take place at the same meeting as the adoption hearing of the governing board. If a Supplier chooses to combine these meetings, the agenda must include the public hearing as an agenda item.

Retail Only

As part of the public hearing, the Retail Supplier shall provide information on their baseline values, water use targets and compliance, and implementation plan required in the Water Conservation Act of 2009. This information is fully explained in Chapter 5 Baselines and Targets.

10.3.2 Adoption

Water Code Section 10642

...After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing.

All Urban Water Suppliers

The adoption hearing of the governing body may be combined with the public hearing; however, the public hearing portion must take place before the adoption portion. This allows the governing body the opportunity to modify the UWMP in response to public input before adoption. Before submitting the UWMP to DWR, the governing body must formally adopt the plan.

Water agencies shall include the adoption resolution in the UWMP. This may be included as an attachment to the UWMP or as a web address indicating where the adoption resolution can be found online.

10.4 Plan Submittal

Water Code Section 10621

(e) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021...

Water Code Section 10644

(a)(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

Water Code Section 10635

(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The following sections provide guidance for submitting UWMPs and updates to Water Shortage Contingency Plans to DWR, the State Library, and cities and counties.

10.4.1 Submitting a UWMP and Water Shortage Contingency Plan to DWR

All Urban Water Suppliers

2020 UWMPs must be submitted to DWR within 30 days of adoption and by July 1, 2021. UWMP submittal will be done electronically through the WUE Data Portal, an online submittal tool that will be updated for 2020 UWMPs and available in adequate time for UWMP submittal.

After the UWMP has been submitted, DWR will review the plan using the provided checklist (Appendix F) and determine whether or not the UWMP addresses the requirements of the Water Code. The DWR reviewer will contact the Supplier as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the Supplier with the results of the review.

10.4.2 Electronic Data Submittal

All Urban Water Suppliers

Water Code Section 10644 (a)(2)

The plan, or amendments to the plan, submitted to the department ... shall be submitted electronically and shall

include any standardized forms, tables, or displays specified by the department.

Suppliers must submit the UWMP and associated data and other information electronically. For the submittal table and data, DWR developed an online submittal tool (WUE Data Portal) for data and planning documents for the 2015 UWMPs. This tool will undergo updates for submitting the 2020 UWMPs. The tool will accept complete UWMPs and tabular data from all the data tables.

The WUE data online submittal tool (WUEdata Portal) is available online at:

<https://wuedata.water.ca.gov/>

The availability of the WUE data online submittal tool for 2020 UWMP submittal tables will be announced to the Guidebook Working Group, other DWR Water Use Efficiency Workgroups, DWR's UWMP list serve, the Water Plan eNews, and posted on the DWR Urban Water Management webpage at: <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency>

10.4.3 Submitting a UWMP to the California State Library All Urban Water Suppliers

No later than 30 days after adoption, the Supplier shall submit a CD or hardcopy of the adopted 2020 UWMP to the California State Library at:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

If delivered by courier or overnight carrier to the State Library, use the following street address instead of the P.O. Box:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
900 N Street
Sacramento, CA 95814

10.4.4 Submitting a UWMP to Cities and Counties

All Urban Water Suppliers

No later than 30 days after adoption, the Supplier shall submit a copy of the adopted 2020 UWMP to any city or county to which the Supplier provides water. This copy may be in an electronic format. This will also satisfy Water Code Section 10635(b).

10.5 Public Availability

Water Code Section 10645

(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

All Urban Water Suppliers

Include a statement in the UWMP describing the availability of the adopted UWMP and the adopted Water Shortage Contingency Plan for public review during normal business hours. Examples of public availability include placing a copy of the UWMP and water shortage contingency plan at the front desk of the Supplier's office or by posting the plans on the Supplier's website for public viewing.

10.6 Notification to Public Utilities Commission

Water Code Section 10621 (c)

An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

Per Water Code Section 10621(c), those Suppliers that are regulated by the California Public Utilities Commission (CPUC) must submit their UWMP and Water Shortage Contingency Plan to the CPUC as part of its general rate case filings.

10.7 Amending an Adopted UWMP or Water Shortage Contingency Plan

Water Code Section 10621

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Water Code Section 10644

(a)(1) Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

10.7.1 Amending a UWMP

All Urban Water Suppliers

If a Supplier amends an adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

10.7.2 Amending a Water Shortage Contingency Plan

All Urban Water Suppliers

Water Code Section 10644 (b)

If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared...no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

Water Suppliers that revise their Water Shortage Contingency Plan after DWR has approved the 2020 UWMP, must submit to DWR an electronic copy through the WUE Data Portal of its revised Water Shortage Contingency Plan within 30 days of its adoption.