



2882 Prospect Park Drive, Suite 240  
Rancho Cordova, California 95670  
916-858-2700

## **2020 Urban Water Management Plan**

9 June 2021

Prepared for

**City of Fairfield**  
1000 Webster Street  
Fairfield, California 94533

KJ Project No. 2070010\*00

## Table of Contents

---

List of Tables.....	iii
List of Figures.....	iv
List of Appendices.....	v

### **Section 1: Introduction/Layperson Description .....1-1**

1.1	Overview .....	1-1
1.2	Purpose .....	1-1
1.2.1	Relationship to Other Planning by Water Agency .....	1-2
1.2.2	Relationship to Water Shortage Contingency Plan .....	1-2
1.3	Structure and Organization of the Plan.....	1-2
1.4	Implementation of the Plan (10642).....	1-4
1.4.1	Joint Preparation of the Plan .....	1-5
1.4.2	Plan Adoption (10608.26(a)) .....	1-5
1.4.3	Public Outreach (10620(d)(2)).....	1-5
1.4.4	Plan Availability .....	1-6
1.5	System Description .....	1-6
1.5.1	Service Area Physical Description (10631(a)) .....	1-6
1.5.2	Service Area Boundary Maps.....	1-7
1.5.3	Population, Demographics, and Socioeconomics (10631(a)).....	1-10
1.6	Land Uses in the Service Area (10631(a)).....	1-10
1.7	Climate (10631(a)) .....	1-10
1.8	Potential Effects of Climate Change .....	1-11
1.8.1	Additional Resources for Water Resources Planning for Climate Change.....	1-12

### **Section 2: Water Demands.....2-1**

2.1	Overview .....	2-1
2.2	Non-Potable Versus Potable Water Use .....	2-1
2.3	Past, Current, and Projected Water Use by Sector.....	2-1
2.3.1	Water Use Sectors Listed in Water Code .....	2-1
2.3.2	Water Use Sectors in Addition to Those Listed in Water Code.....	2-1
2.3.3	Past Water Use .....	2-1
2.3.4	Distribution System Water Losses.....	2-2
2.3.5	Current Water Use .....	2-2
2.3.6	Projected Water Use .....	2-3
2.3.6.1	Current and Projected Land Use .....	2-4
2.3.6.2	Effects of Climate Change on Water Use .....	2-8
2.3.7	Low Income Projected Water Demands (10631.1(a)).....	2-8

## Table of Contents

---

<b>Section 3:</b>	<b>SB X7-7 Baseline and Targets .....</b>	<b>3-1</b>
3.1	Existing and Target Per Capita Water Use .....	3-2
3.1.1	Base Daily Per Capita Water Use for SBX7-7 Reduction .....	3-2
3.1.2	Base Daily Per Capita Water Use.....	3-2
3.1.3	Compliance Water Use Targets .....	3-3
3.1.4	Achievement of Target .....	3-3
<b>Section 4:</b>	<b>Water Resources .....</b>	<b>4-1</b>
4.1	Overview.....	4-1
4.2	Surface Water Supplies (10631(b)) .....	4-1
4.2.1	State Water Project.....	4-1
4.2.2	Solano Project.....	4-2
4.2.3	Non-SWP Settlement Water.....	4-2
4.3	Groundwater (10631(b)).....	4-2
4.4	Stormwater (10631(b)).....	4-2
4.5	Transfers, Exchanges, and Groundwater Banking Programs (10631(b) & (c)).....	4-3
4.6	Embedded Energy Current Supply Portfolio .....	4-3
4.7	Water Quality (10634) .....	4-4
4.8	Planned Water Supply Projects and Programs (10631(b)(3) & 10631(f)) .....	4-5
4.9	Summary of Existing and Planned Sources of Water .....	4-6
<b>Section 5:</b>	<b>Recycled Water and Reuse.....</b>	<b>5-1</b>
5.1	Wastewater Collection, Treatment and Disposal .....	5-1
5.2	Recycled Water Planning .....	5-3
5.2.1	Other Methods to Expand Recycled Water.....	5-3
5.2.2	Projected Recycled Water Demand.....	5-3
5.2.3	Methods to Encourage Recycled Water Use .....	5-5
<b>Section 6:</b>	<b>Reliability Planning.....</b>	<b>6-1</b>
6.1	Overview.....	6-1
6.2	Normal Water Year .....	6-5
6.3	Single Dry Year.....	6-5
6.4	Multiple Dry Year (5 years).....	6-5
6.5	Drought Risk Assessment (10635(b) & (1)).....	6-6
6.5.1	Data and Methodologies Used .....	6-8
6.5.1.1	Water Demands .....	6-8
6.5.1.2	Water Supplies.....	6-8
<b>Section 7:</b>	<b>Demand Management Measures .....</b>	<b>7-1</b>

## Table of Contents

7.1	Summary of Demand Management Measures .....	7-1
7.2	Demand Management 2015-2020 .....	7-1
7.2.1	Water Waste Prohibition.....	7-1
7.2.2	Metering .....	7-2
7.2.3	Conservation Pricing .....	7-2
7.2.4	Public Education and Outreach .....	7-3
7.2.5	Programs to Assess and Manage Distribution System Real Loss .....	7-4
7.2.6	Consistency with State Water Loss Standards .....	7-5
7.2.7	Water Conservation Program Coordination and Staffing Support.....	7-5
7.2.8	Other DMMs.....	7-5
7.3	Planned DMMs to Reach Water Use Targets.....	7-9
<b>Section 8:</b>	<b>Seismic Risk Assessment .....</b>	<b>8-1</b>
<i>References.....</i>		<i>i</i>

## List of Tables

Table 1-1:	DWR Retail Only Public Water Systems (DWR Table 2-1).....	1-4
Table 1-2:	DWR Plan Identification (DWR Table 2-2).....	1-4
Table 1-3:	DWR Supplier Identification (DWR Table 2-3).....	1-4
Table 1-4:	Agency Coordination Summary.....	1-5
Table 1-5:	DWR Retail Water Supplier Information Exchange (DWR Table 2-4).....	1-6
Table 1-6:	DWR Retail: Notification to Cities and Counties (DWR Table 10-1).....	1-6
Table 1-7:	DWR Retail Population - Current and Projected (DWR Table 3-1) .....	1-10
Table 1-8:	Fairfield Climate Data.....	1-11
Table 2-1:	Past Water Usage .....	2-2
Table 2-2:	DWR Retail: 12 Month Water Loss Audit Reporting (DWR Table 4-4).....	2-2
Table 2-3:	DWR Retail: Demands for Potable and Non-Potable Water – Actual (DWR Table 4-1) .....	2-3
Table 2-4:	DWR Retail: Use for Potable and Non Potable Water – Projected (DWR Table 4-2) .....	2-4
Table 2-5:	DWR Retail: Total Gross Water Use (Potable and Non Potable) (DWR Table 4-3) .....	2-4
Table 2-6:	Low Income Additional Annual Water Demand Projections .....	2-8
Table 2-7:	DWR Retail Only: Inclusion in Water Use Projections (DWR Table 4-5).....	2-9
Table 3-1:	DWR Baselines and Targets Summary Retail Supplier or Regional Alliance Only (DWR Table 5-1) .....	3-2
Table 3-2:	DWR SBx7-7 2020 Compliance Form Retail Supplier or Regional Alliance Only (DWR Table 5-2) .....	3-3



## Table of Contents (cont'd)

Table 4-1:	DWR Retail: Groundwater Volume Pumped (DWR Table 6-1) .....	4-2
Table 4-2:	City of Fairfield Energy Intensity – Potable Water Supply Process Approach ...	4-4
Table 4-3:	Fairfield Drinking Water Quality .....	4-5
Table 4-4:	DWR Retail: Expected Future Water Supply Projects or Programs (DWR Table 6-7) .....	4-6
Table 4-5:	DWR Retail: Water Supplies – Actual (DWR Table 6-8) .....	4-6
Table 4-6:	DWR Retail: Water Supplies – Projected (DWR Table 6-9) .....	4-8
Table 5-1:	DWR Retail: Wastewater Collected Within Service Area in 2020 (DWR Table 6-2) .....	5-1
Table 5-2:	DWR Retail: Wastewater Treatment and Discharge Within Service Area in 2020 (DWR Table 6-3) .....	5-2
Table 5-3:	DWR Retail: Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4) .....	5-4
Table 5-4:	DWR Retail: 2015 UWMP Recycled Water Use Projected Compared to 2020 Actual (DWR Table 6-5) .....	5-5
Table 5-5:	DWR Retail: Methods to Expand Future Recycled Water Use (DWR Table 6-6) .....	5-5
Table 6-1:	DWR Retail: Basis of Water Year Data (Reliability Assessment) – State Water Project (DWR Table 7-1(a)) <sup>1,2</sup> .....	6-2
Table 6-2:	DWR Retail: Basis of Water Year Data (Reliability Assessment) – Solano Project (DWR Table 7-1(b)) <sup>1,2</sup> .....	6-3
Table 6-3:	DWR Retail: Basis of Water Year Data (Reliability Assessment) – Non-SWP Settlement Water (DWR Table 7-1(c)) <sup>1,2</sup> .....	6-4
Table 6-4:	DWR Retail: Normal Year Supply and Demand Comparison (DWR Table 7-2) .....	6-5
Table 6-5:	DWR Retail: Single Dry Year Supply and Demand Comparison (DWR Table 7-3) .....	6-5
Table 6-6:	DWR Retail: Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4) .....	6-6
Table 6-7:	DWR Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b) (DWR Table 7-5) .....	6-6

## List of Figures

Figure 1-1:	City of Fairfield Municipal Water System Service Area .....	1-8
Figure 1-2:	City of Fairfield Water Supply Schematic .....	1-9
Figure 2-1:	Map of City of Fairfield Future Land Use .....	2-6
Figure 2-2:	Map of NE Fairfield Developments .....	2-7

## **Table of Contents (cont'd)**

---

### **List of Appendices**

---

- Appendix A: UWMP Checklist
- Appendix B: 2020 Water Shortage Contingency Plan
- Appendix C: Fairfield Adoption of the 2020 UWMP and WSCP
- Appendix D: Public Outreach Materials
- Appendix E: Water Loss Audit Output
- Appendix F: SBx7-7 Verification Tables
- Appendix G: Embedded Energy Calculations
- Appendix H: DWR Standardized Tables
- Appendix I: DWR Population Tool Output

## Table of Contents (cont'd)

---

### List of Acronyms

---

ABAG	Association of Bay Area Governments
Act	California Urban Water Management Planning Act
AF	Acre-feet
AFY	acre-feet per year
AMI	Automatic Meter Infrastructure
AWWA	American Water Works Association
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
City	City of Fairfield
CWC	California Water Code
DMM	Demand Management Measures
DWR	California Department of Water Resources
Fairfield	City of Fairfield
FMU	Fairfield California Municipal Utility
FSSD	Fairfield-Suisun Sewer District
GIS	Geographic Information System
GPCD	Gallons Per Capita per Day
gpf	gallons per flush
HETs	high efficiency toilets
IPR	Indirect Potable Reuse
kWh	kilowatt hour
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goals
MG	Million Gallons
NBA	North Bay Aqueduct
NBR	North Bay Regional
ppb	Parts Per Billion
ppm	Parts Per Million
RCD	Solano Resource Conservation District
RRA	risk and resiliency analysis
RUWMP	Regional Urban Water Master Plan
SB X7-7	Water Conservation Act of 2009, Senate Bill 7 of Special Extended Session 7
SCWA	Solano County Water Agency
SID	Solano Irrigation District
SWEP	School Water Education Program
SWP	State Water Project
the Delta	Sacramento-San Joaquin Delta region
UWCC	Urban Water Conservation Committee
UWMP	Urban Water Master Plan
WSCP	Water Shortage Contingency Plan
WSS	Water Sense Specifications

## **Section 1: Introduction/Layperson Description**

---

### **1.1 Overview**

This report presents the 2020 Urban Water Management Plan (2020 UWMP) for the City of Fairfield (City or Fairfield). This section describes the legal underpinnings and purpose of the 2020 UWMP, some background of the City and its service area characteristics.

### **1.2 Purpose**

An Urban Water Management Plan (UWMP) is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature.

The intent of this Plan is to provide the Department of Water Resources (DWR) and the public with information on present and future water sources and demands and to provide an assessment of Fairfield's water needs. Specifically, the 2020 UWMP must provide water supply planning for a 25-year planning period in 5-year increments, identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years, and assure efficient use of urban water supplies. This 2020 UWMP addresses all Water Code requirements for such a plan as shown in the completed DWR UWMP checklist provided in Appendix A.

This Plan is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that this Plan be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at the Plan as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these “framework” questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five-year increments (the City is going beyond the requirements of the Act by developing a plan which spans 25 years.)
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.
- Implements conservation and efficient use of urban water supplies.

State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7) was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use statewide by 2020. The legislation mandated each urban retail supplier develop and report an interim 2015 water use target, their baseline daily per capita use and 2020 compliance daily per capita use, along with the basis for determining those estimates. This UWMP reports on the City of Fairfield's final progress in meeting the SBX7-7 targets.

In short, the Plan answers the question: *Will there be enough water for the area served by the City in future years, and what mix of programs should be explored for making this water available?*

### **1.2.1 Relationship to Other Planning by Water Agency**

This UWMP has been prepared in conjunction with the City of Fairfield's General Plan update which is currently in progress. It also involves coordination with Solano County Water Agency's 2020 UWMP update and relied on their water supply and reliability data.

### **1.2.2 Relationship to Water Shortage Contingency Plan**

Concurrent with the 2020 UWMP update, the City also updated its Water Shortage Contingency Plan (WSCP) consistent with California Water Code (CWC) Section 10632 and Section 10635. The WSCP outlines the City's action plan for a drought or catastrophic water supply shortage and specifies opportunities to reduce demand and augment supplies under such conditions. The Water Shortage Contingency Plan is a stand-alone document for the 2020 UWMP update and will be provided separately as Appendix B to this UWMP.

If revised, a copy of the WSCP shall be submitted to DWR within 30 days of adoption.

## **1.3 Structure and Organization of the Plan**

The following information is included in this report and is discussed in individual sections below:

**Section 1 – Introduction/Layperson Description:** In this introductory chapter, a discussion on the importance of water management planning is provided and the extent of Fairfield's efforts in related activities. The section describes the basis for preparing the 2020 UWMP, the regional planning involved, the calendar year and units of measure, and the coordination and outreach efforts utilized by the City. The section also includes maps of Fairfield's service area, a

description of the service area and climate. A discussion of the Public Water System, the organizational structure, and the history of the water supplier are also provided. Lastly, it outlines the steps taken to adopt and submit the 2020 UWMP, including Fairfield's efforts to publicly circulate the plan for review and comment and Fairfield's intent to implement the 2020 UWMP.

**Section 2 – Water Demands:** This section describes the urban water system demands. It quantifies the current water system demand by category and projects them over the planning horizon of the 2020 UWMP, including water sales to other agencies and system water losses.

**Section 3 – SBx7-7 Baseline and Targets:** This section describes the baseline water use, urban water use targets and achievement of 2020 target compliance.

**Section 4 – Water Resources:** This section describes and quantifies the current and projected sources of water available to Fairfield. It also includes information on water exchanges and transfers.

**Section 5 – Recycled Water and Reuse:** This section includes description and quantification of recycled water use planning by Fairfield.

**Section 6 – Reliability Planning:** This section describes the reliability of Fairfield's water supply and provides a 20-year reliability projection. This description is provided for normal, single dry years, and multiple dry years.

**Section 7 – Demand Management Measures:** Fairfield's efforts to promote conservation and to reduce demand on water supply is detailed in this section, which also specifically addresses several demand management measures.

**Section 8 – Seismic Risk Assessment:** Fairfield's seismic risk analysis assessing the vulnerability of its water systems and plans to mitigate those vulnerabilities are addressed in this section.

Following Section 8, applicable references contained within this 2020 UWMP are noted, and appendices follow the references.

In accordance with the CWC, urban water suppliers with 3,000 or more service connections, or supplying 3,000 or more acre-feet per year (AFY) of water, are required to prepare a UWMP every five years. The 2020 UWMP shall be updated and submitted to the DWR by July 1, 2021. This plan is being prepared for the City of Fairfield and is an individual rather than Regional Urban Water Management Plan (RUWMP). Data provided in this plan are reported in calendar years rather than fiscal years. To the extent possible, water volumes are reported in Million Gallons (MG). Table 1-1, Table 1-2, and Table 1-3 document the structure of this plan.

**Table 1-1: DWR Retail Only Public Water Systems (DWR Table 2-1)**

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
4810003	City of Fairfield	31,787	6,806

**Notes:**

Units in MG

**Table 1-2: DWR Plan Identification (DWR Table 2-2)**

Select Only One	Type of Plan	Name of RUWMP or Regional Alliance if applicable
X	Individual UWMP	
	Water Supplier is also a member of a RUWMP	
	Water Supplier is also a member of a Regional Alliance	
	RUWMP	

**Table 1-3: DWR Supplier Identification (DWR Table 2-3)**

Select One	DWR Supplier
	Supplier is a wholesaler
X	Supplier is a retailer
	Fiscal or Calendar Year (select one)
X	UWMP Tables are in calendar years
	UWMP Tables are in fiscal years
	<i>If using fiscal years provide month and date that the fiscal year begins (mm/dd)</i>
	<i>Units of measure used in UWMP</i>
Unit	MG

## 1.4 Implementation of the Plan (10642)

There is an extensive set of notifications during the adoption process, documentation of submissions to the DWR, and distribution of completion notices that are a required part of this UWMP. The following documents and actions are listed as requirements of the 2020 UWMP.

- A copy of the adoption resolution
- Documentation about how the 2020 UWMP will be implemented.
- Documentation that within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be submitted to the California State Library and any city or county to which the supplier provides water.
- Documentation that within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be available for public review during normal business hours.

Many of these actions and documentation that demonstrate compliance with the UWMP development guidelines will be completed after this draft is reviewed and acted on by the City of Fairfield.

### 1.4.1 Joint Preparation of the Plan

The UWMP Act requires water suppliers to coordinate the preparation of its Plan with other appropriate agencies in the area. This includes other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable. Various agencies are involved in supplying water to the City or having jurisdiction over a portion of the water resources. This section briefly discusses each one. Table 1-4 summarizes the efforts the City has taken to include the various City departments, agencies, and citizens in the preparation of this document.

**Table 1-4: Agency Coordination Summary**

	Participated in UWMP Development	Commented on the Draft	Attended Public Meetings	Contacted for Assistance	Received Copy of Draft and Sent Notice of Intention to Adopt
City of Fairfield Planning Department	X				X
Solano County					X
Solano County Water Agency	X				X
Solano Irrigation District					X
City of Benicia					X
City of Vacaville					X
City of Vallejo					X
City of Rio Vista					X
City of Suisun					X
City of Dixon					X

### 1.4.2 Plan Adoption (10608.26(a))

The City began preparation of this Plan in August 2020. A draft of the plan was presented to and reviewed by the City Council on June 1, 2021. The final draft of the Plan was adopted by the City Council on XXXX by Resolution No. 2021-[TBD] (Appendix C:) and submitted to DWR within 30 days of City Council approval. This plan includes all information necessary to meet the requirements of Water Conservation Act of 2009 (Wat. Code, §§ 10608.12-10608.64) and the Urban Water Management Planning Act (Wat. Code, §§ 10610-10656). Additionally, the plan has also been submitted to all appropriate entities and made available for public review per the requirements of the Urban Water Management Planning Act.

### 1.4.3 Public Outreach (10620(d)(2))

The City of Fairfield reached out within our community and coordinated with surrounding agencies in the preparation of our Urban Water Management Plan. As required under the



2020 UWMP, Table 1-5 lists the Wholesaler the City of Fairfield worked with to coordinate their planning efforts.

Urban water agencies preparing plans are required to hold a public hearing on the UWMP prior to its adoption. In response to these requirements, a public hearing was conducted on June 1, 2021 by the City to receive public comments and input on the UWMP. Table 1-6 presents the required notification of Cities and Counties during the development of the Plan. A copy of the public outreach materials, including paid advertisements, newsletter covers, website postings, and invitation letters are provided in Appendix D.

**Table 1-5: DWR Retail Water Supplier Information Exchange (DWR Table 2-4)**

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>
Solano County Water Agency

**Table 1-6: DWR Retail: Notification to Cities and Counties (DWR Table 10-1)**

City Name	60 Day Notice	Notice of Public Hearing
Fairfield Planning	X	X
County Name	60 Day Notice	Notice of Public Hearing
Solano County	X	X

#### 1.4.4 Plan Availability

As directed by City Council, in accordance with CWC Sections 10621, 10644(a)(1)-(2), and 10635(c), the Plan will be submitted to:

- The California DWR
- The California State Library
- Solano County Planning Department

The Plan, or amendments to the Plan, will be submitted to DWR electronically.

In addition, the Plan will be posted to the City's website and will be made available during normal business hours at City of Fairfield in the Public Works Department:  
1000 Webster Street, Fairfield, CA 94533.

## 1.5 System Description

### 1.5.1 Service Area Physical Description (10631(a))

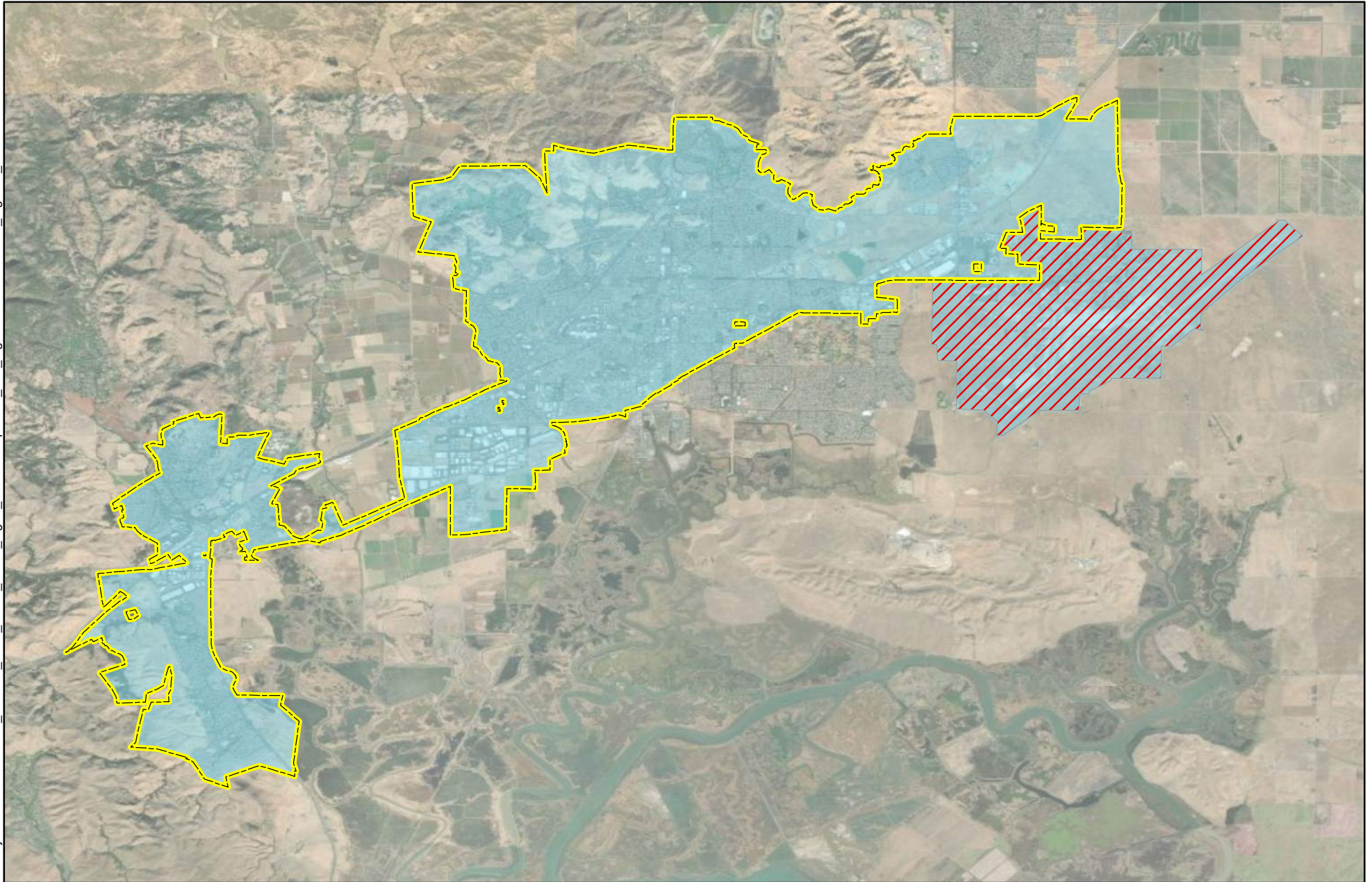
The City of Fairfield – water service area population of 106,815 in 2020 – is located mid-way between San Francisco and Sacramento and lies on the eastern edge of the SF Bay Area hydrologic region.

Fairfield's Municipal Water System operates within the corporate limits of the City of Fairfield, while excluding Travis Air Force Base. The Water System's service area encompasses approximately 32 square miles. The Water System's treatment, storage and distribution system consists of 2 treatment plants (Waterman and North Bay Regional (NBR) water treatment plants), 12 reservoirs and approximately 378 miles of distribution lines. The Water System treats and delivers an average of 21 million gallons per day, with a rated treatment capacity of 56.7 million gallons per day to accommodate high use periods. The peak use day for the Water System to date has been 37.6 million gallons. The City presently has approximately 78 million gallons of treated water storage capacity.




### **1.5.2 Service Area Boundary Maps**

The Fairfield water system boundary is shown in Figure 1-1 while a schematic of various water supplies and uses is found on Figure 1-2.

\\sac2\job\2020\2070010.00\_Fairfield\_2020\_Urban\_Water\_Mgmt\_Plan\09-Reports\3\_GIS\_Figures\FairfieldUWMP\_FigureX\_SABoundaries.mxd



## Legend

-  Service Area Boundaries
-  Travis Air Force Base (not served by City)
-  City of Fairfield Overall Boundaries



**Kennedy/Jenks Consultants**

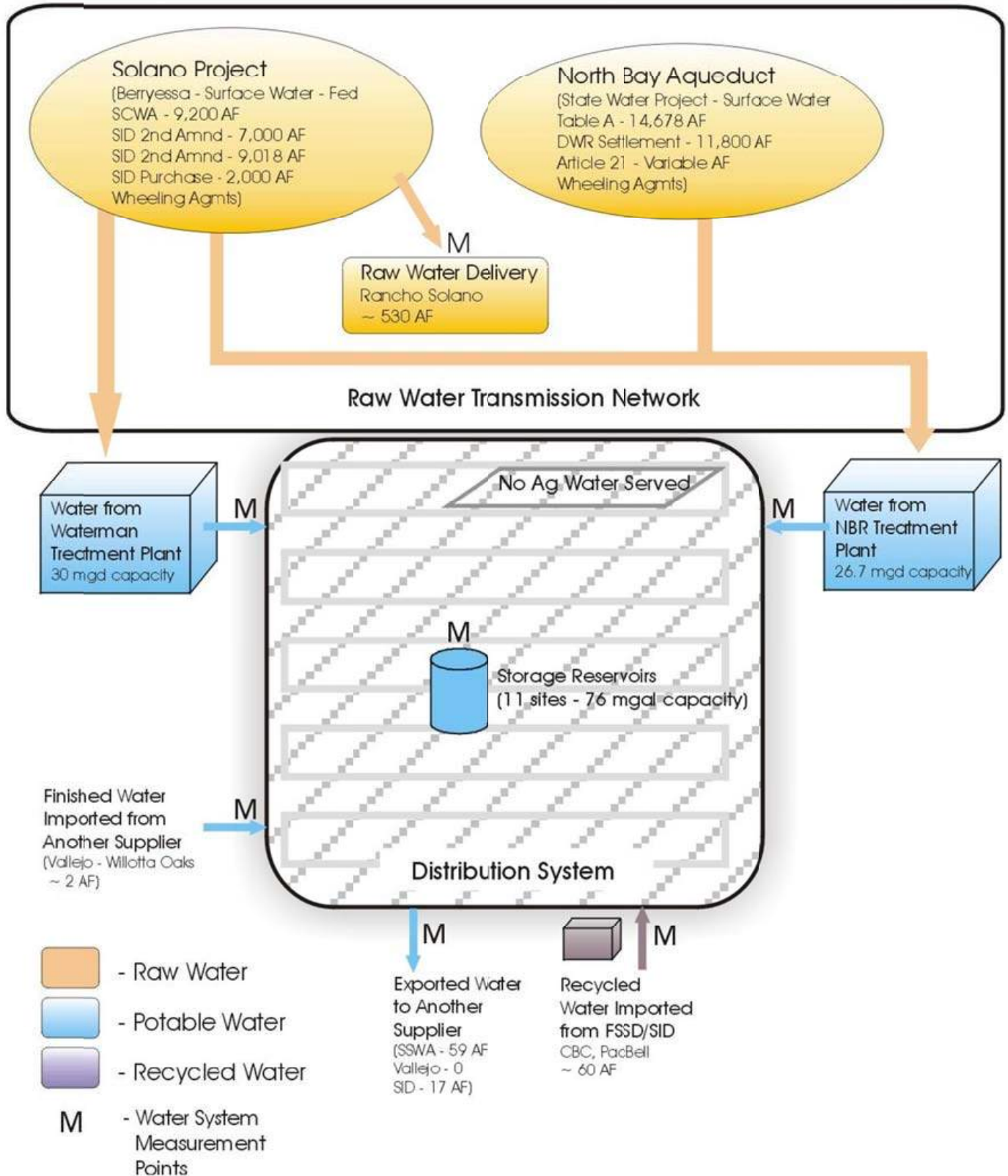
City of Fairfield  
2020 Urban Water Management Plan

**Figure 1-1**  
**Service Area Boundaries**

KJ 2070010\*00  
April 2021



# City of Fairfield Distribution System Delineation



**Kennedy/Jenks Consultants**

City of Fairfield  
2020 Urban Water Management Plan

**Figure 1-2**  
**Distribution System Delineation**

KJ 2070010\*00  
April 2021

### 1.5.3 Population, Demographics, and Socioeconomics (10631(a))

Projections for the 2020 UWMP, shown in Table 1-7, are based on the approach used by the City of Fairfield in their 2021 General Plan update:

- Populations from 2020 to 2040 are taken from Association of Bay Area Governments 2010-2040 projections published in 2018.
- For 2040-2045, the Solano County growth rate from California Department of Finance projections is applied to the ABAG 2040 estimate and projected to 2045.

The average Solano County growth rate resulting from this methodology is 0.75% per year from 2040-2045.

**Table 1-7: DWR Retail Population - Current and Projected (DWR Table 3-1)**

Population Served	2020	2025	2030	2035	2040	2045 (opt)
	108,615	111,485	119,980	122,010	126,900	128,632

Other demographic factors affecting water management include growth issues in the I-80 corridor between the Bay Area and Sacramento. Solano County, similar to other surrounding counties in the area, has experienced rapid urbanization in the last three decades. This growth is driven primarily by the rising cost of living in the San Francisco Bay Area, the availability of affordable housing in Solano County, and the proximity of these counties to both the Bay Area and Sacramento. The rate of population growth has averaged 0.14% per year over the past 10 years. One of the more recent factors affecting housing projections is the availability of rail service and the construction of a rail station in the North East Area of Fairfield, which is the major planned growth area of the community.

Economic growth factors affecting water supply include continued industrial growth in the food sector, which has been a water intensive use category.

Water Use Sectors of the Customer Base are addressed in Section 2.

## 1.6 Land Uses in the Service Area (10631(a))

Land use in the City of Fairfield was provided in the City's 2015 General Plan. Land use in the City's service area is primarily single family residential, open space, and industrial usage. Travis Air Force Base is also large portion of the City of Fairfield's area; however, it is not included in the City's water service area.

## 1.7 Climate (10631(a))

The average rainfall and average temperature information comes from the National Weather Service station 042934 for the City of Fairfield. The standard monthly average ETo comes from California Irrigation Management Information System (CIMIS) stations 123 and 122 that were downloaded from the [CIMIS](#) web site.

The City borders the cooler San Francisco Bay area and warmer Sacramento-San Joaquin Delta region (the Delta) – making summers 2 to 5 degrees cooler than inland Vacaville to the east and 2 to 5 degrees warmer than coastal Vallejo to the west. The City receives 90 percent of the annual rainfall between October and April. Measurable rainfall occurs on 50 to 60 days per year under normal conditions. The normal growing season is 244 days. Periodic high winds off the Delta and heavy clay soils often make irrigation difficult. The local climate is classified as semi-arid temperate. Fairfield has a mild two-season Mediterranean climate that is typical of the Central Valley in California. Cool, moist winters and warm-to-hot, dry summers characterize this area. Climate data for Fairfield is provided in Table 1-8.

**Table 1-8: Fairfield Climate Data**

		Weather Statistics												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average Eto	CIMIS 123	0.6	1.34	3.01	4.67	5.84	6.96	7.95	6.84	5.25	3.81	1.41	0.88	48.26
	CIMIS 122	1.59	2.20	3.66	5.08	6.83	7.80	8.67	7.81	5.67	4.03	2.13	1.59	57.06
	Avg. Precipitation	4.95	3.98	3.0	1.30	0.52	0.17	0.02	0.07	0.27	1.21	2.86	4.12	22.47
	Avg. Temp	46.4	51.3	54.8	58.6	64.2	69.2	72.5	72.4	70.5	64.1	53.9	46.8	60.4
	Max Daily Temp	76	80	89	98	111	111	113	111	112	104	87	78	113
	Min Daily Temp	18	24	20	30	35	37	40	40	39	32	21	17	17

**Note:**

CIMIS stations 122 and 123 are inactive now. Data from 2015 UWMP.

## 1.8 Potential Effects of Climate Change

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies. Climate change models have predicted that potential effects from climatic changes will result in increased temperature, early snow melt, and a rise in sea level.

In the 2013 update of the *DWR California Water Plan*, the implications of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. The *California Water Plan* identifies the following probable impacts due to changes in temperature and precipitation, many of which will likely apply to Fairfield:

- More winter runoff and less spring/summer runoff due to warmer temperatures.
- Greater extremes in flooding and droughts.
- Greater water demand for irrigation and landscape water due to increased temperatures and their impacts on plant water needs.

- Increased sea level rise, increased threat of coastal flooding, and saltwater intrusion into coastal groundwater aquifers.

Other implications of future climate conditions are likely to include changes in temperature, precipitation, evaporative demand, and other variables:

- Increases in both maximum and minimum temperatures and heat extremes.
- More intense precipitation focused during the winter season.
- Increased evapotranspiration.
- Increased drought risk.
- Potential for longer wildfire season with more ignitions as population growth continues.
- Longer duration and more intense atmospheric rivers.

Even without population changes, water demand could increase. Precipitation and temperature influence water demand for outdoor landscaping and irrigated agriculture. It is typical that about half of the water used by residential development is for outdoor use and therefore it is assumed that outdoor water use is a large component of Fairfield's water demands.

### **1.8.1 Additional Resources for Water Resources Planning for Climate Change**

The City of Fairfield is describing their efforts to mitigate impacts of climate change as part of the General Plan Update, which is expected to be completed and adopted in 2022. In addition, much work has been done at State and regional levels to evaluate the effects and impacts of climate change and to develop strategies to support effective statewide, regional, and local water management in the future. The following resources are a selection that may provide additional information describing water resources planning for climate change:

- Climate Action Plan—Phase 2. California Department of Water Resources, 2018. (DWR 2018)
- 2015 SID Agricultural Water Climate Management Plan Change Final 6-10, January 2016.
- Perspectives and Guidance for Climate Change Analysis. California Department of Water Resources Climate Change Technical Advisory Group, August 2015.

## **Section 2: Water Demands**

---

### **2.1 Overview**

This section contains a series of tables that present recent water use and projections into the future. All water that is produced and distributed within the Fairfield Water Utility Service area is included in this analysis. Much of the information in this section will be in table form to comply with the requirements of the UWMP Guidebook from DWR.

### **2.2 Non-Potable Versus Potable Water Use**

This section provides information regarding potable vs. non-potable demands. Fairfield does not provide recycled or raw water service. These sources of water within Solano County are provided by other agencies.

### **2.3 Past, Current, and Projected Water Use by Sector**

The sections that follow present breakdowns of the water sectors that apply to Fairfield, as well as actual and projected potable water uses for the various customer types. All accounts in Fairfield are metered.

#### **2.3.1 Water Use Sectors Listed in Water Code**

The City of Fairfield provides water in the following DWR water use sectors: Single Family, Multi-Family, Commercial, Industrial, Institutional/Governmental, Landscape, and Sales/Transfers/Exchanges to Other Agencies.

#### **2.3.2 Water Use Sectors in Addition to Those Listed in Water Code**

The City of Fairfield meters fire and construction usage. This is categorized as “Other” in Table 2-1 and Table 2-3.

#### **2.3.3 Past Water Use**

The actual water usage reported in 2015 is summarized in Table 2-1 below.



**Table 2-1: Past Water Usage**

Use Type (Add additional rows as needed)	Additional Description (as needed)	2015 Actual	
		Level of Treatment When Delivered	Volume
Single Family		Drinking Water	2,549
Multi-Family		Drinking Water	515
Commercial		Drinking Water	412
Industrial		Drinking Water	535
Institutional/Governmental		Drinking Water	135
Landscape		Drinking Water	928
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Sales/Transfers/Exchanges to other agencies		Drinking Water	3
Losses	Estimated as % of consumption	Drinking Water	647
Other	Fire and Construction	Drinking Water	25
<b>TOTAL</b>			<b>5,749</b>

**Notes:** Volumes are reported in MG

### 2.3.4 Distribution System Water Losses

Distribution system water losses (also known as “real losses”) are the physical water losses from the water distribution system and the supplier’s storage facilities, up to the point of customer consumption. Presented in Table 2-2, “water loss” is the difference between water production and water consumption and represents water that cannot be accounted for. The data in Table 2-2 are based on the DWR/American Water Works Association (AWWA) water loss audits prepared by Fairfield which are provided in Appendix E.

**Table 2-2: DWR Retail: 12 Month Water Loss Audit Reporting (DWR Table 4-4)**

Reporting Period Start Date	Volume of Water Loss (MG)
01/2016	578
01/2017	1,291
01/2018	1,023
01/2019	600
01/2020	511

**Notes:**

Taken from the field “Water Losses” from the AWWA worksheet except for 2020 volume loss, which was taken as the difference between production and metered consumption minus sales to other agencies and other usage (fire and construction). The 2020 AWWA worksheet is still under preparation, and water loss for 2020 will be updated when available.

### 2.3.5 Current Water Use

Current water use (2020 metered usage) is reported in Table 2-3. Since 2015, the City of Fairfield has seen an increase in single family residential, commercial, industrial, and landscape usage consistent with an increase in the number of metered connections. Overall usage has increased by approximately 20% since 2015.

**Table 2-3: DWR Retail: Demands for Potable and Non-Potable Water – Actual (DWR Table 4-1)**

2020 Actual			
Use Type (Add additional rows as needed)	Additional Description (as needed)	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	3,513
Multi-Family		Drinking Water	305
Commercial		Drinking Water	641
Industrial		Drinking Water	765
Institutional/Governmental		Drinking Water	82
Landscape		Drinking Water	963
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Sales/Transfers/Exchanges to other agencies	Carried over from 2015	Drinking Water	3
Losses		Drinking Water	511
Other	Fire and Construction	Drinking Water	25
<b>TOTAL</b>			<b>6,808</b>

**Notes:**

Volumes are reported in MG

### 2.3.6 Projected Water Use

The future water demand projection was developed using a Geographic Information System (GIS) based analysis of recent water meter data, land use for the metered connections to develop a unit demand by land use that can be applied to undeveloped parcels of the same land use. Since more recent water meter data were used, the unit demands reflect the passive conservation from installation of more efficient fixtures that has occurred by implementation of plumbing codes and standards. The rate of growth of demand was matched to the population growth rate estimated in Section 1.5.3. The resulting projected City of Fairfield demand is presented in Table 2-4 and Table 2-5.

**Table 2-4: DWR Retail: Use for Potable and Non Potable Water – Projected (DWR Table 4-2)**

Use Type (Add additional rows as needed)	Additional Description (as needed)	Projected Water Use <i>Report to the Extent that Records are Available</i>				
		2025	2030	2035	2040	2045 (opt)
Single Family		3,667	3,946	4,013	4,173	4,270
Multi-Family		319	343	349	363	371
Commercial		669	720	732	762	779
Industrial		798	859	874	909	930
Institutional/Governmental		85	92	93	97	99
Landscape		1,005	1,082	1,100	1,144	1,171
Groundwater recharge						
Saline water intrusion barrier						
Agricultural irrigation						
Wetlands or wildlife habitat						
Sales/Transfers/Exchanges to other agencies		3	3	3	3	3
Sales/Transfers/Exchanges to other agencies						
Losses		535	578	588	613	627
Other Potable		25	25	25	25	25
Other Non-Potable						
Other						
<b>TOTAL</b>		<b>7,106</b>	<b>7,657</b>	<b>7,776</b>	<b>8,088</b>	<b>8,275</b>

**Notes:**

Volumes are reported in MG

The total water use in Table 2-5 is the sum of water use by customer categories (Table 2-3 and Table 2-4), sales to other agencies and additional water uses. The year 2040 demand is estimated at 8,088 MG, which represents an approximately 0.4% increase relative to 2015 projections for 2040.

**Table 2-5: DWR Retail: Total Gross Water Use (Potable and Non Potable) (DWR Table 4-3)**

	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable	6,808	7,106	7,647	7,776	8,088	8,275
From Table 2-3 and Table 2-4						
Recycled Water Demand*	0	0	0	0	64	64
From Table 5-3						
<b>TOTAL WATER USE</b>	<b>6,808</b>	<b>7,106</b>	<b>7,647</b>	<b>7,776</b>	<b>8,152</b>	<b>8,339</b>

**Notes:**

Volumes are reported in MG.

### 2.3.6.1 Current and Projected Land Use

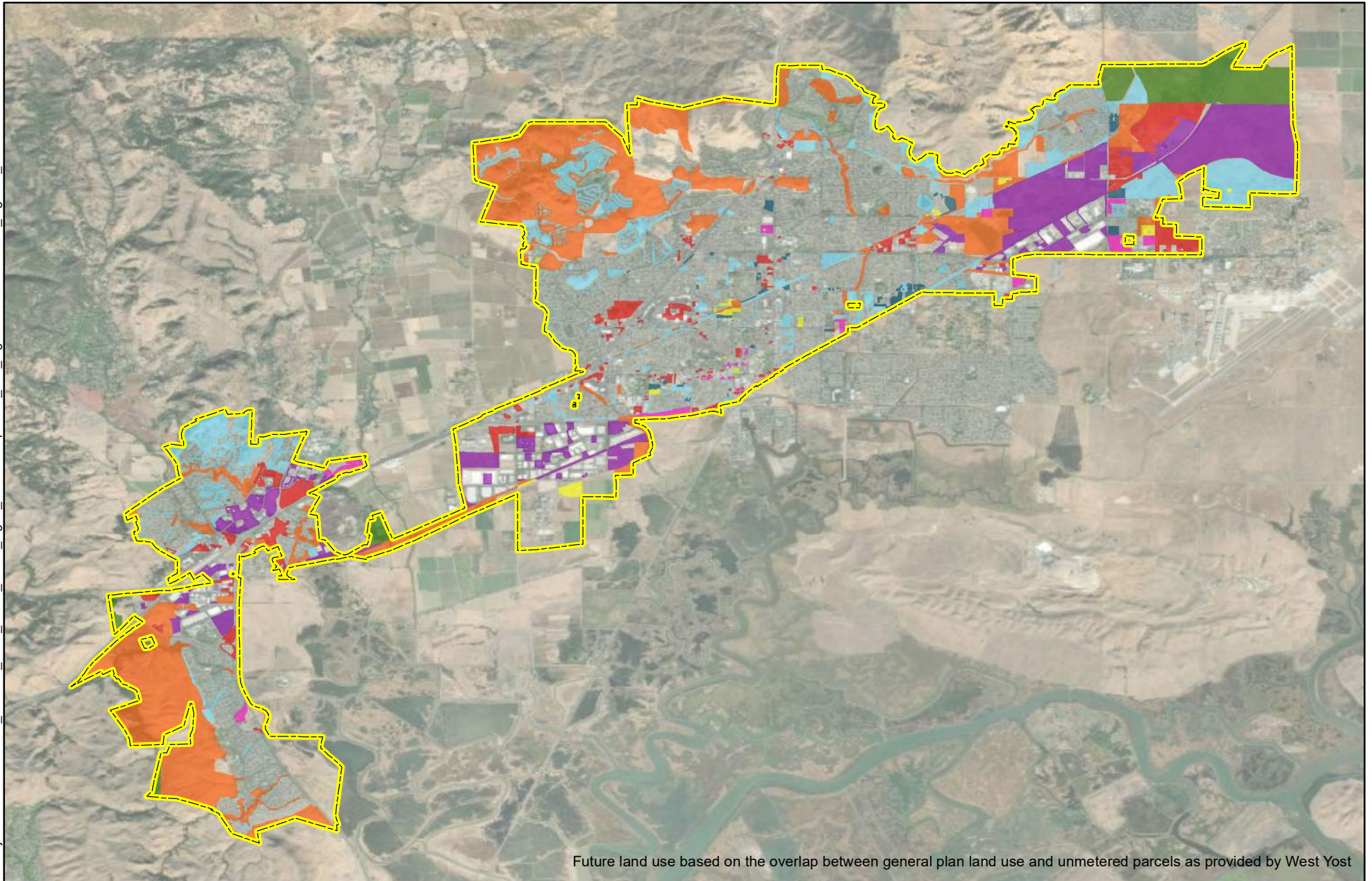
Current land use in the City of Fairfield service area is primarily single family residential, open space, and industrial. The City's water meter data was used to develop assumptions about

projected land use. Parcels with an assigned land use but no assigned water meter were considered part of the City's future development and are shown on Figure 2-1.

Specific developments in Northeast Fairfield (the Train Station Specific Plan, The Villages, and Hawthorne Mill) were considered in fine-tuning land use projections as shown on Figure 2-2. For the purposes of estimating future water use, since the Train Station Specific Plan and the Villages included specific land use information, initial assumptions about land use within the boundaries of these developments was subtracted from the initial analysis and replaced with the planned land use for the Train Station Specific Plan and the Villages. No land use projections were provided for Hawthorn Mill, so projected water increase for Hawthorne Mill was determined using the expected number of housing units planned for the Hawthorn Mill development and the average daily water usage per household from 2019.

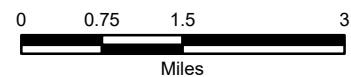


\\sac2\job\2020\2070010.00\_Fairfield\_2020\_Urban\_Water\_Mgmt\_Plan\09-Reports\3\_GIS\_Figures\FairfieldUWMP\_FigureX\_SABoundaries.mxd



## Legend

Future Land Use	
<span style="color: #FF00FF;">■</span>	Mixed Use
Classification	
<span style="color: #00FFFF;">■</span>	Single Family Residential
<span style="color: #000080;">■</span>	Multi Family Residential
<span style="color: #008000;">■</span>	Agricultural
<span style="color: #FF0000;">■</span>	Commercial
<span style="color: #FFA500;">■</span>	Open Space
<span style="color: #800080;">■</span>	Industrial
<span style="color: #FFFF00;">■</span>	Public Facilities



## Kennedy/Jenks Consultants

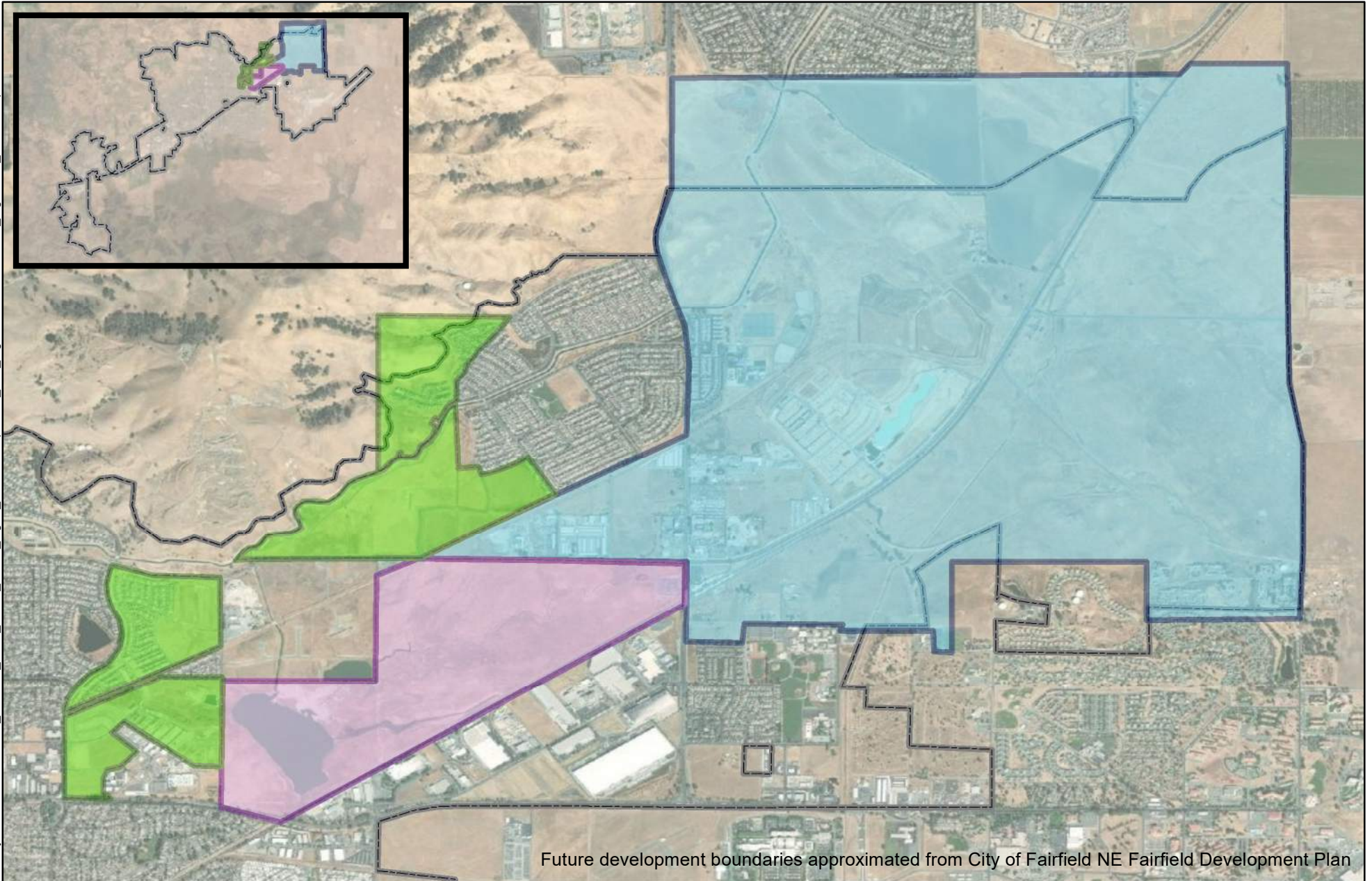
City of Fairfield  
2020 Urban Water Management Plan

## Figure 2-1 Future Land Use

KJ 2070010\*00  
April 2021



\\sac2\job\2020\2070010.00\_Fairfield\_2020\_Urban\_Water\_Mgmt\_Plan\09-Reports\3\_GIS\_Figures\FairfieldUWMP\_Figure2-2\_NEDevelopments.mxd



## Legend

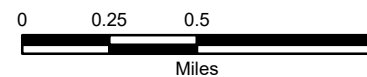
Service Area Boundaries

## NE Fairfield Developments

Hawthorne Mill

Train Station Specific Plan

Villages



**Kennedy/Jenks Consultants**

City of Fairfield  
2020 Urban Water Management Plan

**Figure 2-3**  
**NE Fairfield Developments**

KJ 2070010\*00  
April 2021

### 2.3.6.2 Effects of Climate Change on Water Use

As discussed in Section 1.7, one of the likely potential effects of climate change is higher temperatures, which could result in increased water use, especially from irrigation. Fairfield has observed that over time, irrigation demands appear to be decreasing as lots have become smaller and customers have selected less water intensive landscape. These changes will mitigate the potential effects of higher temperatures on water use.

### 2.3.7 Low Income Projected Water Demands (10631.1(a))

The City of Fairfield has operated an affordable housing program since the formation of the Fairfield Redevelopment Agency. In reviewing housing progress between 1995 and 2009 the City was involved in developing or substantially rehabilitating 765 low-income and 505 very low-income households. Fairfield Housing Authority currently has 240 affordable units approved for development over the next one to two years. Fairfield Train Station affordable housing program has planned to build 502 units of 100% affordable housing (with direct pedestrian access to Fairfield-Vacaville train station), of which 190 are under construction and 312 are expected to be complete within 5-10 years. Much of the housing development and rehabilitation will not significantly increase the water demand to the Fairfield Water Utility. The following Table 2-6 anticipates new development over this window.

Low –Income water projections are based on the historical pattern of Habitat for Humanity construction and an estimation of 25% of new multi-family housing being low-income housing. Fairfield and much of Solano County provides a lower cost housing alternative to the surrounding Bay Area counties.

**Table 2-6: Low Income Additional Annual Water Demand Projections**

**Table 4-5a**  
**Low-income projected Additional Annual Water Demand**

<b>Low Income Water Demands<sup>1</sup></b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
Single-family residential	0.77	0.84	0.92	1.00	1.08
Multi-family residential	2.99	4.48	5.98	7.47	8.97
<b>Total</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>10</b>

Units: million gallons per year

<sup>1</sup>Provide demands as directly estimated values.

**Notes:**

Volumes are reported in MG

The Fairfield Water Utility does not expect any limitation on low-income housing based on availability of water supply.

The Table 2-7 that follows provides a summary of the factors used in the Water Use Projections.

**Table 2-7: DWR Retail Only: Inclusion in Water Use Projections (DWR Table 4-5)**

<b>Are Future Water Savings Included in Projections?</b> (Refer to Appendix K of UWMP Guidebook)	Yes
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.	Section 2.3.6
<b>Are Lower Income Residential Demands Included in Projections?</b>	Yes

Notes:



## Section 3: SB X7-7 Baseline and Targets

This section provides the target setting requirements for 20 x 2020 water conservation efforts as detailed in the Water Conservation Act of 2009 (also known as SB X7-7) and the Technical Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use prepared by the California Department of Water Resources. Demand Management Measures to reduce system demands are included in Section 7.

SB X7-7 outlines four methodologies to calculate the 2020 target for each agency. The language describing the target setting is found in state law and online.<sup>1</sup>

The methodologies prescribed for setting targets are as follows:

Four Target Methodologies	
Target Options	Summary
1	Eighty percent of the urban retail water supplier's baseline per capita daily water use. Water Efficiency Performance Standard based on the sum of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> Indoor residential water use of 55 gallons per capita per day (provisional).</li> <li><input type="checkbox"/> Landscape Irrigation that meets the standards of the state's Model Water Efficient Landscape Ordinance. The limit of irrigation use shall not exceed the Maximum Applied Water Allowance.</li> </ul>
2	<ul style="list-style-type: none"> <li><input type="checkbox"/> Commercial, Industrial and Institutional water use will be reduced 10% from the baseline.</li> </ul> Use that falls below these standards in 2015 and 2020 are deemed efficient.
3	Ninety-five percent of the 2020 target for the San Francisco Bay Area hydrologic region. The California Department of Water Resources has detailed a target method as follows:
4	<ul style="list-style-type: none"> <li><input type="checkbox"/> Residential use that saves 15 gallons per capita per day</li> <li><input type="checkbox"/> Commercial, Industrial and Institutional water use will be reduced 10% from the baseline.</li> <li><input type="checkbox"/> Landscape irrigation and water loss will be reduced by 21.6%</li> </ul>

It is critical to note that provisions for economic growth and industrial process water were incorporated into the SB X7-7. Provisions that allow for baseline adjustments are in process at the Department of Water Resources. Fairfield City staff was instrumental in including these provisions and are continuing to work with DWR to protect the economic interests of the City.

In the 2015 UWMP, Fairfield opted to switch to Method 1 from Method 4 in 2010. For the 2020 UWMP, Fairfield has chosen to continue with Method 1. Therefore, the option to calculate a 20% reduction of Gallons Per Capita per Day (GPCD) from the baseline yielded a 2020 target of 181 GPCD. The interim target for 2015 was 204 GPCD, which Fairfield achieved in its 2015 UWMP. The actual 2020 GPCD for Fairfield is 175 GPCD, which meets the SB X7-7 target of 181 GPCD set in the 2015 UWMP.

<sup>1</sup> <https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-X7-7>

### 3.1 Existing and Target Per Capita Water Use

As required by SB X7-7, the Water Conservation Bill of 2009, this section identifies the water use targets in 2015 and 2020 to demonstrate a 20% reduction in per capita water use by 2020. Included are calculations of the baseline gross water use expressed as per capita daily water use (gallons per capita per day, or GPCD), baseline and target population, and year 2020 urban water use target. This section includes a description of how City of Fairfield calculated its baseline and target per capita water demands, in accordance with Method No. 1 described in *"Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use"* (DWR Methodologies, 2011). The City has completed the SB X7-7 Compliance Form, attached as Appendix F, and summarized in Table 3-1 and Table 3-2 of this chapter.

#### 3.1.1 Base Daily Per Capita Water Use for SBX7-7 Reduction

Two baseline periods are to be determined during the calculation of the base daily per capita water use. The first is a continuous 10- to 15-year period used to calculate baseline per capita use, and the second is a continuous 5-year period used to determine whether the 2020 per capita water use target meets the legislation's minimum water use reduction requirements of at least a 5% reduction per capita water use.

The legislation allows the first continuous baseline period to increase from a 10-year to a 15-year base period if the amount of recycled water delivered in 2008 was 10% or greater of total water demand. City of Fairfield's recycled water use in 2008 did not meet 10% or greater total water demand; therefore, under the legislation, City of Fairfield may not use anything greater than a 10-year base period.

Table 3-1 and Table 3-2 summarize the Base Daily Water Use calculation for the City of Fairfield. Years 1996 to 2005 have been selected for calculation of the 10-year base period while years 2003 to 2007 have been selected for calculation of the 5-year base period.

#### 3.1.2 Base Daily Per Capita Water Use

**Table 3-1: DWR Baselines and Targets Summary Retail Supplier or Regional Alliance Only (DWR Table 5-1)**

Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1996	2005	226	181
5 Year	2003	2007	218	

Notes:

\*All values are in Gallons per Capita per Day (GPCD)

As shown in Table 3-1, the City of Fairfield Baseline GPCD is estimated to be 226, and the 5-year Baseline GPCD is 218.

### 3.1.3 Compliance Water Use Targets

The year 2020 target was established in the 2015 UWMP. The City chose to meet SB X7-7 targets as an individual agency rather than as part of a regional alliance.

In addition to calculating base gross water use, the SB X7-7 legislation requires that a retail water supplier identify its demand reduction targets. An urban retail water supplier must set a 2020 water use target (herein called the Compliance Water Use Target) and a 2015 interim target (herein called the Interim Water Use Target). The Interim Water Use Target is set as a halfway point between the Base Daily Water Use GPCD and the 2020 Compliance Water Use Target GPCD. The Interim Water Use Target was 204 GPCD, which Fairfield met in 2015.

The Maximum Allowable GPCD is 95 percent of the 5-year Baseline GPCD, or 207. The Compliance Water Use Target, under Method 1 (181 GPCD) is less than the Maximum Allowable GPCD and therefore no adjustments to the Compliance Water Use Target were needed. This makes Fairfield's Compliance (2020) Water Use Target 181 GPCD. These calculations are summarized in Table 3-2.

**Table 3-2: DWR SBx7-7 2020 Compliance Form Retail Supplier or Regional Alliance Only (DWR Table 5-2)**

2020 Service Area Population	2020 Gross Water Use (MG)	2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
		Actual 2020 GPCD*	TOTAL Adjustments*	Adjusted 2020 GPCD*		
106,815	6,808	175	0	0	181	Yes

**Notes:**

\*All values are in Gallons per Capita per Day (GPCD)

### 3.1.4 Achievement of Target

The City's actual 2020 GPCD was calculated based on the 2020 population (based on ABAG Plan Bay Area 2040 estimate), and the City's 2020 gross water use. This value was used to determine if the City met its Compliance Target. As shown in Table 3-2, the City of Fairfield is in compliance with the 2020 Target, with an actual 2020 GPCD of 175. DWR has allowed for optional adjustments to the 2020 GPCD, including extraordinary events, economic adjustments, and weather normalization. City of Fairfield made no such adjustments to the 2020 GPCD, as compliance was achieved without these factors.

## **Section 4: Water Resources**

---

### **4.1 Overview**

The primary water sources for the City of Fairfield are the Solano Project, the State Water Project, and “settlement water” obtained through negotiations with the Department of Water Resources in 2003. The two projects deliver water from Lake Berryessa and the Sacramento River, respectively. Although legally not State Water Project water, settlement water is derived from the yield of the State Water Project.

Recycled water is not a source of City water supply at present but could possibly grow into a significant supply in the long-term future. Potential industrial users near the Fairfield-Suisun Sewer District have considered using recycled water for cooling towers and non-potable irrigation.

As described in Section 1.8, the City of Fairfield is addressing efforts to address climate change and its impacts to supply in the General Plan Update which is currently under preparation. As far as supply impacts are concerned, the Solano Project will be affected less severely as it is in a coastal range and is not dependent on snowpack, while State Water Project is less reliable, in part because of drought conditions. Section 1.8 details a summary of climate change information impacting the Fairfield service area.

### **4.2 Surface Water Supplies (10631(b))**

Source water served in the City of Fairfield comes from both local watersheds of Upper Putah Creek captured by the Solano Project’s Lake Berryessa as well as the Northern Sacramento River Valley captured in the State Water Project’s Lake Oroville. Contracts for the water are administered by Solano County Water Agency, which acts as the wholesaler of raw water for both the Federal and State Projects serving our community.

#### **4.2.1 State Water Project**

State Water Project (SWP) water and Non-SWP Settlement Water are delivered to the City via the North Bay Aqueduct (NBA) a component of the SWP. The NBA is 27 miles long starting from Barker Slough in the Delta and ending in Napa County. The Solano County branch of the NBA was complete in 1988. The State of California is the owner of the North Bay Aqueduct, and the Department of Water Resources is the operator. The City obtains SWP water through a “member unit” contract with Solano County Water Agency (SCWA). Fairfield has a State Water Project Table A Allocation of 14,678 acre-feet and is also entitled, under certain conditions, to North of Delta allocation and Advanced Table A under a 2013 Settlement between SCWA and DWR.

#### 4.2.2 Solano Project

Fairfield has an Entitlement of the Federal Solano Project for 9,200 acre-feet annually, plus 18,020 acre-feet per year of additional Solano Project water through contracts with Solano Irrigation District (SID) (SID Agreement Water). Thus, Fairfield's Solano Project entitlement from all of these contracts amounts to a total of 27,220 AF, or 8,869 MG annually. In addition, Carryover Water from unused Entitlement is often available. The reliability of this water source is much higher than the SWP. With a continuation of Lake volume reductions in line with the 2013 to 2015 Water Years, Fairfield's allocation would follow a 99%, 99% and 93% pattern during normal, single-dry and multi-dry years.

#### 4.2.3 Non-SWP Settlement Water

Under a 2003 Settlement agreement, up to 11,800 acre-feet per year of Non-SWP Settlement water is available, through SWP facilities, to the City during delta "excess" conditions when standard water rights Term 91 is not in effect. Excess conditions occur when the SWP and the federal Central Valley Project are unable to control flow to the Sacramento-San Joaquin Delta. Conversely, balanced conditions occur whenever the two projects are in control of delta inflows. Term 91 comes into effect during balanced conditions whenever the projects are required to release stored water to meet delta flow requirements. The City has determined that settlement water is a reliable supply because the City has been able to use it at least 7 out of 10 years.

### 4.3 Groundwater (10631(b))

The City of Fairfield does not use groundwater as a supply source, as indicated in Table 4-1. Groundwater in the area is brackish and unsuitable for irrigation or drinking water use without relatively expensive treatment compared to other sources. Groundwater is not used in the municipal water supply of Fairfield and is not considered a viable component of water in Fairfield because of tidal inflows that impact water quality.

**Table 4-1: DWR Retail: Groundwater Volume Pumped (DWR Table 6-1)**

X		Supplier does not pump groundwater. The supplier will not complete the table below.				
		All or part of the groundwater described below is desalinated.				
Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
TOTAL		0	0	0	0	0

Notes:

### 4.4 Stormwater (10631(b))

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 reuses include blending with other water supplies for groundwater recharge, redirecting it into constructed wetlands or landscaping, and diverting it to a treatment facility for subsequent reuse. Fairfield is not currently using stormwater as a supply source but could consider this in the future.

#### **4.5 Transfers, Exchanges, and Groundwater Banking Programs (10631(b) & (c))**

The City of Fairfield has participated in a variety of water transfers and exchanges over the years. These have included permanent water transfers and single-year exchanges. In 2009, the City purchased 2,000 acre-feet (AF) of Solano Project water from the Solano Irrigation District. In 2011, the City purchased 145 AF from Reclamation District 2068 as part of a conjunctive use pilot project. In 2018 and 2020, the City participated in water exchanges with the City of Vallejo to optimize the supplies of both Cities, and the option to conduct this type of exchange is available most years. Also in 2018, the City exchanged some SWP water with the Santa Clara Valley Water District. Finally, the State Department of Water Resources and Solano County Water Agency have agreed to a SWP Water Supply Agreement Amendment that will allow for greater flexibility to enter into exchanges and/or short-term water purchases/sales of SWP supplies with other SWP contractors. Fairfield will look to participate in these exchanges and sales when appropriate in the future.

#### **4.6 Embedded Energy Current Supply Portfolio**

Water energy intensity is the amount of energy, calculated on a whole-system basis, required for use of water in a specific location, such as Fairfield's Water service area. DWR provides guidance for calculating the operational energy intensity of water, defined as the total amount of energy expended by the urban water supplier on a per AF basis to take water from the location where the urban water supplier acquires the water to its point of delivery. DWR requires that urban water suppliers only report the energy intensity associated with water management processes occurring within their operational control and not include energy embedded in water supplies purchased from a wholesale water agency. Table 4-2 below provides an estimate, using the total utility approach, of the water energy intensity of Fairfield's potable water system. DWR's Energy Intensity spreadsheet is provided in Appendix G.

**Table 4-2: City of Fairfield Energy Intensity – Potable Water Supply Process Approach**

Start Date of Reporting	Jan-1 2019	Water Volume Units Used	Water Management Process					
End Date of Reporting	Dec-31 2019	MG	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility
<i>Volume of Water Entering Process</i>			0.0	0.0	0.0	0.0	6,188	6,188
<i>Energy Consumed (kWh)</i>		N/A	0.0	0.0	0.0	0.0	13,338,951	13,338,951
<i>Energy Intensity (kWh/vol.)</i>		N/A	0.0	0.0	0.0	0.0	2,155	2,155
<i>Quantity of Self-Generated Renewable Energy (kWh)</i>					2,417,220			

**Notes:**

Volumes are reported in MG.

Total energy input includes energy from potable water distribution from the City's two treatment plants (NBR and Waterman) and treatment costs at pump stations that cannot be separated. Energy totals correspond to electricity supplied by PG&E as well as solar energy generated at NBR Treatment Plant. The total volume of water entering the distribution system is based on the data in the Districts' CY2019 Water Loss Audits – Volume of Water Supplied. This includes total authorized consumption as well as losses.

## 4.7 Water Quality (10634)

The City of Fairfield participates in annual reporting of water quality through its Annual Water Quality Report (also known as the Consumer Confidence Report). Fairfield is committed to providing high quality drinking water to its consumers, as it continues to exceed State and Federal drinking water standards set by the California Division of Drinking Water and the U.S. Environmental Protection Agency. Both the Solano Project and State Water Project are very high-quality water supplies.

Triennially, the City of Fairfield collects samples at consumer taps to identify levels of lead in drinking water that may result from corrosion of lead-bearing components in the water system's distribution system or in household plumbing. These samples help assess the need for, or the effectiveness of, corrosion control treatment. Compliance was met with the latest round of testing in 2017 – lead was not detected within 90% of samples collected. The next round of testing will commence in 2020.

The following table lists some of the key drinking water contaminants detected in the period January 1, 2019 to December 31, 2019. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.



**Table 4-3: Fairfield Drinking Water Quality**

Substance (Reporting Units)	MCL	MCLG	Drinking Water Detection	
			Range	Average
Aluminum (ppm)	1	0.6	<0.02-0.10	0.07
Fluoride (ppm)	2	1	0.64-0.871	0.72
Chloride(ppm)	500	NA	10.5-15.0	12.4
Sulfate (ppm)	500	NA	11.9-40.3	28.5
Hardness (ppm)	NA	NA	64-220	130
Total Dissolved Solids (ppm)	1000	NA	157-248	208
Turbidity (Units)	5	NA	0.03-0.11	0.05
Trihalomethanes (ppb)	80	NA	18.0-77.0	53
Halo Acetic Acids (ppb)	60	NA	4.2-24.0	18
Total Coliform Bacteria	5%	0	0	

As observed from these values, all of the contaminants are well within the Maximum Contaminant Levels (MCLs), and in some cases, within the Maximum Contaminant Level Goals (MCLGs). Thus, Fairfield ensures the highest quality of water supply to its customers and will continue to do so.

The State Law requires water utilities to conduct initial Source Water Assessments and Watershed Sanitary Surveys at least once every five years for the purpose of investigating potential contaminating activities, which may affect the source water(s). The assessment findings listed below do not necessarily mean that the source waters are affected by those activities at this time but do highlight areas of potential concern and assist in developing necessary measures to protect the drinking water sources.

Lake Berryessa: A Source Water Assessment, completed in February 2003, shows that the most significant potential sources of contamination are illegal activities/unauthorized dumping, herbicide application, storm drain discharge points, and recreational use. The most recent sanitary survey was completed in 2019.

Sacramento-San Joaquin Delta: A Source Water Assessment, completed in May 2003, shows that the most significant potential sources of contamination are recreational use, urban and agricultural runoff, grazing animals, herbicide application, and seawater intrusion. The most recent sanitary survey was completed in 2018.

## **4.8 Planned Water Supply Projects and Programs (10631(b)(3) & 10631(f))**

The City is not pursuing any future water supply projects to provide a quantifiable increase to the agency's water supply as shown in Table 4-4. Efforts to improve supply and conservation efforts over the last several years have proved to be successful in offsetting the need for expansive water supply projects in the service area.



**Table 4-4: DWR Retail: Expected Future Water Supply Projects or Programs (DWR Table 6-7)**

X	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?	If yes Agency Name	Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier	

**Notes:**

The City does not have plans to construct any desalination facilities for ocean water, brackish surface water, and/or brackish groundwater. The City is currently capable of utilizing existing sources of supply without the need for energy intensive desalination. However, the City continuously evaluates the potential of different water sources, including local groundwater desalination or a transfer/purchase from existing or future desalination projects. Economic and hydrological conditions can change significantly over time, which can affect not only the price to purchase water, but also the need to treat water to changing standards. As such, the City will continue to evaluate the benefits and costs of desalinated water.

## 4.9 Summary of Existing and Planned Sources of Water

Table 4-5 shows the actual 2020 volumes of the two sources of water that Fairfield delivers to its customers. Table 4-6 shows the City's projected water supplies through 2045.

**Table 4-5: DWR Retail: Water Supplies – Actual (DWR Table 6-8)**

Water Supply	Additional Detail on Water Supply	2020		Total Right or Safe Yield (optional)
		Actual Volume	Water Quality	
Surface Water (Not Desalinated)	SCWA – DWR SWP and Non-SWP Settlement Water	2,275	Drinking Water	4,783
Surface Water (Not Desalinated)	SCWA – USBR Solano Project	4,531	Drinking Water	8,869
<b>Total</b>		6,808		13,652

**Notes:**

Volumes reported in MG.

SWP and Non-SWP Settlement Water are delivered through a single NBA pipeline; Actual volumes of each type are calculated for billing purposes at the end of each year.

The volumes of SWP water and Solano Project water supplied to the City of Fairfield were determined using production volumes from the NBR treatment plant, which treats water from both sources, and total production (from the total volume reported in DWR Table 4-1) to estimate output from the Waterman treatment plant, which treats

water from the Solano Project only. NBR production volumes estimated by source and total production volumes (sum of authorized consumption and water losses) were provided by the City of Fairfield.

**Table 4-6: DWR Retail: Water Supplies – Projected (DWR Table 6-9)**

Projected Water Supply Report to the Extent Practicable											
Water Supply	Additional Detail on Water Supply	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)
Surface Water (Not Desalinated)	SCWA - DWR State Water Project	3,970	4,783	3,970	4,783	3,970	4,783	3,970	4,783	3,970	4,783
Surface Water (Not Desalinated)	SCWA - USBR Solano Project	8,811	8,869	8,811	8,869	8,811	8,869	8,811	8,869	8,811	8,869
Surface Water (Not Desalinated)	Non-SWP Settlement Water	2,807	3,845	2,807	3,845	2,807	3,845	2,807	3,845	2,807	3,845
<b>Total</b>		15,588	17,497	15,588	17,497	15,588	17,497	15,588	17,497	15,588	17,497

**Notes:**

Units in MG. Reasonably Available Volumes correspond to average years supplies for all the sources. Total Right or Safe Yield is contract allocation.

## Section 5: Recycled Water and Reuse

### 5.1 Wastewater Collection, Treatment and Disposal

Wastewater from the Fairfield-Suisun area is treated at the Fairfield-Suisun Sewer District (FSSD). FSSD serves more than 135,000 residential, commercial and industrial customers in central Solano County, about 40 miles northeast of San Francisco. FSSD owns and operates a system of sanitary sewers and pumping stations; and oversees wastewater collection and treatment, water recycling and stormwater management services. It is responsible for collecting wastewater from City of Fairfield, City of Suisun, Travis Air Force Base, and some unincorporated areas. The wastewater volumes collected within the City of Fairfield service area are summarized below in Table 5-1; no wastewater is treated or discharged within the City of Fairfield as noted in Table 5-2.

**Table 5-1: DWR Retail: Wastewater Collected Within Service Area in 2020 (DWR Table 6-2)**

There is no wastewater collection system. The supplier will not complete the table below.						
100%	Percentage of 2020 service area covered by wastewater collection system <i>(optional)</i>					
100%	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?	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?	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i>
Fairfield Suisun Water District (FSSD)	Metered	2,644	FSSD	FSSD Water Waste Treatment Plant	No	Yes
<b>Total Wastewater Collected from Service Area in 2020:</b>		2,644				

**Notes:**

Units in MG. Reported values include most of Fairfield's service area (excluding some areas that flow to the City of Suisun's collection system), as well as several unincorporated areas from the County.

**Table 5-2: DWR Retail: Wastewater Treatment and Discharge Within Service Area in 2020 (DWR Table 6-3)**

X		No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below									
		2020 Volumes									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (Optional)	Method of Disposal	Does this Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Total							0	0	0	0	0

## **5.2 Recycled Water Planning**

Recycled water is not currently used within the City, but it is planned in limited amounts for the far end of the planning horizon as Fairfield's potable water supplies are able to meet demands for the foreseeable future. Water could be taken from FSSD effluent for non-potable use. This would displace the potable uses with non-potable supply within the area served by recycled distribution facilities. Wastewater from the Fairfield-Suisun area is treated at the FSSD Wastewater Treatment Plant.

### **5.2.1 Other Methods to Expand Recycled Water**

Due to requirements for discharge to the environmentally sensitive Suisun Marsh, FSSD has produced tertiary effluent since the 1970s. In 2002, Fairfield entered an agreement with FSSD and Solano Irrigation District that provided the City with up to 12 million gallons per day of effluent for a recycled water supply. FSSD presently provides some recycled water to sites near the FSSD plant site for irrigation and industrial uses. However, this arrangement became cost-prohibitive since it required distribution facilities (such as purple pipes and pump stations) to be constructed to serve additional non-potable sites. Moreover, the marginal cost of installing an extra pipeline to divert water from the Suisun March discharge is high and would necessitate a CEQA report to justify taking water out of the marsh. There is an environmental benefit from this discharge at present as the marsh is a habitat to several wildlife species.

Thus, the cost benefit analysis for recycled water delivery showed that the costs outweighed the benefits. As a result, the City has no plans to advance recycled water planning forward in the near term. Long term planning and use of recycled water is a viable alternative and will be triggered by trends, availability of other sources of supply and a beneficial cost-benefit analysis.

### **5.2.2 Projected Recycled Water Demand**

Table 5-3 documents the potential future recycled water uses in Fairfield while Table 5-4 documents the 2015 estimated recycled water use to the actual 2020 use.



Table 5-3: DWR Retail: Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)

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:					Fairfield Suisun Sewer District					
Name of Supplier Operating the Recycled Water Distribution System:					Fairfield Suisun Sewer District					
Supplemental Water Added in 2020 (volume) <i>Include units</i>										
Source of 2020 Supplemental Water										
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity)	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045 (opt)
Agricultural irrigation										
Landscape irrigation (excludes golf courses)	Landscape served by reclaimed water coming from FSSD		n/a	Tertiary					32	32
Golf course irrigation										
Commercial use										
Industrial use	Solano Business Park cooling towers		n/a	Tertiary					32	32
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	64	64
2020 Internal Reuse (not counted towards Statewide Recycled Water volume).						0				
*IPR - Indirect Potable Reuse										

Notes:  
Units in MG

**Table 5-4: DWR Retail: 2015 UWMP Recycled Water Use Projected Compared to 2020 Actual (DWR Table 6-5)**

X		
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	
<b>Total</b>	0	0

**Notes:**

### 5.2.3 Methods to Encourage Recycled Water Use

As noted earlier, Fairfield is not able to cost-effectively add recycled water use at this time but is anticipating some recycled water use in the future as noted in Table 5-5.

**Table 5-5: DWR Retail: Methods to Expand Future Recycled Water Use (DWR Table 6-6)**

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
Recycled Water Pipeline Expansion		2040	64
<b>Total</b>			64

**Notes:**

Units in MG.

## **Section 6: Reliability Planning**

---

### **6.1 Overview**

The water supply reliability values for the City of Fairfield are affected dramatically by the storage facilities available to the City (the ability to carryover supplies from both the SWP and Solano Project supplies). Long term storage allows the City to manage both single dry year and multiple dry year values in water planning priorities. With storage, there is no single year event that overshadows the impact of multiple dry year events, whereas some utilities must weight their planning toward driest year events.

#### **State Water Project**

The City of Fairfield receives water from the State Water Project under two separate arrangements.

First, there is a contractual arrangement as an original contractor with the State of California. This water entitlement, also known as Table A, is similar in reliability to all other agencies in the project agreement, subject to reductions based on the anticipated deliveries from the project as a whole.

A second portion of water received from the State Water Project is DWR Non-SWP Settlement Agreement water which is based on Watershed of Origin entitlement and is comprised of both North of Delta Allocation and Advanced Table A; both of which are available under specific conditions. This water has a higher level of reliability. In the tables prepared for submission to DWR, the sources will be blended. Facilities will need to be improved to allow the full use of this water source. Information on the reliability of SWP supply comes from a DWR Study 2009 – SCWA Specific.

In order to categorize the water year type into dry and normal years, the Sacramento Valley Water Year Index, also known as the 40/30/30 index was used. The Sacramento Valley Index uses 40% of April through July runoff, 30% of October through March runoff and 30% of the previous year's index. The Sacramento Valley Index is used to determine water year types in State Water Resources Control Board Decision 1641. We have assigned a Sacramento Valley Index to each of the years that it has hydrologic records.

Note that the SWP also makes available Article 21 water that is available to SWP contractors under specified conditions when the Delta is in excess conditions and there is pumping capacity available. Fairfield receives its water from the NBA. Current DWR policy is that Article 21 water is available whenever the Delta is in excess (out of balance) conditions. This makes Article 21 water available to NBA users more frequently than SWP contractors relying upon the Banks pumping plant (South Delta SWP export facility). For the purposes of this UWMP, Article 21 deliveries are not included although they can be a significant additional supply most years.

There are numerous factors that affect the reliability of SWP supplies. The main factor is hydrologic conditions that result in extremely variable runoff conditions. The SWP has storage from Oroville Reservoir, however most of the SWP water supply comes from Sacramento Valley

runoff. There are a myriad of environmental, water quality and legal constraints on the SWP that affect water supply reliability. The water rights for the SWP are conditioned upon meeting various water quality and environmental conditions including the Federal Endangered Species Act. The models used to develop the SWP reliability data incorporate these constraints. Table 6-1 contains conservative supply assumptions for the SWP based on information provided by Solano County Water Agency.

**Table 6-1: DWR Retail: Basis of Water Year Data (Reliability Assessment) – State Water Project (DWR Table 7-1(a))<sup>1,2</sup>**

Year Type	Base Year 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	Available Supplies if Year Type Repeats	
		Location	
		X	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available*	% of Average Supply
Average Year	2002 <sup>3</sup>	3,969	83%
Single-Dry Year	2014 & 2021	239	5%
Consecutive Dry Years 1st Year <sup>4</sup>	2013	2,152	45%
Consecutive Dry Years 2nd Year <sup>4</sup>	2015 & 2020	1,435	30%
Consecutive Dry Years 3rd Year <sup>4</sup>	2014 & 2021	239	5%
Consecutive Dry Years 4th Year <sup>4</sup>	2014 & 2021	717	15%
Consecutive Dry Years 5th Year <sup>4</sup>	2015 & 2020	1,435	30%

**Notes:**

<sup>1</sup> Units in MG.

<sup>2</sup> Fairfield has two sources - 1) SCWA - State Water Project and Non-SWP Settlement Water and 2) SCWA – USBR Solano Project. This table outlines base years and volumes for SWP water from source 1.

<sup>3</sup> % average supply is long-term SWP average for SCWA of 73% from 2019 Delivery Capability Report with assumed 10% adjustment for NOD allocation; 2002 is year with % delivery of 70% which is closest to long-term SWP Table A delivery of 73%

<sup>4</sup> 5 consecutive dry years were selected from actual SWP Table A deliveries from 2010-2020; all years but year 3 include 10% to account for NOD allocation

## Solano Project

For the Solano Project, a similar year type index was developed based upon procedures similar to the Sacramento Valley index. An existing model exists for the Solano Project that uses hydrologic records from 1906 through 2007. Using similar assumptions as the Sacramento Valley 40/30/30 Index, year types were assigned to each of the years in the Solano Project model resulting in a Lake Berryessa Index that identifies wet, normal and dry years.

The Allocation process for water supplies from the Solano Project is very different than for the SWP. For the Solano Project, the contract with USBR calls for the full contract amount to be

delivered unless it is physically impossible to deliver the water from Solano Project storage (i.e. reservoir is dry). Therefore, the full contract water supply is allocated until there is no water available in the reservoir.

The Solano Project member agencies (including the City of Fairfield) have entered into a separate “Solano Project Members’ Agreement as to Drought Measures and Water Allocation” (the Drought Measures Agreement) in 1999. Per the Drought Measures Agreement, deliveries of Solano Project water are reduced based upon storage levels in Lake Berryessa. Once the storage level drops below 800,000 AF, as measured on April 1, 95% of contract amounts are delivered (i.e. 5% curtailment of supplies) with the 5% being stored in the reservoir as carryover. If the reservoir drops below 550,000 AF by April 1, 90% can be delivered (i.e. 10% curtailment of supplies) and the 10% is stored as carryover. The City of Fairfield has the ability to carryover more than this amount if we desire. Once the reservoir level is below 450,000 AF on April 1, the member agencies can use their full allocation and any stored carryover. Table 6-2 presents the assumed availability of Solano Project supply for the average year, single-dry year, and a multiple-dry year period. For more information see the Drought Measures Agreement.

**Table 6-2: DWR Retail: Basis of Water Year Data (Reliability Assessment) – Solano Project (DWR Table 7-1(b))<sup>1,2</sup>**

Year Type	Base Year 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	Available Supplies if Year Type Repeats	
		Location	
		Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.	
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		X	
		Volume Available <sup>3</sup>	% of Average Supply
Average Year <sup>4</sup>	2020	8,811	99.3%
Single-Dry Year <sup>4</sup>	2001	8,740	98.5%
Consecutive Dry Years 1st Year <sup>4</sup>	1987	8,229	92.8%
Consecutive Dry Years 2nd Year <sup>4</sup>	1988	8,229	92.8%
Consecutive Dry Years 3rd Year <sup>4</sup>	1989	8,229	92.8%
Consecutive Dry Years 4th Year <sup>4</sup>	1990	8,229	92.8%
Consecutive Dry Years 5th Year <sup>4</sup>	1991	8,229	92.8%

**Notes:**

<sup>1</sup> Units in MG.

<sup>2</sup> Fairfield has two sources - 1) SCWA - State Water Project and Non-SWP Settlement Water and 2) SCWA – USBR Solano Project. This table outlines base years and volumes for source 2.

<sup>3</sup> Includes total Solano Project contractual entitlement as well as additional deliveries via SID agreements.

<sup>4</sup> % of Average Supply based on hydrologic analysis from 1906-2020; Base Year selected from period of record and Actual % for a given year is greater than % of Average Supply

Table 6-3 presents the assumed availability of non-SWP Settlement Water supply for the average year, single-dry year, and a multiple-dry year period.

**Table 6-3: DWR Retail: Basis of Water Year Data (Reliability Assessment) – Non-SWP Settlement Water (DWR Table 7-1(c))<sup>1,2</sup>**

Year Type	Base Year 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	Available Supplies if Year Type Repeats	
		Location	
		X	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available*	% of Average Supply
Average Year	2002 <sup>3</sup>	2,807	73%
Single-Dry Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 1st Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 2nd Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 3rd Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 4th Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 5th Year	2002 <sup>3</sup>	2,807	73%

**Notes:**

<sup>1</sup> Units in MG.

<sup>2</sup> Fairfield has two sources - 1) SCWA - State Water Project and Non-SWP Settlement Water and 2) SCWA – USBR Solano Project. This table outlines base years and volumes for Non-SWP settlement water from source 1.

<sup>3</sup> % average supply is long-term SWP average for SCWA of 73% from 2019 Delivery Capability Report which includes a range of year types; 2002 is year with % delivery of 70% which is closest to long-term SWP Table A delivery of 73%.

## 2014 and 2020/2021 SWP Water Supply Allocation

The extremely dry sequence from the beginning of January 2013 through the end of 2014 was one of the driest two-year periods in the historical record while 2021 is the second consecutive dry year. Water year 2013 was a year with two hydrologic extremes. October through December 2012 was one of the wettest fall periods on record but was followed by the driest consecutive 12 months on record. Accordingly, the 2013 SWP supply allocation was a low 35% of SWP Table A Amounts. The 2013 hydrology ended up being even drier than DWR's conservative hydrologic forecast, so the SWP began 2014 with reservoir storage lower than targeted levels and less stored water available for 2014 supplies. Compounding this low storage situation, 2014 also was an extremely dry year, with runoff for water year 2014 the fourth driest on record. Due to extraordinarily dry conditions in 2013 and 2014, the 2014 SWP water supply allocation was a historically low 5% of Table A Amounts. The 2020 SWP allocation was initially 10% and increased to 20% while the 2021 SWP allocation was reduced from 10% to 5%. The dry hydrologic conditions that led to the low 2014 SWP water supply allocation were extremely unusual, and were included in the SWP delivery estimates presented in DWR's 2019 Delivery



Capability Report which predicted a long-term average availability of 73% for the Solano County Water Agency which has been increased by 10% to account for the North of Delta allocation component of the Settlement Water. It is anticipated that the hydrologic record used in the DWR model will be extended to include the period through 2021 during the next update of the model for the biennial SWP Delivery Capability Report.

## 6.2 Normal Water Year

The UWMP Act requires analysis of reliability for each of the sources of water supply. Table 6-1, Table 6-2, and Table 6-3 summarize the reliability of supply for each source. The reliability is broken down into “Average Year”, “Single-Dry Year” and a 5-year dry period.

Comparison of the projected normal water supply to the projected normal water use over the next 25 years in 5-year increments is shown in Table 6-4 below.

**Table 6-4: DWR Retail: Normal Year Supply and Demand Comparison (DWR Table 7-2)**

	2025	2030	2035	2040	2045 (Opt)
Supply totals	15,588	15,588	15,588	15,588	15,588
Demand totals	7,106	7,647	7,776	8,152	8,339
Difference	8,482	7,941	7,812	7,436	7,249

**Notes:**

Units in MG.

## 6.3 Single Dry Year

Comparison of the projected single-dry-year water supply to the projected single-dry-year water use over the next 25 years, in 5-year increments is shown in Table 6-5 below.

**Table 6-5: DWR Retail: Single Dry Year Supply and Demand Comparison (DWR Table 7-3)**

	2025	2030	2035	2040	2045 (Opt)
Supply totals	11,786	11,786	11,786	11,786	11,786
Demand totals	7,106	7,647	7,776	8,152	8,339
Difference	4,680	4,139	4,009	3,634	3,446

**Notes:**

Units in MG.

## 6.4 Multiple Dry Year (5 years)

Comparison of the projected multiple dry year water supplies to the projected multiple dry year water use over the next 25 years, in 5-year increments is shown in Table 6-6 below.

**Table 6-6: DWR Retail: Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4)**

Dry Years	Supply	2025	2030	2035	2040	2045 (Opt)
First year	Supply totals	13,188	13,188	13,188	13,188	13,188
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	6,082	5,541	5,411	5,036	4,848
Second year	Supply totals	12,471	12,471	12,471	12,471	12,471
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	5,365	4,824	4,694	4,319	4,131
Third year	Supply totals	11,275	11,275	11,275	11,275	11,275
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	4,169	3,628	3,498	3,123	2,935
Fourth year	Supply totals	11,753	11,753	11,753	11,753	11,753
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	4,647	4,106	3,976	3,601	3,413
Fifth year	Supply totals	12,471	12,471	12,471	12,471	12,471
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	5,365	4,824	4,694	4,319	4,131

**Notes:**

Units in MG.

## 6.5 Drought Risk Assessment (10635(b) & (1))

The Water Code requires that every urban water supplier include in its UWMP a drought risk assessment for its water service to its customers. This is to benefit and inform the demand management measures and water supply projects and programs to be included in the urban water management plan.

Table 6-7 provides the expected gross water use for the next five years and the anticipated dry-year supplies and is intended to identify whether the Water Shortage Contingency Plan will need to be implemented in the next five years. The data and methodologies used to develop the projections in Table 6-7 are summarized in Section 6.5.1.

**Table 6-7: DWR Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b) (DWR Table 7-5)**

2021	Total
Gross Water Use	6,868
Total Supplies	11,857
Surplus/Shortfall w/o WSCP Action	4,989
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	4,989
Resulting % Use Reduction from WSCP action	0%

<b>2022</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	6,927
Total Supplies [Supply Worksheet]	13,770
Surplus/Shortfall w/o WSCP Action	6,843
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,843
Resulting % Use Reduction from WSCP action	0%
<b>2023</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	6,987
Total Supplies [Supply Worksheet]	13,053
Surplus/Shortfall w/o WSCP Action	6,066
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,066
Resulting % Use Reduction from WSCP action	0%
<b>2024</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	7,046
Total Supplies [Supply Worksheet]	12,335
Surplus/Shortfall w/o WSCP Action	5,289
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,289
Resulting % Use Reduction from WSCP action	0%
<b>2025</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	7,106
Total Supplies [Supply Worksheet]	13,053
Surplus/Shortfall w/o WSCP Action	5,947
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,947
Resulting % Use Reduction from WSCP action	0%

**Notes:**

Units in MG.

Allocation of supplies is based on the following assumptions:

2021: SWP Table A - 5%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2022: SWP Table A - 45%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2023: SWP Table A - 30%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2024: SWP Table A - 15%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2025: SWP Table A - 30%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

All of the standardized tables required by DWR for UWMP are provided in Appendix H.

## **6.5.1 Data and Methodologies Used**

### **6.5.1.1 Water Demands**

Current and projected land uses were examined in order to evaluate water demand. The land use evaluation started with the current general plan land uses and the 2019 geospatial water meter data provided by the City of Fairfield. Parcels with an active water meter were considered “developed” and parcels without an active water meter were considered “planned future development”. Using 2020 meter readings, unit demand factors (water usage per acre of land by land use designation) were assigned to each general plan land use designation and applied to future land use projections to determine a baseline estimate for ultimate future water demand. This estimate was adjusted to incorporate the following items:

- **Industrial usage:** Industrial water use in the City of Fairfield includes usage by Anheuser-Busch (considered heavy industrial usage) as well as more typical industrial users. Anheuser-Busch is contractually entitled to approximately 3,500 AF per year. Although the entire entitlement was not used in 2020, the maximum volume of usage by Anheuser-Busch was incorporated into future projections.
- **Northeast Fairfield Developments:** The City of Fairfield has several specific plans for development in Northeast Fairfield, including the Train Station Specific Plan, the Villages, and Hawthorne Mill. Specific projected land use for the Train Station Specific Plan and the Villages were provided by the City of Fairfield was used within the development boundaries in lieu of the general plan land use of unmetered parcels in these areas. Housing projections for Hawthorne Mill were added into initial projection for demand increases due to growth of single-family residential housing.

The timeline of demand projection was determined using expected population growth in the City of Fairfield. Residential water usage was projected forward to align with population growth rates from ABAG and the California Department of Finance (used by the City’s planning department) to estimate water usage over the planning timeframe of the UWMP.

Although these demand estimates do not explicitly correct for specific conservation measures, since they are based on the most recent meter readings available, they do incorporate passive conservation from installation of more efficient fixtures that has occurred by implementation of plumbing codes and standards.

For the 2021 to 2025 period, total demands were interpolated based on 2020 actual demands and 2025 projected demands.

### **6.5.1.2 Water Supplies**

The Drought Risk Assessment looks at all water supplies anticipated to be available in 2021 through 2025, including any limitations due to infrastructure, regulations, and assuming drought condition.

#### **6.5.1.2.1 State Water Project**

The City of Fairfield receives water from SWP through SCWA under two separate arrangements:

First, there is a contractual arrangement as an original contractor with the State of California. This water entitlement, also known as Table A, is similar in reliability to all other agencies in the SWP agreement, subject to reductions based on the anticipated deliveries from the project as a whole. Fairfield has a State Water Project Table A Allocation of 14,678 acre-feet and is also entitled to North of Delta allocation and Advanced Table A under a 2013 Settlement between SCWA and DWR. The drought risk assessment assumes 5% SWP deliveries in 2021 (based on actual 2021 allocation as per 2019 Delivery Capability Report), followed by 45% in 2022, 30% in 2023, 15% in 2024 and 30% in 2025 (based on projected multi-year drought SWP supply).

A second portion of water received via SWP facilities is from a DWR 2003 Non-SWP Settlement Agreement water which is based on Watershed of Origin entitlement. Fairfield has up to 11,800 acre-feet of non SWP Settlement Water which has a high level of reliability estimated by SCWA to be 73%, similar to long-term Table A reliability. The drought risk assessment assumes 73% deliveries from Settlement Water from 2021 to 2025.

#### **6.5.1.2.2 Solano Project**

For the Solano Project, the contract with USBR calls for the full contract amount to be delivered unless it is physically impossible to deliver the water from Solano Project storage (i.e. reservoir is dry). Therefore, the full contract water supply is allocated until there is no water available in the reservoir.

The Solano Project member agencies (including the City of Fairfield) have entered into a separate agreement to reduce deliveries based upon storage levels in Lake Berryessa. Once the storage level drops below 800,000 acre feet, as measured on April 1, 95% of contract amounts are delivered with 5% being stored in the reservoir as carryover. If the reservoir drops below 550,000 acre feet by April 1, 90% can be delivered and 10% is stored as carryover. The City of Fairfield has the ability to carryover more than this amount if we desire. Once the reservoir level is below 400,000 acre feet on April 1, the member agencies can use their full allocation and any stored carryover. For the purpose of the drought risk assessment, average year deliveries for the Solano Project (i.e. 99.3% of total allocation) are assumed.

## **Section 7: Demand Management Measures**

---

### **7.1 Summary of Demand Management Measures**

The purpose of the Demand Management Measures (DMM) section of this UWMP is to (a) provide a description of the past water conservation programs that Fairfield has implemented to meet its urban water use reduction targets and (b) describe the activities and actions Fairfield plans to use in the future to meet its urban water use reduction targets. For the purposes of this UWMP, the DMMs are categorized as “Foundational”, “Programmatic”, and “Other”. Foundational DMMs, listed below, are those DMMs that the UWMP Act and Water Code specifically mention:

- a. Water waste prevention ordinances
- b. Metering
- c. Conservation pricing
- d. Public education and outreach
- e. Programs to assess and manage distribution system real loss
- f. Water conservation program coordination and staffing support

“Programmatic” DMMs refer to incentive and rebate programs run by the City of Fairfield.

Activities outside of the Foundational DMMs and Programmatic DMMs that encourage less water use in the City service area fall in the “Other DMM” category.

This chapter discusses the DMMs that Fairfield undertakes as part of normal business. However, given the frequency of droughts, this chapter also describes those measures that were undertaken specifically to address dry conditions.

### **7.2 Demand Management 2015-2020**

#### **7.2.1 Water Waste Prohibition**

(Foundational DMM 1)

A water waste ordinance explicitly states that the waste of water is to be prohibited. The ordinance prohibits specific actions that waste water, such as excessive runoff from landscape irrigation, and use of a hose outdoors without a shut off nozzle.

Fairfield’s water waste prevention ordinance is in place at all times and is not dependent upon a water shortage for implementation. However, the water waste ordinance includes increasingly restrictive prohibitions that are implemented in response to shortages.

Stages II, III, & IV Conditions from the City’s Municipal Code correlate with increasing severity of water shortage, based on Lake Berryessa storage levels with the most stringent restrictions



when the Solano Project drops below 400,000 AF. The 2020 Water Shortage Contingency Plan has adjusted the Municipal Code stages from four to six shortage stages to align with DWR guidelines. Residential and commercial watering restrictions also become increasingly strict. In June of 2014, the City of Fairfield declared a Stage II Drought Condition of 25% reduction in response to the State Water Resources Control Board's Emergency Regulation for Statewide Urban Water Conservation. The City hired an enforcement officer to provide education, issue warnings and issue tickets to those violating the restrictions.

Method for Evaluation of Effectiveness: Fairfield's current Water Waste Prohibition ordinance is based on available water supplies, correlated to Stage I – IV water storage levels at Lake Berryessa. Fairfield considers its customer water use prohibitions to be highly effective and a solid safeguard towards protecting our water supplies in the event of drought or catastrophe. The effectiveness of the ordinance is measured by analyzing the amount of production and water usage during a Stage I Minimum Condition compared to a Stage II Drought Condition. Water production and usage was significantly lower in 2015, attributed to the Stage II watering prohibitions in place.

Estimated Water Savings: While it may be possible to quantify the water savings related to the prohibitions listed above, assumptions must be made as to the performance of the equipment and the amount of equipment and fixtures that are affected.

### **7.2.2 Metering**

(Foundational DMM 1)

Fairfield has been fully metered for decades and have installed Automatic Meter Read (AMR) drive-by meters and read each location monthly. This provides an enormously useful improvement over trend accuracy than prior (pre-July 2014) bi-monthly billing. The City is currently in the process of upgrading to a full Automatic Meter Infrastructure (AMI) system with meter upgrades, which involves connecting meters to a data transmission source. This system collects data every 5 minutes into a data logger and downloads the data once a day. A new mobile service is also in the works to all of Fairfield's water service customers that will allow budget notifications on the customer's cell phone or computer, via our Fairfield California Municipal Utility (FMU) mobile app. These tools currently help provide long term analytics to address system issues and will soon provide real-time tools to help customers save water and stop leaks within 24 hours.

### **7.2.3 Conservation Pricing**

(Foundational DMM 1)

All accounts in Fairfield are charged by volume for at least a portion of their bill. Irrigation accounts are charged exclusively by the use of water. With the court decisions related to tiered pricing, Fairfield does not anticipate moving away from the current practice of using a single-tier rate structure but can use the AMR/AMI data to communicate to customers directly.

Method for Evaluation of Effectiveness: Rates can be studied to see if they change customer water use patterns.

Estimated Water Savings: No method has been identified to determine water savings from conservation pricing at this time.

#### **7.2.4 Public Education and Outreach**

##### **1) Public Information**

(Foundational DMM 2)

As a member of the Solano Urban Water Conservation Committee (UWCC), Fairfield is involved in numerous public information activities. The lead agency for the UWCC is the Solano County SCWA which has promoted regional collaboration for public information outreach and other water conservation efforts.

Fairfield participates in various local media avenues to dispense water conservation information. Press releases, newspaper articles, radio announcements, and the “Solano Saves Water” website are all components of the public information program that was most active prior to Covid-19. Events include booths at Earth Day and Fourth of July events, where home water conservation items have been distributed and will restart when safe to do so. Water conservation pamphlets and flyers are posted at City Hall counters and water conservation booths. In addition, a Water-Wise Gardening website is promoted, and a well-received demonstration garden is in nearby Vallejo at the Six Flags Discovery Kingdom amusement park.

Marketing Strategy: The UWCC meets monthly to evaluate public information programs and to plan future water conservation activities. Announcements, flyers, newspaper ads, Facebook or website links have all been methods for marketing the program. Members of the UWCC often attend public events as exhibitors or participants and are able to assess the effectiveness of programs.

Tracking of Participation: The numbers of attendees at public events are a gauge for tracking participation. Radio listenership, newspaper circulation, and website hits are all reviewed to assess the program's success. Furthermore, the numbers of cards, brochures, and free conservation devices distributed are tabulated to determine public interest.

Planned Implementation Schedule and Budget: Fairfield will maintain the public information program with continual evaluation of the program's viability. SCWA will apply for grants on behalf of member agencies if possible.

Method for Evaluation of Effectiveness: The popularity of public programs is a measurement of the effectiveness of the program.

Estimated Water Savings: Estimating water savings is difficult to quantify. The reduction in overall water use by Fairfield in 2015 is strongly attributed to public information efforts, both locally and at the state level.

##### **2) School Education**

(Foundational DMM 2)

Fairfield participates in a regional program, the School Water Education Program (SWEP), which retains an education consultant to administer water conservation education. The consultant coordinates K-12 programs regionally for Suisun City, Fairfield, Benicia, Vallejo, Dixon, Vacaville, and Travis Air Force Base. The consultant visits classrooms, provides in-class education, and trains educators. State-wide curriculum teaching standards are adhered to. Activities include school assemblies, field trips, video contests, and public programs, such as Youth Ag Day. More information on the school educational program can be found on the Solano Resource Conservation District (RCD) website at <http://www.solanorcd.org/resources/swep.html>

The program is very successful and the education consultant has worked with the following schools located in Suisun City, or with local students that attend nearby schools:

- Suisun Valley Elementary
- Green Valley Middle School
- Green Valley Elementary
- Tolenas Elementary
- Rodriguez High School

School outreach programs have been severely impacted due to COVID-19. There are some measures in place to move into virtual space but it is not a priority right now. Most outreach undertaken by SCWA is on hold as well, with only phone consultations.

Marketing Strategy: SWEP will continue to market the program by maintaining the solid relationships that the program has fostered with schools and educators, and reaching out to other educators.

Tracking of Participation: The number of students, educators, and schools are tracked to evaluate the success of programs.

Planned Implementation Schedule and Budget: Fairfield will continue its partnership with SWEP and collaborate with other regional efforts that focus on water conservation. Fairfield's share of the SWEP budget is \$8,640 per year.

Method for Evaluation of Effectiveness: School response from educators is the greatest way to evaluate effectiveness. Comments from schools have been positive, with numerous invitations for the Education Consultant to return in subsequent school years and expand the program.

Estimated Water Savings: Considering the difficulty of placing a numerical value for water savings, the effectiveness of the program can be the gauge for the program's success.

### **7.2.5 Programs to Assess and Manage Distribution System Real Loss**

Fairfield is actively involved in a Water Loss Control program. This is the fourth year of validated water loss analysis. Fairfield discovered and corrected a rise in loss and are focusing on source meters and the metered exit of water from the Waterman Treatment facility and storage reservoir. This has led to a reduction in the GPCD since the last two years.

## **7.2.6 Consistency with State Water Loss Standards**

### **7.2.7 Water Conservation Program Coordination and Staffing Support**

(Foundational DMM 1)

Water Conservation Coordinator  
Public Works Department  
1000 Webster Street  
Fairfield, CA 94533  
Phone: (707) 428-7485

### **7.2.8 Other DMMs**

The following efforts listed below are managed on a trial basis, enabling staff time to assess the effectiveness of the programs.

#### **1) Water Efficiency Landscape Program**

(Turf Replacement Rebate Program)

The turf replacement program provides rebates to residential and commercial customers who replace turf with drought tolerant plants. College age interns perform inspections to ensure that applicants meet pre-project and post-project criteria. Turf must have been maintained before removal, and the renovated area must not include artificial turf products or non-permeable surfaces. Plantings must cover at least 50% of the project area when mature. Rebates are offered once per customer, on a first-come-first served basis, and subject to funding availability. The program is projected to continue through 2020 at the same level of participation as in 2015.

#### **2) Water Survey Programs for Single Family and Multifamily Residential Customers (DMM 3)**

Fairfield operates a comprehensive water survey program, in place from spring through fall of each year, and free to its customers. The program includes both Single Family and Multifamily Account holders. A Water Conservation Representative provides on-site checks for leaks and indoor plumbing flow rates, evaluates irrigation system efficiency, and advises on irrigation scheduling and irrigation timer adjustments. In addition, water conservation information and water efficient plumbing devices are distributed to homeowners.

**Marketing Strategy:** The program is marketed by identifying the top 10-20% of water users, and sending direct mail letters, promoting the program and informing customers of the scope of the surveys. Flyers are also distributed at City Hall, public events, and on the Solano County Water Agency's water conservation website at [www.solanosaveswater.com](http://www.solanosaveswater.com). Interested customers are reached by phone to schedule appointments or answer questions. Follow-up is made by mail or phone. Staff reviews the response rate and may re-send letters or consider expanding the mailing list to the top 20% of water users.

A baseline has been developed to analyze annual participation, determine potential water savings, and evaluate the effectiveness of the program.

Estimated Water Savings: Water savings for this category is difficult to quantify. Fairfield could estimate conservation values by comparing pre-survey metering data with post-survey metering data but variables affect the savings calculations such as changes in weather patterns, behavioral changes due to the drought, and, and the homeowner's willingness to implement the survey recommendations.

### 3) Residential Plumbing Retrofit to pre-1992 single family and multifamily residences (DMM 3)

The distribution of water-saving devices to single-family and multifamily homes occurs on a year-round basis. The program includes the distribution of indoor plumbing kits, each containing a low-flow shower head, kitchen and bathroom faucet aerators, and a toilet leak detection dye tablet, all free-of charge.

This measure is very popular among residents. Based on replacement rates since 2002, both single-family and multifamily residences have reached the 75% target figure for retrofit.

Marketing Strategy: The indoor kits are available at City Hall, public events, and distributed as part of the residential water survey program. The kits and other devices such as hose shut-off nozzles, shower timers, and garden hose timers are also promoted as part of the Solano Saves Water website and listed on flyers and cards.

### 4) Large Landscape Conservation Programs and Incentives (Programmatic DMM 5)

#### a) Large Landscape Surveys

SCWA offers free large landscape site surveys for commercial and institutional accounts with dedicated irrigation meters. The surveys are conducted by a certified irrigation consultant and includes an evaluation of water use and irrigation system performance, with recommendations given to improve irrigation efficiency. Landscaped areas are measured by aerial photo or by hand measurement. Water budgets are then developed by comparing actual water use with local evapotranspiration (ET<sub>o</sub>) rates. As part of the program, a Smart Irrigation Controller rebate is also offered (see web site: <http://solanosaveswater.org/>).

Marketing Strategy: The program is marketed to large landscape accounts. Commercial and institutional customers are the major participants. Promotion is by phone calls, site visits, direct mail, website, and flyers distributed at public events.

Estimated Water Savings: Pre-audit metering data is compared with post-audit data to estimate water savings. The final audit large landscape audit reports, prepared by consultants, also estimate potential water savings.

#### b) Large Landscape Water Budget Program

Fairfield implements a monthly water budget program for large landscape accounts, primarily city parks and schools. Water budgets are developed for each account whereby water use is compared to evapotranspiration rates from the nearest CIMIS station in Concord, CA.

Staff reads water meters on a monthly basis, and a Water Conservation Specialist prepares a monthly report for each account. The report provides account holders with valuable information for reducing water use and meeting water conservation targets.

Effectiveness is determined by tracking pre-budget and post-budget water use for each account holder. SSWA plans to continue the program through 2020.

#### 5) High-efficiency Washing Machine Rebate Programs

(Programmatic DMM 3)

A clothes washer rebate program is ongoing and has been popular program. Goals for the program include providing incentives for homeowners to replace older inefficient washers with models that use up to 70% less water and energy than conventional models. SCWA administers the program on behalf of its member agencies, and PG&E's rebate program for energy conserving washers allows homeowners to benefit from a combination of rebates. In 2015, the rebate amount was \$150.00, and plans are in place for \$100.00 rebates for 2016-2020.

Marketing Strategy: Information for the program is posted on the Solano Saves Water website <http://solanosaveswater.org/>. Flyers are posted at City Hall, public events, and articles have been published in local newspapers.

Tracking of Participation: SSWA compiles participation and rebate data annually, and develops baseline levels of participation.

Planned Implementation Schedule and Budget: SCWA will continue the existing program.

Method for Evaluation of Effectiveness: The program's participation is an intangible measurement of the public's interest in conserving water and energy, and a way to assess effectiveness.

Estimated Water Savings: Water savings are difficult to quantify due to the lack of data for the older replaced washers. Tracking the ratings of the old washers could provide an estimated water savings per household, but many variables exist, including behavioral changes in water usage due to the drought.

#### 6) Commercial, Industrial and Institutional (CII) Conservation Programs

(Programmatic DMM 4)

In conjunction with SCWA and the UWCC, Fairfield implements a water conservation program for the CII customers. The program is regionally based and a Water Conservation Specialist is retained to manage the effort. The CII program consists of complimentary indoor water use surveys, outdoor irrigation system audits, and direct installation of efficiency fixtures, such as showerheads, and high efficiency toilets.



Financial incentives to upgrade irrigation systems, plumbing fixtures, and/or water using appliances are offered through the Water Savings Incentives Program (WSIP). Up to \$10,000 in rebates may be available to public service agencies, and a maximum of \$5,000 is available to commercial and customers. Customers must agree to a water survey as part of eligibility.

Marketing Strategy: SSWA conducts outreach and researches grants to strengthen its programs. Current marketing components include:

- Telephone calls and site visits to CII customers
- Marketing the program on the Solano Saves Water website (<http://solanosaveswater.org/>)
- Generate and distribute flyers that advertise the program
- Conduct audits as requested

Tracking of Participation: Participation rates of three account holders per year are expected to continue for the CII and WSIP programs through 2020.

Method for Evaluation of Effectiveness: The effectiveness of the program is determined by reviewing the numbers of participants, analyzing costs versus benefits, and estimating water savings.

Estimated Water Savings: Water savings from the CII program is calculated pre-installation water demand compared to post-installation demand. However, CII customers have reduced water use due to the drought, especially outdoor irrigation, and therefore water savings estimates are challenging.

## 7) Residential ULFT Replacement Program

(Foundational DMM 3)

The California State website [SaveOurWater.com](http://SaveOurWater.com) offers economic incentives to individual homeowners for the purchase and installation of high efficiency toilets (HETs). The HETs must meet the current Water Sense Specifications (WSS) or updated standards. Qualifying HETs must replace units using 3.5 gallons or more per flush (gpf). Residential rebates are \$100 each, with a maximum of one HET. Commercial rebates are available through WSIP, and the criteria and rebated amount are managed on a case by case basis. Replacements through the WSIP are completed by a professional plumbing contractor at no cost to the owner.

Marketing Strategy: Marketing avenues for 2015 – 2020 include telephone calls, direct mail, website, and flyers placed at City Hall and public events booths.

Tracking of Participation: The number of replacements and rebates are tracked and reviewed to gauge participation levels.

Planned Implementation Schedule and Budget: The state and local programs will continue to participate in the High Efficiency Toilet Program and continue to apply for grants to assist with funding. The emphasis on toilet retrofits may increase in the next few years as legislative timelines come into effect.

Method for Evaluation of Effectiveness: An analysis of cost vs. benefit can be performed, combined with estimated water savings, and the participation levels of residents and commercial accounts.

### **7.3 Planned DMMs to Reach Water Use Targets**

The City of Fairfield will continue to implement the programs under section 7.2 and evaluate costs and estimated water savings over the next five years.

## **Section 8: Seismic Risk Assessment**

---

The City of Fairfield evaluated seismic risk as part of a broader water system risk and resiliency analysis (RRA). The seismic excerpt of the RRA is included in the Section 4.4 of the Water Shortage Contingency Plan submitted with the 2020 UWMP and is not repeated here.

## References

---

*Annual Water Quality Report (also known as the Consumer Confidence Report).* City of Fairfield. 2019

*Population Technical Memorandum.* Prepared by Kennedy/Jenks Consultants for Solano County Water Agency. 2021.

*Reliability Technical Memorandum.* Prepared by Kennedy/Jenks Consultants for Solano County Water Agency. 2021.

*Risk and Resilience Analysis.* City of Fairfield, 2020.

*The Effectiveness of Drought Management Programs in Reducing Residential Water-Use in Virginia.* Virginia Polytechnic Institute and State University. 2006.

*Urban Water Management Plan.* City of Fairfield. 2015.

*2020 Wastewater Flow Data.* Fairfield Suisun Sewer District. 2021

*Water Conservation by the Yard: A Statewide Analysis of Outdoor Water Savings Potential.* Texas Living Waters Project. March 2018.

## **Appendix A: UWMP Checklist**

---

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Section 4, Section 7
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Section 1.2
x	x	Section 2.2	10620(b)	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.	Plan Preparation	Section 1.3
x	x	Section 2.6	10620(d)(2)	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.	Plan Preparation	Section 1.4.1; Appendix D
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged 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 and contingency plan.	Plan Preparation	Section 1.5.3
x		Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	
	x	Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	N/A - City of Fairfield is a retail supplier
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Sections 1.5.1 and 1.5.2
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 1.7
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Section 1.5.3
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 1.5.3
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 1.5.3; Section 3.1.4; Table 3-2; Appendix F
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 1.6



x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 2.3; Tables 2-1, 2-3 and 2-4
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 2.3; Table 2-2; Appendix E (No water loss standards in California at present)
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System Water Use	Section 2.3.6; Table 2-6
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 2.3.6
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 2.3; Table 2-2; Appendix E
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 2.3.7; Table 2-6
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 2.3.6.2; Section 6.5
x		Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Section 3; Appendix F
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 3.1.4
	x	Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	N/A - City of Fairfield is a retail supplier
x		Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A
x		Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5-year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 3.1.3
x		Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Section 3.1.4; Table 3-2; Appendix B
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Sections 6.1 to 6.5; Tables 6-4 to 6-6

x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System Supplies	Section 1.8; Sections 6.1 to 6.5; Tables 6-4 to 6-6
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Sections 4.2 and 4.9
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 4.8
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 4.9; Tables 4-3 and 4-4
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 4.3; Table 4-1
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	N/A - Groundwater is not a supply source
x	x	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 4.5
x	x	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 5
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 5.2

x	x	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 5.2; Table 5-3
x	x	Section 6.2.5	10633(e)	Describe 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.	System Supplies (Recycled Water)	Section 5.2; Tables 5-3 and 5-4
x	x	Section 6.2.5	10633(f)	Describe the actions 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.	System Supplies (Recycled Water)	Section 5.2.3; Table 5-5
x	x	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 5.2.1?
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	N/A - Desalination is not required for Fairfield's supplies
x	x	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 5.1; Table 5-1
x	x	Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Section 4.8
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 4.6; Appendix G
x	x	Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 4.7
x	x	Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Sections 4.5 and 4.8
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Sections 6.2 to 6.5; Tables 6-4 to 6-6
x	x	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 6.5; Table 6-7
x	x	Section 7.3	10635(b)(1)	Include 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 5 consecutive years.	Water Supply Reliability Assessment	Section 6.5.1

x	x	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 6.1; Tables 6-1 to 6-3
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Sections 6.2 to 6.5; Tables 6-4 to 6-6
x	x	Section 7.3	10635(b)(4)	Include 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 Supply Reliability Assessment	Sections 6.2 to 6.5; Tables 6-1 to 6-7
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix B
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision- making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix B

x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix B
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix B
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix B
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix B
x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix B
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix B
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix B
x	x	Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	WSCP Chapter 12; Appendix C

x	x	Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix; Chapter 9
	x	Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	N/A - City of Fairfield is a retail supplier
x		Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Section 7.2
x		Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 1.4.3
x	x	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 1.4.3; Appendix D
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 1.3
x	x	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Section 1.4.3; Appendix D
x	x	Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 1.4.3; Appendix D
x	x	Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Appendix C
x	x	Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 1.4.4
x	x	Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 1.4.1
x	x	Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 1.4.4
x	x	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Sections 1.4.1 and 1.4.3



x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 1.4.4
x	x	Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	N/A - City of Fairfield is not regulated by the PUC
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 1.2.2

## **Appendix B: 2020 Water Shortage Contingency Plan**

---



10850 Gold Center Drive, Suite 350  
Rancho Cordova, California 95670  
916-858-2700  
916-858-2754 (Fax)

## **2020 Water Shortage Contingency Plan**

9 June 2021

Prepared for

**City of Fairfield**  
1000 Webster Street  
Fairfield, California 94533

K/J Project No. 2070010\*00

## Table of Contents

---

<i>List of Tables .....</i>	<i>iii</i>
<i>List of Figures .....</i>	<i>iii</i>
<i>List of Appendices.....</i>	<i>iii</i>
<b>Section 1: Introduction .....</b>	<b>1-1</b>
<b>Section 2: Water Supply Reliability Analysis.....</b>	<b>2-1</b>
2.1 System Supplies .....	2-1
2.2 Water Supply Reliability .....	2-1
2.2.1 Constraints on Water Sources .....	2-1
2.2.1.1 State Water Project.....	2-1
2.2.1.2 Solano Project.....	2-2
2.3 Relationship to the Urban Water Management Plan.....	2-2
<b>Section 3: Annual Water Supply and Demand Assessment Procedures.....</b>	<b>3-1</b>
3.1 Timeline and Methodology for Conducting the Annual Assessment .....	3-2
3.2 Factors Affecting Demand and Supply .....	3-3
3.2.1 Weather Outlook.....	3-3
3.3 Water Supply Assessment.....	3-3
3.4 Water Demand Assessment .....	3-3
3.5 Current Predicted Shortages Based on Annual Water Supply and Demand Assessment .....	3-4
3.6 Coordination with Cities and Counties.....	3-4
<b>Section 4: Water Shortage Stages.....</b>	<b>4-1</b>
4.1 Definitions/Criteria Establishing Shortage .....	4-1
4.2 Determining Water Shortage Reductions .....	4-2
4.3 Actions to Prepare for Catastrophic Interruption.....	4-2
4.3.1 Emergency Response Plan.....	4-3
4.4 Seismic Risk Analysis .....	4-3
4.4.1 Background and Summary.....	4-3
4.4.2 General Methodology.....	4-4
4.4.3 Existing Mitigation Measures.....	4-5
4.4.4 Results.....	4-6
<b>Section 5: Water Shortage Response Actions (by Shortage Stage).....</b>	<b>5-1</b>
5.1 Supply Augmentation Actions .....	5-1
5.1.1 Drought Measures Agreement .....	5-1

5.2	Demand Reduction Actions.....	5-3
5.2.1	Landscape Irrigation .....	5-7
5.2.2	Commercial, Industrial, and Institutional (CII).....	5-8
5.2.3	Water Features and Swimming Pools .....	5-8
5.2.4	Other.....	5-8
5.3	Operational Changes .....	5-9
5.4	Additional Mandatory Prohibitions .....	5-9
5.5	Effectiveness of Shortage Response Actions (by Water Shortage Stage).....	5-9
<b>Section 6:</b>	<b>Communication Protocols .....</b>	<b>6-1</b>
6.1	Current or Predicted Shortages.....	6-1
6.2	Shortage Response Actions.....	6-1
6.3	Other Communications .....	6-1
<b>Section 7:</b>	<b>Penalties, Charges, Other Enforcement of Prohibitions .....</b>	<b>7-2</b>
<b>Section 8:</b>	<b>Legal Authorities .....</b>	<b>8-1</b>
8.1	Legal Authorities to Implement and Enforce Shortage Response Actions.....	8-1
<b>Section 9:</b>	<b>Financial Consequences of Actions during Shortages .....</b>	<b>9-1</b>
9.1	Revenue and Expenditure Impacts .....	9-1
9.2	Cost of Compliance with Water Code Ch. 3.3 (Excessive Residential Water Use During Drought) .....	9-1
<b>Section 10:</b>	<b>Monitoring and Reporting .....</b>	<b>10-1</b>
10.1	Determining Water Shortage Reductions .....	10-1
<b>Section 11:</b>	<b>Refinement Procedures .....</b>	<b>11-1</b>
<b>Section 12:</b>	<b>Special Water Feature Distinction .....</b>	<b>12-1</b>
12.1	Defining Water Features .....	12-1
12.2	Restrictions on Usage.....	12-1
<b>Section 13:</b>	<b>Plan Adoption Resolution or Ordinance .....</b>	<b>13-1</b>
<i>References</i> .....		<i>1</i>

## Table of Contents (cont'd)

---

### List of Tables

---

Table 2-1:	Water Supplies Available to Fairfield.....	2-1
Table 2-2:	DWR Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b) (DWR Table 7-5).....	2-2
Table 3-1:	Calendar and Methodology for Performing Annual Assessment.....	3-2
Table 4-1:	Stages of Water Shortage Contingency Plan (adapted from +DWR Submittal Table 8-1) .....	4-2
Table 4-2:	Catastrophic Supply Interruption Plan .....	4-3
Table 5-1:	Solano Project Members' Agreement of Drought-Induced Curtailments of Solano Project Deliveries .....	5-2
Table 5-2:	Solano Project Members' Agreement as to Water Allocation of Drought-Induced Curtailments of Solano Project Deliveries .....	5-2
Table 5-3:	Drought Response Measures – Demand vs. Supply Reduction .....	5-3
Table 5-4:	Supply Augmentation and Other Actions (DWR Table 8-3) .....	5-3
Table 5-5:	Demand Reduction Actions (DWR Table 8-2) .....	5-4
Table 7-1:	Prohibitions, Penalties, and Consumption Reduction Methods.....	7-2

### List of Figures

---

None

### List of Appendices

---

Appendix A: Fairfield Municipal Code, Chapter 22, Water



## **Section 1: Introduction**

---

This plan documents the City of Fairfield's Water Shortage Contingency Plan (WSCP) per requirements of the Urban Water Management Act, Section 10632 of the California Water Code. Fairfield purchases all raw SWP and Solano Project water from Solano County Water Agency.

The purpose of this WSCP is to provide guidance if triggering events occur — whether from reduced supply, increased demand, or an emergency declaration — and identify corresponding actions to be taken during the various stages of a water shortage. The plan includes a description of stages which are intended to be fair to all water customers and users while having the least impact on business, employment, and quality of life for residents.

## Section 2: Water Supply Reliability Analysis

Water Code Section 10632(a) requires that every urban water supplier prepare and adopt a water shortage contingency plan as part of its urban water management plan. While the water shortage contingency plan is a stand-alone document it is updated and adopted in concert with the UWMP. Content of the water shortage contingency plan are informed by the analysis of water supply reliability conducted pursuant to Water Code Section 10635 (contained in the UWMP). Fairfield has two water supply sources, the State Water Project and the Solano Project.

### 2.1 System Supplies

As summarized in Table 2-1, the primary water sources for the City of Fairfield are the Solano Project, the State Water Project (SWP), and “non-SWP settlement water” obtained through negotiations with the Department of Water Resources in 2003. The two projects deliver water from Lake Berryessa and the Sacramento River respectively. Although legally not SWP water, settlement water is derived from the yield of the SWP and is delivered through SWP facilities.

**Table 2-1: Water Supplies Available to Fairfield**

Supply Source	Annual Allocation (Acre-feet)	Annual Allocation (Million Gallons)
SWP – Table A	14,678	4,783
Non-SWP Settlement Water	11,800	3,845
Solano Project – Fairfield	9,200	2,998
Solano Project – SID Agreement	18,020	5,871
Total	53,698	17,496

### 2.2 Water Supply Reliability

As described in the 2020 UWMP, the water supply reliability values for the City of Fairfield are affected dramatically by the storage facilities available to the City (the ability to carryover supplies from both the SWP and Solano Project supplies). Long term storage allows the City to manage both single dry year and multiple dry year values in water planning priorities. There is no single year event that overshadows the impact of multiple dry year events, whereas some utilities must weight their planning toward driest year events.

#### 2.2.1 Constraints on Water Sources

##### 2.2.1.1 State Water Project

The City of Fairfield receives water from the State Water Project (SWP), through Solano County Water Agency (SCWA) under two separate arrangements.

First, there is a contractual arrangement as an original contractor with the State of California. This water entitlement, also known as Table A, is similar in reliability to all other agencies in the SWP agreement, subject to reductions based on the anticipated deliveries from the project as a whole. Fairfield has a State Water Project Table A Allocation of 14,678 acre-feet and is also

entitled to North of Delta allocation and Advanced Table A under a 2013 Settlement between SCWA and DWR.

A second portion of water received via SWP facilities is from a DWR 2003 Non-SWP Settlement Agreement water which is based on Watershed of Origin entitlement. Fairfield has up to 11,800 acre-feet of non SWP Settlement Water which has a high level of reliability estimated by SCWA to be 73%, similar to long-term Table A reliability.

### 2.2.1.2 Solano Project

For the Solano Project, the contract with USBR calls for the full contract amount to be delivered unless it is physically impossible to deliver the water from Solano Project storage (i.e. reservoir is dry). Therefore, the full contract water supply is allocated until there is no water available in the reservoir.

The Solano Project member agencies (including the City of Fairfield) have entered into a separate agreement to reduce deliveries based upon storage levels in Lake Berryessa. Once the storage level drops below 800,000 acre feet, as measured on April 1, 95% of contract amounts are delivered with 5% being stored in the reservoir as carryover. If the reservoir drops below 550,000 acre feet by April 1, 90% can be delivered and 10% is stored as carryover. The City of Fairfield has the ability to carryover more than this amount if we desire. Once the reservoir level is below 400,000 acre feet on April 1, the member agencies can use their full allocation and any stored carryover.

## 2.3 Relationship to the Urban Water Management Plan

The reliability analysis of the UWMP considered “normal”, “single-dry”, and “5-year drought” as detailed in Section 6 of the UWMP. The analysis in the UWMP documents the supply conditions in normal and dry-year situations. Water Code Section 10632(b) requires that the UWMP estimate the minimum water supply available during each of the next five water years based on the driest five -year historic sequence for the agency’s water supply. Table 6-5 in the UWMP documents the City’s near-term water supply reliability assuming 5-year drought which is shown as Table 2-2 as follows.

**Table 2-2: DWR Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b) (DWR Table 7-5)**

2021	Total (MG)
Gross Water Use	6,868
Total Supplies	11,857
Surplus/Shortfall w/o WSCP Action	4,989
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	4,989
Resulting % Use Reduction from WSCP action	0%

<b>2022</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	6,927
Total Supplies [Supply Worksheet]	13,770
Surplus/Shortfall w/o WSCP Action	6,843
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,843
Resulting % Use Reduction from WSCP action	0%
<b>2023</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	6,987
Total Supplies [Supply Worksheet]	13,053
Surplus/Shortfall w/o WSCP Action	6,066
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,066
Resulting % Use Reduction from WSCP action	0%
<b>2024</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	7,046
Total Supplies [Supply Worksheet]	12,335
Surplus/Shortfall w/o WSCP Action	5,289
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,289
Resulting % Use Reduction from WSCP action	0%
<b>2025</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	7,106
Total Supplies [Supply Worksheet]	13,053
Surplus/Shortfall w/o WSCP Action	5,947
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,947
Resulting % Use Reduction from WSCP action	0%

**Notes:**

Units in MG.

Allocation of supplies is based on the following assumptions:

2021: SWP Table A - 5%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2022: SWP Table A - 45%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2023: SWP Table A - 30%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2024: SWP Table A - 15%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

2025: SWP Table A - 30%, Solano Project - 99.3%, Non-SWP Settlement Water - 73%

## Section 3: Annual Water Supply and Demand Assessment Procedures

From Guidebook P. 206

*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.*

Droughts occur with unpredictable frequency, intensity, and duration. Developing and maintaining a healthy water supply portfolio to serve its customers has always been an ongoing Fairfield priority, and Fairfield wants to be prepared for drought and water shortages by regularly monitoring its water supplies and demands. Water supply projections and hydrologic conditions are significant components in deciding when a drought response is needed. The amount of the water supply shortage contributes to the severity of drought declared and the necessary level of response from Fairfield and its customers.

### 3.1 Timeline and Methodology for Conducting the Annual Assessment

Table 3-1 provides target dates and actions for performing the Annual Assessment. The table outlines actions for the current year and one year of drought. By starting to plan in the fall, Fairfield will get a snapshot of conditions and can start lining up the resources to mitigate supply and start outreach to customers to manage demand. Major actions are proposed in February, when an initial estimate of supply is made and compared to demand. A final annual assessment is proposed in late May-early June.

**Table 3-1: Calendar and Methodology for Performing Annual Assessment**

Target Date	Action
Oct-Jan	Monitor SWP and Solano Project supply sources Monitor demand trends
Feb	Evaluate anticipated weather (e.g., National Weather Service Climate Prediction Center, La Niña, US Drought Seasonal Outlook) Receive State Water Project (SWP initial allocation) and anticipated Solano Project allocation from SCWA monthly Make initial assessment of unconstrained demand (e.g. current and new large demands online) Make initial estimate of shortage, if any If shortage anticipated, notify Fairfield Public Works Director and City Manager If shortage anticipated, prepare informational item to City Council
Mar	Prepare draft Annual Assessment for Fairfield Public Works Director and City Manager review
Apr	Confirm current SWP and Solano Project allocations If shortage anticipated, start public outreach Identify potential customer efficiency actions and assistance to be provided Complete Draft Annual Assessment and present to Fairfield Public Works Director and City Manager If shortage anticipated, prepare informational item to City Council
May-June	Continue public outreach Update Annual Water Assessment with Fairfield Public Works Director and City Manager Input, present to City Council Finalize Annual Water Assessment and submit to DWR by July 1 (starting in 2022) If necessary, prepare notices of public hearing on water shortage
July-Sept	Continue public outreach If necessary, declare water shortage and implement supply mitigations and demand reduction actions Monitor customer response to water shortage messaging and other actions

## **3.2 Factors Affecting Demand and Supply**

### **3.2.1 Weather Outlook**

Weather affects Fairfield supplies in many ways. For the SWP and Solano Project supplies, the effects of weather which is seen over the short-term influences water availability.

SWP Table A Allocation: Each year, depending on precipitation and snow pack, DWR announces the percent of Table A allocation that each contractor can expect for that year. The allocation is often adjusted several times before a final allocation is made in April of each year.

Solano Project Water Year Classification. SCWA monitors total precipitation in the Lake Berryessa Watershed and establishes the Lake Berryessa index. Based on water years 1906 through 2020, the Lake Berryessa index that classifies the watershed hydrology as “Wet”, “Normal”, “Below Normal”, “Dry”, and “Critically Dry” is established which assigns the % of Full Allocation for the Solano Project.

With this information, Fairfield directly considers the impacts of climate on available water supply which will affect how Fairfield considers demand expectations in the current year and the next year as a potential drought year.

## **3.3 Water Supply Assessment**

Both the SWP and the Solano Project consider water in storage as well as annual weather in the supply availability/allocation for a given year.

## **3.4 Water Demand Assessment**

DWR guidance for the Annual Assessment is to consider 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 WSCP. Fairfield will review the most recent 12 month period of metered consumption and total monthly and annual production from the Waterman and NBR WTP as well as any new demands such as large developments, increased or new industrial uses that may be expected for the upcoming year to report the unconstrained current demand and projected demand for the subsequent year.



### **3.5 Current Predicted Shortages Based on Annual Water Supply and Demand Assessment**

*From DWR Guidebook p. 210 of pdf*

*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.*

Fairfield staff will compare the SWP and Solano Project supply allocation and the anticipated demand based on water production and determine if a supply shortage is anticipated, the level of shortage, and determine whether the shortage condition requires implementation of its WSCP.

### **3.6 Coordination with Cities and Counties**

Should a water shortage be declared, Fairfield will coordinate with Solano 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.

## Section 4: Water Shortage Stages

*From DWR Guidebook*

*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.*

### 4.1 Definitions/Criteria Establishing Shortage

The City of Fairfield Municipal Code, found in Appendix A, has a four stage water use reduction target, which are linked to water shortages in the Solano Project, Fairfield's most reliable water supply as detailed in Section 4.1. The four stages have been aligned with the six-stage supply reduction required by DWR for the response program as shown in Table 4-1. Each stage consists of specific prohibitions, regulations, fines, penalties, and rate structure to encourage the appropriate level of conservation as described in Section 4. There are a number of actions that are considered wasteful and are subject to restriction and penalties regardless of the water shortage stage. Higher reduction stages II, III, and IV are most restrictive primarily due to the landscape irrigation component and restrictions imposed on landscape irrigation. The following Table 4-1 outlines the stages of action in the Water Shortage Contingency Plan.

**Table 4-1: Stages of Water Shortage Contingency Plan (adapted from +DWR Submittal Table 8-1)**

<b>DWR Shortage Level</b>	<b>Percent Shortage (Percent Supply Reduction)</b>	<b>Water Supply Condition</b>	<b>Shortage Response Action/ Fairfield Municipal Code Water Use Reduction Targets</b>
1	10%	Solano Project at or above 800,000 AF	Stage I Water use reduction target of 10% when Solano Project is > 800,000 AF
2	20%	Solano Project 700,000 – 800,000 AF	Stage II Water Use reduction target of 25% when Solano Project is 600,000 – 800,000 AF of storage
3	30%	Solano Project 500,000 – 700,000 AF	
4	40%	Solano Project 400,000- 500,000 AF	Stage III Water use reduction target of 35% when Solano Project is 400,000 – 600,000 AF of storage
5	50%	Solano Project 200,000 – 400,000 AF	Stage IV Water Use Reduction target of 50% when Solano Project Storage is 200,000- 400,000 AF of storage
6	Greater than 50%	Solano Project at or below 200,000 AF	--

## 4.2 Determining Water Shortage Reductions

The City of Fairfield fully meters both production and consumption. Measured production and consumption data, along with state mandated requirements will be analyzed to compare water usage between different stages of the WSCP to determine water shortages and conservation savings targets as needed.

## 4.3 Actions to Prepare for Catastrophic Interruption

Practices to offset catastrophic losses have been in place for years in the City of Fairfield. The following Table 4-2 lists potential supply interruptions and actions which have been taken to offset these potential disruptions.

**Table 4-2: Catastrophic Supply Interruption Plan**

<b>Possible Catastrophe</b>	<b>Summary of Actions</b>
Regional Power Outage	City has installed approximately 2 days of finished water storage. The system is pressurized almost entirely by gravity feed from the reservoirs. Some pump stations have been affected by power outages in the past. The utility has responded by sending portable generators to provide stop-gap pumping power.
Earthquake	City has installed approximately 2 days of finished water storage. City is constructing a redundant water transmission main to be completed in 2020.
Flooding	Communications systems are prepared to allow for distribution system routing and contamination containment. Public communications are established to notify of any water use restrictions. Distribution testing procedures are established to check for contamination restrictions under backflow or intrusion conditions.
Landslide	Bypass pipelines have been constructed around the most high-risk landslide locations for the Putah South Canal. Second water source bypasses as well.

#### **4.3.1 Emergency Response Plan**

Any or all of the components in each stage may be enacted by determination of the Public Works Director in order to meet the demand reduction goal for that response stage.

### **4.4 Seismic Risk Analysis**

The City of Fairfield evaluated seismic risk as part of a broader water system risk and resiliency analysis as described below.

#### **4.4.1 Background and Summary**

To comply with the Federal American Water Infrastructure Act, the City conducted a Risk and Resiliency Analysis (RRA) in 2020 using USEPA-recognized voluntary consensus standards (principally the AWWA J100 Standard), collaborative workshops, and reference to assessments and plans previously completed by the City. The J100 Standard methodology consists of seven interrelated steps that allows for identification, quantification, and communication of the risks to, and resilience of the organization, six of which are required for the RRA (the last step leads into the ERP phase). Risk is calculated using the formula: Risk = Consequence x Vulnerability x Threat Likelihood.

Critical City water system assets and relevant threats or hazards were screened and prioritized to develop a list of 111 threat-asset pairs which were assessed to quantify the worst reasonable consequence to the City. Consequences were assessed for the following criteria: injuries; deaths; reduced economic activity due to service denial; environmental impacts; and loss of public confidence.

Each threat-asset pair (or TAP) was assigned an associated vulnerability (the probability that, given an incident occurs, the worst reasonable consequences for the City would occur) and a threat likelihood (the probability that the threat or hazard will occur in any given year) to complete the J100 risk equation and calculate the annualized monetary risk of each TAP. The

RRA looked at all water system threats and is a confidential document, but can be reviewed by authorized Department of Water Resources personnel at City offices. The earthquake related portions of the RRA are excerpted and summarized herein.

Three of the 10 highest risk TAPs relate to earthquakes, and specifically the impacts of significant events affecting the City's treatment plants and buried transmission and distribution piping. To improve the City's ability to effectively prepare for and react to a significant earthquake event, it was recommended that the City conduct additional training for post-earthquake procedures, and consider participating in USGS' early earthquake warning system known as ShakeAlert.

#### **4.4.2 General Methodology**

The dangers associated with earthquake hazards relevant to the City were researched, along with any observed impacts associated with the historical occurrence of such events. The 2012 Solano County Local Hazard Mitigation Plan (LHMP) and the United States Geological Survey (USGS) ShakeMap catalog of earthquake scenarios were the primary sources for identification and characterization of natural hazards. The LHMP provides a list of historical natural hazard events and is consistent with the historical occurrences.

The Concord-Green Valley and Cordelia faults run generally north-south along the western end of the City's service area and are in close proximity to several critical assets in the area (e.g., Mangels Reservoir and Pump Station, South Cordelia Reservoir and Pump Station, Eastridge Reservoir and Pump Station, and Nelson Hill Reservoir).

There is a history of large, damaging earthquakes in the Northern California region. Regional historical seismic events as large as magnitude 7.7 have been recorded. There has been no recorded impact to system operations from historical earthquake events, however, including the relatively recent 2014 Napa event.

In general, an ordinal ranking system was utilized for assigning vulnerabilities to earthquakes for each of 30 critical assets, with three possible values available for each TAP: 0.9, 0.5, or 0.1. A value of 0.9 indicates that existing countermeasures and mitigation measures will have limited ability to reduce the worst reasonable consequences of the identified threat (i.e., a 6.8M event centered on the Green Valley fault west of Fairfield). A value of 0.5 indicates that the asset includes some features that are likely to reduce, but not eliminate, the consequences of the event. A value of 0.1 indicates that the asset includes features to reduce or eliminate most of the potential consequences of the event.

With respect to the City's critical water system assets, available mitigation measures for a ground shaking event are generally a function of the relevant building codes, design standards and best practices in effect when the asset was designed and constructed. Although the California legislature has shepherded a long list of incremental improvements to building codes and earthquake-related life safety legislation since the 1970s, it was not until the late 1990s that seismic design requirements for public works infrastructure, including standards for anchorage and bracing of mechanical equipment that is often most susceptible to damage in treatment plants and pump stations, began to be more widely adopted. Accordingly, it was assumed that all assets built after 2000 were designed to more stringent seismic design criteria, and are thus

less likely to experience damage resulting from ground shaking. For such assets, a vulnerability value of 0.5 was assigned; for all other assets, a vulnerability of 0.9 was assigned.

Threat likelihood analysis was performed to yield an estimated likelihood (specifically, an annual probability of occurrence) to each threat or hazard. Natural hazards were analyzed using historical date of recorded events or studies of potential future events from government sources (where available). Anecdotal evidence of historical incidents was also collected during interviews with City staff.

A detailed discussion of the approach used to characterize earthquake threats was prepared as a separate technical memorandum. This document, entitled Summary of Methodologies and Results from Hazus® Earthquake Model and American Lifelines Alliance, is confidential and is available for review at the City of Fairfield Public Works Department. The purpose of this technical memorandum (TM) was to document the methodologies used to estimate consequences associated with an earthquake event affecting the City of Fairfield (City) water system.

The risk and resilience analysis combines the results from the previous steps to estimate the risk and resilience values for each TAP. As outlined previously, risk is the product of consequences, vulnerability, and threat likelihood, as shown below:

$$R = C \times V \times T$$

where:

R = Risk

C = Consequence

V = Vulnerability

T = Threat likelihood

Consequences were expressed in dollars for each TAP. Vulnerability was expressed as a discrete point value between zero and one. Threat likelihood was expressed as a probability or frequency over a given time period, generally understood to be one year. For the overall RRA, the largest risk values were generally associated with cyber threats and earthquake hazards.

#### **4.4.3 Existing Mitigation Measures**

- The City maintains an Emergency Response Plan designed to provide an all hazards emergency management program specific to the City's Water Division. The ERP is updated annually, and FEMA-compliant training is periodically provided to key City staff.
- As described in the City's existing ERP, the City has mutual aid agreements with a number of neighboring agencies, including the Cities of Vacaville and Vallejo, the Department of Water Resources, Solano Irrigation District, Fairfield-Suisun Sewer District, and the Department of Corrections and Rehabilitation's California Medical Facility. Additionally, the City is a signatory of CalWARN, whose mission is to "support and promote statewide emergency preparedness, disaster response, and mutual assistance processes for public and private water and wastewater utilities".

- The City owns and maintains a variety of portable and permanently installed diesel generators which are available to provide electrical power to critical assets in the event of PG&E power failure. As described previously, the City has also committed to renting and maintaining a large portable generator during fire season, for the sole purpose of providing adequate emergency electrical power to either of the City's WTPs during a PSPS or other fire-related outages. The City is planning to procure and install a permanent diesel generator at one of its WTPs in coming years to obviate the need for seasonal generator rentals.
- The City has contracts with several diesel fuel suppliers, and maintains close communication with suppliers during planned and unplanned power outages.
- The City maintains inventories of spare parts for critical assets and equipment items located within the treatment and distribution systems. Although certain long lead equipment items (e.g., large pump motors) are not stocked, the City maintains asset and maintenance management systems designed to identify and track needs related to equipment maintenance, repair and replacement activities.

#### **4.4.4 Results**

Three of the 10 highest risk TAPs relate to earthquakes, and specifically the impacts of significant events affecting the City's treatment plants and buried transmission and distribution piping. To improve the City's ability to effectively prepare for and react to a significant earthquake event, it is recommended that the City conduct additional training for post-earthquake procedures and consider participating in USGS' recently developed early earthquake warning system known as ShakeAlert.



## Section 5: Water Shortage Response Actions (by Shortage Stage)

*From Guidebook*

*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.*

As shown in Table 3-1, Fairfield has adapted the four-stage plan in their Municipal Code to the required six stages and developed a six-stage contingency plan to reduce demand 50 percent or more. The contingency plan may be needed during a severe or extended water shortage event and can involve both voluntary and mandatory stages. References to stages from this point forward are to the six shortage stages required by DWR, unless specifically identified.

### 5.1 Supply Augmentation Actions

In the extremely unlikely event of a supply shortage, Fairfield would work with Solano County Water Agency and/or neighboring water purveyors to implement the Drought Measures Agreement detailed below.

#### 5.1.1 Drought Measures Agreement

The City of Fairfield, along with the Solano County Water Agency and the other Participating Agencies, entered the “Solano Project Members’ Agreement as to Drought Measures and Water Allocation” (the Drought Measures Agreement) in 1999. This agreement allows for the shifting of resources from agricultural to municipal and industrial uses in the event of drought conditions and storage depletion.

Per the Drought Measures Agreement, deliveries of Solano Project water are reduced based upon storage levels in Lake Berryessa. Once the storage level drops below 800,000 AF, as measured on April 1 of each year, 95% of contract amounts are delivered with 5% being stored in the reservoir. If the reservoir drops below 550,000 AF by April 1, 90% of contract amounts are delivered with 10% being stored as carryover. Once the reservoir level is below 450,000 AF on April 1, the participating agencies can use their full allocation and any stored carryover. While the Water Storage Contingency Plan stages are meant to reduce demand, the Drought Measures Agreement Stages are meant to adjust the supply priority in extreme conditions. Although not required by DWR, the Drought Measures Agreement has significant local impact on water supply reliability. Table 5-1, Table 5-2, and Table 5-3 reflect the conditions of the Drought Measures Agreement.

**Table 5-1: Solano Project Members' Agreement of Drought-Induced Curtailments of Solano Project Deliveries**

	Storage in Lake Berryessa, in acre-feet <sup>1</sup>			
	800,000 - 1,600,000	550,000 - 800,000	450,000 - 550,000	less than 450,000
<i>% of Annual Entitlement to be Restricted (Mandatory Curtailments)</i>	0%	5%	10%	0%
<i>% of Annual Entitlement Available</i>	100%	95%	90%	100%

**Note:**

<sup>1</sup> Storage in Lake Berryessa also governs water use reductions as summarized in Table 5-3.

**Table 5-2: Solano Project Members' Agreement as to Water Allocation of Drought-Induced Curtailments of Solano Project Deliveries**

<i>% of Annual Entitlement Available</i>	100%	95%	90%	100%	
<b>Solano Project Participating Agency</b>	<b>Entitlements to Annual Deliveries</b>	<b>Adjusted Annual Entitlement, in acre-feet</b>			
Solano Irrigation District	141,000	141,000	133,950	126,900	141,000
Fairfield	9,200	9,200	8,740	8,280	9,200
Vacaville	5,600	5,600	5,320	5,040	5,600
City of Suisun City	1,600	1,600	1,520	1,440	1,600
Maine Prairie	15,000	15,000	14,250	13,500	15,000
Vallejo	14,750	14,750	14,013	13,275	14,750
Total	187,150	187,150	177,793	168,435	187,150
<b>Solano Project Participating Agency</b>	<b>Restricted Carryover, in acre-feet</b>				
Solano Irrigation District		0	7,050	14,100	0
Fairfield		0	460	920	0
Vacaville		0	280	560	0
City of Suisun City		0	80	160	0
Maine Prairie		0	750	1,500	0
Vallejo		0	738	1,475	0
Total		0	9,358	18,715	0

**Table 5-3: Drought Response Measures – Demand vs. Supply Reduction**

Water Conservation Requirements (Demand Reductions)			Solano Project Drought Measures Agreement Drought-Induced Curtailments of Deliveries (the Drought Measures Agreement) (Supply Reductions)		
DWR Shortage Level <sup>1</sup>	Water Shortage Stage <sup>1</sup>	Water Use Reduction Target	Solano Project Storage	Solano Project Storage	Percentage of Annual Entitlement to be Restricted
1 (10%)	I	10%	Greater than 800,000 af	Greater than 800,000 af	0%
2 (20%)/ 3 (30%)	II	25%	600,000 - 800,000 af	550,000 - 800,000 af	5%
3 (30%)/ 4 (40%)	III	35%	400,000 - 600,000 af	450,000 - 550,000 af	10%
5 (50%)/ 6 (> 50%)	IV	50%	200,000 - 400,000 af	Less than 450,000 af	0%

**Note:**

<sup>1</sup> Cross reference of Solano Project Water Shortage Stage to Six DWR water shortage stages are found in Table 3-1.

While the water shortage stages are directly linked to storage in the Solano Project's Lake Berryessa, the water shortage stages and conservation requirements can be declared by the City in response to any water shortage whether caused by system failures, natural disasters or drought conditions.

Table 5-4 documents the supply augmentation actions available to Fairfield.

**Table 5-4: Supply Augmentation and Other Actions (DWR Table 8-3)**

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? Volume type or percentage	Additional Explanation or Reference (optional)
4/ Solano Project Stage IV	Other Actions (describe)	up to 15% after Storage in Solano Project is less than 450,000 af	After Shortage stage 3/Stage III Water Use reduction target of 35% is enabled; SCWA Solano Project Drought Measures Agreement allows for using water saved to storage in prior stages when storage is less than 450,000 af and the shifting of resources from agricultural to municipal and industrial uses in the event of drought conditions and storage depletion

**Notes:**

## 5.2 Demand Reduction Actions

While each shortage level triggers specific shortage response actions, Fairfield continues to implement water savings strategies year-round to achieve a baseline demand reduction to assist with desired demand reduction for water agencies supplied by SCWA. These actions include but are not limited to:

- Monthly meter readings – Fairfield staff can identify higher than average water usage and provide information and outreach to customers for reducing their water bills
- Baseline public outreach – Fairfield can provide bill stuffers, social media, and web site information pertaining to local drought conditions and local water use restrictions

When a shortage level is triggered based on the Annual Assessment, shortage response actions are also triggered with the associated shortage level. Table 5-5 describes the response actions and the estimated reduction in demand associated with each action. During the recent 2014-2017 drought, public information messaging which was occurring regionally and state wide was sufficient to achieve the savings mandated by the Governor's Executive Order.

**Table 5-5: Demand Reduction Actions (DWR Table 8-2)**

<b>Shortage Level</b>	<b>Restrictions and Prohibitions on End Uses</b>	<b>How much is this going to reduce the shortage gap?</b>	<b>Additional Explanation or Reference</b>	<b>Enforcement?</b>
Always	Other – Customers must repair leaks, breaks, and malfunctions in a timely manner	2%-7%	Prohibition on controllable water leaks	Yes
Always	Other	2%	New installation of single pass cooling systems using potable water	Yes
Always	Landscape – Limit landscape irrigation to specific times	2%	Landscape irrigation between noon and 6:00 pm	Yes
1	Expand Public Information Campaign	10%	Stage I (10%): Send out quarterly messages to customers on 10% water use reduction with examples on how to reduce water usage. Require washing vehicles at car wash or only with controllable device such as hose with shut off nozzle, prohibition on washing of paved areas	Yes

<b>Shortage Level</b>	<b>Restrictions and Prohibitions on End Uses</b>	<b>How much is this going to reduce the shortage gap?</b>	<b>Additional Explanation or Reference</b>	<b>Enforcement?</b>
1	Water Features - Restrict water use for decorative water features, such as fountains	2%	Stage I (10%) Prohibit non recirculating water features	Yes
2	Expand Public Information Campaign	Up to 25%	Stage I (10%) <u>and</u> Stage II (25%) Send out monthly messages to customers on 20% water use reduction with examples on how to reduce water usage; Restaurants Serve water only upon request, Hotels etc to post notice of drought conditions and option to not replace linens daily	Yes
2	Landscape – Limit landscape irrigation to specific times	Up to 25%	Stage II (25%) Landscape irrigation limited to 4 days per week or less	Yes
2	Other	2%	Stage I (10%) and Stage II (25%), Prohibit running water for washing of buildings etc	Yes
3	Expand Public Information Campaign	25% - 35%	Stage I (10%) <u>and</u> Stage II (25%)/Stage III (35%) Send out monthly messages to customers on 30% water use reduction with examples on how to reduce water usage	Yes
3	Landscape - Limit landscape irrigation to specific times	25% -35%	Stage II (25%) Prohibit landscape irrigation to 4 days per week or less/Stage III (35%) Prohibit landscape irrigation to 2 days per week or less	Yes

<b>Shortage Level</b>	<b>Restrictions and Prohibitions on End Uses</b>	<b>How much is this going to reduce the shortage gap?</b>	<b>Additional Explanation or Reference</b>	<b>Enforcement?</b>
3	Other	2%	Stage I (10%) and Stage II (25%)/Stage III (35%) Hydrant Flushing except where needed for health and safety; New pools/spas prohibited	Yes
4	Expand Public Information Campaign	35% - 50%	Stage I (10%), Stage II (25%) <u>and</u> Stage III (35%)/Stage IV (50%): Send out bi-weekly messages to customers on 40% water use reduction with examples on how to reduce water usage	Yes
4	Landscape - Limit landscape irrigation to specific times	35% - 50%	Stage III (35%) Prohibit landscape irrigation to 2 days per week or less/Stage IV (50%) Prohibit landscape irrigation	Yes
4	Other	2%	Stage III (35%) Hydrant Flushing prohibited except where needed for health and safety; New pools/spas prohibited	Yes
5	Expand Public Information Campaign	50%	Stage I (10%), Stage II (25%), Stage III (35%) and Stage IV (50%): Send out bi-weekly messages to customers on 50% water use reduction with examples on how to reduce water usage	Yes
5	Landscape – Prohibit all landscape irrigation	50%	Stage IV (50%) Prohibit landscape irrigation	Yes
5	Other	2%	Stage I (10%), Stage II (25%), Stage III (35%) <u>and</u> Stage IV (50%) Prohibit new construction and filling of pools/spas/all aesthetic water features	Yes

Shortage Level	Restrictions and Prohibitions on End Uses	How much is this going to reduce the shortage gap?	Additional Explanation or Reference	Enforcement?
6	Expand Public Information Campaign	>50%	Stage I (10%), Stage II (25%), Stage III (35%) and Stage IV (50%): Send out bi-weekly messages to customers on >50% water use reduction with examples on how to reduce water usage	Yes
6	Landscape – Prohibit all landscape irrigation	>50%	Stage IV (50%) Prohibit landscape irrigation	Yes
6	Other	2% - 7%	Stage I (10%), Stage II (25%), Stage III (35%) and Stage IV (50%) Prohibit new construction and filling of pools/spas/all aesthetic water features	Yes

**Notes:**

This table summarizes the requirements contained in Fairfield Municipal Code, Chapter 22 Water Articles 22.86, Normal Conditions, 22.87 Stage I water Shortage, 22.88 - Stage II Water Shortage, 22.89 – Stage III Water Shortage, 22.90 Stage IV water shortage, 22.92 – Penalties and enforcement. Passed March 16, 2021 through Ordinance 2021-03. WSCP Table 7-1 provides a complete summary of the prohibitions, regulations and penalties for violating the Fairfield Municipal Code. % Reduction estimates from Fairfield experiences during 2014-2017 drought and Virginia Polytechnic Institute study which indicated that residential water-use ranged from 0-7% reduction when public information is used to communicate voluntary restrictions (Virginia Polytechnic Institute, 2006)

Penalties and fines are detailed in Section 7 as are specific prohibitions and other limitations detailed in Fairfield Municipal Code. The topics below summarize these prohibitions and limitations.

### 5.2.1 Landscape Irrigation

The following categories of prohibition on landscape irrigation are listed in **Table 7-1**. The section below includes examples of restrictions or prohibitions that may fall within these categories.

- Prohibit runoff from landscape irrigation – The watering of lawns, grass, ground cover, shrubbery, or trees in a manner that causes water to runoff onto adjacent property, non-irrigated areas, or hard surfaces, such as driveways, sidewalks, and streets, is not permitted.
- Prohibit washing hard surfaces – The washing of sidewalks, walkways, driveways, parking lots, and all other hard surfaced areas by direct hosing is not permitted, except as may be necessary to protect public health and safety.
- Limit landscape irrigation to specific days of the week – Houses with even numbered addresses are permitted to irrigate ornamental landscapes and turf only on Monday,



Wednesday and Friday. Odd numbered addresses are permitted to irrigate ornamental landscapes and turf only on Tuesdays, Thursdays and Saturdays.

- Limit landscape irrigation to specific times – Irrigation of ornamental landscapes and turf is limited to before noon and after 6 pm.
- Prohibit all landscape irrigation – During Stage IV (DWR Stages 5 and 6) condition, all landscape irrigation is prohibited, except with approved greywater use practices.

### **5.2.2 Commercial, Industrial, and Institutional (CII)**

The following categories of prohibitions on CII are listed in Table 7-1. The section below includes examples of restriction or prohibitions that may fall within these categories.

- All irrigation restrictions apply to CII properties as well.
- Running water for washing of buildings, etc.
- Lodging establishments must offer opt out of linen service – Lodging establishments are required to place notices in each room that inform the guest that they may opt out of linen service.
- Restaurants may only serve water upon request by a customer.

### **5.2.3 Water Features and Swimming Pools**

The following categories of prohibitions on water features are listed in Table 7-1. The section below includes examples of restrictions or prohibitions that may fall within these categories.

- In Stage III (DWR Stage 3 or 4) drought restrictions, no new pools or spas will be permitted. In a Stage IV (DWR Stages 5 and 6) drought restriction, no pools or spas should be re-filled.
- In Stage II (DWR Stage 2 or 3), there are limits on decorative fountains and aesthetic water features that are not recirculating. In Stage IV (DWR Stages 5 and 6), all decorative fountains and aesthetic water features are restricted.

Decorative water features are defined as water features that serve no recreational or other use than decorative.

### **5.2.4 Other**

The following categories of other prohibitions or restrictions are detailed in Table 7-1. The section below includes examples of restrictions or prohibitions that may fall within these categories.

- Customers must repair leaks, breaks, and malfunctions in a timely manner; 24 hours after the leak has been discovered is considered a reasonable time period.
- Require hoses to have automatic shut off nozzles – The use of a hose to wash a motor vehicle is prohibited unless fitted with a shut-off nozzle or similar device that causes it to cease dispensing water immediately when not in use.

- Prohibit use of potable water for washing hard surfaces – Washing impermeable surfaces such as sidewalks, walkways, driveways, parking lots, and all other hard surfaced areas is prohibited, except as may be necessary to protect the public health and safety.

### **5.3 Operational Changes**

The City of Fairfield does not anticipate the need to implement major operational changes during drought events. The City does not anticipate needing to seek out other sources of water (such as groundwater and/or transfer/exchanges).

### **5.4 Additional Mandatory Prohibitions**

The City has no proposed additional mandatory prohibitions. The existing prohibitions, summarized in Section 7, address the six shortage stages outlined in Table 4-1.

### **5.5 Effectiveness of Shortage Response Actions (by Water Shortage Stage)**

The effectiveness of shortage response actions are estimated in Table 5-5 and will be evaluated annually. Demand projections and supply deliveries are analyzed monthly in order to determine if supplies are adequate and/or shortage response actions are adequate.

## Section 6: Communication Protocols

---

*DWR Guidebook p. 221*

*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*

### 6.1 Current or Predicted Shortages

As discussed in Section 3, as the annual assessment is performed, if a shortage is anticipated, the Fairfield Public Works Director and City Manager will be notified and an informational item brought to the City Council. Public outreach will be initiated depending on the severity and anticipated duration of the shortage.

### 6.2 Shortage Response Actions

The stages of drought response and required shortage response actions can be authorized by the City Manager in consultation with the Public Works Director and are not required to be approved by the City Council. The necessary shortage responses can be implemented immediately upon the declaration of shortage.

### 6.3 Other Communications

The main means of communication between the City of Fairfield and its customers is through the City website. In the event of a shortage, any restrictions to water usage are clearly defined on the website. In the past, the City has also coordinated with other public works departments (such as fire and police) to distribute written notification to its customers, and sent press releases to local newspapers. The City is expanding its social media presence in order to facilitate communication through channels such as Facebook, NextDoor, Instagram and Twitter. Customers can monitor their own water use and the City also has the ability to communicate with directly customers through a billing portal and/or e-mail.

## Section 7: Penalties, Charges, Other Enforcement of Prohibitions

From DWR Guidebook p. 222

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.

To enforce the conservation requirements, Fairfield has established penalties and charges in the Fairfield Municipal Code which can increase in severity depending on how many offenses have occurred. A summary of the restrictions and the penalties follows in Table 7-1.

**Table 7-1: Prohibitions, Penalties, and Consumption Reduction Methods**

	Normal	Stage I <sup>1,2</sup>	Stage II <sup>1,2e</sup>	Stage III <sup>1,2</sup>	Stage IV <sup>1,2</sup>
RATE STRUCTURE		3 Tiers	3 Tiers	4 Tiers	4 Tiers
<u>Single-Family Rates</u>					
Surcharge/Tier 1	None	25% > 30ccf (approx 750 gpd)	40% > 20ccf (approx 500 gpd)	60% > 14 ccf (approx 350 gpd)	100% > 8 ccf (approx 200 gpd)
Surcharge/Tier 2	None	50% > 40ccf (approx 1000 gpd)	80% > 30ccf (approx 750 gpd)	120% > 20ccf (approx 500 gpd)	200% > 16ccf (approx 400 gpd)
Surcharge/Tier 3	None	N/A	N/A	200% > 30ccf (approx 750 gpd)	300% > 20ccf (approx 500 gpd)
Exceptions/Water Allotments	None	Large Family Large Lot Medical	Large Family Large Lot Medical	Large Family Medical	Medical
<u>Non Single-Family</u>					
Commercial/Industrial	No Volume Increase	3% Volume Increase	7% Volume Increase	11% Volume Increase	15% Volume Increase
Multi-family	No Volume Increase	3% Volume Increase	7% Volume Increase	11% Volume Increase	15% Volume Increase
Irrigation	No Volume Increase	5% Volume Increase	11% Volume Increase	500% Volume Increase	1000% Volume Increase
<u>PROHIBITIONS</u>					
Controllable water leaks		Normal prohibitions plus...	Stage I prohibitions plus...	Stage II prohibitions plus...	Stage III prohibitions plus...
New installation of single-pass cooling systems using potable water		Washing of paved areas except to protect public health and safety	Running water for washing of buildings, etc.	Landscape irrigation (limited to 2 days per week or less)	New construction (without existing permit)
Landscape Irrigation between Noon and 6:00 pm (Daylight savings time only)		Decorative fountains and aesthetic water features that are not recirculating	Landscape irrigation (limited to 4 days per week or less)	Hydrant flushing (except where needed for health and safety)	Filling of pools, spas, decorative fountains, etc.
				Construction of new pools, spas, etc.	Landscape irrigation (none)
					Decorative fountains and aesthetic water features (all)
<u>REGULATIONS</u>					
		Washing of vehicles to be done at commercial car wash or with controllable water source such as bucket and hose with shut-off nozzle	Stage I regulations plus...	Stage II regulations plus...	Stage III regulations
			Restaurants serve water only upon request	Reclaimed water only for construction projects	
			Hotels, etc. to post notice or drought conditions, provide option to not wash towels and linens		
			Reclaimed water for construction if feasible.		

	Normal	Stage I <sup>1,2</sup>	Stage II <sup>1,2e</sup>	Stage III <sup>1,2</sup>	Stage IV <sup>1,2</sup>
<b><u>FINES/PENALTIES</u></b>					
1 <sup>st</sup> Offense	Written warning	Written warning	Written warning	\$50 fine	\$100 fine
2 <sup>nd</sup> Offense	\$25 fine	\$50 fine	\$50 fine	\$100 fine	\$200 fine
3 <sup>rd</sup> Offense	\$50 fine	\$100 fine	\$100 fine	\$200 fine	\$350 fine
4 <sup>th</sup> Offense	\$100 and installation of flow restrictor	\$250 and installation of flow restrictor	\$250 and installation of flow restrictor	\$350 and installation of flow restrictor	\$500 and installation of flow restrictor

**Note:**

<sup>1</sup> The cross reference of four Fairfield stages to the six DWR stages is found in Table 3-1

<sup>2</sup> For the purposes of this penalties table, Stage I is associated with a Recovery Program; Stage II is associated with Drought Response; Stage III is associated with a Critical Drought and Stage IV is associated with Emergency Response

## Section 8: Legal Authorities

---

*From DWR Guidebook:*

*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.*

### 8.1 Legal Authorities to Implement and Enforce Shortage Response Actions

Pursuant to the Fairfield Municipal Code Section 22.91, the City Council may declare a water shortage emergency and the appropriate stage and implement the associated restrictions after conducting a properly noticed public hearing. The Public Works Director has the discretion to determine whether to implement certain restrictions at an earlier stage and may recommend additional restrictions to the City Council.

Fairfield will coordinate with Solano County for the possible proclamation of a local emergency if necessary and appropriate.

## **Section 9: Financial Consequences of Actions during Shortages**

---

*From DWR Guidebook p. 225*

*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.*

### **9.1 Revenue and Expenditure Impacts**

Because of the high reliability of Solano Project Water, the City of Fairfield does not have a drought surcharge as a part of the current rate structure. Historically, the City has not observed any substantial drops in revenue during drought events.

If a shortage is declared, City staff will monitor revenue and expenditure plans each month to project whether revenue measures will be required to assure financial stability of the water utility.

### **9.2 Cost of Compliance with Water Code Ch. 3.3 (Excessive Residential Water Use During Drought)**

Fairfield has a water waste ordinance that is in place at all times as well as penalties for violations of the Fairfield Municipal Code as described in Section 7. Based on the 2014-2017 drought, customer compliance was achieved voluntarily largely through public outreach and did not require significant additional staff time or cost. Fairfield was supported by the state-wide messaging regarding drought as well as broader regional messages from the Solano County Water Agency.



## Section 10: Monitoring and Reporting

---

*From DWR Guidebook p. 225*

*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.*

### 10.1 Determining Water Shortage Reductions

The City of Fairfield fully meters production and consumption. Measurements, along with state-mandated requirements will be analyzed monthly if a shortage is declared to compare water usage between different stages of the WSCP to determine water shortages and conservation savings targets.

## Section 11: Refinement Procedures

---

*From DWR Guidebook – p. 226*

*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 Water Shortage Contingency Plan will be updated in parallel with the UWMP every five years (with the next update being in 2025). During this review, the City's shortage stages will be reevaluated and adjusted as appropriate, and the required shortage response actions will be adjusted accordingly. The City will take into consideration the availability of water supplies and any projected increases in demand, and the effectiveness of shortage response actions.

## Section 12: Special Water Feature Distinction

---

*DWR guidebook p. 226*

*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.*

### 12.1 Defining Water Features

Fairfield has defined decorative water features as those that serve no recreational or other use than aesthetics.

Recreational water features include pools and spas that could be at individual homes or provide Community benefit at home owners' associations or public parks or other facilities

### 12.2 Restrictions on Usage

As described in Section 7, during a water shortage event, the following restrictions, from the Fairfield Municipal Code, are placed on special water features:

- Decorative water features – may only use recycled water
- Recreational water features – may only use raw water
- Community amenities – to be evaluated on a case-by-case basis, considering supply constraints, impact on property values, impact on quality of life, and economic consequences.

## Section 13: Plan Adoption Resolution or Ordinance

---

*DWR Guidebook p-. 227*

*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*

The resolution adopting the Urban Water Management Plan and approving the Water Shortage Contingency Plan is attached.

## References

---

American Water Works Association, 2011. Drought Preparedness and Response. Manual of Water Supply Practices, M60.

\_\_\_\_\_. 2008. Forecasting Urban Demand. Second Edition.

Fairfield Municipal Code, Chapter 22 – Water, March 2021

Virginia Polytechnic Institute and State University Blacksburg, Virginia, 2006. The Effectiveness of Drought Management Programs in Reducing Residential Water-Use in Virginia.  
<http://water.ky.gov/wa/Documents/AdditlDroughtResources/VirginiaStudyonDroughtProgramEffectiveness.pdf>

## **Appendix A: Fairfield Municipal Code, Chapter 22, Water**

---

## **CHAPTER 22 WATER**

### **Article I. In General.**

#### **22.1 Definitions.**

For the purposes of this chapter, the following words and phrases shall have the meanings respectively ascribed to them by this section.

**Applicant.** The property owner or his, her, or its authorized agent applying for water service, water service connection, or water main extension.

**City.** The City of Fairfield, a municipal corporation, and its duly authorized representatives.

**Commercial office.** The business office of the department of finance, located in the city hall.

**Construction water permit.** Permit required of anyone using water for construction purposes prior to installation of permanent meter.

**Consumer.** A person or entity receiving water service or other services from the water system.

**Costs.** Actual cost of materials and labor, plus a percentage factor for equipment rental and overhead.

**Customer.** A person or entity of record receiving water service or other services from the water system.

**Demand.** The rate of draft of water for specified time; the total quantity of water delivered or received for a specified time.

**Fairfield municipal utilities.** The water system.

**Chief of police.** The chief officer of the police department. (Ord. 93-9, § 17.)

**Fire chief.** The chief officer of the fire department. (Ord. 93-9, § 17.)

**Main extension.** Extension of distribution pipe lines, exclusive of service connections, beyond existing facilities.

**Mains.** The transmission or distribution pipe lines of the water system.

**Premises.** That separate identifiable and transferable lot or parcel of real property, including the improvements thereon except that portion thereof having well defined boundaries such as walls, fences or hedges, which prevent the common use of the property by all occupants, for the purpose of this chapter shall be considered separate premises.

**Regulations.** Resolutions adopted by the city council which, in addition to the provisions of this chapter, govern the operation of the water system.

**Services.** The delivering or receiving of water; a water service connection; and act of duty performed by the water system.

**Superintendent.** The city water superintendent charged with the responsibility of administering, directing and representing the water system.

**Water service.** The delivery or receipt of water; a water service connection.

**Water service connection.** The connection including service pipes, meters and appurtenances through which water delivery is made.

**Water system.** The water division of the public works department of the city and the entire physical plant thereof.

#### **22.2 Purpose of chapter; rates and charges adopted as condition to obtaining water.**

(a) Rules as set forth herein are adopted to govern the general operation of the Fairfield municipal utilities to provide an efficient and economical water supply.

(b) The city council has the power to adopt by resolution those regulations which will further the purpose of this chapter, and which do not conflict with the provisions herein.

(c) Rates, fees and charges as set forth herein or in the regulations are adopted as conditions to obtaining water and other services from Fairfield municipal utilities.

### **22.3 Right of entry to customer's premises.**

The water system or its duly authorized agents shall at all reasonable times have the right to enter or leave customer's premises for any purpose properly connected with service to the customer.

### **22.4 Notice required for removal or displacement of water facilities for construction or street work.**

All persons engaged in construction or street work shall give at least ten days' written notice to the water system for removal or displacement of water system facilities that may interfere or conflict with street work, and any damage resulting to such facilities from such failure to give notice shall be charged against the person engaged in such work. All costs involved in the removal or displacing of water facilities shall be paid by the person engaged in such work, except where provisions of city permits or contracts state otherwise.

### **22.5 Liability of water system for damages.**

The water system shall not be liable for damages resulting from:

(a) Any interruption of service or damage caused by spigots, valves or other equipment or fixtures that are open when water is turned on, whether when water is turned on originally or when turned on after a temporary shutoff.

(b) Any increase or decrease in delivery pressure.

### **22.6 Conditions of service.**

Every person taking water shall be considered as having expressed his consent to be bound by this chapter and the regulations adopted pursuant to section 22.2 of this chapter, and whenever any one of the rules or regulations is violated, the right is reserved to discontinue water service system shall discontinue water service if the customer fails to comply within five days after the date of written notice of violation. If such noncompliance affects matters of health or safety, or affects the operation, maintenance or other costs of the water system, water service may be discontinued immediately and without notice.

The person whose water is thus discontinued shall forfeit all deposits made, and the water shall not be turned on again until all unpaid fees and charges are paid, and other requirements of this chapter or the regulations are fulfilled.

### **22.7 Permission for selling water.**

It shall be unlawful for any person or entity other than Fairfield Municipal Utilities to sell water within the corporate limits of the city without having first received permission to do so from the city council.

### **22.7A Water theft.**

The taking of water from an unmetered connection in the city water system except as authorized by this chapter shall be unlawful. (Ord. No. 91-8, § 4.)

### **22.8 Disclosure of water customer records.**

It is recognized that to information concerning the conduct of the people's business is a fundamental and necessary right but that access may be withheld where the public interest served by not making the record public clearly outweighs the public interest served by disclosure of the record. It is hereby found that no public interest is served by the release of names and addresses of and other information relating to water customers where the purpose of such release is to further the private or pecuniary interests of the person or organization requesting release and that the true names and addresses of, and other information relating to water customers does not concern the conduct of the people's business. Based upon these findings, the names and addresses of and other information relating to water customers which is received by the water department in the regular course of furnishing water shall not be released to non-governmental persons or entities, except in the event that the person requesting release is able to demonstrate in writing and to the satisfaction of the water superintendent that such release relates to studies or investigations concerning the proper conduct of the business of the water department. In such event, the requested information will be furnished upon payment of an amount equal to the actual cost of providing the copy.

## **Article II. Water Services.**

### **22.9 Using water without making prior application.**



A person taking possession of premises and using water without having made application for water service shall be held liable for all water used from the date of the last recorded meter reading. If application for service is not made within seven calendar days after notification to do so or if accumulated water bills are not paid upon presentation, the water service shall be discontinued without further notice.

**22.10 Liability for service.**

Upon commencement of water service, the applicant shall be liable for all water delivered through that particular service and all other charges applicable to such service. When two or more persons jointly make application for service, they shall receive a single periodic bill, but shall be jointly and individually liable for payment of all charges incurred.

**22.11 Former customer owing bills.**

When the applicant for water service is a former customer who has failed to pay all bills for previous water service or charges for any other service received from the water system, the superintendent shall refuse water service to the applicant until all outstanding bills or charges are paid and shall also require a cash deposit as a guarantee for the payment of future bills.

**22.12 Changes in customer's facilities.**

Customers making any change in the size, character or extent of their facilities utilizing the water service which will require increasing the size of the existing service or result in a large or unusual increase in water usage shall immediately notify the water superintendent in writing.

**Article III. Water Connections - Generally.**

**22.13 Title to connections; transfer of service; refunds.**

Title to all meters, service pipes and appurtenances used in providing a water service connection shall remain with the water system and the charges set forth in this chapter are for connections and do not convey any right of title.

The water service connection is for a water supply to the premises stipulated on the application and is not transferable to any other properties or premises.

If the water service is discontinued or abandoned, no right or refund of connection charges or credit in any manner accrues to the applicant, customer or successor.

**22.14 Service connections requiring main extension.**

In no event shall a water service connection be installed unless a water main of adequate capacity and delivery pressure extends in a public street or right-of-way across the entire frontage of property to be served. Wherever as a condition of service a water main must be extended, the same shall be installed by the applicant in compliance with the provisions set forth in this chapter and in the regulations.

**22.15 Fire service connections.**

When an application is made for fire service connections, such sprinkler and fire service installation must be approved by the fire chief, by an approved fire rating bureau and by the superintendent. (Ord. 93-9, § 17.)

Water furnished through fire services shall be used only for extinguishing fires or for authorized testing of the fire system. Whenever a consumer wishes to test, he shall notify the superintendent at least three working days in advance.

If it is found that an unauthorized connection or use has been made, the consumer shall be notified to discontinue such connection or use, and if the consumer fails or refuses to do so, the water to such service shall be shut off and remain so until the fire service connection receives proper approval.

**22.16 Temporary connections.**

Whenever practical, temporary service connections shall be metered. Temporary connections shall be allowed for an initial sixty day period and extended by the superintendent on presentation of good and sufficient evidence that such extension is warranted. If unmetered, the superintendent shall determine a method to provide a record of consumption to the commercial office for each calendar month and the rates which will apply.

**22.17 Contractors.**

Contractors engaged in street construction or site development shall obtain a construction water permit and shall take water at a location specified by the superintendent. All water shall be metered unless exempted by the superintendent for good and sufficient reason. Meters will be supplied to the contractor by the water system. The daily service charge will be charged at 0.5 times the in-

city rate for a two (2) inch turbine meter. The volume charge will be charged at 1.5 times the in-city rate for general service users class. Any required deposits shall apply. (Ord. No. 96-3, § 1.)

#### **22.18 Individual building construction.**

Individual builders or contractors engaged in building construction or development not connected with subdivision construction shall upon compliance with the applicable provisions of the regulations and this chapter obtain a construction water permit and shall agree to the provisions of section 16 of the regulations.

### **Article IV. Connection Charges (Capacity).**

#### **22.19 Purpose.**

The public interest, health and general welfare of the city and its inhabitants require the acquisition and construction of water facilities and systems, necessary to serve new and altered structures within the city, and the public interest and economy require that, in order to provide funds for such purposes, there be established certain connection charges to be paid by the owner or owners of land upon which such structures are constructed or altered.

#### **22.20 Authority of city to impose.**

The connection charges provided for herein are established pursuant to the power granted by the legislature to the city by section 5471 of the health and safety code and section 54344 of the government code; the power granted to the city by article XI, section 7 of the constitution to provide for the health and general welfare of the city and its inhabitants; and the power granted to the city by article XI, section 9 of the constitution to establish, purchase and operate public works to furnish its inhabitants with water.

#### **22.21 Establishment; time payable.**

In addition to all other charges established by the ordinance, rules and regulations of the city, there is hereby established a connection charge, in an amount determined pursuant to sections 22.22, 22.23, and 22.25 and subject to the provisions set forth in sections 22.24 and 22.26 through 22.31. Payment of such charge shall be a condition precedent, except as provided in sections 22.24 and 22.25, to connection of any water and/or sewer system of the city, and shall be payable prior to the issuance of a permit pursuant to this code, provided, however, that such charge shall be payable only with respect to connection of a structure to one of such systems, not both. (Ord. No. 2008-02, § 5.)

#### **22.22 Amount.**

The connection charge shall be in the amount of \$3,400 per family unit or equivalent effective July 1, 1991.

On April 1st of each year, the connection charge per family unit or equivalent shall automatically increase or decrease from the amount then applicable by the same percentage as the percentage of increase or decrease in construction costs between December 1st of each of the two immediately preceding years, for which purpose construction costs and the increase or decrease therein shall be based on the Engineering News-Record Construction Cost Index for the San Francisco area. On or before March 1 of each year, the director of public works shall:

(1) certify to the city council and the city building inspector the applicable percentage of increase or decrease for the following April 1st, pursuant to the foregoing provision, and the resulting change in the amount of the connection charge per family unit or equivalent; (2) submit to the city council a report, based on revenues and expenditures pursuant to this article, to the date of the report and revised estimates of future revenues and expenditures pursuant to this article for the purpose of review of and determination of whether any change should be made in the amount of the charge established by this section. (Ord. No. 87-17, § 1; Ord. No. 91-8, § 5; Ord. No. 95-30, § 4.)

#### **22.23 Family units or equivalents.**

(a) "Family" defined. As used in this section, "family" means one or more persons occupying a premises and living as a single nonprofit housekeeping unit. A family shall be deemed to include necessary servants.

(b) Residential structures. The following family units shall apply to residential structures:

(1) For each detached structure designed for occupation exclusively by one family, which structures shall include all single-family dwellings, there shall be assigned one family unit; and

(2)(A) For each structure or portion thereof designed for occupation by more than one family, each such family living independently of each other in a room or suite of rooms separated by a common wall or floor, which structures shall include condominiums, apartment houses, duplexes and such portion of hotels or motels which contain kitchen facilities in each room or suite of rooms designed for occupation by a family, and all mobile home parks, there shall be assigned one (1)

family unit for the first room, suite of rooms or mobile home, designed for occupation by a family and sixty (60%) of a family unit for each remaining room, suite of rooms, and mobile home designed for occupation by a family; and

(B) For each structure or portion thereof designed exclusively for occupation by senior citizens, which structures shall include condominiums and apartment houses, there shall be assigned one (1) family unit for the first room, or a suite of rooms, designed for occupation by a family, and forty-five (45%) of a family unit for each remaining room, or suite of rooms, designed for occupation by a family. (Ord. No. 99-11, § 1.)

(c) Other structures. There shall be assigned for commercial, industrial, office, church, private school, public facility and all other structures, including hotels and motels, or portions thereof; not containing rooms with kitchen facilities, and including portions of residential structures designed for commercial, office or other nonresidential use, a number of family unit equivalents determined on the basis of the estimated potential demand of such structures upon city water facilities and systems in relation to the normal potential demand of a single-family residential structure. Such determination shall be based on the capacity of the water meter for any such structure, in accordance with the following schedule:

METER UNIT SIZE (IN.)	METER TYPE	CAPACITY (GAL/MIN)	FAMILY UNIT EQUIVALENTS
5/8"	Displacement	10	1
3/4"	Displacement	10	1
1"	Displacement	17	2
1 1/2"	Displacement	34	5
2"	Compound	80	13
1 1/2"	Turbine	120	22
2"	Turbine	160	30
3"	Compound	160	30
4"	Compound	250	50
3"	Turbine	350	75
6"	Compound	500	120
8"	Compound	800	210
4"	Turbine	1,000	275
10"	Compound	1,150	350
6"	Turbine	2,000	640
8"	Turbine	3,500	1,250
10"	Turbine	5,500	2,155

(d) If a meter has a size and/or capacity that does not appear on the above schedule, the city engineer shall determine the number of family unit equivalents by interpolating or extrapolating the schedule and rounding to the nearest full family unit equivalent.

(e) Landscape irrigation. Family unit equivalents shall be assigned using the following schedule for irrigation service from a meter used solely to provide separate metering of landscape irrigation:

METER UNIT SIZE (IN.)	METER TYPE	CAPACITY (GAL/MIN)	FAMILY UNIT EQUIVALENTS
3/4"	Displacement	10	1
1"	Displacement	17	2
1 1/2"	Turbine	120	5
2"	Turbine	160	13
3"	Turbine	350	30

METER UNIT SIZE (IN.)	METER TYPE	CAPACITY (GAL/MIN)	FAMILY UNIT EQUIVALENTS
4"	Turbine	1,000	50
6"	Turbine	2,000	120
8"	Turbine	3,500	210(

(Ord. No. 98-8, § 3.)

(f) Fire service. No family units or equivalents shall be assigned for unmetered fire service.

#### **22.24 Exemptions.**

Connection charges pursuant to the provisions of this article shall not be payable with respect to new or altered structures for which a building permit therefore, pursuant to the building code adopted by the city at the time of issuance of such permit, was issued prior to the effective date of this article.

#### **22.25 Charge for alteration or change of meter size.**

(a) Where it is proposed to alter a structure in any way which results in a greater potential water demand therefore, or to change or replace an existing water meter by a meter of a larger size, the number of family units or equivalents applicable to such structure both prior and subsequent to such alteration or change of meter size shall be determined pursuant to the provisions of section 22.23, and a connection charge based on the difference between the units applicable prior to such alteration or change of meter size shall be paid, whether or not a connection charge was theretofore payable with respect to such structure. The charge provided for in this section shall be deemed a connection charge for the purposes of this article, even if a new physical connection of a structure is not required, the continuance of the original physical connection being conditioned on payment of the charge provided for in this section. Unless such charge is paid prior to making such alteration or change of meter size, it shall be paid within thirty days of receipt of notice of the amount payable by reason of such alteration or change of meter size. Such notice shall be mailed, postage prepaid, registered, or any owner of such structure.

(b) No connection charge shall be payable when a water meter installed before December 16, 1986 is replaced by two meters, solely to provide for the separate metering of landscape irrigation. Sizing of meters installed pursuant to this subsection shall be within the sole discretion of the city engineer. If a smaller non-irrigation meter is not justified, the city engineer may allow the existing meter to stay in service rather than require it to be replaced with a new meter. Nothing in this subsection shall be construed to eliminate payment of a connection charge when otherwise due pursuant to subsection (a).

(c) Where it is proposed to change or replace an existing water meter by a meter of a smaller size, no connection charge for capacity shall be required. (Ord. 2002-29, § 8.)

#### **22.26 Action by city council.**

(a) Appeal. Any determination made pursuant to sections 22.23 or 22.25 may be appealed to the city council for a modification thereof.

(b) Special conditions relating to time of payment. Where, in the opinion of the city council, special conditions required the payment of connection charges at a time other than that specified above, it may provide for such charge to be paid at a time agreed to by written agreement with the owner of the property to which such charge applies.

(c) Form of action. Action by the city council pursuant to this section may be by motion or resolution.

(d) Event of nonpayment. If, for any reason, connection charges pursuant to this section are not paid within five days after the time or times agreed to by written agreement with the owner of the property, said charges shall become a lien against said property and shall be added to and collected with the next regular tax bill levied against said property.

#### **22.27 Penalty for nonpayment.**

For the nonpayment of the full amount of the connection charge when payable, the owner of the property to which such charge applies shall be liable for a basic penalty in the amount of ten percent of such charge and, in addition, for a penalty of one-half of one percent per month upon the unpaid portion of such charge and the basic penalty.

#### **22.28 Disconnection for nonpayment.**

In the event of connection to any sewer and/or water system of the city without payment of the full amount of the connection charge, such connection shall be deemed illegal, and the structure so connected may be disconnected by city.

**22.29 Lien against property.**

Connection charges payable pursuant to this article shall, in accordance with and pursuant to section 5473.11 of the health and safety code, constitute a lien against the property to which such charge is applicable.

**22.30 Place of payment.**

Water connection charges shall be payable at the office of the building inspector, City Hall, Fairfield, California.

**22.31 Use of proceeds.**

There is hereby created a water facilities fund into which all sums collected pursuant to this article shall be deposited.

The monies in such water facilities fund shall be used solely to acquire or construct water supplies, facilities, and systems; to repay principal and interest on bonds issued for the acquisition or construction of such water supplies, facilities and systems; to repay federal or state loans or advances made to the city for the construction of such water facilities and systems; and to pay for administration of connection charge collection.

**22.32 No refunds.**

In the event that the building for which a connection charge has been paid is not under construction within 180 days of issuance of the plumbing permit, or in the event construction stops for 180 days, the connection charge paid shall lapse and the full amount of the connection charge in effect at the commencement or recommencement of construction shall be required. The city shall not refund the lapsed connection charge, but shall grant a credit on such connection charge in the amount of the previously paid connection charge.

### **Article V. Water Connection Charges (Installation).**

**22.33 Installation charges - new service.**

The water system shall collect the following charges for the installation of new water service connections installed by city forces. Where unusual conditions prevail, charges will be based on actual costs.

Service Connections	Charge
3/4" service pipe	\$490.00
1"	510.00
1 1/2"	550.00
2"	610.00
3"	750.00
4"	900.00

**22.34 Same - New meter and box.**

Charges for meter and box are to be added to the charges for service installation and are held as a separate charge for the convenience of subdividers or contractors where all pipe is installed by the owner. The water system shall collect the following connection charges for the installation of water meter and box:

Meter Size	Charge
3/4" meter and box	\$80.00
1" meter and box	110.00
1 1/2" meter and box	200.00
2" compound meter and box	515.00
3" compound meter and box	820.00
4" compound meter and box	1,365.00

**22.35 Same - Increase or decrease.**

All rates and charges provided for in sections 22.33 and 22.34 of this chapter, unless otherwise specified, shall, on April 1st of each year, automatically increase or decrease from the amounts then applicable by the same percentage as the percentage of increase or decrease in construction costs between December 1 of each of the two immediately preceding years. Construction

costs and the increase or decrease therein shall be based on the Engineering News-Record Construction Cost Index for the San Francisco area. (Ord. No. 95-30, § 5.)

**22.36 Same - Large service connections and special conditions.**

For any installation greater than four inches in size, the application will deposit an amount equal to the estimated installation cost at the time of application; additional billing or refund will be made on such deposit after actual installation costs have been determined at the completion of the work. Where special conditions exist, the city reserves the right to furnish special meters with the applicant to pay actual installation cost.

**22.37 Same - To be paid prior to installation, etc.**

All connection charges shall be paid prior to installation, and in the case of new construction must be paid before the building permit is issued.

**22.38 Same - Advance deposit in certain cases.**

In the case of connection charges on a cost plus basis, a deposit must be made in advance of the estimated cost and an adjustment made upon completion. If the cost is over the estimate, the applicant will be billed for the difference; if the cost is less, the water system will refund the difference.

**22.39 Changes in size of meter, pipe, etc., at expense of customers.**

Changes in size of meter, service pipe, or both of the existing service connections shall be at the expense of the customer less fifty percent of the cost of a new meter of the size being replaced.

**22.40 Changes in location of meters and connections at expense of customers.**

When the relocation of an existing meter or service connection is requested for the customer's convenience, the relocation shall be at the customer's expense.

**22.41 Water main extensions by city - Generally.**

When the city council shall determine it to be in the public interest for the city to extend water lines in advance of street development or for any other purpose, the superintendent shall be ordered to proceed with such extensions to the extent and in the manner determined by the city council. Such extensions may be installed at the cost of the city or pursuant to appropriate assessment district proceedings.

If the city council determines at the time of ordering any such main extension that this section shall be applicable thereto, accurate records of the costs thereof shall be maintained by the superintendent, together with an allocation of such costs to all parcels of property, which will be served thereby. Such allocation shall be based on such formula as will result in such costs being apportioned to such parcels in proportion to the benefits thereto, severally and respectively.

**22.42 Same - Special connection charges.**

At the time of installation of any water service connection which will be served in whole or in part by a water main to which special connection charge, in addition to all other charges and fees provided for by this chapter. Such charge shall be in an amount equal to the cost allocated to the parcel of property by the superintendent, as provided in section 22.41 of this chapter.

If a water main extension is financed by assessment district proceedings, any charge provided for by this section with respect thereto shall be deemed paid for each parcel of property within such assessment district, by virtue of the assessment levied thereon in such proceedings.

**Article VI. Reserved for Future Legislation.**

**Article VII. Extension of Water Facilities by Applicant.**

**22.43 Plans.**

Any applicant for water service which will require water main extension shall install the same at his own cost and expense. Any applicant for water service which will require other water facility extension may install the same at his own cost and expense. Plans for such extension or extensions shall be submitted to and approved by the city engineer.

**22.44 Surety bond.**

In the event the applicant installs water facility extensions, he shall furnish the city a surety company bond in an amount equal to at least one-half the city engineer's estimate of the installation costs, to guarantee faithful performance by the application, and surety company bond in an equal amount to guarantee claims of persons employed by the applicant and claims of persons who furnish materials, supplies and implements used by the applicant on such work.

#### **22.45 Evidence of title transfer to city.**

When water facility extensions are installed and upon the execution and delivery by the applicant of a good and sufficient document evidencing transfer of title of the facilities to the city, water shall be furnished to the applicant's property.

### **Article VIII. Water Meters.**

#### **22.46 Maintenance.**

Where replacements or adjustments for any water meters are necessary by the act, neglect or carelessness of the owner or occupant of any premises or anyone in their employ, any expense thereby caused to the water system shall be placed on the water bill and collected from the property owner.

#### **22.47 Testing.**

Customers shall have the right to request a test to be made of the meter service serving their premises in the manner provided in section 20 of the regulations.

If the results of the meter test determine that the meter is:

- (a) Registering not more than two percent faster or slower than the actual quantity of water passing through it, the deposit shall be retained by the water system;
- (b) Registering more than two percent over registration, an accurate meter shall be installed, the deposit refunded and the water bills adjusted to correct the error discovered;
- (c) Registering more than two percent under registration, an accurate rate meter shall be installed, the deposit refunded and the customer billed for the amount of the undercharge;
- (d) In any event, the adjustment for overcharge or undercharge shall not exceed a period of six months or that during which it was measuring service to the customer, whichever is the lesser.

#### **22.48 Erroneous meters; obstruction.**

- (a) Erroneous meters. Whenever a meter fails to register correctly, the customer shall be charged for a minimum service charge or for an estimated amount of water used, based upon the customer's prior consumption during the same season of the year, if conditions were unchanged, or upon a reasonable comparison with use of other customers during the same period receiving the same class of service under similar circumstances.
- (b) Obstructing water meters. It shall be unlawful for anyone to enclose a water meter with a fence, wall, hedge or otherwise obstruct access to water service meters. Upon the failure or refusal of the owner or customer to remove any such unlawful obstruction within a reasonable length of time, thirty days unless prevented by extenuating circumstances, after written notification to do so, the superintendent shall, at his option, order:
  - (1) The discontinuance of water service to the premises until the obstruction is removed; or
  - (2) The customer to pay an additional charge of five dollars as penalty for each meter reading taken until the obstruction is removed.

### **Article IX. Customer's Equipment.**

#### **22.49 Customer's responsibility.**

The customer shall, at his own risk and expense, furnish, install and keep in good and safe condition all equipment that may be required for receiving, controlling, applying and utilizing water, and the water system shall not be responsible for any loss or damage caused by the improper installation of such water equipment, or the negligence, want of proper maintenance or wrongful act of the customer or of any of his tenants, agents, employees, contractors, licensees or permittees in installing, maintaining, using, operating or interfering with such equipment. The customer shall be responsible for determining the pressure operation limits of his fixtures and equipment and shall properly protect the same from a variance of water delivery pressures, including periods when for any reason whatsoever there is no water available.

#### **22.50 Control valve.**

The owner of premises to be served shall install a control valve on the house piping between the water meter and the first valve outlet on the premises. When old premises, to which a service connection has previously been installed, are being altered, a control valve shall be installed by the owner, if such is not already provided. The customer shall not operate the meter stop or valve in the meter box at any time.

**22.51 Pressure relief valve.**

Each water heater shall be equipped with a suitable pressure relief valve of a type and nature required by the uniform plumbing code and building code.

**22.52 Backflow prevention - generally.**

The city council may by resolution establish regulations governing cross connection control between the water system and the plumbing on any premises.

**22.53 Same - Inspection of devices; repair, etc., costs.**

The water system shall test and inspect all such backflow prevention installations as required and all costs for service, repair, overhaul, or replacement shall be at the expense of the property owner.

**Article X. Billing.****22.54 Generally.**

The procedure of rendering bills for water service, their payment and the consequences on nonpayment, unless otherwise provided elsewhere in this chapter, shall be governed by the regulations.

**22.55 Disputed bills.**

In case of dispute as to payment of a bill previously rendered, the customer will be required to present the receipted bill, canceled check or other satisfactory evidence before adjustment or corrections shall be made.

**Article XI. Water Rates and Charges.****22.56 Payment for service; "person" defined.**

No person shall receive water service without payment of the rates and charges provided herein. The word "person" as used herein shall mean any individual, firm, or corporation, or the state or the United States of America or any public corporation, political subdivision, city, county, district, or agency of either, including this city.

**22.57 Water rates.**

(a) Water rates shall be charged by user class, as set forth in this section, reflecting the different capacity and water volume requirements for each class. Each user in a class shall pay charges in two parts: 1) a daily service charge to be paid regardless of water use and 2) a volume charge to be the result of the rate for the user class applied to user's volume usage, as measured in units of 100 cubic feet.

(b) Water rate user classes shall be as follows:

- (1) "Residential" shall include all service to single-family, multi-family and mobile home properties.
- (2) "General Service" shall include all non-residential accounts, except as otherwise provided in paragraphs (3) through (5).
- (3) "Large Industrial" shall include non-residential accounts, using an average of over one million gallons per day.
- (4) "Landscape Irrigation" shall be limited to those water users requiring service exclusively for landscaping purposes, which service is offered on an interruptible basis for use solely during the daily off-peak time period of 11:00 p.m. to 5:00 a.m. Violation of these conditions shall be grounds for the user to be billed under the "General Service" class. This class shall pay no service charge and the volume charge shall be equal to the "General Service" class.
- (5) "Special Landscape Irrigation" shall be limited to those water users meeting the following conditions: (a) the user is within an area planned for reclaimed water service within the next five years, (b) the user contracts with the city for reclaimed water irrigation service when available, and (c) all other conditions for potable water irrigation service are met. Cemetery districts that otherwise meet the above conditions and irrigate more than 17 acres shall be allowed extended hours of irrigation service, from 8:00 p.m. to 8:00 a.m. Violation of these conditions shall be grounds for the user to be billed under the "General Service" class. This class shall pay no service charge and the volume charge shall be fifteen percent (15%) less than the "General Service" class.
- (6) "Reclaimed Landscape Irrigation" shall be limited to those users actually using reclaimed water for landscape irrigation and for whom rates are not set by a reclaimed water service contract. This class shall pay no service charge and the volume charge shall be twenty-five percent (25%) less than the "General Service" class. (Ord. 2002-29, § 1.)



(c) The rates within each user class shall be established by resolution of the City Council. (Ord. No. 96-16, § 3; Ord. No. 99-1, § 2; Ord. No. 2000-11, § 1; Ord. 2002-29, § 2, Ord. No. 2004-20, §1, Ord. No. 2006-26, §1)

(d) Any user whose property is located at or above 200 feet in elevation shall, in addition to the volume charge paid under subsection (a), pay a zone 3 volume surcharge equal to \$.30 per 100 cubic feet, effective June 7, 1995. Any user whose property is located at or above 400 feet in elevation shall, in addition to the volume charge paid under subsection (a) and the zone 3 volume surcharge paid under this subsection, pay a zone 5 volume surcharge equal to \$.30 per 100 cubic feet effective June 7, 1995. Any user whose property is served by a hydroneumatic pumped system shall pay a demand pump surcharge of \$.20 per 100 cubic feet effective June 7, 1995.

(e) Any general service turbine meter installed before May 19, 1987, shall be charged the same daily service charge as a compound meter of equivalent size.

(f) Detector check valves for fire sprinkler systems shall be billed on the basis of the bypass meter size at the amount stated in this section, and municipally-owned fire hydrants shall be billed an annual charge of one dollar per fire hydrant, which charges shall cover all water furnished through the applicable sprinkler systems and hydrants. (Ord. No. 95-10, § 2; Ord. No. 2008-03, § 1; Ord. No. 2009-19, § 1.)

(g) Low Income Senior/Disabled Refund. A refund may be made to certain customers under the following conditions:

(1) On March 1, following the calendar year for which the refund is applicable, the customer making application for the refund meets all of the following criteria: (a) is over sixty-two (62) years of age, or is considered disabled under social security law and receives supplemental social security income for disabled persons, or is a veteran in receipt of a non service connected disability pension from the Veterans Administration, and (b) such individual is a "head of household," (c) that such individual has paid the charges imposed by this section for the twelve (12) months of the preceding calendar year, (d) that the combined annual "gross income" of the household of which such individual is head is less than or equal to the United States Housing and Urban Development eligibility limit for a family of two with very low income for the preceding calendar year, (e) that the water service for which such charges were paid was delivered to said individual's residence, and (f) that such individual had made no other application for a refund for the same calendar year. (Ord. No. 96-16, § 4; Ord. No. 2000-11, Sec. 3; Ord. 2002-29, § 4, Ord. No. 2004-20, §2)

(2) Beginning August 1, 2013, the amount of the refund referred to in paragraph (1) shall be \$118.00. On each July 1 thereafter, the amount of the refund shall increase by the net percentage increase in residential rates from the prior July 1. The City Council may amend by resolution the conditions for receipt of the refund and the amount of the refund. (Ord. 2002-29, § 4.)

(3) The refund provided for in paragraph (2) shall be applied for on a form prescribed by the city on or before March 1, and shall be payable before April 30 of each year for the preceding calendar year.

(4) As used herein, "head of household" shall mean the person filing or who would file a federal income tax return as a head of household, or a single individual, or the husband or wife, if a joint return is filed, but in such case, the individual applying for the refund must additionally declare that his or her spouse has not also applied for the refund for the same period of time.

(5) As used herein "gross income" shall include all compensation for wages, salaries, tips, interest income, rental income (after expenses), royalties, pensions, annuities, social security, SSI, and alimony. (Ord. No. 87-17, § 2; Ord. No. 87-27, § 1; Ord. No. 87-37, § 1; Ord. No. 88-1, § 1; Ord. No. 91-8, § 1; Ord. No. 2000-11, § 3; Ord. 2002-29, § 4, Ord. 2004-20, § 2. Formerly 22.57C.)

(h) Recreational Field Exemption. The city council may by resolution exempt from the water rates provided for in this article any water used exclusively for irrigating city parks or recreational fields and landscaping of a school district, which would otherwise be subject to the "landscape irrigation" or "special landscape irrigation" user classes pursuant to Section 22.57. (Ord. No. 94-9, § 2; Ord. 2002-29, § 7. Formerly 22.57E.)

(i) From time to time, the preparation of studies to determinate the appropriate water rates to be charged based on the costs of service may be directed by the City Council or City Manager. All future water rate increases shall be subject to City Council approval in the manner required by law. (Ord. No. 2012-01, §§ 1 - 4; Ord. No. 2013-10, §§ 1, 2; Ord. No. 2017-17, § 1.)

#### **22.57A Annual rate adjustment.**

Repealed by Ord. 2012-01. (Ord. No. 94-9, § 1; Ord. No. 98-32, § 3; Ord. No. 2009-19, § 2.)

**22.57B Cost of service adjustments.**

Repealed by Ord. 2012-01. (Ord. No. 2009-19, § 3.)

**22.57C Low income senior/disabled refund.**

Recodified to Sec. 22.57(g) by Ord. 2012-01.

**22.57D Deferred rate increase.**

Repealed by Ord. 2012-01. (This section was previously repealed by Ordinance 2002-29, § 5, then a new Section 22.57D was added by Ord. 2004-20, §3.)

**22.57E Recreational field exemption.**

Recodified to Sec. 22.57(h) by Ord. 2012-01.

**22.58 Standby service charge.**

This section repealed by Ord. No. 78-33, § 2.

**22.59 Delinquent charge to be real property lien.**

Charges for water service as set forth in section 22.57 of this chapter shall be considered delinquent if not paid within 30 days. After compliance by the water system with section 36 of the regulations, the delinquent charges shall constitute a lien upon the real property to which the unpaid charge for service was rendered. Such lien is imposed pursuant to the state government code § 54354. (Ord. No. 87-37, § 2.)(Ord. 95-30,eff. 1/19/96)(Ord. 2000-11, eff.1/5/01)

**22.60 Outside rates.**

Every customer not covered by section 22.61 being supplied water from the water system to premises outside the city limits shall pay water rates and charges which shall be fifty percent over and above the rates and charges established for water users within the corporate limits of the city. (Ord. No. 87-37, § 3; Ord. 2002-29, § 6.)

**22.61 Industrial wholesale and raw water.**

The city council reserves the right to negotiate by contract rates different than those expressed in this chapter; such contractual rates shall take preference over any other rates set forth in this chapter.

**Article XII. Additional Connection Charge Within Pressure Zone Two.****22.62 Purpose.**

In order to fund the construction, maintenance, and operation of the special pump stations and reservoir sites required to serve water to customers located between elevation 100 feet and 200 feet, inclusive, there is hereby established the additional connection charge specified in this article which shall be in addition to all other charges levied by this code. The establishment of this additional connection charge creates no obligation on the part of the city to serve water above the 100-foot elevation.

**22.63 Pressure Zone Two connection charge.**

The water system shall collect the following charges for installation of new water services located between the elevation of 100 and 200 feet:

- (a) The connection charge shall be in the amount of five hundred dollars per family unit or equivalent.
- (b) The number of family unit equivalents for a service shall be determined as provided in Article IV of this chapter.

**22.64 Same - Increase or decrease.**

All charges provided for in Sec. 22.63, unless otherwise specified, shall, on April 1st of each year, automatically increase or decrease from the amounts then applicable by the same percentage as the percentage of increase or decrease in construction costs between December 1 of each of the two immediately preceding years. Construction costs and the increase or decrease therein shall be based on the Engineering News-Record Construction Cost Index for the San Francisco area. (Ord. No. 95-30, § 6.)

**22.65 Exemptions.**

The provisions of this article shall not apply to areas in which prior to January 31, 1979 the Fairfield City Council approved development conditioned upon the formation of an assessment district or provision of a separate water pressure system installed and paid for by the developer to serve elevations between elevations 100 and 200 feet.

**22.66 Map.**

The areas located between 100 and 200 feet subject to this article shall be those areas shown on pressure zones 2A and 2B on that certain map entitled, "City of Fairfield, Domestic Water Reservoir Study, Recommended Plan, Pressure Zone No. 2, June 1975", a copy of which is on file with the Department of Public Works, and incorporated herein by reference. (Ord. No. 79-14, § 1; Ord. No. 86-52)

### **Article XIII. Excess Usage Volume Surcharge.**

#### **22.70 Purpose.**

Repealed by Ord. No. 93-15, § 1.

#### **22.71 Surcharge imposed.**

Repealed by Ord. No. 93-15, § 1.

#### **22.72 Conditions permitting supplemental water allocations.**

Repealed by Ord. No. 93-15, § 1.

#### **22.73-22.79 Reserved for future legislation.**

### **Article XIV. Drought Response Program.**

#### **22.80 Purpose.**

Repealed by Ord. No. 93-15, § 2.

#### **22.81 General provisions.**

Repealed by Ord. No. 93-15, § 2.

#### **22.82 Water use regulations and prohibitions.**

Repealed by Ord. No. 93-15, § 2.

#### **22.83 New public landscaping.**

Repealed by Ord. No. 93-15, § 2.

#### **22.84 Increased penalties for water theft.**

Repealed by Ord. No. 93-15, § 2.

### **Article XV. Water Misuse Prevention Program.**

#### **22.85 General provisions.**

(a) Declaration. It is hereby declared that, because of the Mediterranean climate and recurring drought conditions often prevailing in the City of Fairfield and other areas in the State of California, the general welfare requires that the water resources available to the City be put to the maximum beneficial use possible and the misuse or unreasonable use or unreasonable method of use of water be prevented.

(b) Application. The provisions of this article shall apply to all persons, customers, and property served water by the City of Fairfield. The provisions of this article are not applicable to uses of water that are necessary to protect public health and safety or for essential services, such as police, fire, and other similar emergency services. The provisions of this section also do not apply to the use of non-potable water, such as recycled or reclaimed water. (Ord. No. 94-23, § 1; Ord. No. 2015-10, § 3. Formerly 22.86.)

#### **22.86 Normal condition.**

The following prohibitions and regulations shall be in effect at all times.

(a) Failure by any person to promptly repair a controllable water leak shall be prohibited. A "controllable" water leak is defined as any leak occurring from the customer's water system including plumbing and irrigation fixtures for which the customer owns and/or is responsible. This definition includes the entire water system within the boundaries of the customer's property. For example, broken sprinkler heads, leaking hose bibs, or broken water lines (under the customers home) are considered controllable water leaks. A person is not responsible for any portion of the system owned by the City or other public agency (e.g., water meter).

(b) Landscape irrigation utilizing individual sprinklers or sprinkler systems of lawns, landscaped areas, trees, shrubs, or other plants shall occur only before 12:00 noon or after 6:00 pm. This restriction is applicable only during daylight savings time unless changed hereafter by resolution of the City Council.

(c) All new installation of cooling systems using potable water as a coolant shall be recycling systems only. No single pass cooling systems shall be allowed except by resolution of the City Council. (Ord. No. 2015-10, § 3. Formerly 22.87.)

#### **22.87 Stage I water shortage**

In addition to the permanent prohibitions and regulations established in section 22.86, the following prohibitions and regulations shall apply when the City Council declares a State I water shortage:

- (a) No person may wash down paved areas, including, but not limited to, sidewalks, streets, walkways, patios, driveways, alleys or parking areas, with potable water.
- (b) Vehicles may only be washed with the use of a controllable water source, such as a bucket or hose affixed with an automatic shut-off nozzle, or at a commercial car wash. (Ord. No. 2015-10, § 3.)

#### **22.88 Stage II water shortage**

In addition to the prohibitions and regulations in effect during a Stage I water shortage, the following prohibitions and regulations shall also apply when the City Council declares a State II water shortage:

- (a) No person may use water for the purpose of washing a building, home, or other structure unless through use of a pressure washer.
- (b) Landscape irrigation with potable water shall be limited to four days per week, unless the City Council or Public Works Director declares that landscape irrigation with potable water shall be limited to three days per week.
- (c) No person shall operate any fountain or other aesthetic water features unless the fountain or water feature is constructed with a water recirculation system.
- (d) All eating and drinking establishments of any kind whatsoever including, but not limited to, any restaurant, hotel, cafe, cafeteria, bar, or club shall only provide drinking water upon request.
- (e) All hotels, motels and bed and breakfast establishments shall provide customers the option of choosing not to have towels laundered daily. Each establishment shall prominently display notice of this option and the existence of drought conditions within the City in each guest room using clear and easily understood language.
- (f) All construction projects shall use reclaimed water to the extent feasible. (Ord. No. 2015-10, § 3.)

#### **22.89 Stage III water shortage**

In addition to the prohibitions and regulations in effect during a Stage II water shortage, the following prohibitions and regulations shall also apply when the City Council declares a State III water shortage:

- (a) Landscape irrigation with potable water shall be limited to two days per week.
- (b) Use of potable water to flush hydrants, except where required for public health or safety or as otherwise required by law is prohibited.
- (c) Construction or permitting of new pools and/or spas shall be prohibited.
- (d) All construction projects shall use reclaimed water only. (Ord. No. 2015-10, § 3.)

#### **22.90 Stage IV water shortage.**

In addition to the prohibitions and regulations in effect during a Stage III water shortage, the following prohibitions and regulations shall also apply when the City Council declares a State IV water shortage:

- (a) The use of potable water for construction projects shall be prohibited.
- (b) No person may fill a pool, spa, decorative fountain, or aesthetic water feature with potable water.
- (c) No person may operate a decorative fountain or other aesthetic water feature using potable water.
- (d) Landscape irrigation with potable water shall be prohibited at all times. (Ord. No. 2015-10, § 3.)

#### **22.91 Procedure for Implementing a water shortage stage.**

The City Council may declare a water shortage stage and implement the accompanying restrictions by resolution after conducting a public hearing, notice of which shall be published not less than ten days before the hearing in a newspaper of general circulation within the City. Within ten days after adoption of the resolution, a copy of the resolution shall be published in a newspaper of general circulation within the City.

The Public Works Director has discretion to determine that certain restrictions may be appropriate for implementation at an earlier stage and may recommend such restrictions for implementation to the City Council. The City Council may implement such additional restrictions as part of its declaration of a water shortage stage. (Ord. No. 2015-10, § 3.)

#### **22.92 Penalties and enforcement.**

(a) Each violation of a provision of this article shall constitute a separate violation and shall be enforced accordingly. All violations occurring on a water customer's premises or using water delivered through a customer's water service connection shall be the responsibility of the customer.

(b) A violation of this article shall be subject to a fine not to exceed the amounts provided below:

(1) Fines applicable during normal conditions:

- a. First offense: a written warning to refrain from further violations of this article.
- b. Second offense within the preceding twelve months: \$25.
- c. Third offense within the preceding twelve months: \$50.
- d. Fourth and subsequent offense within the preceding twelve months: \$100.

(2) Fines applicable during a Stage I or Stage II water shortage:

- a. First offense: a written warning to refrain from further violations of this article.
- b. Second offense within the preceding twelve months: \$50.
- c. Third offense within the preceding twelve months: \$100.
- d. Fourth and subsequent offense within the preceding twelve months: \$250.

(3) Fines applicable during a Stage III water shortage:

- a. First offense: \$50.
- b. Second offense within the preceding twelve months: \$100.
- c. Third offense within the preceding twelve months: \$200.
- d. Fourth and subsequent offense within the preceding twelve months: \$350.

(4) Fines applicable during a Stage IV water shortage:

- a. First offense: \$100.
- b. Second offense within the preceding twelve months: \$200.
- c. Third offense within the preceding twelve months: \$300.
- d. Fourth and subsequent offense within the preceding twelve months: a fine of \$500.

(c) In addition to the applicable fine, the City may install a flow restrictor on a customer's water service connection for two months for a fourth and subsequent violation of this article during any water shortage stage. If no further violations of this article occur during this two-month period, the City shall remove the flow restrictor at the customer's expense. If a violation occurs during this two-month period, the City may maintain the flow restrictor for an additional two months. The fee for the flow restrictor removal shall include reimbursement to the City for the cost of installation.

(d) The provisions of this article may be enforceable through the City's administrative citation process as provided in sections 1.12 through 1.18.

(e) Any peace officer or City code enforcement officer shall have the authority to enforce the provisions of this article. City meter readers and City public works staff designated by the Director of Public Works shall also have the authority to write and deliver notices of violations pursuant to this article. (Ord. No. 94-23, § 1; Ord. No. 2015-10, § 3. Formerly 22.89.)

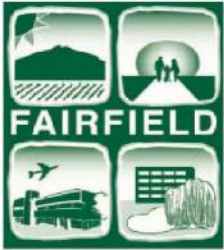
## **Appendix C: Fairfield Adoption of the 2020 UWMP and WSCP**

---

## **Appendix D: Public Outreach Materials**

---





Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT Utilities Division

April 1, 2021

City of Fairfield – Public Works Department – Director of Utilities  
1000 Webster St.  
Fairfield, CA 94533

### Re: **Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield**

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

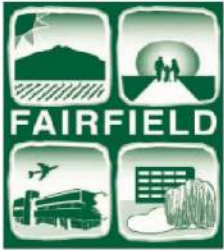
Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities



Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT

### Utilities Division

April 1, 2021

City of Vacaville – Public Works Department – Director of Utilities  
650 Merchant Street  
Vacaville, CA 95688

### Re: Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

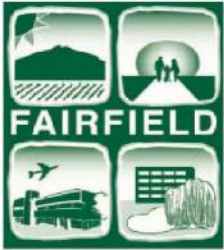
Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities





Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT

### Utilities Division

April 1, 2021

City of Benicia – Public Works Department – Director of Utilities  
250 East L Street  
Benicia, CA 94510

## Re: Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield

### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

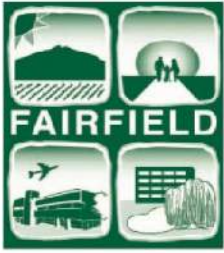
Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities



Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT Utilities Division

April 1, 2021

City of Vallejo – Public Works Department – Director of Utilities  
202 Fleming Hill Road  
Vallejo, CA 94589

### Re: **Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield**

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

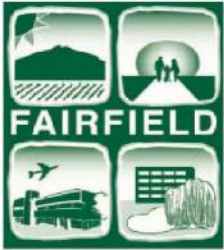
Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities





Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT

### Utilities Division

April 1, 2021

City of Dixon – Public Works Department – Director of Utilities  
600 East A St.  
Dixon, CA 95620-3697

## Re: Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield

### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

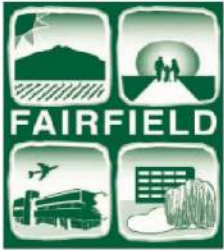
Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities



Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT Utilities Division

April 1, 2021

City of Suisun – Public Works Department – Director of Utilities  
701 Civic Center Blvd.  
Suisun, CA 94585

### Re: **Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield**

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

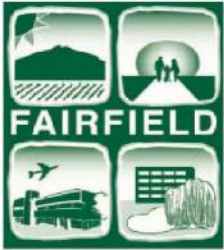
Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities





Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT

### Utilities Division

April 1, 2021

City of Rio Vista – Public Works Department – Director of Utilities

One Main Street

Rio Vista, CA 94571

## Re: Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield

### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

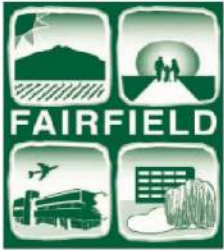
Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities



Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT

### Utilities Division

April 1, 2021

Solano County Water Agency— General Manager  
810 Vaca Valley Parkway, Suite 203  
Vacaville, CA 95688

## Re: Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield

### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

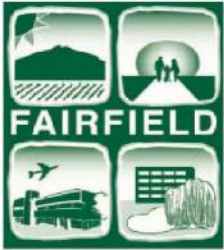
Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities





Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT Utilities Division

April 1, 2021

Solano Irrigation District  
810 Vaca Valley Parkway, Suite 201  
Vacaville, CA 95688

### Re: **Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield**

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

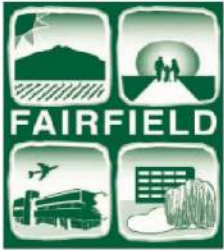
Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities



Home of  
Travis Air Force Base

#### COUNCIL

##### Mayor

Harry T. Price  
707-428-7395

##### Vice-Mayor

Rick Vaccaro  
707-428-6298

##### Councilmembers

707-428-6298

Pam Bertani  
Catherine Moy  
Doris Panduro  
Chuck Timm  
Scott Tonnesen

...

##### City Manager

Stefan T. Chatwin  
707-428-7400

...

##### City Attorney

Gregory W. Stepanich  
707-428-7419

...

##### City Clerk

Karen L. Rees  
707-428-7384

...

##### City Treasurer

Arvinda Krishnan  
707-428-7038

#### DEPARTMENTS

##### City Manager's Office

707-428-7400

##### Community Development

707-428-7461

##### Finance

707-428-7038

##### Fire

707-428-7375

##### Housing Services

707-428-7688

##### Human Resources

707-428-7394

##### Parks & Recreation

707-428-7465

##### Police

707-428-7362

##### Public Works

707-428-7485

# CITY OF FAIRFIELD

Founded 1856

Incorporated December 12, 1903

## PUBLIC WORKS DEPARTMENT Utilities Division

April 1, 2021

Solano County Planning Department  
675 Texas Street, Suite 5500  
Fairfield, CA 94533

### Re: **Public Notice of Intent to Update the 2020 Urban Water Management Plan for the City of Fairfield**

#### To Whom It May Concern:

This letter serves as notice for the City of Fairfield's (Fairfield) review, update, and revision of its Urban Water Management Plan (UWMP) which occurs every five years. UWMPs are planning documents in which water suppliers evaluate and compare their water supplies and reliability to their existing and projected demands. Fairfield has also revised its Water Shortage Contingency Plan (WSCP) which is now a separate document from the UWMP.

Based on new guidance from the California Department of Water Resources (DWR), Fairfield may also update the 2015 UWMP to incorporate data on Fairfield's use of imported water from the Sacramento-San Joaquin Delta through the State Water Project. If included, this update is intended to document consistency with the Delta Reform Act and the Delta Plan for the 2020 UWMP, and, to address requirements of the Delta Policy, the 2015 UWMP will include this information as an addendum.

Beginning May 18, 2021, drafts of the 2020 UWMP, 2020 WSCP, and 2015 UWMP addendum, if applicable, will be available for public review at <https://www.fairfield.ca.gov/gov/depts/pw/utility> with comments closing June 15, 2021. Fairfield will hold a public hearing on June 1, 2021, prior to adoption of these plans. You may submit formal comments in writing to:

Michael Hether  
PW Department  
1000 Webster Street  
Fairfield, CA 94533

Should you have any questions, please contact me at (707) 428-7485 no later than June 15, 2021.

Respectfully,

*Michael Hether*

MICHAEL HETHER, PE  
Assistant Public Works Director - Utilities

## **Appendix E: Water Loss Audit Output**

---



# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0  
American Water Works Association

Click to access  
 Click to add a comment

Water Audit Report for: **City of Fairfield (4810003)**  
Reporting Year: **2016** **1/2016 - 12/2016**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

**All volumes to be entered as: MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

Volume from own sources: 3 5,749.000 MG/Yr   
Water imported: 3 4.290 MG/Yr   
Water exported: 3 17.180 MG/Yr

## Master Meter and Supply Error Adjustments

Pcnt: Value:  
3 0.00% MG/Yr  
3 0.00% MG/Yr  
3 0.00% MG/Yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

**WATER SUPPLIED:** **5,736.110** MG/Yr

## AUTHORIZED CONSUMPTION

Billed metered: 7 5,144.000 MG/Yr  
Billed unmetered: n/a 0.000 MG/Yr  
Unbilled metered: n/a 0.000 MG/Yr  
Unbilled unmetered: 5 **14.340** MG/Yr

**AUTHORIZED CONSUMPTION:** **5,158.340** MG/Yr

Click here: for help using option buttons below  
Pcnt: Value:  
 **14.340** MG/Yr

Use buttons to select percentage of water supplied **OR** value

## WATER LOSSES (Water Supplied - Authorized Consumption)

**577.770** MG/Yr

## Apparent Losses

Unauthorized consumption: **14.340** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: 4 **104.980** MG/Yr

Systematic data handling errors: **12.860** MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses:** **132.180** MG/Yr

Pcnt: Value:  
0.25% MG/Yr

2.00% MG/Yr  
0.25% MG/Yr

## Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **445.590** MG/Yr

**WATER LOSSES:** **577.770** MG/Yr

## NON-REVENUE WATER

**NON-REVENUE WATER:** **592.110** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains: 8 368.0 miles  
Number of active AND inactive service connections: 9 31,076  
Service connection density: **84** conn./mile main

Are customer meters typically located at the curbside or property line? Yes (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 5 65.0 psi

## COST DATA

Total annual cost of operating water system: 10 \$18,570,440 \$/Year  
Customer retail unit cost (applied to Apparent Losses): 5 \$2.08 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses): 5 \$310.00 \$/Million gallons ☐ Use Customer Retail Unit Cost to value real losses

## WATER AUDIT DATA VALIDITY SCORE:

**\*\*\* YOUR SCORE IS: 51 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

**1: Volume from own sources**

**2: Customer metering inaccuracies**

**3: Customer retail unit cost (applied to Apparent Losses)**





# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association

? Click to access definition  
+ Click to add a comment

Water Audit Report for: **City of Fairfield (4810003)**  
Reporting Year: **2017** 1/2017 - 12/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

<----- Enter grading in column 'E' and 'J' ----->				Master Meter and Supply Error Adjustments	
Volume from own sources:	+ ?	7	6,527.000	MG/Yr	+ ? 3 0.00% <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> MG/Yr
Water imported:	+ ?	3	5.043	MG/Yr	+ ? 3 0.00% <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> MG/Yr
Water exported:	+ ?	3	9.461	MG/Yr	+ ? 3 0.00% <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> MG/Yr

**WATER SUPPLIED:** **6,522.582** MG/Yr

## AUTHORIZED CONSUMPTION

Billed metered:	+ ?	7	5,150.000	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	n/a	0.000	MG/Yr
Unbilled unmetered:	+ ?		<b>81.532</b>	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

**AUTHORIZED CONSUMPTION:** **5,231.532** MG/Yr

Click here: ?  
for help using option

Pcnt: 1.25% ☒ ☐ ☐ ☐ Value: MG/Yr

Use buttons to select  
percentage of water  
supplied  
OR  
value

Pcnt: 0.25% ☒ ☐ ☐ ☐ Value: MG/Yr

2.00% ☒ ☐ ☐ ☐ MG/Yr  
0.25% ☒ ☐ ☐ ☐ MG/Yr

## WATER LOSSES (Water Supplied - Authorized Consumption)

**1,291.050** MG/Yr

### Apparent Losses

Unauthorized consumption: + ? **16.306** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: + ? 4 **105.102** MG/Yr  
Systematic data handling errors: + ? **12.875** MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses:** **134.283** MG/Yr

### Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? **1,156.766** MG/Yr

**WATER LOSSES:** **1,291.050** MG/Yr

## NON-REVENUE WATER

**NON-REVENUE WATER:** **1,372.582** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains: + ? 8 373.0 miles  
Number of active AND inactive service connections: + ? 9 30,698  
Service connection density: ? 82 conn./mile main

Are customer meters typically located at the curbside or property line? Yes (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: + ? **Average length of customer service line has been set to zero and a data grading score of 10 has been applied**

Average operating pressure: + ? 5 65.0 psi

## COST DATA

Total annual cost of operating water system: + ? 10 \$18,570,440 \$/Year  
Customer retail unit cost (applied to Apparent Losses): + ? 5 \$2.10 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses): + ? 5 \$399.19 \$/Million gallons ☐ Use Customer Retail Unit Cost to value real losses

## WATER AUDIT DATA VALIDITY SCORE:

\*\*\* YOUR SCORE IS: 64 out of 100 \*\*\*

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Customer metering inaccuracies
- 3: Customer retail unit cost (applied to Apparent Losses)



# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association

Click to access definition  
 Click to add a comment

Water Audit Report for: **City of Fairfield (4810003)**  
Reporting Year: **2018** **1/2018 - 12/2018**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

**All volumes to be entered as: MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

Volume from own sources:   7 6,151.000 MG/Yr  
Water imported:   3 5.043 MG/Yr  
Water exported:   3 2.839 MG/Yr

**WATER SUPPLIED:** **6,153.204** MG/Yr

## Master Meter and Supply Error Adjustments

Pcnt: Value:  
  3 0.00% ☐ ☐ MG/Yr  
  3 0.00% ☐ ☐ MG/Yr  
  3 0.00% ☐ ☐ MG/Yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

## AUTHORIZED CONSUMPTION

Billed metered:   5 5,115.000 MG/Yr  
Billed unmetered:   n/a 0.000 MG/Yr  
Unbilled metered:   n/a 0.000 MG/Yr  
Unbilled unmetered:   5 15.383 MG/Yr

**AUTHORIZED CONSUMPTION:** **5,130.383** MG/Yr

Click here:  for help using option

Pcnt: Value:  
☐ ☒ 15.383 MG/Yr

Use buttons to select percentage of water supplied  
OR  
value

Pcnt: Value:  
0.25% ☒ ☐ MG/Yr

2.00% ☐ ☒ MG/Yr  
0.25% ☐ ☐ MG/Yr

## WATER LOSSES (Water Supplied - Authorized Consumption)

**1,022.821** MG/Yr

### Apparent Losses

Unauthorized consumption:   15.383 MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:   4 104.388 MG/Yr  
Systematic data handling errors:   12.788 MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses:** **132.558** MG/Yr

### Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:   **890.263** MG/Yr

**WATER LOSSES:** **1,022.821** MG/Yr

## NON-REVENUE WATER

**NON-REVENUE WATER:** **1,038.204** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains:   8 371.0 miles  
Number of active AND inactive service connections:   9 30,930  
Service connection density:   83 conn./mile main

Are customer meters typically located at the curbside or property line?   Yes

Average length of customer service line:   (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:   5 65.0 psi

## COST DATA

Total annual cost of operating water system:   10 \$22,157,500 \$/Year  
Customer retail unit cost (applied to Apparent Losses):   5 \$2.18 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses):   5 \$335.00 \$/Million gallons ☐ Use Customer Retail Unit Cost to value real losses

## WATER AUDIT DATA VALIDITY SCORE:

**\*\*\* YOUR SCORE IS: 62 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Billed metered

3: Customer metering inaccuracies



# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association

Click to access definition  
 Click to add a comment

Water Audit Report for: **City of Fairfield (4810003)**  
Reporting Year: **2019** **1/2019 - 12/2019**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

**All volumes to be entered as: MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

Volume from own sources:   6,191.000 MG/Yr  
Water imported:   0.000 MG/Yr  
Water exported:   2.839 MG/Yr

**WATER SUPPLIED: 6,188.161 MG/Yr**

## Master Meter and Supply Error Adjustments

Pcnt:  0.00% ☐ ☐ Value:  MG/Yr  
  0.00% ☐ ☐ MG/Yr  
  0.00% ☐ ☐ MG/Yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

## AUTHORIZED CONSUMPTION

Billed metered:   5,572.000 MG/Yr  
Billed unmetered:   0.000 MG/Yr  
Unbilled metered:   0.000 MG/Yr  
Unbilled unmetered:   15.470 MG/Yr

**AUTHORIZED CONSUMPTION: 5,587.470 MG/Yr**

Click here:  for help using option

Pcnt: ☐ ☒ Value:  15.470 MG/Yr

Use buttons to select percentage of water supplied  
OR  
value

Pcnt: ☐ 0.25% ☒ ☐ Value:  MG/Yr

☐ 2.00% ☒ ☐ MG/Yr  
☐ 0.25% ☒ ☐ MG/Yr

## WATER LOSSES (Water Supplied - Authorized Consumption)

**600.691 MG/Yr**

### Apparent Losses

Unauthorized consumption:   15.470 MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:   113.714 MG/Yr  
Systematic data handling errors:   13.930 MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses: 143.115 MG/Yr**

### Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:  457.576 MG/Yr

**WATER LOSSES: 600.691 MG/Yr**

## NON-REVENUE WATER

**NON-REVENUE WATER: 616.161 MG/Yr**

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains:   372.0 miles  
Number of active AND inactive service connections:   30,930  
Service connection density:  83 conn./mile main

Are customer meters typically located at the curbside or property line?  Yes

Average length of customer service line:   74.0 psi (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:   74.0 psi

## COST DATA

Total annual cost of operating water system:   \$23,035,308 \$/Year  
Customer retail unit cost (applied to Apparent Losses):   \$2.27 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses):   \$320.00 \$/Million gallons ☐ Use Customer Retail Unit Cost to value real losses

## WATER AUDIT DATA VALIDITY SCORE:

**\*\*\* YOUR SCORE IS: 62 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Billed metered

3: Customer metering inaccuracies



## **Appendix F: SBx7-7 Verification Tables**

---

**SB X7-7 Table 0: Units of Measure Used in 2020 UWMP\****(select one from the drop down list)*

Million Gallons

*\*The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*

NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
<input type="checkbox"/>	1. Department of Finance (DOF) or American Community Survey (ACS)
<input type="checkbox"/>	2. Persons-per-Connection Method
<input type="checkbox"/>	3. DWR Population Tool
<input checked="" type="checkbox"/>	4. Other DWR recommends pre-review
NOTES: City of Fairfield 2020 population estimate from Association of Bay Area Governments (ABAG) Plan Bay Area 2010-2040 Projections (2018) was used.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	106,815
NOTES: Based on City of Fairfield 2020 population estimate from Association of Bay Area Governments (ABAG) Plan Bay Area 2010-2040 Projections (2018).	

SB X7-7 Table 4: 2020 Gross Water Use

Compliance Year 2020	2020 Volume Into Distribution System  <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water  <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use*	Process Water  <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>	
	6,806	-	-	-	-	-	6,806

\* **Units of measure (AF, MG, or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:
--------

**SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s),  
Meter Error Adjustment**

Complete one table for each source.

<b>Name of Source</b>	Total supply from State Water Project (SWP) and Non-SWP Settlement Water		
<b>This water source is (check one) :</b>			
<input type="checkbox"/>	The supplier's own water source		
<input checked="" type="checkbox"/>	A purchased or imported source		
<b>Compliance Year 2020</b>	<b>Volume Entering Distribution System <sup>1</sup></b>	<b>Meter Error Adjustment <sup>2</sup> Optional (+/-)</b>	<b>Corrected Volume Entering Distribution System</b>
	2,275	-	2,275
<sup>1</sup> <b>Units of measure (AF, MG, or CCF)</b> must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> <b>Meter Error Adjustment</b> - See guidance in Methodology 1, Step 3 of Methodologies Document			
NOTES:			

**SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter  
Error Adjustment**

Complete one table for each source.

<b>Name of Source</b>	Solano Project		
<b>This water source is (check one) :</b>			
<input type="checkbox"/>	The supplier's own water source		
<input checked="" type="checkbox"/>	A purchased or imported source		
<b>Compliance Year 2020</b>	<b>Volume Entering Distribution System <sup>1</sup></b>	<b>Meter Error Adjustment <sup>2</sup> Optional (+/-)</b>	<b>Corrected Volume Entering Distribution System</b>
	4,531		4,531
<sup>1</sup> <b>Units of measure (AF, MG, or CCF)</b> must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> <b>Meter Error Adjustment</b> - See guidance in Methodology 1, Step 3 of Methodologies Document			
NOTES:			

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water <i>Fm SB X7-7 Table 4</i>	2020 Population <i>Fm SB X7-7 Table 3</i>	2020 GPCD
6,806	106,815	175
NOTES:		



**SB X7-7 Table 9: 2020 Compliance**

Actual 2020 GPCD <sup>1</sup>	Optional Adjustments to 2020 GPCD					2020 Confirmed Target GPCD <sup>1, 2</sup>	Did Supplier Achieve Targeted Reduction for 2020?
	Enter "0" if Adjustment Not Used			TOTAL Adjustments <sup>1</sup>	Adjusted 2020 GPCD <sup>1</sup> <i>(Adjusted if applicable)</i>		
	Extraordinary Events <sup>1</sup>	Weather Normalization <sup>1</sup>	Economic Adjustment <sup>1</sup>				
175	-	-	-	-	175	181	YES

<sup>1</sup> All values are reported in GPCD

<sup>2</sup> **2020 Confirmed Target GPCD** is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.

NOTES:

**SB X7-7 Table 0: Units of Measure Used in UWMP\****(select one from the drop down list)*

Million Gallons

*\*The unit of measure must be consistent with Table 2-3*

NOTES:

**SB X7-7 Table-1: Baseline Period Ranges**

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	7,971	Million Gallons
	2008 total volume of delivered recycled water	17	Million Gallons
	2008 recycled water as a percent of total deliveries	0.21%	Percent
	Number of years in baseline period <sup>1, 2</sup>	10	Years
	Year beginning baseline period range	1996	
	Year ending baseline period range <sup>3</sup>	2005	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range <sup>4</sup>	2007	

<sup>1</sup> If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. <sup>2</sup> The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

<sup>3</sup> The ending year must be between December 31, 2004 and December 31, 2010.

<sup>4</sup> The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

**SB X7-7 Table 2: Method for Population Estimates**

Method Used to Determine Population (may check more than one)	
<input type="checkbox"/>	<b>1. Department of Finance (DOF) or American Community Survey (ACS)</b>
<input type="checkbox"/>	<b>2. Persons-per-Connection Method</b>
<input type="checkbox"/>	<b>3. DWR Population Tool</b>
<input checked="" type="checkbox"/>	<b>4. Other</b> DWR recommends pre-review
NOTES: City of Fairfield 2020 population estimate from Association of Bay Area Governments (ABAG) Plan Bay Area 2010-2040 Projections (2018) was used.	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1996	77,497
Year 2	1997	79,156
Year 3	1998	81,283
Year 4	1999	83,410
Year 5	2000	85,355
Year 6	2001	89,188
Year 7	2002	90,208
Year 8	2003	93,637
Year 9	2004	94,977
Year 10	2005	97,386
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	93,637
Year 2	2004	94,977
Year 3	2005	97,386
Year 4	2006	100,147
Year 5	2007	101,561
NOTES:		

**SB X7-7 Table 4: Annual Gross Water Use \***

Baseline Year <i>Fm SB X7-7 Table 3</i>		Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use	Process Water <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1996	6,278			-		-	6,278
Year 2	1997	6,928			-		-	6,928
Year 3	1998	6,308	65		-		-	6,243
Year 4	1999	6,892	6		-		-	6,886
Year 5	2000	7,147	10		-		-	7,137
Year 6	2001	7,545	20		-		-	7,525
Year 7	2002	7,671	3		-		-	7,668
Year 8	2003	7,690	0		-		-	7,690
Year 9	2004	7,692	0		-		-	7,692
Year 10	2005	7,989	5		-		-	7,984
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								7,203
5 Year Baseline - Gross Water Use								
Year 1	2003	7,690	0		-		-	7,690
Year 2	2004	7,692	0		-		-	7,692
Year 3	2005	7,989	5		-		-	7,984
Year 4	2006	7,160	1		-		-	7,159
Year 5	2007	8,190	3		-		-	8,187
5 year baseline average gross water use								7,742
* Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3.								
NOTES:								

### SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

<b>Name of Source</b>		Source 1		
<b>This water source is:</b>				
<input type="checkbox"/>	The supplier's own water source			
<input checked="" type="checkbox"/>	A purchased or imported source			
<b>Baseline Year</b> <i>Fm SB X7-7 Table 3</i>	<b>Volume Entering Distribution System</b>	<b>Meter Error Adjustment*</b> <i>Optional (+/-)</i>	<b>Corrected Volume Entering Distribution System</b>	
<b>10 to 15 Year Baseline - Water into Distribution System</b>				
Year 1	1996	6,278		6,278
Year 2	1997	6,928		6,928
Year 3	1998	6,308		6,308
Year 4	1999	6,892		6,892
Year 5	2000	7,147		7,147
Year 6	2001	7,545		7,545
Year 7	2002	7,671		7,671
Year 8	2003	7,690		7,690
Year 9	2004	7,692		7,692
Year 10	2005	7,989		7,989
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
<b>5 Year Baseline - Water into Distribution System</b>				
Year 1	2003	7,690		7,690
Year 2	2004	7,692		7,692
Year 3	2005	7,989		7,989
Year 4	2006	7,160		7,160
Year 5	2007	8,190		8,190
<sup>1</sup> <b>Units of measure</b> (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in Table 2-3. <sup>2</sup> <b>Meter Error Adjustment</b> - See guidance in Methodology 1, Step 3 of Methodologies Document				
NOTES:				

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1996	77,497	6,278	222
Year 2	1997	79,156	6,928	240
Year 3	1998	81,283	6,243	210
Year 4	1999	83,410	6,886	226
Year 5	2000	85,355	7,137	229
Year 6	2001	89,188	7,525	231
Year 7	2002	90,208	7,668	233
Year 8	2003	93,637	7,690	225
Year 9	2004	94,977	7,692	222
Year 10	2005	97,386	7,984	225
<i>Year 11</i>	0	-	-	
<i>Year 12</i>	0	-	-	
<i>Year 13</i>	0	-	-	
<i>Year 14</i>	0	-	-	
<i>Year 15</i>	0	-	-	
10-15 Year Average Baseline GPCD				226
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2003	93,637	7,690	225
Year 2	2004	94,977	7,692	222
Year 3	2005	97,386	7,984	225
Year 4	2006	100,147	7,159	196
Year 5	2007	101,561	8,187	221
5 Year Average Baseline GPCD				218
NOTES:				



**SB X7-7 Table 6: Gallons per Capita per Day**  
*Summary From Table SB X7-7 Table 5*

10-15 Year Baseline GPCD	226
5 Year Baseline GPCD	218

NOTES:

**SB X7-7 Table 7: 2020 Target Method***Select Only One*

Target Method		Supporting Documentation
<input checked="" type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D
<input type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator <i>Located in the WUE Data Portal at <a href="http://wuedata.water.ca.gov">wuedata.water.ca.gov</a> Resources button</i>

NOTES:

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
226	181
NOTES:	

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target					
5 Year Baseline GPCD From SB X7-7 Table 5	Maximum 2020 Target <sup>1</sup>	Calculated			Confirmed 2020 Target <sup>4</sup>
		As calculated by supplier in this SB X7-7 Verification Form	Special Situations <sup>3</sup>		
			Prorated 2020 Target	Population Weighted Average 2020 Target	
218	207	181			181
<sup>1</sup> <b>Maximum 2020 Target</b> is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.					
<sup>2</sup> <b>Calculated 2020 Target</b> is the target calculated by the Supplier based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target. Supplier may only enter one calculated target.					
<sup>3</sup> <b>Prorated targets and population weighted target</b> are allowed for special situations only. These situations are described in Appendix P, Section P.3 <sup>4</sup>					
<b>Confirmed Target</b> is the lesser of the Calculated 2020 Target (C5, D5, or E5) or the Maximum 2020 Target (Cell B5)					
NOTES:					

## **Appendix G: Embedded Energy Calculations**

---

**Urban Water Supplier:** City of Fairfield

**Water Delivery Product** (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

**Data Sources:**

Volume of water: 2019 Water Loss Audits ['Fairfield Water Loss CY2019\_v2' spreadsheet]  
 Energy usage data: Water Utility Electricity Usage Summary Dec 2017-Aug 2020 spreadsheet (provided by the City)

**Table O-1A: Recommended Energy Reporting - Water Supply Process Approach**

Enter Start Date for Reporting Period	1/1/2019		Urban Water Supplier Operational Control								
End Date	12/31/2019										
<input type="checkbox"/> Is upstream embedded in the values reported?			Water Management Process						Non-Consequential Hydropower (if applicable)		
Water Volume Units Used			Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility	
Volume of Water Entering Process			MG	0.0	0.0	0.0	0.0	6,188.2	6,188.2	0	6188.161
Energy Consumed (kWh)			N/A	0.0	0.0	0.0	0.0	13,338,951.0	13,338,951.0	0	13338951
Energy Intensity (kWh/vol.)			N/A	0.0	0.0	0.0	0.0	2155.6	2155.6	0.0	2155.6

**Quantity of Self-Generated Renewable Energy**

2,417,220.00

**Data Quality** (Estimate, Metered Data, Combination of Estimates and Metered Data)

Metered Data kWh

**Data Quality Narrative:**

The total energy input in the table above includes energy from potable water distribution (from Fairfield's two treatment plants - NBR and Waterman). It includes treatment costs at pump stations that cannot be separated. The energy totals correspond to electricity supplied by PG&E, as well solar energy generated at NBR Treatment Plant.  
 The total volume of water entering the distribution system is based on the data in the district's CY2019 Water Loss Audits - Volume of Water Supplied, which includes total authorized consumption as well as water losses.

**Narrative:**

All of Fairfield's supplies come from local water water. Fairfield has accounted only for the energy used in the facilities they operate for treatment, and delivery of potable water.

## **Appendix H: DWR Standardized Tables**

---

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
<i>Add additional rows as needed</i>			
4810003	City of Fairfield	31,787	6,806
<b>TOTAL</b>		<b>31,787</b>	<b>6,806</b>
<b>* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</b>			
NOTES: Units in MG. Data provided by the City of Fairfield			



Submittal Table 2-2: Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> (select from drop down list)
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesaler
<input checked="" type="checkbox"/>	Supplier is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables are in calendar years
<input type="checkbox"/>	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	MG
* <b>Units of measure (AF, CCF, MG)</b> must remain consistent throughout the UWMP as reported in Table 2-3.	
NOTES:	

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

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045(opt)
	106,815	111,485	119,980	122,010	126,900	128,632
NOTES: Following the methodology used in the Fairfield General Plan population projections as provided by the City of Fairfield staff, the 2020 UWMP projections use Association of Bay Area Governments, Plan Bay Area (2018) 2010-2040 population numbers from 2020-2040, and projects to 2045 based on California Department of Finance (2019) 2040-45 growth rate for Solano County.						

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type	2020 Actual		
<b>Drop down list</b> May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume*
Add additional rows as needed			
Single Family		Drinking Water	3,513
Multi-Family		Drinking Water	305
Commercial		Drinking Water	641
Industrial		Drinking Water	765
Institutional/Governmental		Drinking Water	82
Landscape		Drinking Water	963
Groundwater recharge			
Saline water intrusion barrier			
Agricultural irrigation			
Wetlands or wildlife habitat			
Sales/Transfers/Exchanges to other Suppliers	Carried over from 2015	Drinking Water	3
Losses		Drinking Water	511
Other Potable	Fire and Construction	Drinking Water	25
<b>TOTAL</b>			<b>6,808</b>
<i>* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</i>			
NOTES: Volumes reported in MG.			

**Submittal Table 4-2 Retail: Use for Potable and Non-Potable<sup>1</sup> Water - Projected**

Use Type	Additional Description (as needed)	Projected Water Use <sup>2</sup> Report To the Extent that Records are Available				
<u>Drop down list</u> May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family	R1	3,667	3,946	4,013	4,173	4,270
Multi-Family	R2,R3	319	343	349	363	371
Commercial	C1-7	669	720	732	762	779
Industrial	AB, D1-3	798	859	874	909	930
Institutional/Governmental	D4-8	85	92	93	97	99
Landscape	I2-4, VC	1,005	1,082	1,100	1,144	1,171
Groundwater recharge						
Saline water intrusion barrier						
Agricultural irrigation						
Wetlands or wildlife habitat						
Sales/Transfers/Exchanges to other Suppliers		3	3	3	3	3
Sales/Transfers/Exchanges to other Suppliers						
Losses		535	578	588	613	627
Other Potable	I1, K1-3	25	25	25	25	25
TOTAL		7,106	7,647	7,776	8,088	8,275
<sup>1</sup> Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.						
<sup>2</sup> Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES: Volumes reported in MG.						

Submittal Table 4-3 Retail: Total 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>	6,808	7,106	7,647	7,776	8,088	8,275
Recycled Water Demand <sup>1</sup> <i>From Table 6-4</i>	0	0	0	0	64	64
Optional Deduction of Recycled Water Put Into Long-Term Storage <sup>2</sup>						
<b>TOTAL WATER USE</b>	6,808	7,106	7,647	7,776	8,152	8,339
<sup>1</sup> Recycled water demand fields will be blank until Table 6-4 is complete. <sup>2</sup> Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier <b>may</b> deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.						
NOTES:						

**Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting**

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss <sup>1,2</sup>
01/2016	578
01/2017	1,291
01/2018	1,023
01/2019	600
01/2020	511

<sup>1</sup> Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet. <sup>2</sup>  
**Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.**

NOTES: Volumes reported in MG  
 Losses from 2016-2019 taken from AWWA Water Loss Audit



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

**Submittal Table 5-1 Baselines and Targets Summary**  
**From SB X7-7 Verification Form**  
*Retail Supplier or Regional Alliance Only*

Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1996	2005	226	181
5 Year	2003	2007	218	
*All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)				
NOTES:				

<b>Submittal Table 5-2: 2020 Compliance</b> <b>From SB X7-7 2020 Compliance Form</b> <i>Retail Supplier or Regional Alliance Only</i>				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* (Adjusted if applicable)		
175	0	175	181	Yes
<i>*All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)</i>				
NOTES:				

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
<input checked="" type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
<input type="checkbox"/>	All or part of the groundwater described below is desalinated.					
Groundwater Type <b>Drop Down List</b> May use each category multiple times	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
TOTAL		0	0	0	0	0
* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.						
NOTES:						

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
<input type="checkbox"/>	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>
Fairfiels-Suisun Sewer District (FSSD)	Metered	2,644	Fairfiels-Suisun Sewer District (FSSD)	FSSD Wastewater Treatment Plant	No	Yes
Total Wastewater Collected from Service Area in 2020:		2,644				
* Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3 .						
NOTES: Units in MG. Reported values include most of Fairfield's service area (excluding some areas that flow to the City of Suisun's collection system), as well as several unincorporated areas from the County.						

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
<input checked="" type="checkbox"/> 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) <sup>2</sup>	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 <sup>1</sup>				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area <sup>3</sup>	Recycled Outside of Service Area	Instream Flow Permit Requirement
<b>Total</b>							0	0	0	0	0
<sup>1</sup> Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3. <sup>2</sup> If the <b>Wastewater Discharge ID Number</b> is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at <a href="https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&amp;reportName=RegulatedFacility">https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&amp;reportName=RegulatedFacility</a>											
NOTES:											



**Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual**

<input checked="checked" type="checkbox"/>	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	2015 Projection for 2020 <sup>1</sup>	2020 Actual Use <sup>1</sup>
<i>Insert additional rows as needed.</i>		
Agricultural irrigation		
Landscape irrigation (exc 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)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
<b>Total</b>	0	0
<sup>1</sup> Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.		
NOTE:		



Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 5.2, Page 5-1	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>			
Recycled Water Pipeline Expansion		2040	64
Total			64
<b>*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</b>			
NOTES: Units in MG.			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input checked="" type="checkbox"/>	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.					
<input type="checkbox"/>	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, Supplier Name</i>				
Add additional rows as needed						
<b>*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</b>						
NOTES:						

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
<b>Drop down list</b> May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Surface water (not desalinated)	SCWA - DWR State Water Project	2,275	Drinking Water	4,783
Surface water (not desalinated)	SCWA - USBR Solano Project	4,531	Drinking Water	8,869
Total		6,806		13,652
<b>*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</b>				
NOTES: <sup>1</sup> Units in MG.				
<sup>2</sup> SWP and Non-SWP Settlement Water are delivered through a single NBA pipeline; Actual volumes of each type are calculated for billing purposes at the end of each year.				

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list  May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		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)
Add additional rows as needed											
Surface water (not desalinated)	SCWA - DWR State Water Project	3,970	4,783	3,970	4,783	3,970	4,783	3,970	4,783	3,970	4,783
Surface water (not desalinated)	SCWA - USBR Solano Project	8,811	8,869	8,811	8,869	8,811	8,869	8,811	8,869	8,811	8,869
Surface water (not desalinated)	Settlement Water	2,807	3,845	2,807	3,845	2,807	3,845	2,807	3,845	2,807	3,845
Total		15,588	17,497	15,588	17,497	15,588	17,497	15,588	17,497	15,588	17,497
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.											
NOTES: <sup>1</sup> Units in MG.											
<sup>2</sup> Reasonably Available Volumes correspond to average years supplies for all the sources. Total Right or Safe Yield is contract allocation.											

**Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)**

Year Type	Base Year 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	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Average Year	2002 <sup>3</sup>	3,969	83%
Single-Dry Year	2014 and 2021	239	5%
Consecutive Dry Years 1st Year <sup>4</sup>	2013	2,152	45%
Consecutive Dry Years 2nd Year <sup>4</sup>	2015 and 2020	1,435	30%
Consecutive Dry Years 3rd Year <sup>4</sup>	2014 and 2021	239	5%
Consecutive Dry Years 4th Year <sup>4</sup>	2014 and 2021	717	15%
Consecutive Dry Years 5th Year <sup>4</sup>	2015 and 2020	1,435	30%

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.

**\*Units of measure (AF, CCF, MG ) must remain consistent throughout the UWMP as reported in Table 2-3.**

NOTES: <sup>1</sup> Units in MG.

<sup>2</sup> Fairfield has three sources - 1) SCWA - State Water Project, 2) SCWA - Solano Project and 3) Non-SWP Settlement Water. This table outlines base years and volumes for source 1.

<sup>3</sup> % average supply is long-term SWP average for SCWA of 73% from 2019 Delivery Capability Report with assumed 10% adjustment for NOD allocation; 2002 is year with % delivery of 70% which is closest to long-term SWP Table A delivery of 73%

<sup>4</sup> 5 consecutive dry years were selected from actual SWP Table A deliveries from 2010-2020; all years but year 3 include 10% to account for NOD allocation

**Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)**

Year Type	Base Year 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	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available * <sup>3</sup>	% of Average Supply
Average Year <sup>4</sup>	2020	8,811	99.3%
Single-Dry Year <sup>4</sup>	2001	8,740	98.5%
Consecutive Dry Years 1st Year <sup>4</sup>	1987	8,229	92.8%
Consecutive Dry Years 2nd Year <sup>4</sup>	1988	8,229	92.8%
Consecutive Dry Years 3rd Year <sup>4</sup>	1989	8,229	92.8%
Consecutive Dry Years 4th Year <sup>4</sup>	1990	8,229	92.8%
Consecutive Dry Years 5th Year <sup>4</sup>	1991	8,229	92.8%

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.

**\*Units of measure (AF, CCF, MG ) must remain consistent throughout the UWMP as reported in Table 2-3.**

NOTES: <sup>1</sup> Units in MG.  
<sup>2</sup> Fairfield has three sources - 1) SCWA - State Water Project, 2) SCWA - Solano Project and 3) Non-SWP Settlement Water. This table outlines base years and volumes for source 2.  
<sup>3</sup> Includes total Solano Project contractual entitlement as well as additional deliveries via SID agreements.  
<sup>4</sup> % of Average Supply based on hydrologic analysis from 1906-2020; Base Year selected from period of record and Actual % for a given year is greater than % of Average Supply

**Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)**

Year Type	<b>Base Year</b> 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	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. <span style="float: right;">Location _____</span>
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Average Year	2002 <sup>3</sup>	2,807	73%
Single-Dry Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 1st Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 2nd Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 3rd Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 4th Year	2002 <sup>3</sup>	2,807	73%
Consecutive Dry Years 5th Year	2002 <sup>3</sup>	2,807	73%

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.

**\*Units of measure (AF, CCF, MG ) must remain consistent throughout the UWMP as reported in Table 2-3.**

NOTES: <sup>1</sup> Units in MG.

<sup>2</sup> Fairfield has three sources - 1) SCWA - State Water Project, 2) SCWA - Solano Project and 3) Non-SWP Settlement Water. This table outlines base years and volumes for source 3.

<sup>3</sup> % average supply is long-term SWP average for SCWA of 73% from 2019 Delivery Capability Report which includes a range of year types; 2002 is year with % delivery of 70% which is closest to long-term SWP Table A delivery of 73%.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)	15,588	15,588	15,588	15,588	15,588
Demand totals (autofill from Table 4-3)	7,106	7,647	7,776	8,152	8,339
Difference	8,482	7,941	7,812	7,436	7,249
NOTES: Units in MG.					



Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	11,786	11,786	11,786	11,786	11,786
Demand totals*	7,106	7,647	7,776	8,152	8,339
Difference	4,680	4,139	4,009	3,634	3,446
<b><i>*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.</i></b>					
NOTES: Units in MG.					

**Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison**

		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	13,188	13,188	13,188	13,188	13,188
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	6,082	5,541	5,411	5,036	4,848
Second year	Supply totals	12,471	12,471	12,471	12,471	12,471
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	5,365	4,824	4,694	4,319	4,131
Third year	Supply totals	11,275	11,275	11,275	11,275	11,275
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	4,169	3,628	3,498	3,123	2,935
Fourth year	Supply totals	11,753	11,753	11,753	11,753	11,753
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	4,647	4,106	3,976	3,601	3,413
Fifth year	Supply totals	12,471	12,471	12,471	12,471	12,471
	Demand totals	7,106	7,647	7,776	8,152	8,339
	Difference	5,365	4,824	4,694	4,319	4,131
Sixth year (optional)	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0

**\*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.**

NOTES: Units in MG.

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	Total
Total Water Use	6,868
Total Supplies	11,857
Surplus/Shortfall w/o WSCP Action	4,989
<b>Planned WSCP Actions</b> (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	4,989
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	6,927
Total Supplies	13,770
Surplus/Shortfall w/o WSCP Action	6,843
<b>Planned WSCP Actions</b> (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,843
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	6,987
Total Supplies	13,053
Surplus/Shortfall w/o WSCP Action	6,066
<b>Planned WSCP Actions</b> (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	6,066
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	7,046
Total Supplies	12,335
Surplus/Shortfall w/o WSCP Action	5,289
<b>Planned WSCP Actions</b> (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,289
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	7,106
Total Supplies	13,053
Surplus/Shortfall w/o WSCP Action	5,947
<b>Planned WSCP Actions</b> (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,947
Resulting % Use Reduction from WSCP action	0%

**Submittal Table 8-1**  
**Water Shortage Contingency Plan Levels**

<b>Shortage Level</b>	<b>Percent Shortage Range</b>	<b>Shortage Response Actions (Narrative description)</b>
1	Up to 10%	When Solano Project is at or above 800,000 AF, Stage I Water use reduction target of 10%
2	Up to 20%	When Solano Project is at 700,000 – 800,000 AF, Stage II Water Use reduction target of 25% of storage;
3	Up to 30%	When Solano Project 500,000 – 700,000 AF, Stage II Water Use reduction target of 25% at 500,000 to 600,000 af of storage; Stage III Water use reduction target of 35% at 600,000 - 700,000 af of storage;
4	Up to 40%	When Solano Project 400,000-500,000 AF, Stage III Water use reduction target of 35% ;
5	Up to 50%	Solano Project 200,000 – 400,000 AF, Stage IV Water use reduction target of 50%
6	>50%	Solano Project at or below 200,000 AF

NOTES: Per Drought Measures Agreement, Stage II: when Solano Project is 600,000 – 800,000 AF, Stage III Water use reduction target of 35% when Solano Project is 400,000 – 600,000 AF of storage

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions <b>Drop down list</b> <i>These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.</i>	How much is this going to reduce the shortage gap? Include units used (volume type or percentage)	Additional Explanation or Reference (optional)	Penalty, Charge, or Other Enforcement? <i>For Retail Suppliers Only</i> Drop Down List
Add additional rows as needed				
Always	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Controllable water leaks	Yes
Always	Landscape - Limit landscape irrigation to specific times		Prohibition on landscape irrigation between noon and 6.00 pm	No
1	Expand Public Information Campaign		Send out quarterly messages to customers on 10% water use reduction with examples on how to reduce water usage	No
2	Expand Public Information Campaign		Send out monthly messages to customers on 20% water use reduction with examples on how to reduce water usage	No
3	Expand Public Information Campaign		Send out bi-weekly messages to customers on 30% water use reduction with examples on how to reduce water usage	No
4	Landscape - Limit landscape irrigation to specific times		Prohibit landscape irrigation between noon and 6 PM	Yes
4	Water Features - Restrict water use for decorative water features, such as fountains			Yes
5	Other		Hydrant Flushing except where needed for health and safety	No
6	Landscape - Limit landscape irrigation to specific days		Limit landscape irrigation to 3 days per week	Yes
6	Other water feature or swimming pool restriction		Filling of pools, spas, decorative fountains, etc.	Yes
6	Water Features - Restrict water use for decorative water features, such as fountains		Prohibit al water use for decorative fountains and water features	Yes
NOTES:				

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	How much is this going to reduce the shortage gap? <i>Include units used (volume type or percentage)</i>	Additional Explanation or Reference <i>(optional)</i>
Add additional rows as needed			
NOTES:			

Submittal 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>		
City of Fairfield	Yes	Yes
City of Vacaville	Yes	Yes
City of Benicia	Yes	Yes
City of Vallejo	Yes	Yes
City of Dixon	Yes	Yes
City of Suisun	Yes	Yes
City of Rio Vista	Yes	Yes
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Solano County	Yes	Yes
NOTES: Notices also sent to Solano County Water Agency (City's wholesaler) and Solano Irrigation District.		



## **Appendix I: DWR Population Tool Output**

---



Please print this page to a PDF and include as part of your UWMP submittal.

## Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Masoom Desai	Solano County Water Agency	2081845939	4/30/2021 9:44:29 AM

## Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2000	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2010	Fairfield Water Service Area Boundary Dec 2015.kml	1584
1990	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2000	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2010	Fairfield Water Service Area Boundary Dec 2015.kml	1584
1990	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2000	Fairfield Water Service Area Boundary Dec 2015.kml	1584
2010	Fairfield Water Service Area Boundary Dec 2015.kml	1584

## Baseline Period Ranges

## 10 to 15-year baseline period

Number of years in baseline period: 10 ▼

Year beginning baseline period range: 1996 ▼

Year ending baseline period range<sup>1</sup>: 2005

## 5-year baseline period

Year beginning baseline period range: 2003 ▼

Year ending baseline period range<sup>2</sup>: 2007<sup>1</sup> The ending year must be between December 31, 2004 and December 31, 2010.<sup>2</sup> The ending year must be between December 31, 2007 and December 31, 2010.

## Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year	Census Block Group Level	Census Block Level			# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection
	% Population in SF Housing	Service Area Population	Population in SF Housing (calculated)	Population in MF/GQ Housing (calculated)				
1990	72.24%	65,769	47,513	18,256			2.89	57.34
1991	-	-	-	-	-	-	2.89	57.34
1992	-	-	-	-	-	-	2.89	57.34
1993	-	-	-	-	-	-	2.89	57.34
1994	-	-	-	-	-	-	2.89	57.34
1995	-	-	-	-	-	-	2.89	57.34
1996	-	-	-	-	-	-	2.89	57.34
1997	-	-	-	-	-	-	2.89	57.34
1998	-	-	-	-	-	-	2.89	57.34
1999	-	-	-	-	-	-	2.89	57.34
2000	70.66%	84,751	59,884	24,867			2.89	57.34
2001	-	-	-	-	-	-	2.89	57.34
2002	-	-	-	-	-	-	2.89	57.34
2003	-	-	-	-	-	-	2.89	57.34
2004	-	-	-	-	-	-	2.89	57.34
2005	-	-	-	-	-	-	2.89	57.34
2006	-	-	-	-	-	-	2.89	57.34
2007	-	-	-	-	-	-	2.89	57.34
2008	-	-	-	-	-	-	2.89	57.34
2009	-	-	-	-	-	-	2.89	57.34
2010	74.46%	99,683	74,225	25,458	25661	444	2.89	57.34
2011	-	-	-	-	-	-	2.89	57.34
2012	-	-	-	-	-	-	2.89	57.34
2013	-	-	-	-	-	-	2.89	57.34
2014	-	-	-	-	-	-	2.89	57.34
2015	-	-	-	-	-	-	2.89	57.34
2020	-	-	-	-	-	-	2.89 *	57.34 *

## Population Using Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year		# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection	SF Population	MF/GQ Population	Total Population
<b>10 to 15 Year Baseline Population Calculations</b>								
Year 1	1996	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 2	1997	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 3	1998	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 4	1999	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 5	2000	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 6	2001	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 7	2002	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 8	2003	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 9	2004	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 10	2005	<input type="text"/>	<input type="text"/>	2.89	57.34			
<b>5 Year Baseline Population Calculations</b>								
Year 1	2003	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 2	2004	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 3	2005	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 4	2006	<input type="text"/>	<input type="text"/>	2.89	57.34			
Year 5	2007	<input type="text"/>	<input type="text"/>	2.89	57.34			
<b>2020 Compliance Year Population Calculations</b>								
2020		<input type="text" value="28999"/>	<input type="text" value="446"/>	2.89 *	57.34 *	83,880	25,573	109,453

[Hide Print Confirmation](#)

QUESTIONS / ISSUES? CONTACT THE WUEdata HELP DESK  
 MWELo QUESTIONS / ISSUES? CONTACT THE MWELo HELP DESK