May 2021

2020 Water Shortage Contingency Plan for **Linda County Water District**

Public Draft

Appendix J

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Public Draft

2020 Water Shortage Contingency Plan

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Prepared for

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Abbreviations

Act	DWR 2020 Urban Water Management Planning Act
ADD	average day demand
AF	acre-feet
AFY	acre-feet per year
AMR	automatic meter reading
AWWA	American Water Works Association
CWC	California Water Code
District, LCWD	Linda County Water District
DMM	Demand Management Measure
DWR	Department of Water Resources (California)
DWR Guidebook	DWR Guidebook for Urban Water Suppliers
ERP	emergency response plan
gpm	U.S. gallons per minute
GWS	groundwater substitution
MDD	maximum day demand
O&M	operation and maintenance
PHD	peak hour demand
SWRCB	State Water Resources Control Board
SYGB	South Yuba Groundwater Basin
UWMP	Urban Water Management Plan
WSCP	water shortage contingency planning
WWTP	Wastewater Treatment Plant
YWA	Yuba Water Agency

Introduction

This Plan addresses the requirements in Section 10632 of the California Department of Water Resources (DWR) 2020 Urban Water Management Planning Act (Act) for the water shortage contingency analysis including water supply reliability analysis, annual water supply and demand assessment procedures, water shortage stages, water shortage response actions, communication protocols, penalties/charges/other enforcement of prohibitions, legal authorities, financial consequences, monitoring and reporting, plan refinement procedures, special water feature distinction, resolution or ordinance and references.

> ***CWC 10632***
>
> *(a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements…*

Linda County Water District (District, LCWD) has the authority to establish water shortage contingency plans to prepare to respond to water supply reductions due to drought conditions or unforeseen emergencies or supply disruptions. The LCWD Board reviews and approves all water shortage contingency planning policies and programs including provisions to meet the Act and California Water Code (CWC) regulations.

In response to the 2012-2016 drought and Governor Jerry Brown's declaration of drought State of Emergency, LCWD implemented water shortage contingency planning (WSCP) efforts that reduced their system-wide water use by 28 percent between 2013-2014 and 2015-2016, based on SWRCB water use cutback policy reporting. LCWD was able to meet their water use cutback policy primarily through using voluntary measures.

Chapter 1: Water Supply Reliability Analysis

CWC 10632(a)(1)

The analysis of water supply reliability conducted pursuant to Section 10635.

This section provides a concise narrative, summarizing the Supplier's Water Supply Reliability Analysis in Chapter 7, recognizing that the WSCP can be a stand-alone document that is included in the 2020 UWMP. The Water Supply Reliability Analysis includes both the water service reliability assessment and the DRA. This section also describes the key issues that may create a shortage condition when looking at a Supplier's water asset portfolio.

The Supplier is encouraged to consider all issues – foreseeable or unforeseeable – that could lead to water supply shortages. For example, a Supplier that relies exclusively on groundwater may show that its water supplies are reliable under all statutorily required conditions, but that a low probability, high impact issue – like the sudden presence of an unforeseen toxin – may require shuttering the main groundwater pumping system and activating the WSCP. This section would provide the context for evaluation of threats to water supply reliability that are identified in the WSCP.

LCWD relies 100 percent on local groundwater supplies from the South Yuba Groundwater Basin (SYGB). The reliability of the groundwater supply is dependent on local hydrologic conditions and availability of other water for augmented recharge. The capacity of the SYGB is described as having total estimated freshwater storage in Yuba County's groundwater basin of 7.5-million acre-feet. The base of freshwater is estimated to range from less than 300 ft in the eastern portion of the basin to about 700 ft in the western portion, with depths to as much as 900 ft at the Feather River in the South Sub-basin. LCWD's service area is located in the northwest portion of the SYGB. Most wells within the basin are screened at less than 300 ft below ground surface with readily available freshwater of approximately 4.0 million acre feet.

Based on historic droughts, LCWD does not anticipate water shortages in supply during single and multiple-dry year scenarios to affect supply from the basin perspective in the future. Even if water demands were not reduced during dry years, the SYGB can support LCWD's normal usage during dry years. LCWD's near term water supply reliability assuming 5-year drought is presented in Table 1-1, shown in acre-feet per year (AFY). Hydrographs from DWR well data in the SYGB indicate that groundwater levels have remained fairly stable over the period of record with the exception of static water level drops and subsequent recovery associated with drought events/conditions (e.g., 1976-1977, 1987-1992, and 2012-2016). DWR has not identified the SYGB to be projected in or currently in overdraft.

LCWD expects its basin supply to be highly reliable during normal, dry, and multiple dry years over the 2020 UWMP planning horizon. The Yuba Water Agency prepared a Groundwater Sustainability Plan for the SYGB in December 2019 and actively manages both surface water and groundwater supplies (Yuba Water Agency, 2019). The SYGB is an unadjudicated basin. There is limited groundwater production within the basin and there are no anticipated future legal restrictions on the basin. Historically, LCWD has reliably pumped groundwater from SYGB. Based on the groundwater basin's reliability and safe yield, LCWD's groundwater supply is expected to continue to be highly reliable in normal and dry years.

With the abundance of water resources in the SYGB, it is anticipated that LCWD's water shortage condition would most likely occur as a result of relatively short and extreme events such as loss of critical infrastructure versus extended drought conditions. In 2017, the District initiated the preparation of its Water System Master Plan and completed a water supply reliability analysis on the District's water supply infrastructure. The Master Plan calculated the District's firm water supply capacity with all the active wells within LCWD's service area and compared it with the water demand. The Master Plan identified various Capital Improvement Plan (CIP) recommendations based on the water supply reliability analysis, facility infrastructure evaluation, and hydraulic modeling results.

Table 1-1: Five-Year Drought Risk Assessment Tables to Address CWC 10635(b)

2021	Total
Total Water Use	3,798
Total Supplies	16,290
Surplus/Shortfall w/o WSCP Action	12,492
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2,420
WSCP - use reduction savings benefit	370
Revised Surplus/(shortfall)	15,391
Resulting % Use Reduction from WSCP action	10%

2022	Total
Total Water Use [Use Worksheet]	3,864
Total Supplies [Supply Worksheet]	16,290
Surplus/Shortfall w/o WSCP Action	12,426
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2,420
WSCP - use reduction savings benefit	370
Revised Surplus/(shortfall)	15,290
Resulting % Use Reduction from WSCP action	10%

2023	Total
Total Water Use [Use Worksheet]	3,932
Total Supplies [Supply Worksheet]	29,195
Surplus/Shortfall w/o WSCP Action	25,263
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2,420
WSCP - use reduction savings benefit	370
Revised Surplus/(shortfall)	28,093
Resulting % Use Reduction from WSCP action	10%

Table 1-1: Five-Year Drought Risk Assessment Tables to Address CWC 10635(b)

2024	Total
Total Water Use [Use Worksheet]	4,001
Total Supplies [Supply Worksheet]	29,195
Surplus/Shortfall w/o WSCP Action	25,194
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2,420
WSCP - use reduction savings benefit	370
Revised Surplus/(shortfall)	27,992
Resulting % Use Reduction from WSCP action	9%

2025	Total
Total Water Use [Use Worksheet]	4,070
Total Supplies [Supply Worksheet]	29,195
Surplus/Shortfall w/o WSCP Action	25,125
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2,420
WSCP - use reduction savings benefit	370
Revised Surplus/(shortfall)	27,890
Resulting % Use Reduction from WSCP action	9%

Chapter 2: Annual Water Supply and Demand Assessment Procedures

CWC 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.

CWC 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.

New provisions in CWC 10632.1. require that an urban water supplier, such as Linda County Water District, conduct an annual water supply and demand assessment (referred to as an Annual Assessment), on or before July 1 of each year, to be submitted to DWR. The requirement to perform the Annual Assessment begins in July 2022. The procedures for performing the Annual Assessment are to be detailed in an urban suppliers' Water Shortage Contingency Plan. The procedure described in this Chapter was developed to help satisfy the water supply and demand assessment requirements for the WSCP.

Water shortages occur with unpredictable frequency, intensity, and duration. Developing and maintaining a healthy water supply to serve its customers has always been an ongoing District priority and the District wants to be prepared for water shortages. The District regularly monitors its water supplies and demands.

2.1 Timeline for Conducting the Annual Assessment

Table 2-1 provides target dates and activities for performing the Annual Assessment. The table outlines actions for a normal year and one year of drought. By starting to plan in November, the District 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 to April, when an initial estimate of supply is made and compared to demand. A final annual assessment is proposed in June. A template is included in Appendix A for the guidance of Annual Assessment preparation.

Table 2-1: Calendar for Performing Annual Assessment

Target Date	Action	Staff Responsible
Nov - Jan	Monitor supply sources	Operations and Engineering
	Monitor demand trends	Operations and Engineering
Feb - Mar	Prepare initial assessment of supplies	Engineering
	Make initial assessment of demand	Engineering
	Make initial estimate of shortage	Engineering
Apr - June	Review and incorporate SYGB condition from Groundwater Basin Annual Report (required to be submitted to DWR on **April 1st** of every year)	Engineering
	Incorporate the basin groundwater level from the latest quarterly GSA meeting	Engineering
	Complete Draft Annual Assessment and include in General Manager's report to the Board (Optional)	Engineering
	Update Draft Annual Water Assessment with District Board Input	Engineering
	Finalize Annual Water Assessment and submit to DWR by **July 1st**	Engineering
	If necessary, prepare notices of public hearing on water shortage	Engineering and Customer Services

The following sections describe the actions involved in conducting the Annual Assessment.

2.2 Water Supply Assessment

LCWD's overall supply quantity is expected to be highly reliable through 2045, due to a historically reliable groundwater supply from the SYGB. Legal, environmental, water quality, or other constraints are not anticipated. The Yuba Water Agency prepared a Groundwater Sustainability Plan (GSP) for the North Yuba and South Yuba Groundwater Subbasins (Yuba Subbasins) in December 2019 and actively manages both surface water and groundwater supplies. Unlike many medium- and high-priority basins and subbasins managed under GSPs, groundwater extraction in the Yuba Subbasins does not exceed the sustainable yield (YWA 2019). There are no adjudicated areas within or adjacent to the Yuba Subbasins. An increase in groundwater storage started in 1983 as a result of surface water deliveries to the

South Yuba Subbasin. Intermittent decreases in 1991, 2001, 2002, 2008, 2009, 2010, 2013, 2014, and 2018 were partially due to groundwater substitution (GWS) transfers and the 2015 declines were related to extraordinary drought and substitution pumping to support fisheries in compliance with YWA's water rights permit, as amended as part of the Yuba River Accord. The intermittent decreases in shortage were quickly followed by overall net increases in storage.

With all of the District's existing water supply infrastructure operating at target performance, the District's water supply shows enough capacity to meet average day demand (ADD), maximum day demand (MDD) and peak hour demand (PHD) conditions. If the District's service area needs a 4,000 gpm fire flow (FF) in parallel with the MDD (e.g., a fire during summer time), the District needs to bring Well 12 online to cover required demand until the District's planned Well 17 gets constructed and commissioned. If a well needs to be taken out of service for maintenance or other reasons, the rest of the District's active domestic wells still have the ability to meet ADD, MDD, and PHD. The District maintains prudent redundant capacity to account for unscheduled mechanical failures or service disruptions by maintaining backup emergency generators at all production sites and one standby booster pump per booster pump station. Additionally, Well 12 primarily serves as a backup well in the water supply system and is often brought online when active wells are offline for maintenance activities. The District is planning to construct aboveground tanks for FF and PHD storage during low demand periods which, when installed, could provide a more robust water supply for short-term interruption.

The most severe water supply condition in the District's record occurred when a high-capacity well was shut down during the Thanksgiving holiday but there was no documented water supply deficiency within the District's service area under the case. Additionally, in October 2020, the District's highest-capacity source was taken offline for 24 hours for maintenance activities but the water system was able to meet water demands within the District's service area.

As part of the Annual Assessment process, the District will evaluate the local groundwater conditions and the District's infrastructure status. Table 2-2 summarizes the factors to be considered. Using Table 2-2 as a guide, the District will develop a summary of wells available in the coming year and develop a supply table with a quantified summary of each anticipated supply well.

Table 2-2: Annual Assessment of Supply		
Source/Supply Infrastructure	Factors to be Evaluated in Current Year	Establishing Supply in Assumed Subsequent Dry Year
Linda County Water District	Any constraints on supply due to infrastructure or water quality. Consider if supply would be managed differently if it is known subsequent year will be dry year.	Any constraints on supply due to infrastructure or water quality.
South Yuba Groundwater Basin	Regulatory limitations per Federal, State, and Local Agencies. Consider if supply would be managed differently if it is known subsequent year will be dry year.	Regulatory limitations per Federal, State and Local Agencies. Consider if supply would be managed differently if it is known subsequent year will be dry year.
Note: The Yuba Water Agency uses the Sacramento Valley Index to define the water year type as a Wet, Above Normal, Below Normal, Dry Year, or Critical Year. Based on 21-year historical hydrology for the South Yuba Subbasin, there were 6 wet years, 3 above normal years, 4 below normal years, 5 dry years, and 3 critically dry years. The Yuba Water Agency conducts groundwater monitoring on a monthly basis to determine groundwater level and water quality. YWA monitors 53 wells at 46 locations within the Yuba Subbasins—22 continuously measured wells, 20 monthly measured wells, and 11 semiannually measured wells. The District defines a “Dry Year” as determined by the Yuba Water Agency in quarterly meetings.		

Quantification of supply reductions will be estimated based on the pumping availability and treatment capacity of the District’s groundwater facilities.

2.3 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 Water Shortage Contingency Plan.

2.3.1 Current Demand

The District will review the total water consumption by water use classification within the District’s water service area for the most recent complete calendar year based on the monthly customer meter data. If water restrictions are in place, the District may adjust the customer meter demand to reflect unconstrained demand by implementing demand management measures described in Chapter 4.

2.3.2 Subsequent Year Demands

The District will project the subsequent year demand with a projection factor based on LCWD’s historical data. It is indicated that the annual demand increase is approximately in the range of 2% to 5%. The District will compare the projected subsequent dry year demand with the future demand calculated in its 2017 Water Master Plan and 2020 Urban Water Master Plan to verify the accuracy of the projection.

2.4 Current Predicted Shortages Based on Annual Water Supply and Demand Assessment

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.

From DWR Guidebook Page 8-11

> *Furthermore, while the Annual Water Shortage Assessment Report 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.*

LCWD will compare the supply and demand for the current year and subsequent year assuming drought to determine if a supply shortage is anticipated and what level of shortage and prepare, if necessary, to implement its water shortage contingency plan. A template to organize the information is provided in Appendix A.

Chapter 3: Six Standard Water Shortage Stages

CWC 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.

3.1 Definitions/Criteria Establishing Shortage

Table 3-1 describes the water supply shortage stages and conditions at the District. The stages will be implemented during water supply shortages according to shortage level, ranging from up to a 10 percent shortage in Stage 1 and up to a greater than 50 percent shortage in Stage 6. Due to the high supply reliability of the SYGB, changes in hydrological or local conditions (e.g., drought or dry weather) are unlikely to trigger a shortage level for LCWD. It is anticipated that LCWD's water shortage condition would most likely occur as a result of relatively short and extreme events such as loss of critical infrastructure. If one well is offline or out of service, the District will still be able to meet ADD and MDD, but may have a water shortage during PHD and PHD plus FF conditions. The severity of the shortage depends upon the if a high- or low-capacity well is offline and if Well 12 is able to be brought online to supplement supply.

The actions to be undertaken during each stage cannot be implemented until necessary LCWD Board approvals have been executed—the typical steps for implementing LCWD's water shortage response are described later in later sections.

Table 3-1: Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions**
1	Up to 10%	Alert. Water alert conditions are declared and voluntary conservation is encouraged.
2	11 - 20%	Moderate. LCWD may propose voluntary or mandatory conservation rules. Additional voluntary outdoor irrigation restrictions and certain water use prohibitions will be considered.
3	21 - 30%	Severe. LCWD may propose a voluntary or mandatory reduction in water use by a percentage. LCWD would implement certain mandatory restrictions as required to meet water use cutback targets. LCWD monitors production weekly for compliance with necessary reductions. Use of flow restrictors is implemented if abusive practices are persistent and documented.
4	31 - 40%	Critical. All activities are intensified and production is monitored daily by LCWD for compliance with necessary reductions.
5	41 - 50%	Emergency water restriction. All activities are intensified and production is monitored daily by LCWD for compliance with necessary reductions.
6	>50%	Catastrophic water restriction. All activities are intensified and production is monitored daily by LCWD for compliance with necessary reductions.
NOTES:		

Stage I (up to 10 percent shortage) – Water alert conditions are declared and voluntary conservation is encouraged. The drought situation is communicated to the public and governmental bodies. LCWD explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The focus is on customers with high per capita water usage to achieve their proportional share of shortage response water savings.

A Stage I MDD shortage could occur in the event that a low-capacity well source and a high-capacity well source are offline or out of service. The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the potential shortage gap. The activities performed by LCWD during this stage include, but are not limited to:

- Public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conservation messages printed in local newspapers.
- Educational programs in area schools.
- Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Voluntary outdoor irrigation restrictions including limiting number of watering days per week, and time when irrigation can occur (e.g., between 7:00 p.m. and 8:00 a.m.).
- Discussion of equitable water waste response policy.

Stage II (11 - 20 percent shortage) – Stage II is a moderate shortage and will include all actions undertaken in Stage I. In addition, LCWD may propose voluntary or mandatory conservation rules. The severity of actions depends upon the percentage of supply shortage and customer response. The level of voluntary water use reduction requested from the customers is also based on the severity of the shortage.

A Stage II MDD shortage could occur in the event that two low-capacity well sources and a high-capacity well source are offline or out of service. The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the potential shortage gap. The activities performed by LCWD during this stage include, but are not limited to:

- All measures implemented in Stage I.
- Establishing customer baseline use period with AMR data to be used as basis for usage reductions.
- Consideration of additional voluntary outdoor irrigation restrictions and certain water use prohibitions.

Stage III (21 - 30 percent shortage) – Stage III is a severe shortage that includes all steps taken in prior stages regarding voluntary or mandatory conservation. LCWD may propose a voluntary or mandatory reduction in water use by a percentage. LCWD would implement certain mandatory restrictions as required to meet water use cutback targets. Water use restrictions are put into effect, i.e., prohibited uses can include restrictions of daytime hours for watering, excessive watering resulting in gutter flooding, using a hose without a shutoff device, use of non-recycling fountains, washing down sidewalks or patios, unrepaired leaks, etc. LCWD monitors production weekly for compliance with necessary reductions. Use of flow restrictors is implemented if abusive practices are persistent and documented.

A Stage III MDD shortage could occur in the event that two low-capacity well sources and a high-capacity well source are offline. The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the potential shortage gap. The activities performed by LCWD during this stage include, but are not limited to:

- All measures implemented in Stages I and II.
- Initial mandatory outdoor irrigation measures as required.
- Use AMR data to confirm adherence to customer baselines and actual water use reductions.

Stage IV (31 - 40 percent shortage) – This is a critical shortage that includes all steps taken in prior stages regarding voluntary or mandatory conservation. All activities are intensified and production is monitored daily by LCWD for compliance with necessary reductions.

A Stage IV MDD shortage could occur in the event that the highest-capacity well source and two low-capacity well sources are offline or out of service. The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the

potential shortage gap. The activities performed by LCWD during this stage include, but are not limited to:

- All measures implemented in Stages I-III.
- Additional mandatory outdoor irrigation measures as required.
- Reduction of water utility uses (e.g., system flushing).
- Possible reductions in customer baselines and actual water use reductions.

Stage V (41 - 50 percent shortage) – This is an emergency shortage that includes all steps taken in prior stages regarding allotments and mandatory conservation.

A Stage V ADD emergency shortage may occur in the event that both high-capacity well sources and a low-capacity well source are offline or out of service for an extended period (e.g. due to external conditions such as a regional power outage or wildfire). The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the potential shortage gap. All activities are intensified and production is monitored daily by LCWD for compliance with necessary reductions. The activities performed by LCWD during this stage include, but are not limited to:

- All measures implemented in Stages I-IV.
- Additional mandatory outdoor irrigation measures as required.
- Limitations on new water service connections and landscaping.
- Further reductions in customer baselines and actual water use reductions.

Stage VI (Greater than 50 percent shortage) – This is a catastrophic shortage that includes all steps taken in prior stages regarding allotments and mandatory conservation.

A Stage VI ADD and MDD emergency shortage may occur in the event multiple well sources are both offline or out of service for an extended period (e.g., due to external conditions such as a regional power outage or wildfire). The other wells will need to be operated at their pump capacity and Well 12 may be brought online to augment supply and reduce the potential shortage gap. The activities performed by LCWD during this stage include, but are not limited to:

- All measures implemented in Stages I-V.
- Additional mandatory outdoor irrigation measures as required.
- Further reductions in customer baselines and actual water use reductions.

LCWD may update current water shortage condition response measures based on actual water supply conditions, state policy directives, emergency conditions, or to improve customer response.

3.2 Determining Water Shortage Reductions

The Act requires an analysis of mechanisms for determining actual reductions in water use when LCWD's Water Shortage Contingency Plan is in effect. Table 3-2 lists the possible mechanisms that could be used by LCWD to monitor water use and the quality of data expected. LCWD may collect additional data as necessary to accurately determine water use reductions. Currently LCWD's service area is 100 percent metered with 99 percent of meters fitted with AMR technology allowing for scheduled and/or special reading capabilities.

Table 3-2: Water-Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type and Quality of Data Expected
Customer meter readings	Hourly/daily/monthly water consumption data for a specific user depending on frequency of readings
Production meter readings	Hourly/daily/monthly water production depending on frequency of readings; correlates to water use plus system losses

In addition to the specific actions that LCWD can undertake to verify the level of conservation being achieved, LCWD can monitor and evaluate customer metered demand data to flag exceptionally high usage (for verification of water loss or abuse), or exceptionally low usage (for verification of meter registration inaccuracies). This could improve the accuracy of measurable water savings being achieved for a specific water shortage condition.

3.3 Seismic Risk Analysis

CWC 10632.5(a)

In addition to the requirements of paragraph (3) of subdivision

(a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

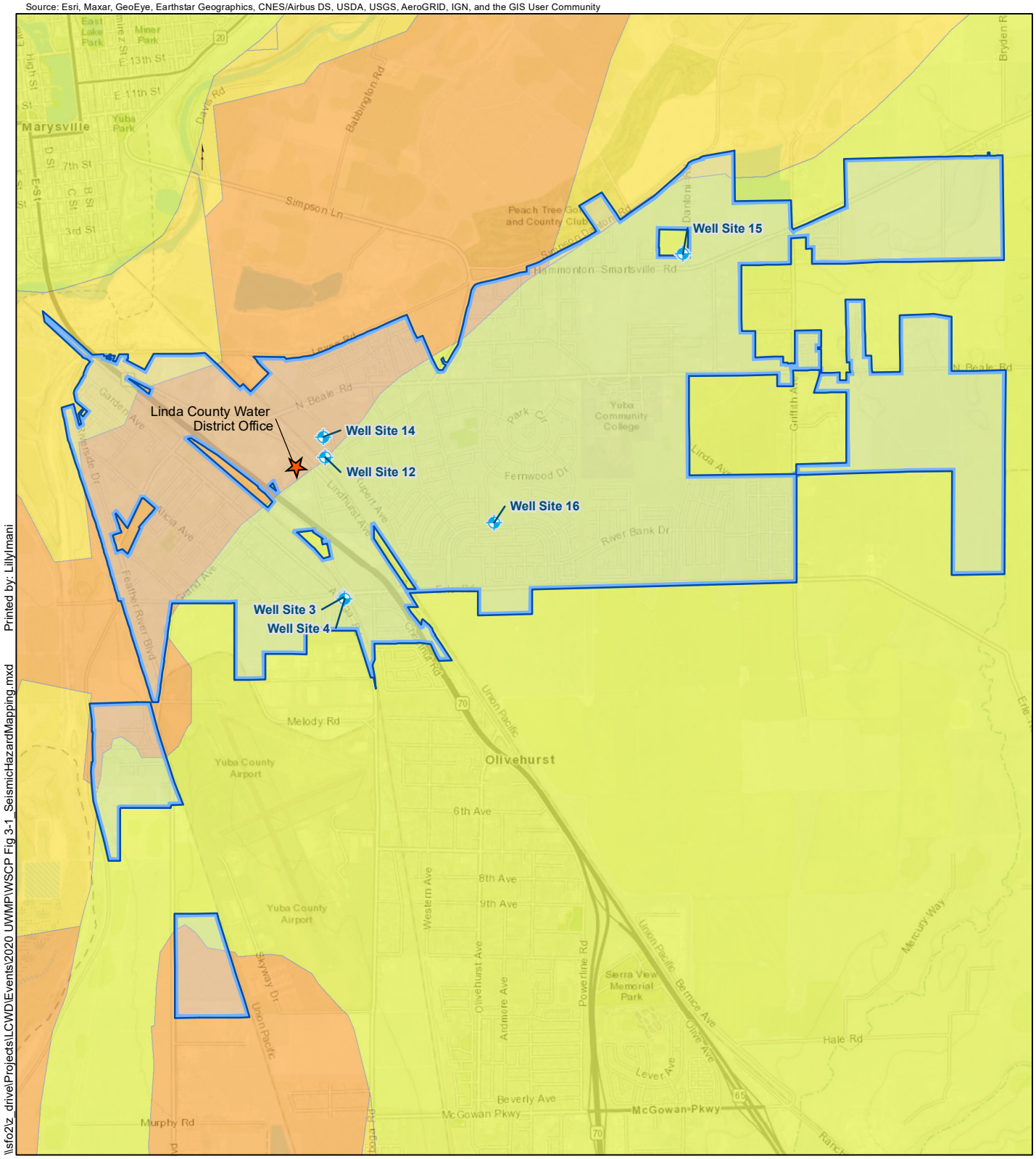
(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

The District service area is located in the Sacramento Valley Geomorphic province of California, a broad synclinal valley with the Sierra Nevada to the east and the Coast Range to the west, with a Sutter Buttes (a Pleistocene age volcanic plug) 14.5± miles west-northwest of Marysville, which is identified as a relatively low probability, high consequence seismic risk area per Yuba County's Multi-Jurisdictional Local Hazard Mitigation Plan (Appendix B). The following summarizes the MHMP risk assessment for earthquakes for all of Yuba County:

- The geographic extent of earthquakes in Yuba County is limited, affecting less than 10% of the county.
- The potential magnitude of earthquake hazards in Yuba County could be catastrophic, affecting more than 50% of property with severe damage, shutdown of facilities for more than 30 days, and/or multiple deaths.
- Earthquakes in Yuba County are occasional, with a 1% to 10% chance of occurrence in the next year.

The District's service area and facilities most vulnerable to shaking in an earthquake hazard event are shown in Figure 3-1. The most vulnerable assets are located upon river sedimentary soils and may become unstable or, if saturated, may liquefy in the event of an earthquake of magnitude 5.0 or greater.



Legend

Linda County Water District Service Area

Earthquake Shaking Potential

(ground acceleration as percent of standard gravity)

- 0% - 10%
- 10% - 20%
- 20% - 30%
- 30% - 40%
- 40% - 50%
- 50% - 60%
- 60% - 215%

N

0 1,750 3,500

Feet

Kennedy Jenks

Water Shortage Contingency Plan
Linda County Water District

District Water Facilities Vulnerable to Shaking during an Earthquake Event

1770003.04
June 2021

Figure 3-1

Geotechnical investigations of the District's recent design and construction projects (2018-2020) summarized the seismic risk within the District's service area as:

> "*The District service area does not lie within an Alquist-Priolo Earthquake Fault Zone and no known active faults are mapped within or through the District's service area. The California Geologic Survey (CGS) considers a fault to be active if it has shown movement one or more times during the Holocene period, defined as the last 11,700 years. There are no faults mapped within the District's service area. The nearest faults include the Swine Ravine fault (Quaternary age, 12± miles to the east-northeast) and Spencerville fault (late Quaternary age, 12± miles west-northwest). Based on the CGS mapping, the potential for fault rupture within the District's service area is considered to be relatively low.*
>
> *Liquefaction can occur when saturated, loose to medium dense, granular soil (generally within 50 ft of the surface), or specifically defined cohesive soils, are subjected to ground shaking. Based on the cohesive nature of the soil, medium dense to dense sand layers, and groundwater level and current industry accepted liquefaction and seismic settlement evaluation methods, the potential for liquefaction and seismic settlement throughout the District's service area is considered low.* "

The District's infrastructure for water supply were all designed and constructed in compliance with the International Building Code (IBC), California Building Code (CBC), seismic requirement and other industrial standards related to seismic design of the time. Per LCWD's record, the most critical Geotechnical conditions within the District's service area was determined to be located near the District's Wastewater Treatment Plant (WWTP) at the "dry" side of the Feather River Levee when LCWD carried out the upgrade and expansion of its WWTP. The geotechnical report for the WWTP project (GEOPlus, September 2007) identified the area could experience unacceptable seismic loadings unless recommended mitigation methods are implemented during design and construction to protect the WWTP during potential seismic events.

The District's new construction and rehabilitation projects will continue to follow the latest codes and standards to strengthen infrastructure and maintain the low seismic risk throughout the system. The seismic risk assessment will be updated when updating the District's Urban Water Management Plan as required by Section 10621 of the Act.

Chapter 4: Water Shortage Response Actions (by Shortage Stage)

CWC 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.

Stages of Action to Respond to Water Shortages

4.1 Supply Augmentation Actions

A water shortage event should trigger a review of potential sources for supplemental water supply. Since the groundwater basin is highly reliable based on the historical record, drought-related shortages are not expected. However, potential actions for supplemental water during operational outages could be to install new production well(s) as needed and rehabilitate existing wells to meet target flow rate. Additional future supply sources for consideration by the District include increasing use of reclaimed water and other alternatives based on the actual circumstances at that time.

In the near-term, it is assumed that in a water emergency, LCWD would pump groundwater consistent with the District's historic use. The SYGB that underlies LCWD is an unadjudicated basin and there are no set legal pumping rights (Yuba Water Agency, 2019). This would mean the District can pump more than its design well capacity in a given year from the SYGB. The District's six active wells within the SYGB provide a well capacity of 16,290 AFY, which is three to four times greater than the District's historic use. As summarized in Table 4-1, in the event of a water shortage event, the District can pump above its current well capacity by rehabilitating existing wells, installing new production wells, or increasing capacity of production wells. The District's current well capacity of 16,290 AFY does not include Well 12, which is an active well that is used intermittently (due to benzene levels detected in the raw water) and has a well capacity of 2,420 AFY.

Table 4-1: Supply Augmentation and Other Actions			
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)
IV-VI	Other Actions – Rehabilitate existing wells, install new production wells, or increase capacity of production wells.	2,420 AFY (Well 12)	
NOTES: Well 12 is an active well but operated intermittently by LCWD as a standby well due to the benzene levels detected in the well water. Due to its intermittent operation, Well 17 capacity was not included in LCWD's total water supply. Well 12 is approved by DDW as an active production well and can be operated regularly (full-time) with appropriate water quality sampling. Well 17 is planned to be online in 2023 and will provide a production capacity of 8,000 gpm or 12,904 AFY.			

4.2 Demand Reduction Actions

A range of demand reduction actions are planned depending on the level of shortage. During the 2012-2016 drought, LCWD implemented WSCP efforts that reduced their system-wide water use by 28% between 2013-14 and 2015-16 based on SWRCB water use cutback policy reporting. LCWD was able to meet their water use cutback policy using primarily voluntary measures.

Experience has shown that a well-informed public is generally more willing to heed requests to voluntarily conserve or alter water use patterns and will be more likely to comply if mandatory water use restrictions become necessary. DWR (2008) estimates that public information campaigns have alone reduced demand in the range of 5 to 20 percent, depending on the time, money, and effort spent. Public information supports voluntary and mandatory measures by educating and convincing the public that a critical water shortage exists and provides information on how water is used and how they can help. The DWR Drought Guidebook highlights that when the public perceives a drought to be severe, they change behaviors.

LCWD may consider implementing consumption reduction methods on an as-needed basis to meet future water shortage condition use reduction targets. LCWD's water shortage planned responses would be amended as required depending on which water shortage contingency stage has been triggered, which categories are already implemented, and what additional water savings must be achieved.

Table 4-2 summarizes the consumption reduction methods LCWD may consider during future water shortage conditions (subject to LCWD Board approval). LCWD has reviewed potential consumption reduction methods and would include the following categories as viable methods to achieve specific water use reductions for a given water shortage condition on an as-needed

basis. Table 4-2 may be updated as required to ensure that implementation of such methods

results in achieving water shortage condition demand reduction targets (subject to LCWD Board approval).

Table 4-2: Retail Only: Stages of WSCP - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference
I-VI	Plumbing fixture replacement	
I-VI	Water conservation kits	
I-VI	Education programs	
I-VI	Demand reduction program	
I-II	Voluntary rationing	
II-VI	Use prohibitions	
II-VI	Percentage reduction by customer type	
III-VI	Mandatory rationing	
III-VI	Incentives to reduce water consumption; Excess use penalty	
III-VI	Reduce pressure in water lines; Flow restriction	
V-VI	Restrict building permits; Restrict for only priority uses	
II-VI	Water shortage pricing; Per capita allotment by customer type	
NOTES:		

The typical steps for implementing LCWD's water shortage response are as follows:

Step 1: The LCWD Board determines that water shortage conditions exist (due to supply shortfalls, state cutbacks, and/or emergency conditions). The annual water and supply demand assessment can inform this determination.

Step 2: The LCWD Board identifies water shortage response measures to be considered in response to shortage conditions based on three (3) broad categories of water management policy as follows:

- Voluntary Conservation Measures – LCWD authorizes implementation of voluntary demand reduction measures to be implemented in a given stage, though primarily in Stages I-II.

- Mandatory Conservation Measures – LCWD authorizes implementation of mandatory demand reduction measures, including enforcement actions and fines, to be implemented in a given stage typically in Stages III-V on an as-needed basis.

- Allocation/Rate Based Measures – LCWD authorizes implementation of water allocation based measures to be implemented in Stages IV-VI as deemed necessary to meet water shortage demand reduction targets while maintaining adequate water system revenues to operate the water system.

Step 3: The LCWD Board approves activation of its water shortage contingency plan and the suite of voluntary, mandatory, and/or allocation/rate based measures to be implemented in response to a given water shortage condition. LCWD staff can request LCWD Board consider approval of additional demand reduction measures as deemed necessary to meet actual shortage condition water use reduction targets for the LCWD water system.

Step 4: The LCWD Board deactivates LCWD's water shortage contingency plan measures in effect when water shortage conditions or need no longer exist.

LCWD has grouped the actions to be taken during a given water shortage condition into six stages, based on LCWD's draft water shortage contingency plan ordinance to be activated upon approval by the LCWD Board for LCWD's water system during a triggered water shortage condition (see Appendix C).

Once a water shortage declaration has been made by the LCWD Board, LCWD's six-stage response approach contained in the current water shortage contingency plan provides LCWD with necessary flexibility to address any given water shortage condition up to the >50 percent shortage level condition. Actual demand response measures may be adjusted based on activation of any supply augmentation measures. Table 4-2 provides an overview of the staged response LCWD could follow during a given water shortage condition including sequential stages (I-VI) based on shortage severity, relative supply conditions for each stage, likely water shortage policy activation thresholds, and percent shortage reduction levels. The stages would be implemented based on specific conditions and need to meet water service and system revenue requirements. LCWD has a draft water shortage contingency ordinance that can be used in the event of a triggered water shortage condition. A copy of this ordinance is contained in Appendix C. The water shortage stage determination during a given water supply shortage would be recommended by the General Manager and approved by the LCWD Board.

4.3 Operational Changes

Under a water shortage event, LCWD could turn on Well 12 as supplemental water supply, which is approved by Division of Drinking Water (DDW) as an active production well but operated as a standby well by LCWD due to the benzene level detected in the well water. The District may also adjust the operation pressure within its distribution system up to 10 psi lower than normal to achieve the water conservation goal under water shortage condition. The pressure adjustment approach was developed with the District's overall operation and maintenance experience and has been carried out with observed reduction in water use in the past.

4.4 Actions to Prepare for Catastrophic Interruption

4.4.1 Emergency Response Plan

The Act requires documentation of actions to be undertaken by the water supplier to prepare for and implement during a catastrophic interruption of water supplies. A catastrophic interruption constitutes a proclamation of a water shortage and could result from any event (either natural or man-made) that causes a water shortage severe enough to classify as a Stage IV, Stage V, or Stage VI water supply shortage condition. In the event of a natural disasters such as an earthquake, fire, or flood or a catastrophic failure such as contamination, regional power outage, and water system failures, the District will enact restrictions as addressed in Chapter 4:. Such restrictions would be based on the varying circumstances as determined necessary and appropriate by the District to respond to the emergency conditions.

In order to prepare for catastrophic events, LCWD has prepared an Emergency Response Plan (ERP) in accordance with other state and federal regulations. The purpose of this plan is to design actions necessary to minimize the impacts of supply interruptions due to catastrophic events. The ERP coordinates overall LCWD response to a disaster in its service area. In addition, the ERP requires the District to have a local disaster plan that coordinates emergency responses with other agencies in the area. The information contained in the ERP is intended to guide staff and inform other emergency responding agencies and includes plans, procedures, lists, and identification of equipment, emergency contacts, etc.

The ERP provides details on actions to be undertaken during specific catastrophic events. Table 4-3 provides a summary of actions cross-referenced against specific catastrophes for three of the most common possible catastrophic events: regional power outage, earthquake, and malevolent acts. The ERP includes incident response procedures for other incidents including contamination, transmission/main break, distribution line break, and potential resulting floods, and pandemic.

Table 4-3: Summary of Actions for Catastrophic Events

Event	Summary of Actions
Regional Power Outage	• Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water. • Establish water distribution points and ration water if necessary. • If water service is restricted, attempt to provide potable water tankers or bottled water to the area. • Make arrangements to conduct bacteriological tests, in order to determine possible contamination. • Utilize backup power supply to operate pumps in conjunction with elevated storage. • Manually reset wells that experience a power surge due to the restoration of power.
Earthquake	• Assess the condition of the water supply system given that LCWD is in seismic zone 3 which could experience a severe earthquake which may impact water system pipelines, treatment facilities, storage tanks and/or water services. • Complete the damage assessment checklist for reservoirs, water treatment plants, wells and boosters, system transmission and distribution. • Coordinate with California Emergency Management Agency utilities group or fire district to identify immediate firefighting needs. • Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water. • Prepare report of findings, report assessed damages, advise as to materials of immediate need and identify priorities including hospitals, schools and other emergency operation centers. • Take actions to preserve storage. • Make arrangements to conduct bacteriological tests, in order to determine possible contamination. • Determine any health hazard of the water supply and issue any “Boil Water Order” or “Unsafe Water Alert” notification to the customers, if necessary. • Cancel the order or alert information after completing comprehensive water quality testing.

Table 4-3: Summary of Actions for Catastrophic Events	
Event	Summary of Actions
Malevolent Acts	• Assess threat or actual intentional contamination of the water system. • Notify local law enforcement to investigate the validity of the threat. • Get notification from public health officials if potential water contamination. • Determine any health hazard of the water supply and issue any "Boil Water Order" or "Unsafe Water Alert" notification to the customers, if necessary. • Assess any structural damage from an intentional act. • Isolate areas that will take the longest to repair and or present a public health threat. Arrange to provide emergency water.
Flooding	• In the event of flooding, have emergency disinfection products and procedures available as LCWD could be susceptible to flooding risk and events. • Evaluate, repair, and/or replace any damaged equipment required for groundwater pumping, treatment, and/or distribution.

In addition to specific actions to be undertaken during a catastrophic event, LCWD performs maintenance activities, such as annual inspections for earthquake safety, and budgets for emergency items, such as auxiliary generators, to prepare for potential events and protect the local groundwater resources. Furthermore, LCWD requires design for all water supply infrastructure and water treatment facilities to meet the latest Uniform Building Code.

Flooding is a possibility in LCWD's service area. One risk from flooding could be contamination of drinking water supplies. LCWD employs disinfection procedures and stores disinfection supplies in the event that the drinking water system becomes contaminated. Another impact of severe flooding is that groundwater pumping and treatment equipment could become damaged. Evaluation, repair, and replacement of groundwater pumping and treatment equipment are a part of LCWD's emergency response protocol.

4.5 Additional Mandatory Prohibitions

The Act requires an analysis of mandatory prohibitions, penalties, and consumption reduction methods against specific water use practices which may be considered excessive during water shortages. The LCWD Board has the authority to adopt an ordinance enacting specific prohibitions or penalties on end uses. In order to enact or rescind any prohibitions or penalties, staff would seek approval from the LCWD Board depending on what stage LCWD is in and what action is required based on changing hydrologic conditions or state mandated policies. LCWD's most recent water use reduction ordinance, which prohibited the waste of water, is included in Appendix C. When LCWD determines that more severe water shortage conditions are no longer in effect, mandatory conservation and rationing measures will not be in force.

The water shortage contingency plan establishes the period during which additional conservation and rationing measures will likely be in effect, as needed. Table 4-4 summarizes LCWD's planned water use prohibitions (further described in the unlawful water use ordinance, provided in Appendix C), additional enforcement measures that could be applied, and the stages during which they would be enacted on an as needed basis.

Mandatory prohibitions become important as water shortage conditions worsen and water use cutbacks are critical. Beginning water shortage response with voluntary prohibitions provides customers with an opportunity to meet established water use reduction targets before mandatory prohibitions are imposed during later stages of the water shortage condition to meet higher use reduction targets. Table 4-4 may be updated or amended in the future depending on water shortage conditions and customer response required to meet water shortage reduction targets.

The State, through the State Water Board, adopted drought emergency conservation regulations in July 2014 which were expanded, updated, extended, and readopted several times. The prohibitions on wasteful water use practices were in place until November 25th, 2017. The emergency conservation regulations in effect through November 2017 included the following prohibitions:

- Application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures.

- The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.

- The application of potable water to driveways and sidewalks.

- The use of potable water in a fountain or other decorative water feature except where the water is part of a recirculating system.

- The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall.

- The serving of drinking water other than upon request in eating or drinking establishments.

- Irrigation with potable water of ornamental turf on public street medians.

The emergency conservation regulations further required that:

- The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

- Commercial, industrial, and institutional properties shall limit outdoor irrigation of ornamental landscapes or turf with potable water to no more than two days per week.

Table 4-4: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage).* [2]	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? (Yes/No) [3]
I-VI	Expand public information campaign	10%-22%	Based on AWWA 2008 assumes savings of 10% through implementation of a public information campaign and a savings of 22% with enforcement	Yes
I-VI	Provide rebates on plumbing fixtures and devices	10%	Based on AWWA 2008 assumes savings of 10% through the use of water conservation kits. LCWD is partnered with YWA to provide water conservation kits	Yes
II-VI	Decrease line flushing	-	-	Yes
II-VI	Landscape - Restrict or prohibit runoff from landscape irrigation	10%	Includes post rainfall	Yes
III-VI	Other - Reduce distribution system pressure up to 10 psi lower than normal	5-15%	Estimated reduction based on previous implementation during drought conditions.	Yes
III-VI	Other - Prohibit use of potable water for washing hard top surfaces	8-10 gpm water saving	Require auto shutoff nozzle for public health and safety surface cleaning. (YWA Conservation Tips)	Yes

NOTES:

1. Table format based on DWR Guidebook Table 8.2.
2. During the last drought, the District achieved a 12% total water demand reduction with the implementation of all state mandated conservation actions.
3. The District's code book documented the penalty and charge for customer's violation. However, LCWD relies mainly on public outreach to enforce the demand reduction actions throughout its service area.
4. YWA Conservation Tips, https://www.lindawater.com/documents/1248/YubaWater.Com_Water_Conservation_Tips_08-18.pdf
5. AWWA studies indicate that the effectiveness of pricing to reduce water use is very dependent on the affluence of the water utility customer base. As a rule of thumb, AWWA estimates that marginal price increases in water (up to 10 percent) reduce water use by 1.5 to 7 percent; price increases greater than 10 percent are necessary to achieve water use reductions greater than 10 percent (AWWA 2008).

4.5.1 Landscape Irrigation

Landscape irrigation reductions focus on less watering per landscaped area and reducing or avoiding water waste during irrigations. Landscape irrigation reductions may vary by user class or customer type depending on water shortage conditions and ability to meet water use reduction targets. Water budget concepts may be applied by LCWD to equitably reduce landscape water use for larger accounts while minimizing customer impact in the event landscape irrigation reductions must be achieved to meet required water use cutbacks.

The American Waterworks Association estimates that voluntary outdoor water use limits can result in a water savings of up to 10 percent and mandatory outdoor water limits can achieve up to a 56 percent reduction in outdoor water use (AWWA 2008, AWWA 2011). Specifically, case studies found that:

- Restricting water use to every third day reduced water use by 22 percent.
- Restricting water use to twice a week reduced water use by 33 percent.
- Restricting water use to once a week saved 56 percent.

4.5.2 Commercial, Industrial, and Institutional (CII)

The CII category represents a small percentage of LCWD customers and annual water use. The CII users are a diverse group and will require a tailored approach for meeting specified water use reduction targets. This could include focusing on large landscape irrigation areas, process water efficiency or reuse, business practice modifications, or other means to meet CII water use reduction targets. The ability of CII customers to conserve water during a water shortage condition would be considered depending on which stage has been triggered and how much water has already been saved during previous stages. It is generally more difficult for business customers to reduce their water use without impacting business operations than for residential customers to reduce their water use which is more discretionary.

4.5.3 Water Features and Swimming Pools

Water shortage response would focus on providing sufficient supply to meet health and safety needs for residential customers. Tempering the uses for water features and swimming pools can be based on the severity of the water shortage condition. The relative total water use from these sources would be a consideration for how water feature uses would be curtailed during specific water shortage conditions. Water features are a relatively small discretionary use and may be impacted at any time during a triggered water shortage condition.

4.5.3.1 Defining Water Features

The District would identify water features and estimate water use to be treated as a potential target for future demand reductions required during a water shortage condition.

4.5.4 Other

Other uses of water such as construction dust control could be curtailed as required to meet specific water shortage use reduction targets.

Chapter 5: Communication Protocols

CWC 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

Per District Code Book, LCWD will give notice of any current or anticipated shortages and any shortage response actions triggered or anticipated to be triggered as determined by the annual water supply and demand assessment. Notices will be provided in writing to a water customer through monthly billing invoices. Where conditions warrant and in emergencies, the District may resort to notification either by telephone or messenger. Furthermore, LCWD shall coordinate with Yuba County and Yuba Water Agency for the possible proclamation of a local emergency.

In addition, LCWD will post the notification through the District's New Alert System on its official website and include a brief recap in the Annual Water Quality Consumer Confidence Report.

LCWD representatives participate in quarterly coordination meetings with other water agencies and purveyors in the Yuba subbasin (usually at the end of each quarter). LCWD will address triggered or anticipated water shortage conditions during the meetings.

Chapter 6: Penalties, Charges, Other Enforcement of Prohibitions

CWC 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.

Customer Compliance, Enforcement and Appeal and Exemption Procedures for Triggered Response Actions

In addition to prohibitions, LCWD's water shortage contingency plan implementation approach would be to include penalties and charges for excessive water use as needed to meet water use reduction targets. The enactment of these penalties and charges is contingent upon Board declaration of a specific water shortage condition and approval of specified penalties and charges during a given water shortage condition. When penalties and charges for excessive use are in effect, violators would receive up to three written warnings after which a flow-restricting device may be installed on the violator's service connection for repeated violations of water shortage contingency measures in effect. Table 6-1 summarizes the penalties and charges and the stage during which they take effect.

Table 6-1: Summary of Penalties and Charges for Excessive Use

Penalties or Charges	Stage When Penalty Takes Effect
Penalties for not reducing consumption	III-VI
Charges for excess use	III-VI
Flat fine; Charge per unit over allotment	III-VI
Flow restriction	V-VI
Termination of service	V-VI

Penalties, charges, or other enforcement actions may be imposed if voluntary actions are not meeting specific water shortage use reduction targets or continued and repeated water waste practices are occurring during specific water shortage conditions. LCWD may implement penalties and charges as listed in Table 6-1. LCWD may impose additional provisions as needed to meet more severe water shortage conditions associated with triggering higher stages of action.

Chapter 7: Legal Authorities

CWC 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.

CWC 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.

Description of legal authorities to Implement and Enforce Shortage Response Actions

The District's General Manager, and other District authorized representatives have the duty and are authorized to enforce all provisions stated in the Linda County Water District Code, including Sections 5.3.2 General Manager; 5.3.3 Water Superintendent – Duties; 5.3.4 Engineer, Inspector or Water Superintendent -Violation, Repairs; and 5.9.3 Water Waste. Activation of LCWD's adopted WSCP must be approved by the LCWD Board before it can activate demand reduction measures that impact water customers. Several steps must first occur before the LCWD Board imposes measures to reduce customer water demands. Steps are taken in the context that each water shortage condition triggering stages of action is different and unique. The water shortage contingency plan information below represents LCWD's response to the most recent drought conditions (2012-2016) and has been updated to be current.

LCWD shall declare a water shortage emergency condition to prevail within the District's service area whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

Chapter 8: Financial Consequences of Actions during Shortages

CWC 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.

The Act requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. Because LCWD is a public agency and accountable to the ratepayers, LCWD policy is to maintain adequate water fund reserves in the event water shortage and corresponding demand reduction conditions occur that could impact the solvency of LCWD's water fund. Rate stabilization accounts may be established by LCWD to mitigate interim revenue shortfalls and accurately track expenses and revenue shortfalls caused by both mandatory rationing and voluntary conservation efforts. LCWD has the authority to implement a drought surcharge to recover revenue shortfalls accrued against a rate stabilization fund as a result of prolonged demand reductions during water shortage conditions. LCWD did not institute drought surcharges during the 2012-2016 drought period.

Table 8-1 provides a summary of actions with associated revenue reductions.

Table 8-1: Summary of Actions and Conditions that Impact Revenue

Type	Anticipated Revenue Reduction
Reduced water sales	Reduction in revenue will be based on the decline in water sales and the corresponding quantity rate charge

LCWD's Board approved an increase in water rates effective November 2019 with the completion and recommendation in the Water Rate Analysis performed by Municipal Consulting Group. The Water Rate Analysis specifically conducted a sensitivity analysis on the new rate structure to ensure that LCWD would have sufficient revenues during a 3-year drought with 10%-20% water use reduction.

Table 8-2 provides a summary of actions and conditions that impact expenditures.

Table 8-2: Summary of Actions and Conditions that Impact Expenditures	
Category	Anticipated Cost
Increased staff cost	Salaries, benefits, materials and supplies for various staff and new hires required to administer and implement water shortage contingency program measures and actions
Increased O&M cost	Operations and maintenance (O&M) costs associated with alternative sources of water supply, reduced system flows, or water quality challenges
Increased cost of supply and treatment	Purchase and treatment costs of new water supply or additional treatment due to existing source shortfalls

Table 8-3 summarizes the proposed measures to overcome revenue impacts.

Table 8-3: Proposed Measures to Overcome Revenue Impacts	
Names of Measures	Summary of Effects
Penalties for excessive water use	Obtain LCWD Board approval to use penalties to offset portion of revenue shortfall
Using financial reserves	Obtain LCWD Board approval to use District reserves to offset portion of revenue shortfall
Deferring capital improvement projects	Delay planned projects that have not been initiated to prevent additional financial impacts

Table 8-4 provides a summary of the proposed measures to overcome expenditure impacts.

Table 8-4: Proposed Measures to Overcome Expenditure Impacts	
Names of Measures	Summary of Effects
Penalties for excessive water use	Obtain LCWD Board approval to use penalties to offset portion of increased expenditures
Using financial reserves	Obtain LCWD Board approval to use District reserves to offset portion of increased expenditures

8.1 Drought Rate Structures and Surcharges

LCWD can pursue approval of drought surcharges to discourage excessive water use if water shortage conditions persist and the demand reductions needed are significant enough to warrant special rate increases to meet system revenue requirements (including O&M, debt service, and minimal capital projects). LCWD would need adequate revenues to maintain and operate the water system, treat the water supplies, implement capital projects in process or required during the water shortage condition, and meet all debt service requirements. LCWD did not approve any drought surcharges during the 2012-2016 extended drought period. Rate stabilization fund balances were adequate to cover the lower revenues from significant demand reductions experienced during the current extended drought condition. Drought surcharges may be utilized in the future to allow LCWD to meet water system revenue requirements while meeting demand reduction targets; thus, the financial consequences of prohibiting excessive use would be minimal. Drought surcharges would be discontinued when triggered water shortage conditions are deactivated and no longer in effect.

8.2 Use of Financial Reserves

LCWD has the authority to establish water rates for up to a five-year period through the Proposition 218 Notice process. When LCWD does pursue water rate increases, the Proposition 218 Notice indicates the purpose for the rate increases and generally how rate revenue requirements will be allocated. Proposition 218 requires there to be a nexus between what customers pay for water and how much water they use, representing proportionality between payment and service level. It is recommended by AWWA and other fiduciary entities providing guidance on rate policy to approve rate schedules that include the cost of providing service in the water system, accounting for O&M, repair and replacement, capital improvement costs, debt service requirements, regulatory compliance costs, and adequate reserves required to provide sustainable water service to customers during varying hydrologic conditions.

Financial reserves should be incorporated into the rate structure to account for normal demand variations that occur seasonally and annually, and during more severe demand variations associated with extended water shortage conditions. Typically reserves are allocated for the purposes of O&M, capital, debt service, emergency and/or rate stabilization to account for water demand variations over time. LCWD's current water rates are included in Appendix G of the 2020 UWMP. For short term demand reduction scenarios, a rate stabilization fund is the preferred cost recovery mechanism funding source to assist in absorbing immediate unforeseen expense and revenue shortfalls experienced as a result of lower demands. For extended water shortage conditions, a drought surcharge as discussed in Section 8.1 would likely be LCWD's preferred cost recovery mechanism funding source.

8.3 Other Measures

LCWD may consider other measures as required to meet specific water shortage conditions.

Chapter 9: Monitoring and Reporting

CWC 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.

9.1 Groundwater Basin Monitoring and Reporting

The SYGB that underlies LCWD consist of a large network of groundwater monitoring wells for groundwater level measurements. The monitoring wells are monitored by DWR, Yuba Water Agency (YWA), and local water suppliers. If long-term overdraft is detected YWA can take action to reduce production from the groundwater basin. An annual Monitoring and Measurement Report is completed by June 1 each year, reporting conditions and activities completed through April 31 of the prior year. This report is produced to ensure that management actions are achieving the seven basic management objectives and avoiding overdraft conditions and importation of water from other regions. YWA invites agencies with groundwater interests located within or adjacent to Yuba Water Agency to attend and present at the Annual Groundwater Monitoring Report meeting.

9.2 District Infrastructure Monitoring and Reporting

As described in Section 3.2, LCWD will monitor the water consumption through meter readings to flag exceptionally high usage (for verification of water loss or abuse), or exceptionally low usage (for verification of meter registration inaccuracies). This could improve the accuracy of measurable water savings being achieved for a specific water shortage condition. The meter data collected will be analyzed and reported through the Annual Water Supply and Demand Assessment. LCWD performs its annual Distribution System Water Audits, consistent with American Water Works Association (AWWA) M36 methodology. LCWD plans to conduct these water audits on an annual basis. If annual audit results indicate water losses would exceed water system efficiency goals, a full audit is triggered to identify water loss sources and determine impacts on overall system water losses. The District will keep reporting distribution system loss based on AWWA's Water Audit Software (version 5.0) per requirements in CWC 10631.

Chapter 10: Refinement Procedures

CWC 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.

LCWD will convene the following departmental staff as needed to refine the Water Shortage Contingency Plan:

- Engineering Staff
- Administrative Staff
- Operational Staff

The WSCP will be updated and refined as appropriate and needed following significant changes to LCWD's supply portfolio, but no less than every 5 years.

Chapter 11: Special Water Feature Distinction

CWC 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.

In its Prohibitions on End Uses, section 4.2 of this Plan, decorative water features are defined separately from swimming pools.

Chapter 12: Plan Adoption Resolution or Ordinance

> ***CWC 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.*

This chapter describes the District's actions to meet the requirements of the Act pertaining to public review and availability. LCWD must conduct a public hearing prior to adoption, must properly notice the public hearing, must make the WSCP document available for public review, and make the final adopted plan available to the public, cities and counties within 30-days of adoption. Further, the adopted plan must be submitted to DWR, cities and counties, and State Library within 30-days of adoption. Appendix H of the 2020 UWMP contains the following:

- Copy of the public hearing notice from the local newspaper,
- Notifications and follow-up correspondence provided to cities and counties, and

12.1 Public Hearing

LCWD conducted a Public Hearing on June 14, 2021 regarding its 2020 WSCP to receive public comment on the plan before adoption. The purpose of the Public Hearing was to allow community input regarding the District's implementation plan and to consider the economic impacts of the District's implementation plan. Notifications indicating preparation of the 2020 WSCP were provided to the Yuba Water Agency, Yuba County, and Sutter County 60 days in advance of the Public Hearing. Copies of the draft plan were available to the public for review at LCWD's office. LCWD considered the public comments received at the Public Hearing in the Final 2020 WSCP adopted by the LCWD Board at its June 14, 2021 meeting. A copy of the Board resolution adopting the 2020 WSCP is included in Appendix C.

LCWD is committed to implementing the plans provided within this document. However, it is important to note that execution of the plan is contingent upon the regulatory limitations and approval of state agencies and local approval of annual budgets supporting implementation efforts. LCWD shall not be responsible for changed or unforeseen conditions affecting any of the above factors after adoption of the plan.

12.2 Plan Submittal and Public Availability

A copy of LCWD's WSCP was submitted to DWR and the California State Library within 30 days of adoption.

LCWD's adopted WSCP was made available to the public in hard copy at the District's Administration Office located at 1280 Scales Avenue, Marysville, CA 95901 and available online at xxx. This plan includes all information necessary to meet the applicable requirements of the CWC. Appendix I of the 2020 UWMP includes copies of the transmittals included with the adopted plan as supporting documentation.

12.3 Implementation

LCWD is committed to the implementation of this WSCP concurrent with the scheduled activities identified herein as required by Section 10643 of the Act. LCWD is able to properly plan and implement the actions identified in this document and other key planning efforts to proactively address water supply reliability challenges.

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