Paradise Irrigation District
6332 Clark Rd, Paradise, CA 95969 · 530-877-4971 · Fax: 530-876-0483 · www.pidwater.com

AGENDA
SPECIAL MEETING
PARADISE IRRIGATION DISTRICT
BOARD OF DIRECTORS
6332 CLARK ROAD, PARADISE, CA 95969

MONDAY, JUNE 21, 2021 – 9:00 AM

- *The Board of Directors is committed to making its meetings accessible to all citizens. Any persons requiring a special accommodation to participate, is requested to contact the District Secretary at 530-877-4971, extension 2039 at least 48 hours in advance of the meeting.*

- *The Board of Directors or its President pursuant to Government Code section 54954.3 reserves the right to impose reasonable regulations governing public participation on agenda and non-agenda items, including limiting the total amount of time allocated to public testimony on particular issues and for each individual speaker.*

- *The following options are available for members of the public interested in participating in the meeting remotely:*
  Via Zoom Meeting: https://us02web.zoom.us/j/88192841237
  Telephone: +1 669 900 6833 US (San Jose)
  Meeting ID: 881 9284 1237
  To improve participation during the meeting, we will be accepting public comments from Zoom Meeting participants during the meeting. The Board cannot take action on any matter not on the agenda. Public comments specific to an agenda item will be read directly after the agenda item and before the Board votes on an item.
  Via Email or Telephone: Public comment will be accepted by email with the subject line PUBLIC COMMENT ITEM NO. ___ to gborrayo@paradiseirrigation.com or telephone (530) 876-2039 prior to 8:00 a.m. on the day of the meeting.

1. **OPENING**:
   a. Call to Order
   b. Public & Board Members; please silence your cell phones
   c. Pledge of Allegiance
   d. Roll Call

2. **PUBLIC PARTICIPATION:**

   Individuals will be given an opportunity to address the Board regarding matters not scheduled on the agenda, although the Board cannot take action on any matter not on the agenda. Comments will be limited to 3 minutes per speaker. Opportunity for public comment on agenda items will be provided at the time they are discussed by the Board with comments limited to 3 minutes per agenda item.

(Pages 3-4) 3. **DRAFT 2020 URBAN WATER MANAGEMENT PLAN – CONDUCT A PUBLIC HEARING TO REVIEW AND RECEIVE COMMENTS (Water Works Engineers):** *Action may be taken.*

   A. Open Public Hearing
(Pages 8-289) B. Presentation of the Draft 2020 Urban Water Management Plan by Water Works Engineers
   C. Receive Public Comment
   D. Close Public Hearing
   E. Board of Director Comments and Questions

4. **DRAFT WATER SHORTAGE CONTINGENCY PLAN – CONDUCT A PUBLIC HEARING TO REVIEW AND RECEIVE COMMENTS (Water Works Engineers):** *Action may be taken.*

   A. Open Public Hearing
(Pages 290-374) B. Presentation of the Draft Water Shortage Contingency Plan by Water Works Engineers
   C. Receive Public Comment
   D. Close Public Hearing
   E. Board of Director Comments and Questions

(Page 5) 5. **DRAFT WATER SHORTAGE CONTINGENCY PLAN (WSCP) – RESOLUTION TO ADOPT PLAN DOCUMENT**: Adopt Resolution No. 2021-07 Adopting the Water Shortage Contingency Plan (WSCP) and authorizing staff to submit to the California Department of Water Resources and include the WSCP as a chapter in the 2020 Urban Water Management Plan. *Action may be taken*. (Roll Call Vote)

(Pages 6-7) 6. **DRAFT 2020 URBAN WATER MANAGEMENT PLAN – RESOLUTION TO ADOPT PLAN DOCUMENT**: Adopt Resolution No. 2021-08 Adopting the Urban Water Management Plan and authorizing staff to submit to the California Department of Water Resources. *Action may be taken.* (Roll Call Vote)

7. **DIRECTORS' COMMENTS**

8. **ADJOURNMENT OF MEETING**

1916 PID 2016
100 YEARS STRONG
Our water. Our future.

PARADISE IRRIGATION DISTRICT
6332 Clark Road, Paradise CA 95969 | Phone (530)877-4971 | Fax (530)876-0483

"Paradise Irrigation District (PID) is dedicated to the business of producing and delivering a safe, dependable supply of quality water in an efficient, cost effective manner with service that meets or exceeds the expectation of our customers."

Please consider how this agenda item relates to our mission.

TO: Board of Directors

FROM: Colleen Boak and Esmeralda Diego, Water Works Engineers

DATE: June 18, 2021

RE: Public Hearings and Adoption of the 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plans (WSCP)

Every five years, the State of California requires water purveyors serving a minimum of 3,000 service connections or 3,000 acre feet of water to prepare and submit to the Department of Water Resources (DWR) an updated Urban Water Management Plan by July 1 of years ending in 1 or 6. This requirement was last met for PID in 2016. Since that time, the District has undergone significant change resulting from the 2018 Camp Fire, including a drastic reduction in customer base as well as significant rebound in recovery efforts and rebuilding. In 2020 PID had 3,600 service connections and supplied a total of 3,929 AF, so under these requirements, PID is required to prepare and submit a UWMP.

Each iteration of the Urban Water Management Plan is subject to updates in the Plan requirements and 2020 is no different. One significant change in 2020 is the requirement to recognize Chapter 8 of the UWMP, titled Water Shortage Contingency Plan, separately, as a standalone document which must be agendized, considered, and adopted independently. There are many other changes this time around, including greater consideration for climate change, inclusion of energy consumption data, and analysis of longer and more extended drought scenarios.

The Department of Water Resources publishes an updated Guidebook outlining minimum plan requirements every five years to support Plan updates. The final 2020 Urban Water Management Plan Guidebook was published in April 2021 with the deadline for final submission of the plan set at July 1, 2021. Given this compressed timeline, PID, along with many other water purveyors throughout the state, find themselves in a position where they must hold public hearings and propose adoption of the required plans (UWMP and WSCP) in the same meeting of their governing body. As a result, staff is requesting the Board execute four sequential actions, as outlined below. Staff will present content of the

UWMP followed by the WSCP while public hearings are held for each. Following the hearings and any discussion of public or Board member comments received, staff will request that the WSCP be adopted, either as presented, as amended, or authorizing staff to many non-substantial updates. The same will then be requested of the UWMP, inclusive of the proposed WSCP.

The following are requested:

- *Conduct a public hearing to review and receive comments on the Draft 2020 Urban Water Management Plan (Presentation by Water Works Engineers)*

- *Conduct a public hearing to review and receive comments on the Draft Water Shortage Contingency Plan (Presentation by Water Works Engineers)*

- *"Adopt Resolution No. 2021-07 Adopting the Water Shortage Contingency Plan (WSCP) and authorizing staff to submit to the California Department of Water Resources and include the WSCP as a chapter in the 2020 Urban Water Management Plan. "*

- *"Adopt Resolution No. 2021-08 Adopting the Urban Water Management Plan and authorizing staff to submit to the California Department of Water Resources."*

PARADISE IRRIGATION DISTRICT

RESOLUTION NO. 2021-07

A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE PARADISE IRRIGATION DISTRICT
ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN

The Paradise Irrigation District does hereby resolve as follows:

WHEREAS, the Urban Water Management Plan Act requires every urban water supplier either providing water for municipal purposes to more than 3,000 service connections or serving more than 3,000 acre feet annually to develop and submit a Water Shortage Contingency Plan as part of an Urban Water Management Plan every five years to the California Department of Water Resources; and

WHEREAS, the District is an urban supplier of water providing water to more than 3,000 customers; and

WHEREAS, with ongoing and recent updates to the DWR Guidebook for Urban Water Suppliers, staff collaborated with a consultant on the development of the 2020 Water Shortage Contingency Plan; and

WHEREAS, the District has prepared and circulated for public review the Water Shortage Contingency Plan, and a properly noticed public hearing regarding said Plan was held by the Board of Directors on June 21, 2021; and

NOW, THEREFORE, BE IT RESOLVED, the Plan is hereby adopted by the Board of Directors after public review and hearing, and the District Manager is hereby authorized to file the Water Shortage Contingency Plan with the California Department of Water Resources within thirty days of adoption; and

PASSED AND ADOPTED this 21st day of June, 2021, by the following vote at a special meeting of the Board of Directors:

AYES:
NOES:
ABSENT:
ABSTAIN:

PARADISE IRRIGATION DISTRICT

_____
Shelby Boston, President

ATTEST:

_____
Georgeanna Borrayo, Secretary

PARADISE IRRIGATION DISTRICT

RESOLUTION NO. 2021-08

A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE PARADISE IRRIGATION DISTRICT
ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN
FOR PARADISE IRRIGATION DISTRICT

The Paradise Irrigation District does hereby resolve as follows:

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-84 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the District is an urban supplier of water providing water to more than 3,000 customers, and

WHEREAS, with ongoing and recent updates to the DWR Guidebook for Urban Water Suppliers, staff collaborated with a consultant on the development of the 2020 Urban Water Management Plan update; and

WHEREAS, the District has prepared and circulated for public review the Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the Board of Directors on June 21, 2021; and

WHEREAS, the Plan may be periodically reviewed at least once every five years, and the District may make any amendments or changes to its plan which are indicated by the review, or by requirements of the State of California Department of Water Resources; and

WHEREAS, the Plan must be formally adopted by the Board of Directors after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the District desires to adopt said Plan and to file it as required by law.

NOW, THEREFORE, BE IT RESOLVED by the Paradise Irrigation District as follows:

1. The above recitals are true and correct and are adopted by the Board of Directors as findings;

2. The District Manager is hereby authorized and directed to file the 2020 Urban Water Management Plan with the California Department of Water Resources by the submittal date of July 1, 2021;

3. The District Manager is hereby authorized to implement the Water Conservation Programs as set forth in the 2020 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the Board of Directors regarding necessary procedures, rules, and regulations to carry out effective, equitable, and cost-conscious water conservation programs;

4. The District Manager may recommend to the Board of Directors additional procedures, rules, and regulations to carry out the terms and conditions of the 2020 Urban Water Management Plan.

PASSED AND ADOPTED this 21st day of June, 2021, by the following vote at a special meeting of the Board of Directors:

AYES:
NOES:
ABSENT:
ABSTAIN:

PARADISE IRRIGATION DISTRICT

_____
Shelby Boston, President

ATTEST:

_____
Georgeanna Borrayo, Secretary

Paradise Irrigation District Draft 2020 Urban Water Management Plan

June 2021

Prepared by Water Works Engineers, LLC
Colleen Boak, PE
Esmeralda Diego
Sheila Magladry, PE
Ameen Tohmeh

Checked by:
Tim Durbin, PE
Cindy Bertsch, PE

Table of Contents

Chapter 1 Urban Water Management Plan Purpose and Description 1-1
1.1 California Legislation 1-1
1.2 Updates to 2020 UWMP 1-2
1.2.1 Lay Description 1-2
1.2.2 Water Loss Reporting 1-2
1.2.3 Energy Use Information 1-2
1.2.4 Groundwater Supplies Coordination 1-2
1.2.5 Five Consecutive Dry-Year Water Reliability Assessment 1-2
1.2.6 Drought Risk Assessment 1-2
1.2.7 Water Shortage Contingency Plan 1-3
1.2.8 Seismic Risk 1-3
1.3 Benefits of UWMP Reporting 1-3
1.4 Plan Organization 1-3
Chapter 2 Plan Preparation 2-1
2.1 Basis for Preparing a Plan 2-1
2.2 Individual or Regional Planning and Compliance 2-1
2.3 Fiscal or Calendar Year and Units of Measure 2-2
2.4 Coordination and Outreach 2-2
2.4.1 Wholesale Coordination 2-2
2.4.2 Coordination with Other Agencies and the Community 2-3
Chapter 3 System Description 3-1
3.1 General Description 3-1
3.1.1 Storage Reservoirs and Intake 3-1
3.1.2 Water Treatment 3-2
3.1.3 Pressure Zones and Distribution Storage 3-2
3.1.4 Distribution Network 3-3
3.1.5 Groundwater Well 3-4
3.1.6 Interties 3-4
3.1.7 Customer Meters 3-4
3.2 Service Area 3-5
3.3 Service Area Climate 3-7
3.4 Service Area Population and Demographics 3-7
3.4.1 Service Area Population 3-7
3.4.2 Social, Economic, and Demographic Factors 3-8
3.5 Land Uses within the Service Area 3-9
Chapter 4 Water Use Characterization 4-1
4.1 Non-Potable Versus Potable Water Use 4-1
4.2 Past, Current, and Projected Water Use by Sector 4-2
4.2.1 Water Use Sectors Listed in Water Code 4-2
4.2.2 Water Use Sectors in Addition to Those Listed in Water Code 4-3

4.2.3 Past Water Use 4-3
4.2.4 Current Water Use 4-3
4.2.5 Projected Water Use 4-5
4.2.6 Distribution System Water Losses 4-7
4.2.7 Estimating Future Water Savings 4-8
4.2.8 Characteristic Five-Year Water Use 4-9
4.3 Water Use for Lower Income Housing 4-9
4.4 Climate Change Considerations 4-10
Chapter 5 SBX7-7 Baselines, Targets, and 2020 Compliance 5-1
5.1 Baselines and Targets 5-1
5.2 Service Area Population 5-2
5.3 Gross Water Use 5-2
5.4 2020 Compliance Daily Per-Capita Water Use 5-2
5.4.1 Adjustment to Gross Water Use for SB X7-7 Reporting 5-3
5.4.2 Increased System Loss from the Camp Fire 5-3
5.5 Regional Alliance 5-4
Chapter 6 Water Supply Characterization 6-1
6.1 Purchased and Imported Water 6-1
6.2 Surface Water 6-1
6.2.1 Surface Water Supplies – Vulnerabilities and Restrictions 6-2
6.3 Groundwater 6-3
6.4.1 Groundwater Basin Description 6-4
6.3.1 Groundwater Management 6-5
6.3.2 Historical Groundwater Production 6-5
6.3.3 Aquifer Storage and Recovery 6-6
6.4 Stormwater 6-6
6.5 Wastewater and Recycled Water 6-6
6.6 Recycled Water System 6-7
6.7 Actions to Encourage and Optimize Future Recycled Water Use 6-7
6.8 Desalinated Water Opportunities 6-7
6.9 Exchanges or Transfers 6-8
6.9.1 Del Oro Water Company 6-8
6.10 Supply Management 6-8
6.11 Future Water Projects 6-8
6.12 Summary of Existing and Planned Sources of Water 6-9
6.13 Climate Change Impacts to Supply 6-12
6.14 Energy Intensity 6-12
Chapter 7 Water Service Reliability and Drought Risk Assessment 7-1
7.1 Constraints on Water Sources 7-1
7.1.1 Legal Constraints 7-1
7.1.2 Water Quality Constraints 7-2
7.1.3 Physical Constraints 7-3
7.1.4 Other Constraints 7-4

7.2 Water Supply Reliability Assessment 7-4
7.2.1 Potable Water Supply and Demand Assessment 7-4
7.2.2 Comparison of Supply and Demand 7-5
7.2.3 Total Water Supply and Demand Comparison 7-5
7.2.4 Deficit Mitigation 7-7
7.3 Drought Risk Assessment 7-8
7.4 Regional Supply and Reliability 7-8
Chapter 8 Water Shortage Contingency Plan 8-1
Chapter 9 Demand Management Measures 9-1
9.3 Demand Management Measures 9-1
9.3.1 Water Waste Prevention Ordinances 9-2
9.3.2 Metering 9-2
9.3.3 Conservation Pricing 9-2
9.3.4 Public Education and Outreach 9-3
9.3.5 Programs to Assess and Manage Distribution System Real Loss 9-3
9.3.6 Water Conservation Program Coordination and Staffing Support 9-4
9.3.7 Implementation Over the Past Five Years 9-4
9.4 Planned Implementation to Achieve Water Use Targets 9-4
9.5 Members of the California Urban Water Conservation Council 9-4
Chapter 10 Plan Adoption and Submittal 10-1
10.1 Inclusion of all 2020 Data 10-1
10.2 Notice of Public Hearing 10-1
10.3 Public Hearing and Adoption 10-2
10.4 Plan Submittal 10-2
10.5 Public Availability 10-2
10.6 Public Implementation 10-2
10.7 Amending an Adopted UWMP 10-2
10.8 California Water Code Requirements 10-3

Paradise Irrigation District Tables

PID Table 2-A Outreach with local and regional agencies 2-3
PID Table 3-A Potable Water Storage Facilities 3-3
PID Table 3-B Monthly average climate data from 2016 through 2020 3-7
PID Table 3-C Town of Paradise Land Uses 3-9
PID Table 4-A Past potable and non-potable water use volumes by sector 4-3
PID Table 4-B Gross water use projections through 2025. 4-9
PID Table 4-C Current and projected affordable housing water use. 4-9
PID Table 4-D Climate variables during an extended drought scenario. 4-10
PID Table 5-A Progress towards meeting 2020 confirmed target and 2020 GPCD absent impacts of the Fire. 5-4
PID Table 6-A Surface Water Supply Summary 6-2
PID Table 6-B Source Water Contract Reliability and Vulnerabilities 6-3
PID Table 6-C Annual Energy Intensity Reporting for 2020. 6-13

PID Table 7-A Reliability Assessment Year Type Characterization 7-4

Department of Water Resources Tables

DWR Table 2-1 2-1
DWR Table 2-2 2-2
DWR Table 2-3 2-2
DWR Table 3-1 3-8
DWR Table 4-1 4-5
DWR Table 4-2 4-6
DWR Table 4-3 4-6
DWR Table 4-4 4-7
DWR Table 4-5 4-8
DWR Table 5-1 5-2
DWR Table 5-2 5-3
DWR Table 6-1 6-6
DWR Table 6-2 6-6
DWR Table 6-3 6-7
DWR Table 6-4 6-7
DWR Table 6-5 6-7
DWR Table 6-6 6-7
DWR Table 6-7 6-10
DWR Table 6-8 6-10
DWR Table 6-9 6-11
DWR Table 7-1 7-5
DWR Table 7-2 7-6
DWR Table 7-3 7-6
DWR Table 7-4 7-7
DWR Table 7-5 7-8
DWR Table 10-1 10-1

Figures

Figure 3-1 Paradise Irrigation District Water Treatment Plant Process Flow 3-2
Figure 3-2 Service Area Map 3-6
Figure 6-1 CASGEM Groundwater Basin Prioritization – Northern Region 6-5

Appendices

Appendix A – Notifications Letters
Appendix B – AWWA Water Loss Audits
Appendix C – Cal Adapt's Extended Drought Tool
Appendix D – 2015 SBX7-7 Verification Form
Appendix E – 2020 SBX7-7 Compliance Form

Appendix F – Water Rights Permits
Appendix G - USGS Watershed Scale Response to Climate Change – Feather River Basin, California
Appendix H – Water Shortage Contingency Plan
Appendix I – Ordinance No. 2015-01
Appendix J – Copy of Newspaper Application for Public Outreach
Appendix K – Urban Water Management Plan Adoption Resolution
Appendix L – DWR Checklist

Abbreviations

Acre(s)	ac
Acre Feet	AF
Acre Feet Per Year	AF/yr
American Community Survey	ACS
American Water Works Association	AWWA
California State Groundwater Elevation Monitoring Program	CASGEM
California Water Code	CWC
2018 Camp Fire	Camp Fire
Cubic Feet Per Second	cfs
Degrees Fahrenheit	°F
Department of Water Resources	DWR
Department of Water Resources Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use	DWR Methodologies
Drought Risk Assessment	DRA
Gallons Per Minute	gpm
Groundwater Management Plan	GWMP
Groundwater Sustainability Plan	GSP
Maximum Contaminant Level	MCL
Million Gallon(s)	MG
Million Gallons Per Day	MGD
Paradise Irrigation District	PID or District
Parts Per Million	ppm
Pounds Per Square Inch	psi
Senate Bill X7-7	SB X7-7
State of California Legislature	Legislature
State Water Project	SWP
State Water Resources Control Board, Division of Water Rights	SWRCB
Sustainable Groundwater Management Act	SGMA
Town of Paradise	Town
United States Geological Survey	USGS
Urban Water Management Plan	UWMP
Urban Water Management Plan Guidebook 2020	Guidebook
Urban Water Retail Supplier	Supplier
Water Shortage Contingency Plan	WSCP
Water Treatment Plant	WTP

Executive Summary

ES. 1 Introduction

An Urban Water Management Plan (UWMP) is the legal and technical water management foundation for water suppliers throughout California. A UWMP combines information from various sources that inform water supply and demand such as projects pertaining to local land use planning, regional water supply, infrastructure, and demand management. The Paradise Irrigation District (PID or the District) participates in UWMP updates every five years, as required by law. Each UWMP update addresses all requirements pertaining to urban retail water suppliers in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, also referred to as Senate Bill X7-7 (SB X7-7). The reporting years for this UWMP update are 2016-2020, with a planning horizon into 2045. The 2018 Camp Fire significantly impacted PID's ability to report on the required metrics of this UWMP. Components of the UWMP for which data were unavailable are stated throughout the report, and in the absence of data, reasonable estimations were made to report on all components of the UWMP.

ES. 2 Plan Components

The plan consists of the following components:

- **Chapter 1:** The basis for preparing a plan and the new requirements.
- **Chapter 2:** Summary of how the plan is prepared and coordination with the public and other local and regional authorities.
- **Chapter 3:** A description of PID's treatment facility and distribution infrastructure, as well as a description of the population and area served by PID.
- **Chapter 4:** Quantification of water use for the 5-years preceding the plan update and water use projections for a 25-year planning horizon.
- **Chapter 5:** Supporting data for reporting on SB X7-7.
- **Chapter 6:** Description of existing and planned water supplies and water supply management.
- **Chapter 7:** A drought risk assessment (DRA), which analyzes water supplies and demands in a single year or multiple years of a water shortage.
- **Chapter 8**: The Water Shortage Contingency Plan (WSCP), which outlines the process that PID will execute in the event of a water shortage.
- **Chapter 9:** Demand measures that PID integrates and plans to integrate into its regular operations to address increasing demands.
- **Chapter 10:** Record of the process by which the UWMP was adopted, submitted, and implemented with the intention of making the plan widely available to PID's customers and the public.

ES. 3 Basis for Plan Preparation and Coordination

Urban water retail suppliers (suppliers) who either deliver 3,000-acre feet (AF) or more of water annually or have over 3,000 service connections are required to submit a UWMP. In 2020 PID had 3,600 service connections and supplied a total of 3,929 AF, so under these requirements, PID is required to prepare and submit a UWMP.

In preparation of this plan, PID sought involvement from the public and other local water agencies. Neighboring water retail suppliers and the community were informed of a public hearing to be held on June 21, 2021. In this

public hearing the plan will be presented, and attendees will be encouraged to share questions and concerns prior to board adoption.

ES. 4 System and Supply Description

Raw water from Paradise Lake and Magalia Reservoir is PID's primary water source. Raw water is conveyed to PID's water treatment plant and is then distributed through 170 miles of water mains to customers. Other water facilities that PID maintains include potable water storage tanks, pump stations, interties to exchange water with other water agencies, and a groundwater well.

ES. 5 Past and Projected Water Use

PID supplies water to customers for the following water use sectors:

- Commercial
- Industrial
- Institutional and Governmental
- Multi-Family Residential
- Single Family Residential
- Landscape
- Agricultural Irrigation

The UWMP characterizes water use by sector for the years preceding the plan update as well as projections of water use for the next 25 years. The estimated volume of water used by each sector for 2020 and water use projections through 2045 are summarized in ES Table 1.

ES Table 1 2020 potable and non-potable water use and projected water use through 2045.

Water Use Sector	2020	2025	2030	2035	2040	2045
Single Family	1,130	1,686	2,290	2,894	3,168	3,168
Multi-Family	206	261	355	448	491	491
Commercial	221	184	250	315	345	345
Institutional/Governmental	408	112	152	192	210	210
Agricultural Irrigation	0	50	67	85	93	93
Landscape	30	31	42	53	58	58
Losses	1,934	1,334	901	626	444	419
Total	3,929	3,657	4,056	4,614	4,809	4,784

ES. 6 SB X7-7

SB X7-7 called for a 20% reduction of water use from all retail water suppliers by the year 2020. In the 2010 and 2015 UWMPs, PID calculated a 10-year and 5-year baseline period to determine an average baseline gallon per capita per day (GPCD) water use. The confirmed 2020 target was to be 212 GPCD, a 20% reduction from the 2010 265 GPCD baseline. In 2020, the actual water use was 349 GPCD, and PID did not achieve the targeted reduction. However, in the 2015 UWMP PID demonstrated the ability to meet the confirmed reduction with water use of 143 GPCD. Additionally in 2017, the last complete calendar year before the Camp Fire, PID had a water use of 157

GPCD. The far-reaching effects of the Camp Fire, explained further in this UWMP, impacted PID's ability to meet the requirements of SBX7-7.

ES. 7 Supply Reliability and Drought Risk Assessment and Water Shortage Contingency Plan

A supply reliability and drought risk assessment was performed. The assessment considered the supply available for a single-year and five-year consecutive drought period for both the near-term and long-term. The supply availability was compared to the total water use to determine if a deficit is projected for any of the conditions. The supply availability is subject to seasonal and climatic shortages, which reduce the available water from Paradise Lake and Magalia Reservoir. The supply and drought risk assessment do not anticipate a water deficit for a single-year or for a five-year consecutive drought in the near term or long term.

ES. 8 Demand Management Measures

PID has taken a proactive approach to managing water demands. Demand management measures include Water Conservation Programs, Water Wise Guidelines, and public education and outreach. Following the Camp Fire, system losses account for a significant portion of water use. PID continues to prioritize the repair of its distribution system to reduce the amount of water lost through leaks.

ES. 10 Plan Adoption and Submittal

The 2020 UWMP will be presented to the Board of Directors on June 21, 2021, following the public hearing. Following adoption of the 2020 UWMP, the 2020 UWMP will be submitted to the California Department of Water Resources for compliance with the Urban Water Management Planning Act. The plan will be made publicly available at the PID office and an electronic version will also be available for review and download on PID's website at https://pidwater.com/uwmp.

Chapter 1 Urban Water Management Plan Purpose and Description

This chapter introduces the Urban Water Management Plan (UWMP) program, including a description of the legislation that requires urban water retail suppliers to submit UWMPs, the necessary information required to be reported in the 2020 UWMP, an overview of the changes to legislation since the 2015 Paradise Irrigation District UWMP, and a description of benefits to the supplier and its customers in completing a UWMP.

1.1 California Legislation

The Urban Water Management Planning Act was enacted in 1983 by the State of California Legislature (Legislature). The law established the requirement that an urban water supplier (supplier) that provides municipal water to over 3,000 customers or 3,000 acre-feet (AF) annually must submit a UWMP every five years. The aim of the Urban Water Management Planning Act was to address declarations and findings of the California Water Code (CWC):

California Water Code Section 10610.2

(a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate, and increasing long-term water conservation among Californians, improving water use efficiency within the state's communities and agricultural production, and strengthening local and regional drought planning are critical to California's resilience to drought and climate change.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years now and into the foreseeable future, and every urban water supplier should collaborate closely with local land-use authorities to ensure water demand forecasts are consistent with current land-use planning.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

Additionally, efforts aimed at protecting California's water supply were expanded in 2009 with Senate Bill X7-7 (SB X7-7), where Governor Schwarzenegger called for a 20% reduction statewide in per capita water use by 2020.

1.2 Updates to 2020 UWMP

Since the reporting of the 2015 UWMP, there have been various requirements added by the Legislature to the CWC. Subsequent chapters of this report will provide necessary information to address requirements applicable to PID. The major new requirements are described in the following sections.

1.2.1 Lay Description

Pursuant to Section 10630.5, all plans are now required to include a lay description. This description shall include how much water PID has on a reliable basis, anticipated demands for the foreseeable future, PID's plan to meet those future demands, any challenges that PID will face in the future especially pertaining to recovery following the 2018 Camp Fire (Camp Fire), and other information that will provide the public with an understanding of the PID's 2020 UWMP.

The requirement for this lay description is met in the executive summary.

1.2.2 Water Loss Reporting

Pursuant to Section 10631(d)(3)(C), the 2020 UWMP shall include past water loss for the 5-years preceding the plan. The 2015 UWMP included water loss data from 2015, the reporting year, but not the other four years preceding the plan.

1.2.3 Energy Use Information

Pursuant to 10631.2, the 2020 UWMP shall include any information related to the amount of energy consumed in various water processes to estimate the energy intensity of water production and delivery.

1.2.4 Groundwater Supplies Coordination

Pursuant to 10631(b)(4)(A), if groundwater is identified as a source of water available to the supplier, the 2020 UWMP shall coordinate with the current version of any groundwater sustainability plan adopted pursuant to 10720, Sustainable Groundwater Management Act, or any other authority for groundwater management for basins underlying the service area. PID has one groundwater well that is inoperable at this time; however, the PID service are does not overly a groundwater basin to which this requirement applies.

1.2.5 Five Consecutive Dry-Year Water Reliability Assessment

Pursuant to 10631(f), suppliers must now include a description of actions they will implement for a period of drought lasting five consecutive water years as opposed to the 2015 UWMP requirement, which was for three consecutive dry water years.

1.2.6 Drought Risk Assessment

Pursuant to 10635(b), all suppliers are required to include a drought risk assessment (DRA) in the UWMP. Interim updates to the DRA may be conducted by the supplier within the five-year cycle of the UWMP update.

1.2.7 Water Shortage Contingency Plan

Pursuant to Section 10632, every urban water supplier shall prepare and adopt a Water Shortage Contingency Plan (WSCP). The WSCP shall be included in the 2020 UWMP but is to be adopted separate from the UWMP, with the intent that it be updated as needed independently from the UWMP.

1.2.8 Seismic Risk

Pursuant to 10632.5, suppliers shall include a seismic risk assessment and mitigation to assess vulnerabilities of the supplier's facilities. The seismic risk assessment and mitigation plan shall be updated when the UWMP is updated.

1.3 Benefits of UWMP Reporting

UWMP reporting for PID is required by the state and is a critical document for ensuring that PID remains compliant with applicable state regulations. Additionally, completion of a UWMP demonstrates that PID has addressed the requirements of the CWC and is necessary to be eligible for any Department of Water Resources (DWR) administered grant or loan. Completion of the most recent UWMP may also be required for other state funding.

Beyond establishing grant or loan eligibility, the UWMP is intended to be a useful tool for the supplier and the public. Thoughtful preparation of the plan provides the supplier an opportunity for forward thinking and planning, ensuring that their water supply remains robust in the future and continues to meet the dynamic needs of its customers. Throughout plan preparation, PID, other suppliers, and local and regional authorities are encouraged to coordinate with one another, which is intended to foster a greater understanding of the region's water demands, ultimately promoting mindful utilization of the state's water resources.

1.4 Plan Organization

This UWMP was prepared in part by use of guidance issued by DWR via the *Urban Water Management Plan Guidebook 2020* (Guidebook). Organization of the plan chapters closely follows the suggested organization in the Guidebook. Where appropriate, submittal tables provided by DWR are used to report data; these tables are denoted by the prefix, "DWR Table". Additional data reporting is done in Paradise Irrigation District Tables denoted by the prefix, "PID Table".

Chapter 2 Plan Preparation

This chapter provides an overview of the process by which the plan was prepared and the coordination that was carried out.

2.1 Basis for Preparing a Plan

The Paradise Irrigation District (PID) is a public water system, which is defined as a system that provides drinking water for human consumption through pipes or other constructed conveyances. PID serves over 3,000 customer and delivers over 3,000 AF annually and as such is required to submit a UWMP. The UWMP is required to be reviewed and updated every five years; this UWMP is an update to the most recent UWMP, adopted by Paradise Irrigation District in 2015. Metrics for total number of customers and volume of water supplied in PID's service area for 2020 are provided in DWR Table 2-1. Note that the total number of connections in 2020 was a dramatic decrease from the 10,627 connections present throughout the system before the 2018 Camp Fire.

DWR Table 2-1

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
CA0410007	Paradise Irrigation District	3,600	3,929
	TOTAL	3,600	3,929
NOTES: All volumes are in AF. Units of measure remain consistent throughout the UWMP as reported in DWR Table 2-3.			

As a water retail supplier, PID is also required to report on compliance with SBX7-7. This UWMP reports on all requisite components of SBX7-7 legislation.

2.2 Individual or Regional Planning and Compliance

The CWC provides an option for participating in regional management planning. Per *Department of Water Resources Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (DWR Methodologies), water suppliers receiving water from a shared wholesale supplier may choose to form a regional alliance. While PID continues to promote planning with other local water suppliers, PID has not formed a regional alliance for the purposes of reporting on SBX7-7. PID has prepared an individual UWMP, reporting solely on its own distribution service area, as stated in DWR Table 2-2.

DWR Table 2-2

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		

2.3 Fiscal or Calendar Year and Units of Measure

General metrics for plan preparation are provided in DWR Table 2-3.

DWR Table 2-3

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

2.4 Coordination and Outreach

This section discusses PID's coordination with other agencies and the public.

2.4.1 Wholesale Coordination

Pursuant to CWC Section 10631(j), suppliers are to coordinate with all wholesale suppliers from whom they receive water. PID does not purchase wholesale water and as such has not contacted any wholesale suppliers about coordination in relation to this UWMP.

2.4.2 Coordination with Other Agencies and the Community

PID has actively sought to coordinate preparation of the UWMP with local agencies and the public. PID recognizes that how it currently utilizes and plans to utilize its water supply affects not only its own customers, but customers served by neighboring water agencies. On March 29, 2021, PID notified the towns, cities, agencies, and organizations listed in PID Table 2-A that preparation of the 2020 UWMP update had begun and invited their participation in the process. Documentation of this coordination is provided in Appendix A. Additionally, PID held a public hearing on June 21, 2021, to introduce the 2020 UWMP to the public and solicit feedback and answer questions regarding the plan.

PID Table 2-A Outreach with local and regional agencies

Agency Name	Agency Type
Town of Paradise	Local Town
Butte County Public Works Director	Local County
Butte County Water and Resource Conservation Department	Local County
California Water Service	Water Supplier
Del Oro Water Company	Water Supplier
Cal Fire Station 81	Local Agency
Rebuild Paradise	Local Organization
Paradise Ridge Chamber of Commerce	Local Organization
Mechoopda Indian Tribe of Chico Rancheria	Local Tribal Government
City of Oroville Public Works Department	Neighboring Agency
City of Chico Public Works Department	Neighboring Agency

Chapter 3 System Description

This chapter provides a description of the system including information on the distribution system, service area boundary, climate, population, demographics, and socioeconomics, as well as information on land uses within the service area.

3.1 General Description

The Paradise Irrigation District (PID) is a public utility in the Town of Paradise (Town) and supplies water to most areas of the Town. The Town of Paradise is located in central Butte County in the Sierra Nevada Foothills east of the State Route 99 corridor. PID obtains its surface water from Little Butte Creek watershed. Surface water from Little Butte Creek is diverted to Paradise Lake and then to Magalia Reservoir, permissible through PID's three water supply rights, including two storage rights and a direct diversion right. PID operates a raw water intake at Magalia Reservoir which is pumped to PID's Water Treatment Plant (WTP). Thereafter treated water is conveyed to PID's distribution system through a 42" transmission main.

On November 8, 2018, the Camp Fire started near the community of Pulga in Butte County; the Camp Fire was caused by electrical transmission lines owned and operated by Pacific Gas and Electricity (PG&E), as determined by CAL FIRE. The Camp Fire burned a total of 153,336 acres throughout Paradise, Pulga, Concow, Magalia, and the outskirts of east Chico. The Fire resulted in significant loss of life and property in the Town of Paradise and the surrounding communities, with approximately 90% structure loss. PID's distribution system sustained severe damage as a result of the Fire and fire-related cleanup activities. Damage to the system is described further in the following sections. To date, PID continues to recover their system and promote projects that support the rebuild of the Town.

The severity of the damage, dynamic need for water from the Town's community, and the challenges of navigating recovery have impacted the ability to characterize and quantify the requisite metrics of the 2020 UWMP. This UWMP update was prepared with data to the extent that it is available, but it should be noted that values reported in this plan beginning in November 2018 and thereafter are estimates, where indicated.

3.1.1 Storage Reservoirs and Intake

Storage of surface water upstream of the WTP is provided by two reservoirs impounded by the Paradise and Magalia Dams located north of Paradise. The upstream reservoir, Paradise Lake, is the main storage facility with a total storage capacity of approximately 11,500 AF. Surface water from Paradise Lake is released into Little Butte Creek and flows to Magalia Reservoir. Magalia Dam is currently restricted to 800 AF of storage as a result of the current maximum water surface elevation dictated by the Department of Water Resources, Division of Safety of Dams (DSOD).

In 1997 DSOD identified seismic stability concerns on the upstream slope of Magalia dam. Consequently, DSOD directed PID to lower the maximum water elevation of Magalia Dam to 2,200 feet above mean sea level, whereas the spillway crest elevation is 2,225.8 feet above mean sea level. The lower water level has reduced the maximum operating storage capacity of Magalia Reservoir from 2,574 AF to 796 AF. Due to the lower water elevation behind Magalia Dam, gravity feed to the WTP was no longer possible, and as such a pump station was installed at the

base of Magalia Reservoir to deliver raw water to the WTP. In 2007, a bypass pipeline was installed to provide water to the WTP by gravity.

3.1.2 Water Treatment

PID's single WTP located in Magalia, north of Paradise and at a higher elevation than Paradise, has a capacity of 22.8 million gallons per day (MGD). The WTP is a conventional filtration treatment plant, with treatment processes including flocculation, clarification, filtration, and disinfection as well as side stream solids handling. The treatment train, beginning with the intake at Magalia Reservoir, is shown in Figure 3-1.

The WTP sustained minimal damage during the Camp Fire and continued to operate and supply water to PID's distribution system throughout the duration of the Camp Fire as well as during recovery efforts.

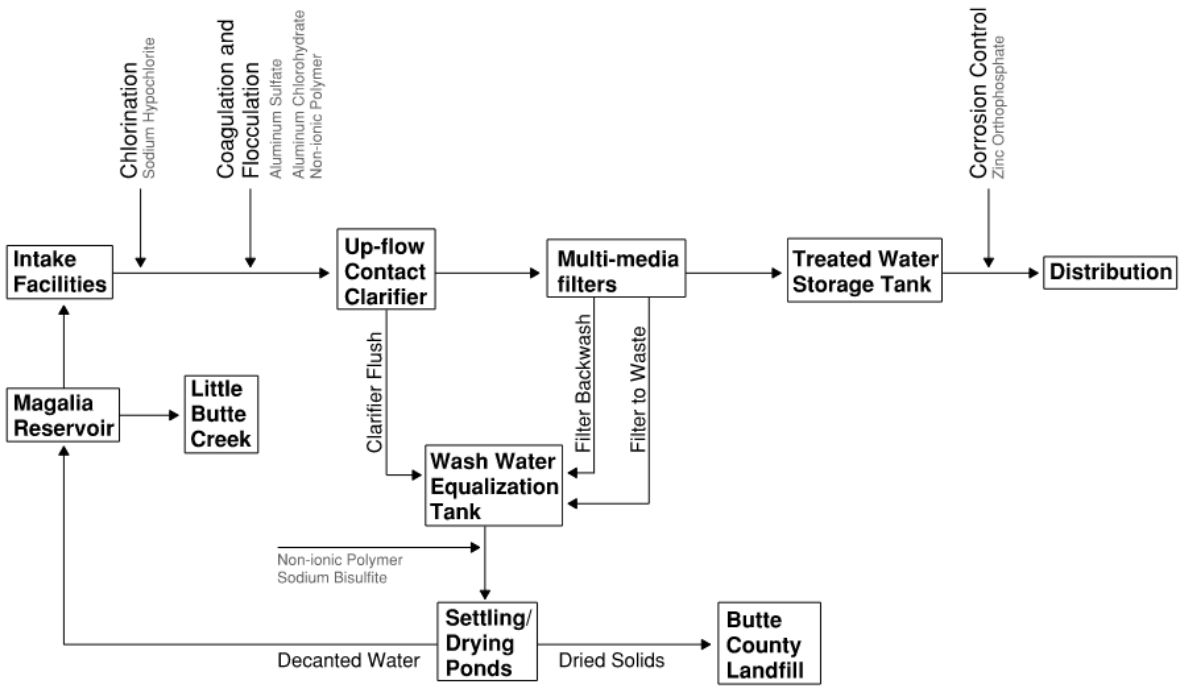


Figure 3-1 Paradise Irrigation District Water Treatment Plant Process Flow

3.1.3 Pressure Zones and Distribution Storage

PID operates seven pressure zones throughout the system, called Pressure Zones A, B, C, D, E, F, and G. There are also five storage facilities, including Reservoir B, which is a lined earthen embankment, and 4 steel tanks: A Tank, C Tank, D Tank, and E Tank. The storage capacity of each tank and the pressure zones to which they provide water are listed in PID Table 3-A. Water is transferred from the WTP directly to Zone B and Reservoir B through the 42-inch transmission main. Water is pumped from Reservoir B to Zone A, which feeds A Tank. C Tank is filled from Zone B and subsequently feeds Zone C. D Tank is filled from Zone C and feeds Zone D. E Tank is filled from Zone D and feeds Zone E. Zone F is fed from Zone E, and Zone G is fed from Zone F.

PID Table 3-A Potable Water Storage Facilities

Facility	Type	Pressure Zone Served	Capacity (MG)
Tank A	Steel	A	1
Reservoir B	Earthen Embankment	A, B	3
Tank C	Steel	C	2
Tank D	Steel	D	2
Tank E	Steel	E	1.5

Reservoir B, the earthen embankment, is Hypalon-lined and has a floating high-density polyethylene cover. During the Camp Fire, the cover and liner were melted in multiple locations to a degree such that they could not be repaired. Consequently, Reservoir B has not been operational since the Camp Fire.

3.1.4 Distribution Network

PID operates a distribution network of just over 170 miles of pressure pipe ranging from 1 inch to 36 inches in diameter. The network of pipes delivers water from the WTP to PID's customers to meet water demands during average day, maximum day, and peak hour conditions.

Several hours into the duration of the Camp Fire, PID's pipe network experienced a significant depressurization in a majority of its water mains. Though the WTP continued to produce water during the fire, demands from fire sprinklers, firefighting activities, and free-flowing service connections where structures once stood drained significant portions of the system. This depressurization event resulted in negative pressure in many areas throughout the main network, which caused an indeterminate amount of damage in the system. Volatile organic compounds (VOCs) were also introduced into the system as smoke, debris, and other contaminants were drawn in through damaged system appurtenances and exposed service connections of destroyed structures.

Following the fire, efforts to repressurize the system were taken by PID staff with the assistance of Mutual Aid staff, supplied by neighboring and partner agencies. Angle stops at service connections were closed, and operational valves throughout the system were manipulated to methodically repressurize and flush mains. Throughout this process, numerous leaks in mains were identified, and those mains remained off or were closely monitored until such time that PID could address them. To date, PID continues to repair or replace main segments that sustained leak damage or have remained off with an outlook of several years before all breaks can be addressed.

Substantial ongoing recovery throughout the Town including debris removal, tree removal, trenching for other utilities, rebuilding of destroyed structures, and repaving continue to cause damage to PID's water mains and service laterals at an average rate of 10 incidents per week.

A Water Quality Advisory (WQA) was put into effect immediately following the fire for all PID customers as the quality of water in the distribution system was unknown at that time. The WQA recommended that customers not drink or otherwise ingest their water and to avoid activities resulting in exposure to potential contaminants. Two comprehensive water quality sampling programs to investigate the presence of VOCs in water mains, service laterals, and hydrants are ongoing.

The first recovery sampling program identified locations where fire-related VOCs had either adsorbed to or absorbed into pipe walls and associated semi-permeable or permeable components could leach into water. Locations where VOCs were detected were generally localized in the service laterals of destroyed structures or parcels and in small diameter dead-end mains. Under this first sampling program all water mains will be sampled, and all surviving structures were sampled.

Where sample results indicate that water quality met California drinking water standards the water quality advisory has been lifted. In the instances where sample results indicated that the water main did not meet drinking water standards the main was replaced and the advisory subsequently lifted. At the time of plan preparation, the advisory has been lifted for over 95% of mains. Efforts to clear the remaining 5% of mains are ongoing but are dependent on repairs that must be made to facilitate pressurization and testing.

Service laterals for all surviving structures have been sampled. Where sample results demonstrated that the quality of water at the service lateral, and the main from which it is served, meet drinking water standards, the WQA was lifted. In the few instances where sample results demonstrated that the water quality did not meet drinking water standards, the service lateral was replaced, and the WQA was subsequently lifted. Representative sampling indicated that water quality at approximately 50% of the service laterals for destroyed structures did not meet drinking water standards. Consequently, PID has begun to replace the service laterals for all destroyed structures where a rebuild will take place. For destroyed structures, the WQA is lifted only upon the completion of a replaced service lateral.

The second sampling program, called the Assurance Monitoring program, began in August of 2020. The purpose of this sampling program was to ensure that water quality remained compliant with drinking water standards and that no VOCs were later detected. Any instance where VOCs were found would be addressed by additional flushing of the water main and resampling or replacement of the main as needed. At the time of plan preparation this sampling program is ongoing and expected to continue at minimum through the end of 2021.

3.1.5 Groundwater Well

PID has a single groundwater well located at the D Tank site facility with a maximum output estimated at 350 acre-feet per year (AF/yr). Pumped groundwater is blended with the chlorinated water of D Tank. The primary purpose of the well is to augment PID's water supply during times of drought or emergency but under normal conditions well production is minimal and only operated for maintenance purposes. However, this well has been non-operational since 2020 due to mechanical failure of the pump.

3.1.6 Interties

PID has intertie agreements with the neighboring Del Oro Water Company (Del Oro) to provide mutual assistance of up to 1,000 gallons per minute (gpm) during water shortage emergencies. PID also treats and wheels water to Del Oro.

3.1.7 Customer Meters

A large proportion of customer water meters were significantly damaged during the Camp Fire and post-fire recovery activities. Damage included melting of meters and breaking of meters during debris removal. At the time of plan preparation, PID has been unable to meter customer water consumption since the Camp Fire. Resultingly,

all data provided for November 2018 through the end of calendar year 2020 are estimates. PID will begin a project in the summer of 2021 to install water meters at all locations where there is active water usage.

3.2 Service Area

PID's service area boundary lies within the limits of the Town of Paradise. There are a few small areas near the edges of the Town limits that are served by Del Oro and not PID. The service area is shown in. Figure 3-2.

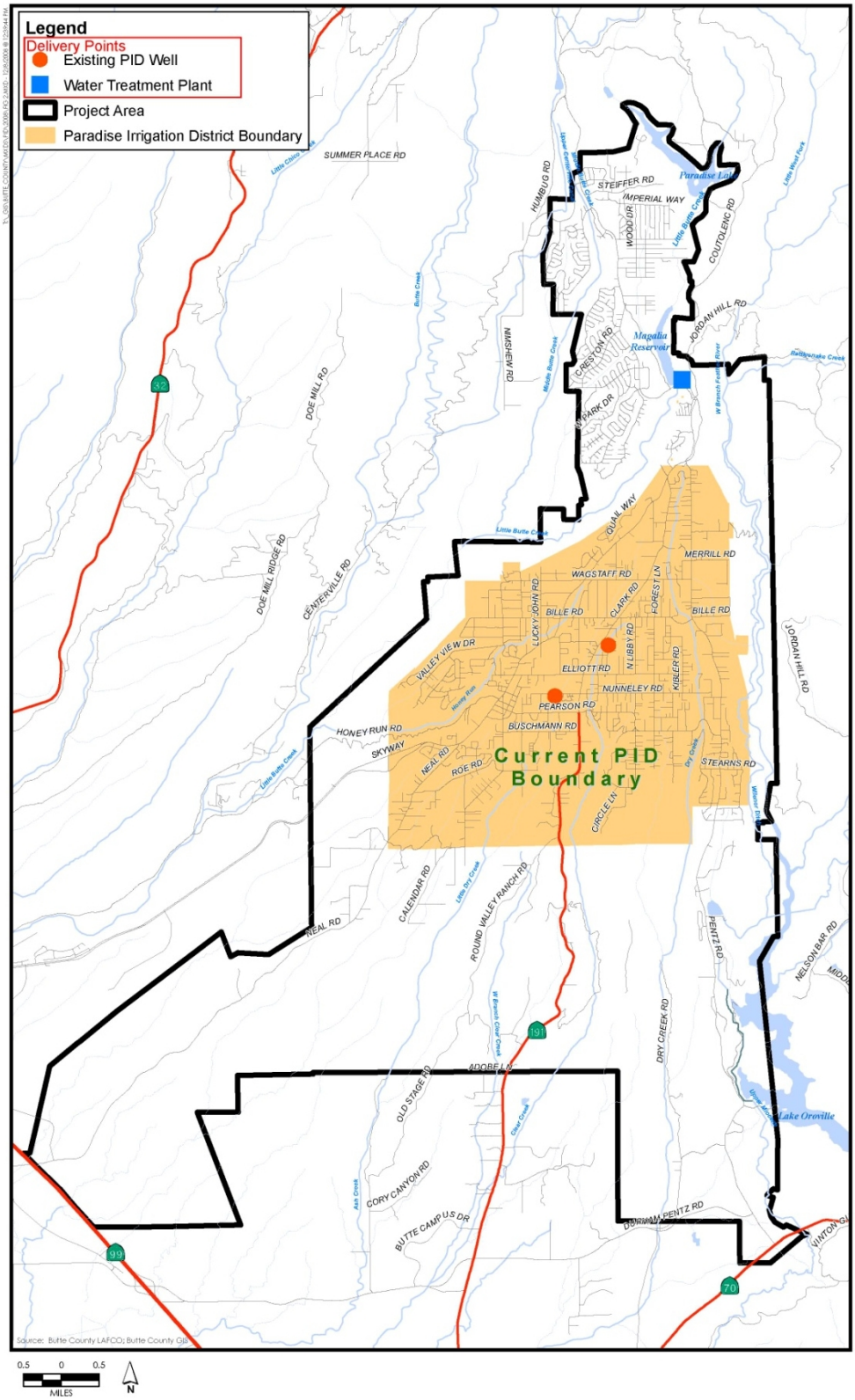


Figure 3-2 Service Area Map

3.3 Service Area Climate

The Town occupies a large southerly trending ridge with an average slope of approximately 4%. Elevations within PID's service area range from 1,080 feet in the southwest corner to 2,030 feet in the northeast. Approximately 88% of the Town area lies on slopes of less than 30%.

PID's service area experiences hot and dry summers and cool and moderately wet winters, with minimal snowfall in areas of higher elevation. Daily temperature and precipitation are logged by a temperature gauge located at the WTP and a rainfall gauge at the Magalia reservoir. Monthly averages for 2016 through 2020 are provided in PID Table 3-B.

PID Table 3-B Monthly average climate data from 2016 through 2020

Month	Average Minimum Temperature (°F)	Average Maximum Temperature (°F)	Average Temperature (°F)	Average Total Precipitation (inches)
January	30	50	39	17.59
February	25	55	38	12.19
March	29	52	39	13.31
April	33	60	47	5.87
May	40	65	51	3.42
June	46	77	59	0.39
July	54	71	62	0.00
August	54	79	61	0.02
September	45	74	57	0.51
October	40	64	49	3.32
November	24	55	43	7.59
December	29	51	38	9.42
Annual Average	37	63	48	6.13

3.4 Service Area Population and Demographics

This section describes the population, demographic, and employment conditions of PID's service area during the reporting period of the UWMP as well as future projections through 2045.

3.4.1 Service Area Population

Water use is directly tied to a service area's population, and analyzing population growth and development trends is critical for PID's planning of water distribution facilities and infrastructure. During the reporting years of this UWMP, the service area population dramatically changed as a result of the Camp Fire. Prior to November 2018, for several decades the Town's population held steady at around 26,000 people. However, as the Camp Fire destroyed about 90% of all structures, the Town's community experienced widespread displacement.

At the time of plan preparation, 2020 U.S. Census data were not yet available, and following the Camp Fire, the Town's population fell below the population threshold of the American Community Survey (ACS), so ACS data were also unavailable. As such, PID opted to utilize DWR's Population Tool to estimate the 2020 population being served water. The Population Tool combines U.S. Census data and electronic maps of PID's service area. Within the Population Tool a calculation of persons per service connection was performed for census years 2000 and

2010. The total number of service connections for 2020, which is 3,600, was then input into the Tool, and a 2020 population estimate was derived from historic trends.

PID coordinated with the Town of Paradise to understand trends of population regrowth. Based on the total annual number of certificates of occupancy issued by the Town each year, the Town estimates that the population could increase by 1,000 persons per year until reaching pre-fire population, which was approximately 26,500. Current and projected population estimates are provided in DWR Table 3-1.

DWR Table 3-1

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045
	8,955	13,955	18,955	23,955	26,217	26,217

The population for 2020, which was based on DWR's Population Tool, may be higher than the population that is currently occupying permanent housing. Due to displacement from the Camp Fire, there are hundreds of parcels which are occupied through use of a temporary housing permit issued by the Town. Additionally, there is a constantly evolving number of parcels which are in various stages of rebuilding. While all service connections may not correspond with a structure that has been issued a certificate of occupancy, PID was still responsible for providing water to the 3,600 active connections in 2020.

Note that in 2040 and 2045, the projected population is slightly lower than the buildout population of 26,500, as there are several dwellings within the Town of Paradise not served by PID and that are instead served by Del Oro. Pre-fire the total number of such dwellings was known to be 129. Applying a 2.19 household multiplier, obtained from the Town, that total population is estimated to be about 280 persons, which was subtracted from the Town's total buildout population projection.

3.4.2 Social, Economic, and Demographic Factors

Prior to the Fire, according to the ACS 5-year estimates, the Town's population was 85.2% white alone (not Hispanic or Latino), 7.9% Hispanic or Latino, 1.1% Asian alone, 0.6% Native, 0.4% Black alone, and 4.8% responded as two or more race and ethnicities. The median household income was estimated to be $51,566, which is two thirds of the median household income in California, and 12.7% of persons were below the poverty line. 26.1% of the total population were 65 years of age or older. The social, economic, and demographic factors prior to the Camp Fire are not believed to have affected water use or management. However, because the Camp Fire caused a significant change in the population, current social, economic, and demographic factors are not well known. Further, it is difficult to anticipate what these factors will be in the future and how they may continue to affect the water management and planning through 2045. PID will continue to coordinate closely with the Town and other local agencies to understand to the extent practicable the evolving population of the service area and how they can meet the water needs of current and future customers.

3.5 Land Uses within the Service Area

A new requirement of the California Water Code, since the 2015 UWMP was published, requires that land use projections be coordinated with other local and regional land use authorities.

> *California Water Code 101631.*
>
> *(a) The description shall include the current and projected land uses within the existing or anticipates service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.*

Though the majority of the Town is currently undeveloped, designated land use by parcel has changed minimally and is expected to build out to the same approximate land uses that were established before the Camp Fire, according to the Town's Planning Department. All approved land use categories are listed in PID Table 3-C.

PID Table 3-C Town of Paradise Land Uses

Land Use Category
Agricultural Residential
Central Commercial
Community Service
Light Industrial
Multi-Family Residential
Neighborhood Commercial
Open Space/ Agriculture
Public Institutional
Recreational
Rural Residential
Town Commercial
Town Residential

Chapter 4 Water Use Characterization

This chapter provides a description and quantification of the PID's past and current water use and future water use projections through the year 2045. Water use for November 2018 through the end of 2020 are estimates, as customer water use was not able to be metered due to the Fire. Projections provided herein were coordinated with population projections provided by the Town of Paradise.

4.1 Non-Potable Versus Potable Water Use

Prior to the Camp Fire, PID provided only potable water to all its retail customers. The primary water source was surface water treated to California Drinking Water Standards at the WTP. PID also provided a small volume of groundwater which was blended with chlorinated water in D-Tank, and routinely sampled for nitrate perchlorate and bacteriological presence to ensure potability.

Following the Camp Fire, PID issued a Water Quality Advisory to all its customers. Early sampling indicated that quality of the surface water of Paradise Lake and Magalia Reservoir as well as treated water leaving the WTP were unaffected by the Camp Fire. However, further sampling demonstrated that VOC contamination from the fire resulted in non-compliance with drinking water standards at some points of use throughout the system. Consequently, only customers having received a Letter of Potability for their service directly from PID on the basis of compliant sample results or a replaced service lateral are being served potable water. All other customers remain under the Water Quality Advisory until such time that they receive a letter of potability for their individual service connection from PID.

PID's priority since the Camp Fire has been to reestablish high-quality potable drinking water for all customers. Based on extensive water quality sampling at more than 6,000 locations and totaling over 400,000 individual analytical tests, PID has identified piping to be replaced where contamination persists despite flushing activities. Most of the persistent contamination has been identified in small diameter dead-end mains, or service laterals serving destroyed structures. The work to complete replacement of service laterals for all destroyed structures who plan to rebuild will take several years. Recognizing that many members of the community have an immediate need for water, including but not limited to those living in temporary housing on their vacant lot and those who are actively rebuilding, PID established the Interim Water Service (IWS) program. Under this program customers are provided a temporary connection to PID through their pre-existing service lateral and a backflow prevention assembly. The backflow prevention assembly is intended to protect PID's distribution system from potential contamination related to effects of the fire and/or activities taking place on the parcel that could introduce contamination into the system, including lot clearing, construction, temporary storage tanks, or any combination thereof. Customers receiving water through the IWS program remain under the Water Quality Advisory and should assume water is non-potable and are advised to comply with the provisions of the advisory.

The Town of Paradise has no centralized sewer system or Wastewater Treatment Plant. All dwellings and businesses in the PID service area dispose of wastewater by individual septic system, clustered septic system, or special septic system. As a result, no recycled water is produced or distributed throughout the Town or by PID.

4.2 Past, Current, and Projected Water Use by Sector

The following sections describe and quantify past, current, and projected water use. Water uses are delineated by the various sectors defined by the CWC. Additionally, the new requirement of the 2020 UWMP requiring reporting of system water losses for the five years preceding this plan is addressed in the following subsections.

4.2.1 Water Use Sectors Listed in Water Code

Water Code Section 10631(d) requires that water uses be identified for at least the ten following sectors, definitions for each of the sectors are adapted from those provided in the Guidebook.

- **Single-family residential** – A single family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. This is a retail demand.
- **Multifamily** – Multiple dwelling units contained within one building or several buildings within one complex. This is a retail demand.
- **Commercial** – A water user that provides or distributes a product or service. Water Code 10608.12(d). This is a retail demand.
- **Industrial** – Water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Water Code Section 10608.12(h). This is a retail demand.
- **Institutional and governmental** – A water user dedicated to public service. This type of a user includes, among other users, higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. Water Code Section 10608.12(i). This is a retail demand.
- **Landscape** – Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. This is a retail demand.
- **Sales to other agencies** – These are water sales made to another agency. Projected sales may be based on projected demand provided by the receiving water supplier. This is a wholesale demand.
- **Saline Water Intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof** – *Conjunctive use* is a management strategy where surface water is managed in conjunction with an underground aquifer. For purposes of the UWMP, conjunctive use is seen as a management strategy rather than as a water use. This type of water use is best reported as groundwater recharge. *Groundwater recharge* is the managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge is subsequently pumped out of the basin in the same year, that water is reported as a supply from groundwater. *Saline water intrusion barrier* is the practice of injecting water into a freshwater aquifer to prevent the intrusion of saltwater. These may be either wholesale or retail demand. PID currently does not have any demands under this water use sector.
- **Agricultural** – Water used for commercial agricultural irrigation. Water used for processing agricultural products (e.g., food, beverage, or textile manufacturing) may also be considered industrial process water.

This may be either a wholesale or retail demand. PID currently does not have any demands under this water use sector.

- **Distribution system water losses** – Losses that were reported in accordance with the 12-month water loss for each of the prior five years.

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

Since 2016, PID has no additional water use sectors outside of the ten listed in the CWC. PID expects that future water use will be restricted to the same sectors by which water is currently used based on land use projections.

4.2.3 Past Water Use

Past potable water use by sector was analyzed to estimate water use projections into 2045, as required by the CWC. From past water use, trends can be understood such as, effects of temporary use restrictions during drought years, effects of long-term demand management measures, and the changing profile of service connections by water use sector. Past water uses from the last two UWMP reporting years, 2010 and 2015, and the four years preceding the 2020 reporting year are summarized in PID Table 4-A. Complete water use data by sector for November and December 2018 and calendar year 2020 were unavailable, because of damage to customer meters during the Camp Fire. The water use reported for 2018 by category are for the months of January through October only. Total water used for 2018 is the sum of metered use through October and water produced in November and December. Total water used in 2019 is equal to the sum of water production. Note that system losses are further explained and quantified in Section 4.2.6.

PID Table 4-A Past potable and non-potable water use volumes by sector

Water Use Sector	2010	2015	2016	2017	2018[2]	2019
Single Family	3,831	2,805	2,879	3,202	2,813	436
Multi-Family	765	467	189	496	436	79
Commercial	386	289	675	349	290	85
Institutional/Governmental	174	131	142	212	195	414
Agricultural Irrigation	191	117	86	94	83	0
Landscape	–	–	26	59	69	12
Sales/ Transfers/ Exchanges to Other Suppliers	–	–	241	285	166	109
Losses	604	335	343	199	468	2,465
Other (Residential Care Facility)[1]	88	83	–	–	–	–
Other (Unbilled/Unmetered)[1]	76	54	–	–	–	–
Total	6,115	4,282	4,581	4,896	5,676[3]	3,600[4]

NOTES: [1] Water uses which were categorized as Other in previous UWMPs are now categorized as Institutional/Governmental.
[2] Volume of water use by sector listed for 2018 is only for the months of January through October.
[3] Total water use for 2018 is the sum of water use by sector and water produced at the WTP and well.
[4] Total water use for 2019 is equal to water produced at the WTP.
All volumes are in AF.

4.2.4 Current Water Use

Estimates for PID's potable and non-potable water uses for 2020 by sector are reported in DWR Table 4-1. Within the PID service area there are no existing or recent demands for the use types of industrial or saline barrier or

conjunctive use. Prior to the Camp Fire there was a potable demand for use types of agricultural irrigation but in the 2020 reporting year there were no demands of this use type.

As stated throughout this UWMP, all demands after the Camp Fire through the 2020 reporting period are estimates made for the purpose of complying with CWC requirements. The principle estimates and assumptions that were used to develop DWR Table 4-1 are listed below:

- Number of authorized active services by water use category according to PID account records.
- Number of IWS installations.
- Number of rebuilds based on information from the Town and completed service lateral replacements.
- 2020 average annual demand per connection by use type was assumed to be equivalent to the observed 2017 average annual demand per connection by use type.
- Institutional/ Governmental demand totals were inclusive of estimated volume of water used at the WTP and by distribution operations during flushing activities.
- Utilized 2021 leak detection survey information to estimate losses in 2020. System losses are further explained in Section 4.2.6.
- Assumed that total demand from unauthorized water use was equal to the difference between total water production and all accounted for water demands.

DWR Table 4-1

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type	2020 Actual		
	Additional Description	Level of Treatment When Delivered	Volume
Single Family	Service Connections No Longer under Water Quality Advisory	Drinking Water	744
Multi-Family		Drinking Water	135
Commercial		Drinking Water	146
Institutional/Governmental		Drinking Water	403
Agricultural irrigation		Drinking Water	0
Landscape		Drinking Water	20
Losses		Drinking Water	1,403
Single Family	Service Connections Still Under Water Quality Advisory	Other Non-Potable Water	386
Multi-Family		Other Non-Potable Water	70
Commercial		Other Non-Potable Water	76
Institutional/Governmental		Other Non-Potable Water	4
Agricultural irrigation		Other Non-Potable Water	0
Landscape		Other Non-Potable Water	10
Losses	Unauthorized Uses	Other Non-Potable Water	532
Sales/Transfers/Exchanges to other Suppliers		Drinking Water	441
		TOTAL	4,370
NOTES: All volumes are in AF. Volumes reported are estimates as metered consumption data were not available.			

4.2.5 Projected Water Use

Projections for water demands into 2045 were informed by population projections provided by the Town and past water use prior to the Camp Fire when the PID service area was approximately built out. The number of service connections by use type for each of the 5-year increments from 2025 to 2045 were estimated by finding the ratio of connections to population in 2018 before the Camp Fire. The average annual potable water demand per connection by use type was estimated to be equal to the observed 2017 average annual demand per connection by use type. Resultant water demand projections are provided in DWR Table 4-2.

Note that all uses except unauthorized uses are predicted to be potable water, as PID anticipates that by 2025 all existing active and new connections will no longer be under the Water Quality Advisory, as a result of service lateral replacements or compliant sample results. Non-potable losses from unauthorized use are expected to decrease over time as PID regains knowledge of metered consumption and is able to better estimate the magnitude of water consumed through unauthorized connections and allocate resources to identifying and terminating those connections.

Potable losses, which are losses primarily due to leaks in the distribution system, are also expected to decrease over time as PID repairs those leaks identified in the 2021 leak detection survey. Note that around 2040, potable water loss is estimated to reach about 8% of total water demand within the service area, which is approximately equal to average loss in the years preceding the Camp Fire. At this point it is expected that potable water loss will reach a steady state and will not continue to significantly decrease after 2040.

DWR Table 4-2

Submittal Table 4-2 Retail: Use for Potable and Non-Potable Water - Projected						
Use Type	Additional Description	Projected Water Use				
		2025	2030	2035	2040	2045
Single Family	Drinking Water	1,686	2,290	2,894	3,168	3,168
Multi-Family	Drinking Water	261	355	448	491	491
Commercial	Drinking Water	184	250	315	345	345
Institutional/Governmental	Drinking Water	112	152	192	210	210
Agricultural irrigation	Drinking Water	50	67	85	93	93
Landscape	Drinking Water	31	42	53	58	58
Losses	Drinking Water	935	701	526	394	394
Sales/Transfers/Exchanges to other Suppliers	Drinking Water	300	300	300	300	300
Losses	Other Non-Potable Water	399	199	100	50	25
	TOTAL	3,957	4,356	4,914	5,109	5,084
NOTES: All volumes are in AF.						

Total gross water use projections are provided in DWR Table 4-3. As there is currently no centralized wastewater system or recycled water system in Paradise total gross water use in DWR Table 4-3 is equivalent to gross water use in DWR Table 4-2.

DWR Table 4-3

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045
Potable Water, Raw, Other Non-potable	4,370	3,957	4,356	4,914	5,109	5,084
Recycled Water Demand	0	0	0	0	0	0
TOTAL WATER USE	4,370	3,957	4,356	4,914	5,109	5,084
NOTES: All values are in AF.						

4.2.6 Distribution System Water Losses

Distribution system water losses are the difference between the volume of water that is delivered into the potable drinking water distribution system and actual consumption. Losses are always present in a water system due to pipe leaks, unauthorized connections or use, faulty meters, and unmetered institutional and governmental water use. CWC requires urban retail water suppliers to conduct and submit validated water loss audit reports, in accordance with the American Water Works Association (AWWA) Water Audit Method, annually to DWR on October 1st following the reporting year.

Final Water Audit and Validation Reports are available for 2016 and 2017 and are provided in Appendix B. In the years following the fire, PID had been unable to reliably estimate consumption in the absence of customer water meters and so, at the time of plan preparation, has not submitted a final Water Audit and Validation Report for the years of 2018 and 2019. However, the 2021 leak detection survey has allowed for better estimations of loss for 2018 and 2019, making it possible to derive more reliable estimates of authorized consumption. As such, PID plans to submit Final Water Audits and Validation Reports for 2018 and 2019 in the fall of 2021. The UWMP is required to be submitted prior to the due date of the annual Water Audit, and so the 2020 Water Audit has also not been validated at the time of plan preparation. System loss values for 2018 through 2020 stated herein may differ in the final submissions of Water Audits and Validated Reports. Distribution system water losses for five years preceding the plan update from 2016-2020 are summarized in DWR Table 4-4.

DWR Table 4-4

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date	Volume of Water Loss
01/2016	343
01/2017	199
01/2018	468
01/2019	2,465
01/2020	1,934
NOTES: Water Loss Audits for 2018-2020 have not been validated at time of plan preparation. Values may differ in the final Water Loss Audit.	

An update to the CWC requires that 2020 UWMPs and all UWMPs submitted thereafter include data showing whether the urban retail water supplier met the distribution loss standards enacted by the California State Water Resources Control Board (SWRCB) pursuant to Section 10608.34. At the time of plan submittal, the SWRCB has not adopted performance loss standards. Proposed water loss performance standards will set a maximum allowable water loss in gallons per connection per day for PID. The proposed baseline water loss is to be an average of water loss during 2017 through 2020. As water loss in the years following the fire has increased significantly, PID will submit Water Loss Audits for 2018 through 2019 for recalculation of the proposed gallons per connection per day performance standard to be achieved by 2028. Additionally, PID will coordinate closely with the SWRCB

to determine the best path towards compliance and has begun to seek guidance from SWRCB on establishing an appropriate performance standard for PID's unique situation.

The data from 2018 through 2020 in DWR Table 4-4 reflect the increased volume of water losses following the Camp Fire. Note that in 2018 water loss was only affected by the fire for the months of November and December; however, this still resulted in annual water loss that was more than twice as much as had been observed in 2017. The full effect that the fire had on water loss is reflected in 2019 where annual water loss was more than twelve times what was observed in 2017. Ongoing efforts to reduce loss are demonstrated in 2020 data where water loss was reduced by over 20% of what was observed in 2019.

PID will continue to reduce water loss caused by leaks and unauthorized consumption. However, it is still expected for the next several years that in addition to normal leaks caused by age of the system that incidences of new leaks will be more frequent as recovery and rebuild efforts persist. As previously stated in Section 4.2.5, at the current pace of leak repairs, it is anticipated that PID will achieve pre-Camp Fire water loss on or around 2040.

4.2.7 Estimating Future Water Savings

As noted in DWR Table 4-5, water use projections do not consider future water savings but are inclusive of lower income residential demands.

DWR Table 4-5

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections?	No
Are Lower Income Residential Demands Included in Projections?	Yes

As at the time of plan preparation it has been several years since water consumption has been metered, estimations of future water savings based on current water savings are unreliable, and PID has opted to project water use conservatively to ensure sufficient water supplies. However, it is anticipated that new construction will result in additional water savings beyond what was observed pre-Camp Fire due to new building codes and landscape standards, explained in the following subsections. The extent of these water savings will be better understood after the installation of water meters and as the Town continues to redevelop.

4.2.7.1 Water Efficient Landscape Requirements

Chapter 15.36 of the Town of Paradise Municipal Code (available via the Town of Paradise's website) sets forth design criteria for landscape materials promoting installation of water-efficient, fire-resistant landscaping within the Town. Criteria that promote efficient water use included in Chapter 15.36 of the Municipal Code are as follows:

- Plants having a similar water use shall be grouped together in distinct hydrozones.
- For drought tolerant or native plantings only, temporary irrigation systems may be utilized and removed once plantings have become well-established.
- All planting islands within parking areas shall be planted with drought tolerant plant species.
- Al irrigation systems, with the exception of temporary irrigation systems, shall be controlled automatically with cycling capacity and shall be designed to avoid irrigation of unplanted surfaces.

- All planting areas where drought-tolerant plants are used or where any one dimension is five feet or less shall utilize drip/trickle/bubble or microsprinklers.
- Irrigation systems serving landscaped areas exceeding four hundred square feet in size shall utilize a rain-sensing device to avoid overwatering during periods of wet weather.
- Recirculating water shall be used for decorative water features.
- All irrigation systems shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways or structures.
- Whenever possible, landscape irrigation shall be scheduled to avoid irrigating during times of high wind or high temperature.

4.2.7.2 Implementation of Low Water Use Fixtures

Chapter 15.02 of the Town of Paradise Municipal Code (available via the Town of Paradise's website) states the adoption of an amended version of the 2019 California Building Standards Code and Chapter 15.11 states the adoption of the California Green Building Standards Code. These two standards promote water conservation through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, and on-demand water heaters.

4.2.8 Characteristic Five-Year Water Use

The California Water Code Section 10635(a) requires that in addition to calculating water use projections over the next 20 years, in five-year increments, that suppliers perform a drought risk assessment lasting five consecutive years. The projected unconstrained demand for 2021-2025 is estimated in PID Table 4-B. This projection informs the drought risk assessment, which is detailed in Chapter 7

PID Table 4-B Gross water use projections through 2025.

Gross Water Use	2021	2022	2023	2024	2025
Potable Water, Raw, Other Non-Potable	4,287	4,205	4,122	4,040	3,957
NOTES: All Volumes are in AF.					

4.3 Water Use for Lower Income Housing

In 2020 total affordable housing units comprised about 25% of all residential units. The Town of Paradise expects that in the future, affordable housing units will be equal to approximately 20% of all residential units, pursuant to the Town of Paradise 2014-2022 Housing Element, requiring that at least 20% of the total units of a housing development be designated for lower-income households. As stated in DWR Table 4-5, the water use projections in DWR Table 4-2 are inclusive of water use for lower income households. The estimated water demands for affordable housing units from 2020-2045 in five-year increments are provided in PID Table 4-C.

PID Table 4-C Current and projected affordable housing water use.

Affordable Housing Type	2020	2025	2030	2035	2040	2045
Single Family	291	337	458	579	634	634
Multi-Family	53	52	71	90	98	98
Total Water Use	344	389	529	669	732	732
NOTES: All volumes are in AF.						

4.4 Climate Change Considerations

All projections included in Chapter 4 are representative of unconstrained demand. However, consideration to the effects that climate change may have on demand projections and water supply and reliability is a critical aspect of ensuring that PID is well positioned to meet future demands. PID's primary water source is surface water from Paradise Lake, and PID recognizes that the reliability of this source is reduced during dry years or a drought. Information from Cal-Adapt's Extended Drought tool, provided in Appendix C, projects that maximum and minimum temperatures will rise and that precipitation will decrease over the course of the next 25 years for the service area. The data are summarized in PID Table 4-D. As witnessed in recent years, PID's service area and the surrounding area have become increasingly susceptible to wildfires as a result of increased temperatures and decreased precipitation. The effects of climate change on water supply and use are further analyzed in the drought risk assessment (DRA) included in Chapter 7 and the Water Shortage Contingency Plan (WSCP).

PID Table 4-D Climate variables during an extended drought scenario.

Climate Variable	2020	2045	High or Low Peak
Maximum Temperature	72.8 °F	75.0 °F	78.1 °F
Minimum Temperature	48.8 °F	51.5 °F	52.0 °F
Precipitation	75.5 in	72.4 in	29.5 in

Chapter 5 SBX7-7 Baselines, Targets, and 2020 Compliance

With the adoption of the Water Conservation Act of 2009, also known as Senate Bill X7-7 (SB X7-7), the State of California is required to achieve a 20% reduction in urban per capita water use by December 31, 2020. Additionally, incremental progress toward meeting the goal was required to be demonstrated in the 2015 UWMP. The 2015 UWMP calculated gallons per capita per day (GPCD) water use and confirmed that the 2015 interim target was met, and that progress was being made toward meeting the water use target for 2020. This chapter summarizes baselines and targets, which were quantified in previous UWMPs, and reports on PID's final 2020 GPCD achieved.

5.1 Baselines and Targets

In the 2010 UWMP PID established and adopted the SB X7-7 baseline per capita water use, the 2015 interim target, and 2020 target. In 2016 the Department of Water Resources issued guidance that there were significant discrepancies between the California Department of Finance estimated 2010 population and the 2010 population as determined by the 2010 U.S Census, which could result in poor baseline population estimates. Consequently, PID and other water suppliers were required to recalculate baseline population for the 2015 UWMP and to modify the 2015 and 2020 targets accordingly. The confirmed 2020 target for PID was determined to be 212 GPCD.

SB X7-7 requires each urban water retailer to determine their baseline daily per capita water use measure in GPCD, over a 10-year or 15-year baseline period. The 10-year baseline period is defined as a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010. SB X7-7 also defines that for suppliers which met a minimum of 10% of their 2008 water demand through recycled water that the baseline could be extended to a maximum of a 15-year baseline period. As PID does not utilize recycled water, a 10 consecutive year period was used for the baseline. Additionally, SB X7-7 requires that a 5-year baseline per capita water demand be calculated over a 5 consecutive year period ending no earlier than December 31, 2007 and no later than December 31, 2010. Given the requirements PID used the following baseline periods:

- 10-year Baseline Period: 1999-2008
- 5-year Baseline Period: 2004-2008

Since the 2015 UWMP, there have been no annexations or mergers to the PID service area. As such, PID was not required to recalculate baselines or targets for this UWMP update. Baselines and targets are summarized in DWR Table 5-1. The 2015 SB X7-7 Verification Form, which provides tables for detailed calculations of baselines and targets, is provided in Appendix D.

DWR Table 5-1

Submittal Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form				
Baseline Period	Start Year	End Year	Average Baseline GPCD	Confirmed 2020 Target
10-15 year	1999	2008	265	212
5 Year	2004	2008	266	

5.2 Service Area Population

The method for 2020 service area population estimation was described in Section 3.4.1. Pursuant to CWC Section 10608.20(f), the population used to calculate SB X7-7 GPCD is required to be determined using federal, state, or local population reports and projections. The DWR Population Tool that was used to estimate the 2020 population is compliant with legislation as the population estimate is based on U.S. Census Bureau data for 2000 and 2010.

5.3 Gross Water Use

Annual gross water use is defined by the CWC as the volume of water, treated or untreated, that enters the distribution system excepting the following: recycled water, the net volume of water placed into long term storage, water conveyed by the retailer for use by another supplier, water delivered for agricultural use, and process water for industrial use if industrial water use is a significant percentage of overall water use. Deductions for exported water and water delivered for agricultural use were made in the calculation of the baseline and so are also considered in the calculation of 2020 GPCD. No other exclusions or deductions were used in the calculation of the 2020 gross water use.

5.4 2020 Compliance Daily Per-Capita Water Use

The 2020 compliance daily per capita water use (in GPCD) was calculated in accordance with Methodology 1 of DWR's Methodologies document. The SB X7-7 Compliance Form, provided in Appendix E, is a set of tables containing complete calculations that determine whether PID met the 2020 target and achieved a 20% reduction from its baseline. 2020 actual GPCD and target compliance are also summarized in DWR Table 5-2. Persistent challenges to PID and the community brought about by the Camp Fire, resulted in PID being unable to meet the 2020 confirmed target. An analysis on how the Camp Fire impacted GPCD for the 2020 compliance year is provided in the following subsections.

DWR Table 5-2

Submittal Table 5-2: 2020 Compliance from SB X7-7 2020 Compliance Form				
2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD		
359	10	349	212	No
NOTES: PID applied an adjustment for an increase of institutional water use due to an extraordinary event.				

5.4.1 Adjustment to Gross Water Use for SB X7-7 Reporting

CWC Section 10608.24(d)(1) allows for adjustments to be made for factors outside of the supplier's control when determining compliance. Such factors include differences in evapotranspiration and rainfall, substantial changes to commercial or industrial water use due to increase business output and economic development, and substantial changes to institutional water use resulting from extraordinary events.

PID elected to apply an adjustment to 2020 GPCD to account for significant increase in water used by PID operations for flushing activities. As stated previously, the Camp Fire resulted in hundreds of main breaks, damage to service laterals, and a system wide water quality advisory. Since the Fire, PID has continued to flush water from the system at a much higher rate than was previously required to support recovery efforts. Operations which require flushing and which have become routine since the Camp Fire are as follows:

- Prior to sampling for VOCs to lift water quality advisories, several times the volume of the water mains were flushed.
- In accordance with AWWA standards, upon completion of any main repair work several volumes of the main section must be flushed.
- Prior to being issued a building permit from the Town, applicants had to obtain a flow test from PID to demonstrate that the water main from which they were served could provide adequate flow. This required flushing from the nearest hydrant.
- Installation of new mains required disinfection and flushing before being put into service.
- Installation of new service laterals required disinfection and flushing before being put into service.
- More incidences of high-water age were encountered because of fewer active connections. Upon finding low chlorine residuals flushing was performed to ensure good water quality.

PID operations estimates that total institutional flushing activities for 2020 made necessary by damage caused from the Camp Fire was approximately equal to seven times the total capacity of the distribution network, which is equivalent to 100 AF or 10 GPCD, as reported in DWR Table 5-2.

5.4.2 Increased System Loss from the Camp Fire

As discussed in Section 4.2.6, system water loss was several orders of magnitude higher in 2020 than what was observed pre-Fire. The increase in system loss was due to damage caused to pipes during the fire and post-fire

activities, as well as increased unauthorized consumption. Whereas in 2017 system loss accounted for just over 4% of total water use, in 2020 system loss is estimated to account for over 50% of total water use. Prior to the Fire PID was on track to comply with the 2020 target reduction, as reported in the 2015 UWMP where PID was well under not only the interim GPCD target but also the final 2020 GPCD target. GPCD was calculated for 2017, which was the last full year where complete metered data were available. The actual GPCD for 2015 and 2017 are provided in PID Table 5-A.

The theoretical GPCD for 2020 absent impacts of the fire was also calculated and is summarized in PID Table 5-A. The modified GPCD was determined by reducing system loss to the same percentage of system loss observed prior to the Camp Fire, resulting in 2018 GPCD. A 10 GPCD deduction for increased institutional/governmental use was applied so that adjusted GPCD would not reflect water demands of recovery related flushing activities. The theoretical adjusted GPCD is equal to 208, which is under the 2020 confirmed target.

PID Table 5-A Progress towards meeting 2020 confirmed target and 2020 GPCD absent impacts of the Fire.

Year	GPCD	Total Adjustments	Adjusted GPCD	2020 Confirmed GPCD Target	Compliance with 2020 Confirmed Target
2015	143	0	143	212	Yes
2017	157	0	157		Yes
Theoretical GPCD for 2020 Absent Increased System Loss from Camp Fire					
2020	218	10	208	212	Yes
NOTES:					

5.5 Regional Alliance

PID has reported on SB X7-7 compliance and UWMP requirements as an individual supplier and has elected to not participate in a Regional Alliance.

Chapter 6 Water Supply Characterization

This chapter catalogues and describes the various water resources and supplies available to PID including surface water, groundwater, storm water, wastewater, and recycled water, as well as water transfers. The supply source, origin, quality, quantity, and impacts of climate change on availability for each source are discussed within this section in accordance with the findings of the CWC as outlined below:

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

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

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

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

(3) For any planned sources of water supply, a description of the measures that are being undertaken to acquire and develop those water supplies.

6.1 Purchased and Imported Water

PID does not receive water from a wholesale supplier, purchase or import any portion of its water supply for use within the PID service area boundary. PID maintains a contract with Del Oro Water Company by which PID treats and wheels supplies to the Paradise Pines District, served by Del Oro. Each year there is an approximately equivalent value of water supply diverted to Paradise Lake by Del Oro and then received downstream of the PID WTP. These supply values are not typically exact and can result in a slight surplus or slight deficit factored into PID's annual supply volumes. PID has a second intertie with Del Oro in the southern portion of the service area, near the Limesaddle area of the Del Oro service area. This intertie is capable of supplying treated water to Del Oro, although it is currently not in use. There is one additional intertie with Del Oro Water Company located in the area of the A Tank Reservoir, which is also not currently in use. These interties have historically been operated only when necessary for emergency supply.

6.2 Surface Water

PID's primary water supply is surface water captured from Butte Creek, northeast of the Town of Paradise. Little Butte Creek is a minor stream in the Sacramento Valley drainage that rises in the northwestern foothills of the Sierra Nevada and lies wholly within Butte County. Elevations range from 2,150 feet at the base of Magalia Dam to 3,850 feet at the uppermost elevation in the watershed. Flow in the catchment area is seasonal and responsive to the pattern of precipitation and resulting runoff. Data available for the runoff in the catchment area dates from as far back as 1907 and has been analyzed through 2015. The average annual runoff for this 109-year period has

been approximately 16,340 acre-feet (AFY). The water year 1935-36 (estimated runoff 15,960 acre-feet) was used to represent the average year. The lowest estimated runoff was in 1923 at 1,763 acre-feet. Average runoff far exceeds the District's current and projected needs of 7,000 to 8,000 acre-feet of water demand each year, although PID is vulnerable to potential water shortages during extended dry periods.

PID stores water from Butte Creek in two reservoirs located within the drainage catchment area: Magalia Reservoir and Paradise Lake. The total storage capacity of both reservoirs is 12,293 AF. PID has a combination of diversion and storage water right permits involving both reservoirs. Surface water supplies stored and diverted for use by PID are received at the Magalia Dam diversion location and treated at the District's Water Treatment Plant. PID holds three water rights, described below in PID Table 6-A and included in Appendix F. PID's ability to make full use of these rights is currently limited by allowable storage capacity in the reservoirs.

PID Table 6-A Surface Water Supply Summary

Permit or Agreement Number	Source or Point of Diversion	Permitted Quantity	Availability Timeframe
Statement of Water Diversion and Use No. S008459 (Pre-1914 Appropriative Right)	Butte Creek at Magalia Dam	**8 cubic feet per second (cfs)** (Estimated at 2,500 AF/yr)	Year-round direct diversion, not storage. Must be used first in priority for PID supply.
Appropriative Water Right Permit 271 (Application A000476) (Priority of Right: 1916)	Paradise Lake and Magalia Res.	**9,500 AF total** (6,700 AF - Paradise Res.) (2,800 AF - Magalia Res)	Year-round diversion to storage in Paradise Lake and Magalia Reservoir
Appropriative Water Right Permit 16040 (Application 22061) (Priority of Right: 1965)	Paradise Lake	**8,800 AF**	Wet season diversion to storage in Paradise Lake (October 1 – May 31), Subject to Term 91

Diverted water is transported to PID's water treatment plant (WTP) by an above grade 42" steel pipeline that traverses Little Butte Creek at the base of Magalia Dam. PID's WTP is located at the base of the Magalia Dam, just beyond Little Butte Creek and across Skyway Boulevard. The WTP design flow is 19.0 MGD. Three raw water intake pumps at the WTP convey raw surface water from the diversion point to the WTP headworks. The minimum water surface elevation at the intake point must be a minimum of 2223.2 feet above sea level for the pumps to operate.

6.2.1 Surface Water Supplies – Vulnerabilities and Restrictions

6.2.1.1 Water Rights

PID's three water rights differ in their terms and priority status. The three rights and their relative reliability as well as any vulnerabilities are outlined in PID Table 6-B.

PID Table 6-B Source Water Contract Reliability and Vulnerabilities.

Permit Number	Use No. S008459	Permit 271	Permit 16040
Description	Butte Creek Adjudication	Year-round Diversion from Magalia Reservoir and Paradise Lake	Wet Season Diversion to Storage from Paradise Lake
Priority/Reliability	Pre-1914 Adjudicated Right	1916, Permit, perfected use of 7,291 AF, pending petition for change at time of License.	1965, Permit with petition for extension permitted, not perfected.
Vulnerability	None	PID has requested a License be issued on Permit 271 based on maximum annual use amount of 7,291 AF. Petition filed by PID with SWRCB to request License and for modifications in some terms including change in place of use, pending at this time with SWRCB.	PID has not made full beneficial use of water under Permit 16040. Beneficial Use Expiration Date: December 2007. Petition for extension of time and modifications in some terms including change in place of use filed by PID, pending at this time with SWRCB.
Restriction	None	Storage limited in Magalia Reservoir by DSOD requirement to lower water surface elevation by 25 ft, subject to curtailment by SWRCB in extreme drought conditions.	Subject to Term 91 which can cause diversions to be curtailed by the SWRCB when the Sacramento-San Joaquin Delta is in balance conditions.

6.2.1.2 Magalia Dam Storage

Magalia Reservoir originally had a storage capacity of 2,574 AF, but in 1997 the reservoir was drawn down to comply with safety requirements of Division of Safety of Dams (DSOD). After drawdown, Magalia Reservoir has a storage capacity of 796 AF. Paradise Lake has a storage capacity of 11,497 AF.

6.3 Groundwater

This section addresses the requirements for water suppliers for whom groundwater represents a portion of their water supply portfolio as outlined in the CWC:

Water Code Section 10631(b)(4)

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

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

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of

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

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

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

PID drilled a single production well in 1996 with the intent to provide a backup water source in times of emergency or drought. When operational, the output from the well is estimated to be 350 acre-feet per year but is typically operated annually at only 30-45 acre-feet per year for maintenance reasons. The primary purpose of the well is to augment PID's water supply during times of drought or emergency. The well has been non-operational since 2020. Given the breadth of ongoing recovery operations and the significant list of high priority work, no repair has yet been made or is planned at this time.

6.4.1 Groundwater Basin Description

PID overlies an area with fractured rock aquifers as the only potential groundwater supply. These types of aquifers are not expected to provide a significant source of water. At the time of plan preparation, PID is not within a designated basin and not subject to compliance with the Sustainable Groundwater Management Act (SGMA). The Northern Region CASGEM Basin Prioritization is depicted in Figure 6-1, with the relative location of Paradise noted outside of the recognized basins.

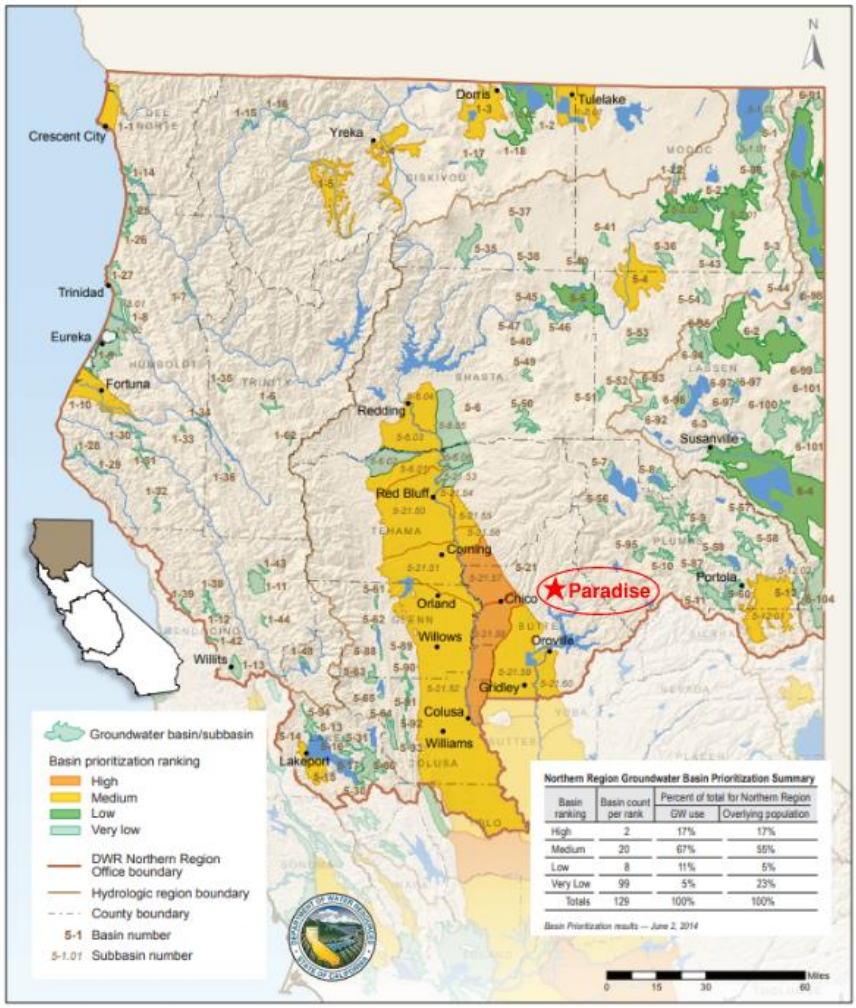


Figure 6-1 CASGEM Groundwater Basin Prioritization – Northern Region

6.3.1 Groundwater Management

Groundwater in Butte County is governed by the County's Groundwater Management Plan. The Butte County Groundwater Management Plan can be accessed on the Butte County website at: http://www.buttecounty.net/waterresourceconservation/groundwatermanagementplan

The introduction of this Groundwater Management Plan (GWMP) states "the foothill and mountain areas of the County do not overlie groundwater basins as defined in Department of Water Resource (DWR) Bulletin 118-2003 and are therefore not included under this GWMP."

6.3.2 Historical Groundwater Production

Groundwater has not been utilized by PID under normal year conditions, excepting as an alternative to storage when a nearby tank facility was undergoing maintenance, or as an exercise to maintain the operation of PID's well. A summary of volume of groundwater pumped by PID over the past five years is provided below in DWR Table 6-1.

DWR Table 6-1

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	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
Fractured Rock	Paradise, Butte County	12	40	12	0	0
	TOTAL	12	40	12	0	0
NOTES: All volumes in AF. Well is located at PID's D Tank site.						

6.3.3 Aquifer Storage and Recovery

PID's groundwater well is not capable of aquifer storage and recovery (ASR). Additionally, there is no intent to retrofit this well or install others with ASR capability given the local groundwater conditions and viability of groundwater recharge.

6.4 Stormwater

PID does not maintain stormwater collection or treatment facilities, nor does it make use of stormwater flows. The Town of Paradise is the responsible agency for stormwater within PID's service area, but likewise does not make use of urban stormwater.

6.5 Wastewater and Recycled Water

The PID service area does not contain a centralized sewer system and is entirely served by septic systems. The Town is responsible for the collection, treatment, and disposal of wastewater via permitting of these septic systems. The community as a whole is evaluating conceptual opportunities for the development of sewer service; however, implementation of such a project would require extensive environmental analyses, permitting, and capital investment. Currently, there are no defined projects planned for the foreseeable future, as indicated in DWR Table 6-2 and DWR Table 6-3.

DWR Table 6-2

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020	
☑	There is no wastewater collection system.
	Percentage of 2020 service area covered by wastewater collection system
	Percentage of 2020 service area population covered by wastewater collection system

DWR Table 6-3

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020	
☑	No wastewater is treated or disposed of within the UWMP service area.

6.6 Recycled Water System

At the time of plan preparation, structures are served by septic tanks throughout the Town, with no centralized sewer system owned or operated by any entity. With no centralized sewer system, there is no opportunity for treatment or use of recycled water within PID's boundary. The viability of a local sewer system is being examined at this time at a conceptual level, creating the possibility of recycled supply in the long-term planning horizon. DWR Table 6-4 and DWR Table 6-5 reflect the inapplicability of this resource through the planning horizon of this document.

DWR Table 6-4

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area	
☑	Recycled water is not used and is not planned for use within the service area of the supplier.

DWR Table 6-5

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual	
☑	Recycled water was not used in 2015 nor projected for use in 2020.

6.7 Actions to Encourage and Optimize Future Recycled Water Use

The community will continue work to examine the viability of a centralized sewer system and any associated opportunities to develop a recycled water supply as it continues to recover from the Camp Fire and look to the future of rebuilding and redevelopment of Butte County.

DWR Table 6-6

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use	
☑	Supplier does not plan to expand recycled water use in the future.

6.8 Desalinated Water Opportunities

The geographic location of PID precludes the use of desalinated water for any type of supply. PID's service area is located approximately 120 miles from the California sea coast, and approximately 2,000 feet in elevation above sea level.

6.9 Exchanges or Transfers

6.9.1 Del Oro Water Company

PID's maintains an agreement with their neighboring water purveyor, Del Oro Water Company, for the treatment and diversion of a limited quantity of water to serve the Paradise Pines District in nearby Magalia, north of Paradise. This water supply originates in Paradise Lake, is captured alongside PID owned supplies, and treated at the PID WTP. Once passing through the discharge meter at the WTP, the supplies are diverted to the Paradise Pines District. Terms of this agreement also allow for a small amount of water to be transferred to PID in an emergency.

An intertie at the southeast border of the PID service area exists between PID and another portion of Del Oro Water Company's service area. While this intertie is functional and capable of water transfer in an emergency, it is no longer operated for regular transfer of supply. Were its function to be updated, physical updates to the metering equipment would be required to quantify transfers of supply. There is no current plan to use this intertie for water sales or transfers.

6.10 Supply Management

Paradise Irrigation District has historically relied entirely on their surface water rights and District-owned WTP to provide reliable water in all year types to their customers. Post Camp Fire that outlook remains unchanged as the quality and availability of these surface water supplies has remained unaltered. PID has experienced a significant reduction in customers post-fire, causing PID to take reevaluate future water demands, regrowth of the community, and longevity of the infrastructure serving the community. As regrowth of the Town continues, PID is actively working toward the reconstruction and recovery of critical infrastructure as well as ways to increase the reliability and quantity of available supply for the future. While groundwater is also part of PID's water supply portfolio, there is no intent to rely upon this supply for future growth.

Each year, PID takes advantage of its direct diversion water right allowance (S008459) of 8 cubic feet per second (cfs) before any other supply is utilized. This is a requirement of PID's supply portfolio, but also necessary as this supply is only available during the time of year when runoff is actively entering the reservoir. Following this first use, PID uses its additional water right permits (271 and 16040) as necessary to store supplies for use later in the year when direct diversion is not possible.

6.11 Future Water Projects

The outlook for future water projects has shifted for PID since the Camp Fire. Foremost on the planning horizon are the following disaster recovery projects related to water supply and reliability:

1. Reservoir B Replacement – this critical reservoir was destroyed during the fire as it was an earthen embankment reservoir with a plastic lining. This reservoir served PID as a critical component of storage and a peaking facility.
2. Rehabilitation of Water Mains – PID continues to work toward the complete rehabilitation of those sections of water main still out of service or affected by physical damage or contamination. PID recently completed a full system survey of just over 170 miles of main line to assess leak damage sustained as a result of the disaster. Bringing these mains online will increase the reliability and access to potable water

for PID's customers, in addition to curtailing excess water losses and more accurately accounting for new patterns of customer usage.

In addition to disaster recovery related projects, PID is looking forward toward the long-term needs of the community for reliable and increased water supply in times of drought and with the promise of more severe droughts on the horizon related to climate change.

One such project is the Magalia Dam Retrofit Project, which is in the design phase at the time of plan preparation. PID is working to complete a full design for seismic retrofit of this dam, with the goal of reestablishing the previous water surface elevation allowing full storage capacity in the reservoir. At present, concerns related to dam stability and the presence of the Magalia fault within the left abutment of the dam have resulted in a restriction on the water surface elevation of (2,200 ft), 25.8 ft below the original water surface elevation of 2225.8 ft, a difference of approximately 2,000 AF of storage. The project is comprised of upstream and downstream buttressed supports constructed from on-site materials. This project is being designed in coordination with the California Department of Water Resources, Division of Safety of Dams.

As a requirement of backfill funding received by the state for PID to continue operations post-fire, an Options Study is underway to evaluate the future of Paradise Irrigation District and any viable opportunities for interties, partnerships, transfers, or other such enterprises which would contribute to the overall regional stability of water supply. This study is being conducted independently by the Sacramento State Office of Water Programs with input from local stakeholders and the public. The outcome of this study may inform additional future water supply projects or partnerships.

Alongside this Options Study, PID continues to examine other opportunities to expand or pursue new or additional diversions from the upper portions of the Feather River watershed, as those supplies may become available in the future for storage in Paradise Lake or Magalia Reservoir. PID recognizes the vulnerabilities associated with climate change and extended drought conditions in a watershed dependent almost exclusively upon rainfall conditions from year to year. With careful management and planning, PID continues to look to the future with local opportunities to partner and strengthen supply reliability.

6.12 Summary of Existing and Planned Sources of Water

PID's current planned sources of water can be summarized as such:

- PID's primary water supplies are surface water rights and uses from Little Butte Creek Watershed
- PID has one groundwater well, which at the time of plan preparation is non-operational. It does not represent a significant source of supply when operational.
- PID does not currently use storm water as a potable water offset.
- PID is not served by a centralized wastewater system and therefore no recycled water supplies are available for use.
- PID neither currently uses nor plans to use desalinated water.
- PID maintains direct treated water interties with Del Oro Water Company for the purpose of supplying the Paradise Pines District as well as emergency transfers.

PID's projections of future supply projects and efforts to strengthen the outlook of supply reliability are covered in DWR Table 6-7. The actual 2020 water supplies for PID are summarized in DWR Table 6-9 and the future projected water supplies for PID are summarized in DWR Table 6-9.

DWR Table 6-7

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs					
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.				
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.				
	Provide page location of narrative in the UWMP				
Name of Future Projects or Programs	Joint Project with other suppliers?	Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier
Reservoir B Replacement Project	No	Replace 3 MG earthen reservoir with two 1.5 MG bolted steel tanks.	2021-2022	All Year Types	None
Magalia Dam Retrofit Project	No	Retrofit the existing dam to increase stability and apply to DSOD for restablishment of previous reservoir elevation and storage levels.	2030	All Year Types	2000 AF
D Tank Well Repair	No	Repair the well to active operational status.	2030	All Year Types	45-350 AF
NOTES: Reservoir B was damaged by the 2018 Camp Fire. The reservoir has been offline since the damged was incurred. All volumes in AF.					

DWR Table 6-8

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume	Water Quality	Total Right or Safe Yield
Surface water (not desalinated)	Little Butte Creek Watershed	4,370	Drinking Water	14,318
	Total	4,370		14,318
NOTES: Volumes in AF.				

DWR Table 6-9

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2025		2030		2035		2040		2045	
		Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield
Surface water (not desalinated)	Adjudicated Water Use No. 8459	3,330	8 cfs	3,330	8 cfs	3,330	8 cfs	3,330	8 cfs	3,330	8 cfs
Surface water (not desalinated)	Water Right Permit 271	7,291	9,500	7,291	9,500	7,291	9,500	7,291	9,500	7,291	9,500
Surface water (not desalinated)	Water Right Permit 16040	4,800	8,800	4,800	8,800	4,800	8,800	4,800	8,800	4,800	8,800
Groundwater (not desalinated)	D Tank Well	0	0	45	350	45	350	45	350	45	350
	Total	15,421	18,300	15,466	18,650	15,466	18,650	15,466	18,650	15,466	18,650

NOTES: Use No. 8459 is assumed to be available for approximately 150 days/year when direct diversion (does not allow for storage) is possible based on rainfall and flow into the reservoir. This is estimated at 2,500 AF/yr for a reasonably available volume. Permit 271 reasonably available volume is limited by the current maximum storage capacity of Magalia Reservoir at 800 AF. Permit 16040 available volume is limited by the current maximum storage capacity of Paradise Lake at 11.500 AF. The D Tank Well is current non-operational. As recovery operations from the 2018 Camp Fire continue, D Tank Well will be rehabilitated and operationalized again, estimated by 2030. In Normal Years, D Tank Well would be simply maintained at an estimated 45 AF, in drought years it is assumed to be utilized up to the historical capacity of 350 AF.

6.13 Climate Change Impacts to Supply

The District has acknowledged and incorporated lessons learned from the last 10 years of increased climate related impacts to the reliability of its water supply. Most prominently are the effects of extended drought and prolonged fire season duration which contributed significantly to the intensity of the 2018 Camp Fire.

A United States Geological Survey (USGS) study conducted on the Feather River Watershed, published in 2011 and included in Appendix G and accessible on the USGS website at https://pubs.usgs.gov/fs/2011/3125/, analyzed trends in key metrics and vulnerabilities of the watershed out to the year 2099. This study was conducted as part of the USGS Global Change study and was specific to the region and water resources surrounding and supplying Paradise Irrigation District. This study outlines the vulnerability of the Feather River basin to any changes in temperature, specifically given that large areas of the upper watershed are at or around the historic snowline. The study shows a likelihood across several emissions scenarios of an increase in both average maximum and average minimum temperatures, concluding that the trends in rainfall vs. snowpack, as well as timing of runoff, will likely shift as a result. PID's specific supplies from Little Butte Creek Watershed have historically been more dependent upon rainfall capture than snowmelt, indicating a possible resilience to these shifts in temperature given otherwise normal precipitation totals. The study however concludes that average annual rainfall totals will likely cycle through decadal highs and lows, supporting the likelihood of extended drought conditions to come. This wide range of rainfall predictions is also indicative of a high level of uncertainty in the projections.

Overall, it is anticipated that PID's surface water supplies will be more vulnerable to declining snowpack and fluctuations in annual runoff totals in coming years, with potential for severe limitations in single dry years as well as periods of persistent drought. Examining regional opportunities for diversification of supply, partnerships and interties, as well as responsible conservation principles will aid PID in forward planning with respect to these climate change impacts. There is no known deficit of supply in the planning horizon of this UWMP, even considering the likely impacts of climate change in that time period with increasing temperature, reduction in rainfall, and declining snowpack.

6.14 Energy Intensity

A new requirement of the CWC, pursuant to 10631.2. (a), for 2020 UWMPs is that suppliers must include information that can be used to calculate the energy intensity of their water service. Typically, a large portion of energy consumed in municipalities is dedicated to the conveyance, treatment, distribution, and storage of water and wastewater. Maintaining water systems involves numerous pumps, motors, and other equipment which run for most or all hours of the day year-round. Because the water operations consume a significant amount of energy, these facilities can be a substantial contributor to greenhouse gas emissions in communities. Understanding how much energy is consumed at PID's water treatment, distribution, and storage facilities is critical to ensuring that PID is mindfully and efficiently utilizing energy resources. An analysis of the energy intensity, which is the amount of energy consumed per the volume of water supplied, is provided in PID Table 6-C.

PID Table 6-C Annual Energy Intensity Reporting for 2020.

Start Date for Reporting Period	1/1/2020	Sum of Water Management Processes
End Date	12/31/2020	
Volume of Water Entering Process (AF)		4,370
Energy Consumed (kWh)		823,701
Energy Intensity (kWh/AF)		188.5
NOTES: Values include only water management processes that are under PID's operational control.		

Chapter 7 Water Service Reliability and Drought Risk Assessment

This chapter describes the long-term reliability of PID's water supply portfolio in all hydrologic year types out to the year 2045 including a Drought Risk Assessment, assuming a drought condition through the coming five years. PID's existing and planned water management strategies and options for increasing the reliability of water supplies are also addressed. Shorter term reliability planning that may require immediate action, such as drought or a catastrophic supple interruption, is addressed in the Water Shortage Contingency Plan. These requirements are outlined in the CWC as follows:

> *Water Code Section 10635(a)*
> *Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.*

7.1 Constraints on Water Sources

This section addresses potential legal, environmental, water quality, and climatic effects on the reliability of water supply sources through the year 2045. Climactic changes from seasonal rainfall result in inconsistent water supply from year to year, however the District uses a combination of a Yield Analysis Model and additional supply data to monitor annual conditions and determine appropriate planning actions to achieve reliability for PID's customers.

7.1.1 Legal Constraints

PID does not anticipate that legal constraints will affect the reliability of water supply through the term of this Urban Water Management Plan; however, several legal terms do apply to the water rights that PID holds. Those terms are described below.

7.1.1.1 Statement of Water Diversion and Use No. S008459

PID's most senior water right has a priority date prior to 1914 and has been adjudicated. PID must make first use of this supply right whenever diverting water. It is a direct diversion right, meaning is it not intended for diversion to storage, but rather use as the diversion is taking place. There are no other legal constraints that apply to this supply right.

7.1.1.2 Water Right Permit 271 (Application A000476)

PID's second most senior water right has a priority date of 1916 and remains in permit status. This right includes all season diversion to storage allowance for both Paradise and Magalia Reservoir. DSOD requirements limit the amount of storage that can be held in Magalia reservoir by the setting of a reduced water surface elevation. The date for full beneficial use of this supply occurred in December 2007. A request was made to the State Water

Resources Control Board seeking a License for the amount of water perfected to date. Additionally, a Petition was filed to seek an increase in the place of use area from the original 11,500 acres to a total area of 35,000 acres to include areas of Del Oro Water Company's Magalia, Paradise Pines, and Limesaddle Districts as well as some improvements to facilitate several new beneficial uses (*e.g.*, hydropower, raw water transfer). The CEQA process for the petition has begun but is not yet complete. The CEQA document must be completed before the SWRCB can approve the petition and issue a License.

7.1.1.3 Water Right Permit 16040 (Application A022061)

PID's most junior water right has a priority date of 1965; however, it remains in permit status and has not yet been perfected. This right allows for wet season (October 1 to May 31) diversion to storage in Paradise Lake; however, the existing capacity of Paradise Lake does not allow for the full use of this storage right. The date in which full beneficial use was to be made was December 2007. Since PID had not made full beneficial use at that time, a petition was submitted to the State Water Resources Control Board seeking a 25-year extension as well as several other improved terms. These included an increase in the place of use area from the original 11,500 acres to a total area of 35,000 acres to include areas of Del Oro Water Company's Magalia, Paradise Pines, and Limesaddle Districts, as well as some improvements to facilitate several new beneficial uses (*e.g.*, hydropower, raw water transfer). The CEQA process for the petition has begun but is not yet complete. The CEQA document must be completed before the SWRCB can issue an approval of the petition.

This water right is subject to Term 91. Term 91 can be enacted to curtail diversions within the Sacramento-San Joaquin River Delta watershed when the Central Valley Project and State Water Project conditions dictate a need to release water for in-basin entitlements. When enacted, PID is notified that all diversions under this right are curtailed until such time as the Term 91 is lifted later in the year. Typically, this does not have a measurable effect on PID since flows from which diversions can be made in Butte Creek are typically very low or nonexistent at the point in the year when the Term 91 is generally enacted (late spring/early summer).

7.1.2 Water Quality Constraints

PID receives a very consistent high quality surface water supply from its watershed. Butte County has established a watershed protection zone inclusive of the runoff into Paradise Lake and Magalia Reservoir. Prior to the 2081 Camp Fire, the District's primary water quality vulnerability was a point source contamination of Magalia Reservoir stemming from the highway across the dam – for example, an overturned tanker truck spilling into the reservoir. In order to mitigate this risk, PID received grant funding from DWR and the Infrastructure Bank of California and constructed the Magalia Reservoir Raw Water Bypass. PID was then able to receive supplies above Magalia Reservoir and deliver them directly to the WTP.

Until the Camp Fire occurred, causing widespread damage to the Town of Paradise and resulting significant impacts to the PID water distribution system, wildfire had not been considered a water quality hazard for PID. In the weeks following the Camp Fire, PID issued a Water Quality Advisory to its customers out of concern for possible contamination of the water distribution system. Upon initial testing, it was determined that contamination resulting from the exposure of the distribution piping network to volatile organic compounds, or VOCs, had occurred. It was also confirmed that the Water Treatment Plant and source water in Paradise and Magalia Reservoirs had not been affected by the fire and were of the same high quality. This allowed PID to focus on the pipe network itself in determining the extent of VOC contamination.

PID staff undertook a large-scale water quality sampling effort, collecting samples from over 6,000 locations and running over 400,000 individual tests in order to characterize the extent and nature of this VOC contamination. Overall, it was determined that 95% of the mains were clear and serving potable water. Approximately 50% of service laterals serving structures which had burned in the fire were found to contain contaminants. As a result of these determinations, PID has undertaken a systematic program to replace service laterals serving destroyed structures portions of water mains where persistent contamination has been found are also being replaced as part of this program. As these replacements have taken place, PID has lifted the Water Quality Advisory to each structure as confirmation of potable water quality at each site is achieved.

Since August of 2020, following the Recovery Water Quality Sampling effort, PID has conducted continuous Assurance Monitoring, systematically sampling throughout the service area to confirm the continued potability of the water delivered throughout. The results of the Assurance Monitoring program indicate that PID continues to serve customers with reliable, high quality potable water.

7.1.3 Physical Constraints

The physical constraints of recycled water, surface water, and groundwater are discussed in the following sections.

7.1.3.1 Recycled Water

Recycled water is not part of PID's supply portfolio as there is no centralized treatment of wastewater within the Town of Paradise and thus no production of recycled water for use. Development of these systems is not currently planned within the horizon of this document although general feasibility is being analyzed at this time.

7.1.3.2 Surface Water

PID is highly dependent upon the water supply storage provided by the Paradise and Magalia Dams. At the time of plan preparation, PID's full allotment of water rights cannot be realized due to the physical constraint of limited storage capacity.

Paradise Lake is currently limited to a water surface elevation of 2568, with a maximum storage capacity of 11,500 AF. Without this physical storage constraint, PID would be able to divert and store up to 15,500 AF of water supply at this location, representing a 4,000 AF limitation.

Magalia Reservoir is currently limited to a water surface elevation of 2,200, approximately 26 feet below the physical crest of the dam. This limitation was imposed by DSOD in 1997 in response to concerns regarding the stability of Magalia Dam and the nature of its hydraulic fill, earthen embankment construction. The Magalia Fault traverses the left abutment of the Dam itself, which is designated by DSOD as a conditionally active fault at this time. These conditions have limited the operational storage at the Dam to the current water surface elevation, with a maximum storage of 800 AF. Without this limitation, Magalia Dam can store up to 2,800 AF of water supply, a difference of 2,000 AF. PID is currently in the design phase of a project to retrofit Magalia Dam and correct any stability deficiencies. Once PID can secure funding for the construction of this project and move forward with construction, a petition will be made to the DSOD to restore the original water surface elevation of 2,225.8, alleviating this storage constraint.

7.1.3.3 Groundwater

The physical constraints on the current groundwater supply are the result of the operation and pumping capacity of PID's single well. At the time of plan preparation, the well is non-operational. As Recovery efforts continue, the well will be identified in order of priority as a project for PID to repair. Once operational again, the well is still limited by the physical nature of water supply in fractured rock conditions.

7.1.4 Other Constraints

Aside from legal and physical constraints, there are no other identified constraints in supply for PID.

7.2 Water Supply Reliability Assessment

This section addresses the reliability of the PID's water supply in average, single dry, and multiple dry water years. PID uses the following water year definitions from the Guidebook:

PID Table 7-A Reliability Assessment Year Type Characterization

Year Type	Description	Representative Year Selected
Average or Normal Year	A single year or averaged range of years that most closely represents the average water supply available to the Supplier.	1936
Single Dry Year	The year that represents the lowest water supply available to the Supplier.	1933
Five Consecutive Year Drought	The driest five-year historical sequence for the supplier.	1929-1933

The reliability of the potable water supply is discussed in the following sections and is compared to the projected potable water demand. There is no supply or demand for recycled water.

7.2.1 Potable Water Supply and Demand Assessment

This section provides an assessment of PID's expected water supply and demand for Normal Year, Single Dry Year, and Five Consecutive Year Drought scenarios, based on data available at the time of publication of this UWMP.

As shown in PID Table 7-A above, PID has identified the following base water years to represent the Year Types:

- **Average or Normal Year**: 1936
- **Single Dry Year**: 1933
- **Five Consecutive Year Drought**: 1929-1933

PID has identified these base water years based on the District's Yield Analysis Model, including a combination of runoff and reservoir storage data. These years listed above represent an average year of runoff (assumed 100% of supply), a critically dry year (29% of average), and the lowest five-year average runoff in complete PID records (78% down to 29% of average over 5 years). Supply availability calculations were conducted on a calendar year basis in this UWMP update, as opposed to water year calculations as was done in the 2015 UWMP. Available supply was calculated by taking the storage volume in PID's reservoirs on January 1 of the year, calculating the direct diversions PID was able to make use of (above a 0.5 cfs base environmental bypass flow), and finally calculating additional runoff available for storage in the reservoirs, in compliance with PID's water rights described elsewhere in this UWMP. Supply volumes calculated this way for base years are provided in DWR Table 7-1.

DWR Table 7-1

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	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	% of Average Supply
Average Year	1936	21,141	100%
Single-Dry Year	1933	6,071	29%
Consecutive Dry Years 1st Year	1929	15,223	72%
Consecutive Dry Years 2nd Year	1930	16,465	78%
Consecutive Dry Years 3rd Year	1931	12,182	58%
Consecutive Dry Years 4th Year	1932	9,239	44%
Consecutive Dry Years 5th Year	1933	6,071	29%
NOTES: The above years represent the Normal Year, lowest single year available supply, and the lowest 5 year supply with complete PID records. Each year's supplies includes any remaining storage left from the previous year supply, taken into account at January 1 of each year. D Tank Well supplies are not included in these values as the well was not yet constructed in these years, nor is it currently planned for reoperation until 2030.			

7.2.2 Comparison of Supply and Demand

A comparison of projected water supply and demand during Normal, Single Dry, and Five Consecutive Year Drought conditions are included in DWR Table 7-2, DWR Table 7-3, and DWR Table 7-4. It is important to note that in all scenarios shown in these tables, Normal Year demands are shown, without the expected conservation percentages ranging from 10-50% that would be expected in drought conditions. By comparing reduced supply volumes in dry years to Normal Year demand levels, it is shown conservatively that PID is able to successfully meet demand in all year types.

7.2.3 Total Water Supply and Demand Comparison

A comparison of projected total potable water supply and demand during a Normal Year is included in DWR Table 7-2. As shown, there is an adequate water supply in Normal Years to meet demands through 2045.

DWR Table 7-2

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Supply totals	21,141	21,186	21,186	21,186	21,186
Demand totals	3,957	4,356	4,914	5,109	5,084
Difference	17,184	16,830	16,272	16,077	16,102
NOTES: All volumes in AF. Note, this Normal Year supply differs from that outlined in DWR Table 6-9 as these values include reasonably expected storage volumes remaining in the reservoirs on January 1 from the previous years' supply. D Tank Well assumed to be repaired and operational to the standard capacity of 45 AF in normal year conditions as of the year 2030 when it is expected to be in operation again.					

A comparison of projected water supply and demand during a Single Dry Year is included in DWR Table 7-3. As shown, there is adequate water supply to meet demand in single dry years through 2045, even with supplies reduced as far down as 29% of Normal.

DWR Table 7-3

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Supply totals	6,071	6,421	6,421	6,421	6,421
Demand totals	3,957	4,356	4,914	5,109	5,084
Difference	2,114	2,065	1,507	1,312	1,337
NOTES: All volumes are in AF. All supply volumes include storage remaining in the reservoirs on January 1 of each year. D Tank Well assumed to be repaired and operational to the full historical capacity of 350 AF in drought conditions as of the year 2030 when it is expected to be in operation again.					

A comparison of projected water supply and demand during a Five Consecutive Year Drought is included in DWR Table 7-4. As shown, there is adequate water supply to meet demand in all extended drought years through 2045.

DWR Table 7-4

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025	2030	2035	2040	2045
First year	Supply totals	15,223	15,573	15,573	15,573	15,573
	Demand totals	3,957	4,356	4,914	5,109	5,084
	Difference	11,266	11,217	10,659	10,464	10,489
Second year	Supply totals	16,465	16,815	16,815	16,815	16,815
	Demand totals	3,957	4,356	4,914	5,109	5,084
	Difference	12,508	12,459	11,901	11,706	11,731
Third year	Supply totals	12,182	12,532	12,532	12,532	12,532
	Demand totals	3,957	4,356	4,914	5,109	5,084
	Difference	8,225	8,176	7,618	7,423	7,448
Fourth year	Supply totals	9,239	9,589	9,589	9,589	9,589
	Demand totals	3,957	4,356	4,914	5,109	5,084
	Difference	5,282	5,233	4,675	4,480	4,505
Fifth year	Supply totals	6,071	6,421	6,421	6,421	6,421
	Demand totals	3,957	4,356	4,914	5,109	5,084
	Difference	2,114	2,065	1,507	1,312	1,337
NOTES: All volumes are in AF. All supply volumes include storage remaining in the reservoirs on January 1 of each year. D Tank Well assumed to be repaired and operational to the full historical capacity of 350 AF in drought conditions as of the year 2030 when it is expected to be in operation again.						

As stated in DWR Table 7-4, DWR Table 7-3, and DWR Table 7-2, there is sufficient supply to meet demands in all year types through 2045.

7.2.4 Deficit Mitigation

Paradise relies upon annual precipitation and runoff in the Butte Creek watershed. Depending upon trends in climate change, annual precipitation and snowpack conditions, Paradise may experience shortage in the future. However, through the planning horizon of this Urban Water Management Plan, there is no anticipated shortage of supply in any year type. This is partially due to the reduction in demand caused by the 2018 Camp Fire. As Paradise continues to rebuild following the disaster, trends in redevelopment and possible intensification may change the outlook of water supply through 2045. Much of those development trends cannot be predicted yet, so soon after such an unprecedented community change. PID is committed to working in close partnership with the Town of Paradise and Butte County to track these trends and plan accordingly in both the short and long-term.

7.3 Drought Risk Assessment

In DWR Table 7-5, the lack of any deficit in supply for a near-term extended drought condition is shown. PID actively encourages responsible use of water and conservation principles in all year types; however, there is no indication of the need for these conservation efforts to mitigate a shortage of supply.

The availability of each of PID's water rights is examined in Chapter 6 of this UWMP, specifically in PID Tables 6-A and 6-B whereby discussion of season limitations and curtailments are outlined. PID's reliance on runoff from the Feather River Watershed is significantly mitigated by PID's storage rights in Paradise Lake and Magalia Reservoir. Even considering physical limitations on these storage quantities, PID is able to demonstrate reliable water supply for Normal Year demands through the horizon of this planning document in all hydrologic year types.

The USGS climate change study cited in Chapter 6 outlines a cyclical pattern to precipitation quantities through 2099, but no overall decline. In periods of extended drought, PID is demonstrably able to continue to supply high quality water. In periods of excess, PID can store supplies against future drought.

DWR Table 7-5

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)					
Category	2021	2022	2023	2024	2025
Total Water Use	4,287	4,205	4,122	4,040	3,957
Total Supplies	15,223	16,465	12,182	9,239	6,071
Surplus/Shortfall w/o WSCP Action	10,936	12,260	8,060	5,199	2,114
Planned WSCP Actions (use reduction and supply augmentation)					
WSCP - supply augmentation benefit	0	0	0	0	0
WSCP - use reduction savings benefit	0	0	0	0	0
Revised Surplus/(shortfall)	10,936	12,260	8,060	5,199	2,114
Resulting % Use Reduction from WSCP action	0%	0%	0%	0%	0%

7.4 Regional Supply and Reliability

All water consumed by PID comes from local supply sources. No water is imported from other regions, nor does PID anticipate importing water from other regions throughout the UWMP planning period. However, the District is actively engaged in planning on multiple potential projects and coordination intended to strengthen water supply reliability throughout the Ridge area, in addition to investing in long-term water storage augmentation projects like the future Magalia Dam Retrofit Project. Projects like Magalia Dam will correct flood risk issues in the Paradise and Magalia areas as well as downstream, while also providing additional stability of water supply and storage in the region. PID is a committed regional partner in working to solve supply shortage issues before they become a critical reality, with climate change and increasingly limited supply sources at the crux of the issue. PID will continue these efforts into the future and work with its partner agencies to find the best path forward.

Chapter 8 Water Shortage Contingency Plan

Following the severe drought of 2012-2016, State of California Legislature sought to expand the water shortage contingency analysis under former law and mandated that a water shortage contingency plan (WSCP) be adopted by suppliers. A copy of the WSCP is provided in Appendix H.

Chapter 9 Demand Management Measures

This chapter describes PID's historical and existing water conservation program, status of implementation of Demand Management Measures (DMMs), and projected future conservation implementation. The CWC requires that the UWMP include a comprehensive description of historical, current, and projected water conservation programs.

> *CWC 10631 (e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
>
> *(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*
>
> *(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*
>
> *(i) Water waste prevention ordinances.*
>
> *(ii) Metering.*
>
> *(iii) Conservation pricing.*
>
> *(iv) Public education and outreach.*
>
> *(v) Programs to assess and manage distribution system real loss.*
>
> *(vi) Water conservation program coordination and staffing support.*
>
> *(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

In previous UWMPs, a substantial amount of data was required to document a water supplier's progress in implementing fourteen specific DMMs. In 2014, Assembly Bill 2067 simplified, clarified, and updated reporting requirements for DMMs. Starting with the 2015 UWMP, focus has turned away from detailed descriptions of each of the fourteen DMMs and has turned to water conservation measures that are being implemented to achieve compliance with SB X7-7. For retail agencies, the number of DMMs has been reduced from fourteen to six (plus an "other" category). A narrative description of the status of the DMMs and how the DMMs will help the water supplier achieve its SBX7-7 water use targets is required. Detailed data are not required.

9.3 Demand Management Measures

The six DMMs required to be discussed in the 2020 UWMP include the following:

- Water waste prevention ordinances
- Metering
- Conservation pricing
- Public Education and outreach
- Programs to assess and manage distribution system real loss
- Water conservation program coordination and staffing support

For each DMM, the current program is described, followed by a description of how the DMM was implemented over the previous five years and the planned implementation to achieve the water use targets required by SBX7-7.

9.3.1 Water Waste Prevention Ordinances

In 2015, PID passed and adopted Ordinance No. 2015-01 (Appendix I), An Ordinance Adopting Enforcement Procedures, Fines, and Penalties for failing to water conservation measures. The ordinance provides penalties for all violations to PID's Water Conservation Program, as well as PID's policies, rules, and regulations. Per the ordinance, PID utilizes a progressively more stringent enforcement procedures in issuing administrative citations:

i. First administrative citation: written warning
ii. Second administrative citation (within any 12-month period): $100 for each violation cited
iii. Third administrative citation (within any 12-month period): $200 for each violation cited
iv. Fourth administrative citation (within any 12-month period): $500 for each violation cited
v. Fifth and succeeding administrative citation (within any 12-month period): PID may resort to any and all available legal remedies. This may include suspending or reducing deliveries to the property.

PID encourages customers to sign up for the DropCountr app that allows customers to monitor their water use and receive leak alerts. Additionally, customers can visit https://pidwater.com/reportwaste for instructions on how to report water waste, which is then further investigated by PID staff.

Implementation of this DMM is ongoing and expected to help PID achieve its water use targets by minimizing the nonessential uses of water so that the water is available to be used for residential consumption, sanitation, and fire protection.

9.3.2 Metering

Prior to the Camp Fire, PID was fully metered and utilized an Automatic Meter Reading (AMR) system to read all meters and check for unusual customer use patterns and leaks. At the time of the fire, PID was in the process of updating this AMR system to Advanced Metering Infrastructure, or AMI. PID meters and AMR/AMI infrastructure were damaged during the 2018 Camp Fire. At the time of plan preparation, PID customers pay a nominal fee for active water service, or a sealed rate if their service is no longer active. Meter replacement and installation projects will begin in mid-2021 and are scheduled for completion by the end of 2022 when PID anticipates a return to metered service. The projects are currently slated to install metered service at up to 4,500 locations throughout the PID service area. The installation of an Advanced Metering Infrastructure (AMI) system will allow PID to improve operational efficiency and more closely track water use, waste, and leaks on a timely basis.

The metering DMM helps PID achieve its water use targets by providing accurate water use information to both the customer and PID. Higher than normal comparative usage triggers outreach to customers who may have leaks, as well as awareness of efficient water use practices. Overall, metering assists PID in managing customer water use and leak detection efforts.

9.3.3 Conservation Pricing

Prior to the 2018 Camp Fire, PID implemented a simple rate structure with a single tier. Following the 2018 Camp Fire, and due to meter damage sustained in the fire, PID's customer pay only the monthly service fee or sealed

rate and are not currently charged for volumetric water usage. PID's Meter Installation and Service Lateral Phase 2 Project, slated to start in 2021, will support the return of the distribution system to metered service, and PID will resume charging customers for volumetric water consumption.

At the time of plan preparation, PID intends to reimplement a simple rate structure with a single tier once metered service is returned. In accordance with the provisions of Proposition 218 and case law in the state of California, PID has no plans to implement a conservation pricing structure currently.

9.3.4 Public Education and Outreach

PID actively engages with the public on a regular basis to share information, best practices, and encourage the responsible use of water resources in the community. The primary point of interaction of public education and outreach is PID's customer service staff, working with the community on a daily basis to resolve questions, set expectations, and represent PID's principles within the Town of Paradise and the region as whole. PID also actively engages the public in the electronic sphere with information disseminated on PID's website as well as social media platforms such as Facebook. Additionally, where new or critical information may be helpful in guiding the water use practices of PID's customers, brochures in local venues, billing inserts, and changeable message signs are employed to help get the word out. Each year in the spring, PID's Board of Directors traditionally adopts a resolution encouraging the use of Wise Water Principles in the community. In the past PID had operated a customer portal through AquaHawk, serving several functions including customer engagement, access to water usage information, and leak detection notification. Following the Camp Fire and in preparation for major efforts to reinstall metered service throughout the District, PID has engaged with a new vendor, DropCountr, to provide additional outreach capability, notifications, and reminders to customers to be aware of water use patterns, ongoing recovery operations, and general educational messages shared by PID. Both before and after the 2018 Camp Fire, PID has been and remains committed to a transparent and educational dialogue with the community of Paradise.

9.3.5 Programs to Assess and Manage Distribution System Real Loss

Prior to the Camp Fire, PID employed standard industry practices in the identification and resolution of distribution system leakage. Concerted efforts were made through sections of the distribution network surveyed for leaks to repair and eliminate as much water loss as practical. At that time, the percentage of real loss was estimated to be around 8% of demand.

The Camp Fire and recovery operations to follow caused widespread physical damage to the distribution network including heat damage, dried gaskets, burning roots, fallen trees, debris removal excavation, extreme heavy loading from equipment/hauling, as well as mass reconstruction efforts throughout the service area. At present, PID crews respond to an average of 10 leaks a week caused primarily by contractor or other utility staff encountering and causing damage to underground piping. This amount of damage, both experienced and ongoing, creates a very challenging environment within which to work toward reduced system losses. In addition, at the time of plan preparation, PID does not have metered water usage by customers, creating an even greater challenge to the characterization of real loss itself. Regardless, PID has embarked upon aggressive efforts to repair and reclaim the distribution network, working to bring reliable service back as efficiently as possible. In early 2021, PID contracted for a full system leak detection survey and report to detail those leaks for which repairs have not yet been made. The results of this report have been initially analyzed for inclusion in the District's CIP planning

efforts to support repair of those identified. As the survey took place, more severe leaks were repaired as they were found, with those less severe tagged in the Districts Geographic Information System (GIS) mapping tools for later repair. PID is committed to reclaiming these lost water supplies as soon as is practical amongst other recovery efforts, and the planning for those projects is currently underway.

9.3.6 Water Conservation Program Coordination and Staffing Support

Coordination of PID's Water Conversation Program is performed by the District Manager and Assistant District Manager, with the staff support of various other individuals of PID's internal water conservation program team.

In compliance with DWR's UWMP guidelines, the contact information for PID's District Manager is listed below:

Tom Lando
District Manager
Paradise Irrigation District
530-877-4971 (office)
tlando@paradiseirrigation.com

9.3.7 Implementation Over the Past Five Years

In 2016 through the majority of 218, PID worked as described above to implement demand management measures each year, encouraging the participation of the community in active participation in best practices. The Camp Fire occurred in November of 2018. Since that time, PID's efforts have been primarily focused on the necessary recovery actions and restoring reliable potable service to as many customers as possible to support the rebuilding needs of the community. This has necessitated an obvious pause in effort to message the conservation and best management of water supply in favor of the more basic needs of the community.

As the rebuilding efforts have continued and a sense of normalcy has begun to return to Paradise, PID has taken the opportunity again to reintroduce public messaging and water conservation into PID's community dialogue. As the state enters another drought year, PID will continue to engage its customers on this topic and rebuild the framework of community support and interactive demand management measures.

9.4 Planned Implementation to Achieve Water Use Targets

In most instances, helping customers understand the savings that can be achieved and methods available to achieve these savings is enough to motivate change. Through the above DMMs, PID can help customers identify these savings, which in turn helps PID to achieve its water use targets. Additionally, PID will continue to work with outside agencies, contractors, and property managers to improve water use efficiency.

9.5 Members of the California Urban Water Conservation Council

PID is not a signatory of the California Water Efficiency Partnership's MOU (formerly the California Urban Water Conservation Council or CUWCC).

Chapter 10 Plan Adoption and Submittal

This chapter provides information regarding the notification, public hearing, and adoption of the plan.

10.1 Inclusion of all 2020 Data

Because 2020 is the final compliance year for SB X7-7, the 2020 UWMPs must contain data through the end of 2020. If a water supplier bases its accounting on a fiscal year (July through June) the data must be through the end of the 2020 fiscal year (June 2020). If the water supplier bases its accounting on a calendar year, the data must be through the end of the 2020 calendar year (December 2020).

As indicated in Chapter 1, PID uses a calendar year for the water supply and demand accounting, and therefore this 2020 UWMP includes data through December 2020.

10.2 Notice of Public Hearing

PID provided 60-day notice of the preparation of its 2020 UWMP, and the notice of the 2020 UWMP Public Hearing to the cities and counties listed in DWR Table 10-1.

DWR Table 10-1

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Town of Paradise	Yes	Yes
County Name	60 Day Notice	Notice of Public Hearing
Butte County	Yes	Yes

All agencies and organizations notified included the following:

- Town of Paradise
- Butte County Public Works Director
- Butte County Water and Resource Conservation Department
- California Water Service
- Del Oro Water Company
- Cal Fire Station 81
- Rebuild Paradise
- Paradise Ridge Chamber of Commerce
- Mechoopda Indian Tribe of Chico Rancheria
- City of Oroville Public Works Department
- City of Chico Public Works Department

Public hearing notifications were published in the local newspaper and on the PID's website. Copies of the published Notice of Public Hearing are included in Appendix J.

10.3 Public Hearing and Adoption

PID has encouraged community and public interest involvement in the Plan update through the use of mailings, public meetings, and web-based communication. Copies of the PID's outreach efforts are included in Appendix A.

The public hearing provides an opportunity for all PID water users and the general public to become familiar with the Urban Water Management Plan as well as the Water Shortage Contingency Plan and ask questions about its contents. In addition, the hearing will present an opportunity for the public to learn about or comment on PID's continuing plans for providing a reliable, safe, high-quality water supply. Copies of the draft Urban Water Management Plan, including the Water Shortage Contingency Plan, were made available for public inspection on PID's website. The public hearing will be held on June 21, 2021.

This Urban Water Management Plan and Water Shortage Contingency Plan will be presented to the Board of Directors on June 21, 2021, following the public hearing, for adoption. Copies of the adoption resolutions will be provided in Appendix K.

10.4 Plan Submittal

A copy of this 2020 UWMP will be submitted to DWR within 30 days of adoption and by July 1, 2021. The adopted UWMP will be submitted electronically to DWR using the Water Use Efficiency data submittal tool. A CD or hardcopy of the adopted 2020 UWMP will also be submitted to the California State Library.

No later than 30 days after adoption, a copy of the adopted 2020 UWMP, including the Water Shortage Contingency Plan, will be provided to the Town and Butte County for which PID provides water.

10.5 Public Availability

No later than 30 days after submittal to DWR, copies of this 2020 UWMP will be available for public review at PID's office. An electronic copy of this Plan will also be available for review and download on PID's website https://pidwater.com/uwmp.

10.6 Public Implementation

This Plan will be the source document for any Senate Bill 610 Water Supply Assessment or Senate Bill 221 Water Supply Verifications required for any proposed projects between 2021 and 2025 that are subject to the California Environmental Quality Act (CEQA) and would demand an amount of water equivalent or greater than the amount of water by a 500-dwelling unit project. This Plan will also be the source document for water demand projections and water supply availability. Lastly, this Plan will provide guidance and direction on development of new local supplies and implementation of water conservation programs to meet the requirements of the Water Conservation Act.

10.7 Amending an Adopted UWMP

If PID amends its 2020 UWMP or the Water Shortage Contingency Plan contained therein, copies of amendments or changes to the plans will be submitted to DWR, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

10.8 California Water Code Requirements

Demonstration of compliance with all applicable requirements of the California Water Code pertaining to Urban Water Management Plan and Water Shortage Contingency Plan is provided in Appendix L. Appendix L was developed based on the UWMP Checklist provided in the Guidebook.

Appendix A – Notifications Letters

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Tavis Beynon, Interim District Manager
California Water Service
2222 Dr. Martin Luther King Jr. Parkway
Chico, CA 95928

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. Tavis Beynon:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your organization in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Brendan Ottoboni, Public Works Director - Engineering
City of Chico Public Works Department
411 Main Street, 2nd Floor
Chico, CA 95928

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Brendan

Dear Mr. Brendan Ottoboni:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

City of Oroville Public Works Director
City of Oroville Public Works Department
1735 Montgomery Street
Oroville, CA 95965

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Leo and Dawn

Dear Public Works Director:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

John O'Farrell, Superintendent
Del Oro Water Company
Drawer 5172
Chico, CA 95927-5172

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. John O'Farrell:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Dennis Ramirez, Chairman
Mechoopda Indian Tribe of Chico Rancheria
125 Mission Ranch Boulevard
Chico, CA 95926

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. Dennis Ramirez:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to you in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT
6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Monica Nolan, Executive Director
Paradise Ridge Chamber of Commerce
6161 Clark Road, Suite 1
Paradise, CA 95969

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Ms. Monica Nolan:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your organization in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT
6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Nicole Garroutte, Rebuild Paradise Chair
Rebuild Paradise
6607 Skyway, Suite B
Paradise, CA 95969

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Ms. Nicole Garroutte:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your organization in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Jason Morris, Battalion Chief
Cal Fire Station 81
767 Birch Street
Paradise, CA 95969

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. Jason Morris:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Paul Gosselin, Water and Resource Conservation Director
Butte County Water and Resource Conservation Department
308 Nelson Avenue
Oroville, CA 95965

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. ~~Paul Gosselin~~: Paul

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT
6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Joshua Pack, Public Works Director
Butte County
7 County Center Drive
Oroville, CA 95965

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Mr. Joshua Pack:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT
6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

March 29, 2021

Kevin Phillips, Town Manager
Town of Paradise
5555 Skyway
Paradise, CA 95969

RE: Paradise Irrigation District 2020 Urban Water Management Plan

Dear Kevin:

The Paradise Irrigation District (District) has begun preparing the 2020 Urban Water Management Plan, which must be completed by July 1, 2021. Pursuant to California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to District Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2020 Urban Water Management Plan available to your agency in advance of the public hearing.

Please direct any questions related to plan preparation and coordination to Water Works Engineers, LLC, Colleen Boak colleenb@wwengineers.com.

Sincerely,

Tom

Tom Lando
Interim District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Kevin Phillips, Town Manager
Town of Paradise
5555 Skyway
Paradise, CA 95969

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Kevin:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans, by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Tavis Beynon, Interim District Manager
California Water Service
2222 Dr. Martin Luther King Jr. Parkway
Chico, CA 95928

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. Beynon:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Jason Morris, Battalion Chief
Cal Fire Station 81
767 Birch Street
Paradise, CA 95969

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. Morris:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans, by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Nicole Garroutte, Rebuild Paradise Chair
Rebuild Paradise
6607 Skyway, Suite B
Paradise, CA 95969

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Ms. Garroutte:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Joshua Pack, Public Works Director
Butte County
7 County Center Drive
Oroville, CA 95965

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. Pack:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit to PID, written comments regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Brendan Ottoboni, Public Works Director - Engineering
City of Chico Public Works Department
411 Main Street, 2nd Floor
Chico, CA 95928

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. Ottoboni:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Monica Nolan, Executive Director
Paradise Ridge Chamber of Commerce
6161 Clark Road, Suite 1
Paradise, CA 95969

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Monica:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Dennis Ramirez, Chairman
Mechoopda Indian Tribe of Chico Rancheria
125 Mission Ranch Boulevard
Chico, CA 95926

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. Ramirez:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

John O'Farrell, Superintendent
Del Oro Water Company
Drawer 5172
Chico, CA 95927-5172

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Mr. O'Farrell:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Dawn Nevers, Public Works Director
City of Oroville Public Works Department
1735 Montgomery Street
Oroville, CA 95965

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Dawn:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom

Tom Lando
District Manager
Paradise Irrigation District

PARADISE IRRIGATION DISTRICT

6332 Clark Road * Paradise, California 95969 * Phone 530-877-4971 * Fax 530-876-0483

June 14, 2021

Paul Gosselin, Water and Resource Conservation Director
Butte County Water and Resource Conservation Department
308 Nelson Avenue
Oroville, CA 95965

RE: 2020 Urban Water Management Plan and Water Shortage Contingency Plan Public Hearing

Dear Paul:

We sent notice earlier this year to inform you that Paradise Irrigation District (PID) had begun preparation of the 2020 Urban Water Management Plan (UWMP). A draft of the UWMP, which is inclusive of the Water Shortage Contingency Plan (WSCP), will be accessible at PID's website at www.pidwater.com/uwmp.

Prior to District Board adoption, a public hearing of the UWMP and WSCP will be held on June 21, 2021, at 9:00am in the PID Board Room, 6332 Clark Road, Paradise, California. Attendance and participation via teleconferencing will also be supported. Instructions on joining the meeting and providing public comment can be found on PID's website.

Interested persons may appear at the public hearing for the UWMP and the public hearing for the WSCP and present their oral or written comments. Persons unable to attend the public hearings may also submit written comments to PID regarding the plans by the time the proceedings begin. The comments will be read during the Public Hearing. Written comments can be sent to PID, Attn: 2020 UWMP, 6332 Clark Rd Paradise, CA 95969, or delivered to the PID front desk at same address.

Sincerely,

Tom Lando
District Manager
Paradise Irrigation District

Appendix B – AWWA Water Loss Audits

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: Paradise Irrigation District (CA0410007)
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 input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET 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.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

								Pcnt:	Value:	
Volume from own sources:	+	?	3	4,359.060	acre-ft/yr	+ ?	2			acre-ft/yr
Water imported:	+	?	3	240.640	acre-ft/yr	+ ?	2			acre-ft/yr
Water exported:	+	?	3	240.640	acre-ft/yr	+ ?	2			acre-ft/yr
WATER SUPPLIED:				**4,359.060**	acre-ft/yr					

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

						Pcnt:	Value:	
Billed metered:	+	?	5	4,002.555	acre-ft/yr			
Billed unmetered:	+	?	n/a	0.000	acre-ft/yr			
Unbilled metered:	+	?	10	2.261	acre-ft/yr			
Unbilled unmetered:	+	?	5	10.898	acre-ft/yr		10.898	acre-ft/yr
AUTHORIZED CONSUMPTION:		?		**4,015.714**	acre-ft/yr			

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

343.346 acre-ft/yr

Apparent Losses

						Pcnt:	Value:	
Unauthorized consumption:	+	?		10.898	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	2	60.987	acre-ft/yr	1.50%		acre-ft/yr
Systematic data handling errors:	+	?		10.006	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? **81.891** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? **261.455** acre-ft/yr

WATER LOSSES: **343.346** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? **356.505** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	5	177.9	miles
Number of active AND inactive service connections:	+	?	3	8,632	
Service connection density:		?		49	conn./mile main

Are customer meters typically located at the curbstop 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 91.0 psi

COST DATA

Total annual cost of operating water system:	+	?	10	$7,000,056	$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	9	$1.32	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	5	$52.80	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 52 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: Billed metered

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: Paradise Irrigation District (CA0410007)
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 input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET 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.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

								Pcnt:	Value:	
Volume from own sources:	+	?	5	4,673.245	acre-ft/yr	+ ?	3			acre-ft/yr
Water imported:	+	?	1	267.280	acre-ft/yr	+ ?	n/a			acre-ft/yr
Water exported:	+	?	3	285.220	acre-ft/yr	+ ?	1			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 4,655.305 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

						Pcnt:	Value:	
Billed metered:	+	?	5	4,443.382	acre-ft/yr			
Billed unmetered:	+	?	n/a	0.000	acre-ft/yr			
Unbilled metered:	+	?	10	1.513	acre-ft/yr			
Unbilled unmetered:	+	?	5	11.638	acre-ft/yr		11.638	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 4,456.533 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 198.772 acre-ft/yr

Apparent Losses

						Pcnt:	Value:	
Unauthorized consumption:	+	?		11.638	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+	?	2	33.589	acre-ft/yr	0.25%		acre-ft/yr
Systematic data handling errors:	+	?		11.108	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 56.335 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 142.436 acre-ft/yr

WATER LOSSES: 198.772 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 211.923 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+	?	7	177.9	miles
Number of active AND inactive service connections:	+	?	3	8,649	
Service connection density:		?		49	conn./mile main

Are customer meters typically located at the curbstop 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: + ? 3 91.0 psi

COST DATA

Total annual cost of operating water system:	+	?	10	$7,273,599	$/Year
Customer retail unit cost (applied to Apparent Losses):	+	?	9	$1.55	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+	?	5	$53.45	$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 58 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:

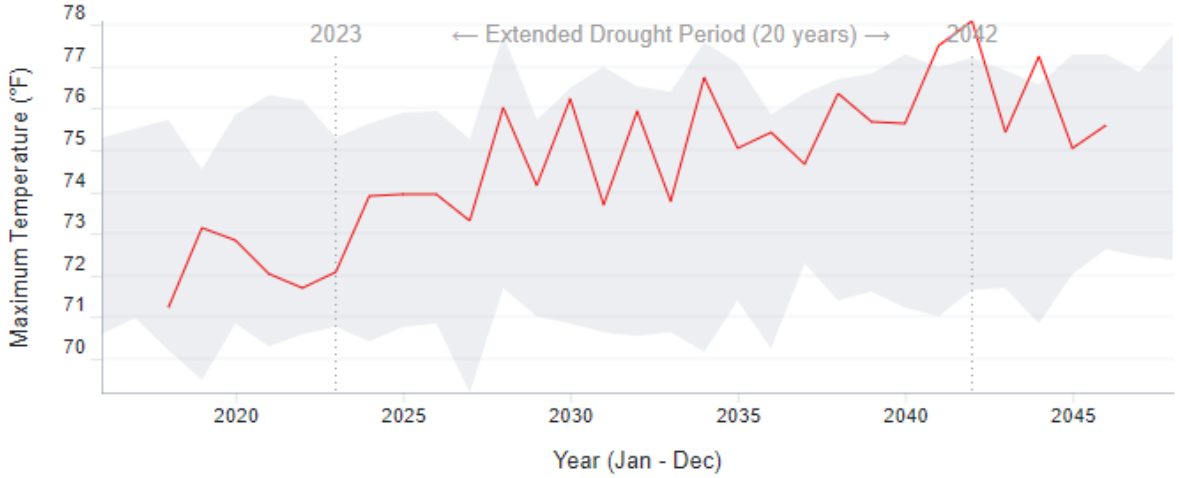
1: Volume from own sources
2: Customer metering inaccuracies
3: Billed metered

Appendix C – Cal Adapt's Extended Drought Tool

Cal-Adapt Extended Drought Scenario

Maximum Temperature

Maximum daily temperature which typically occurs in the early afternoon.

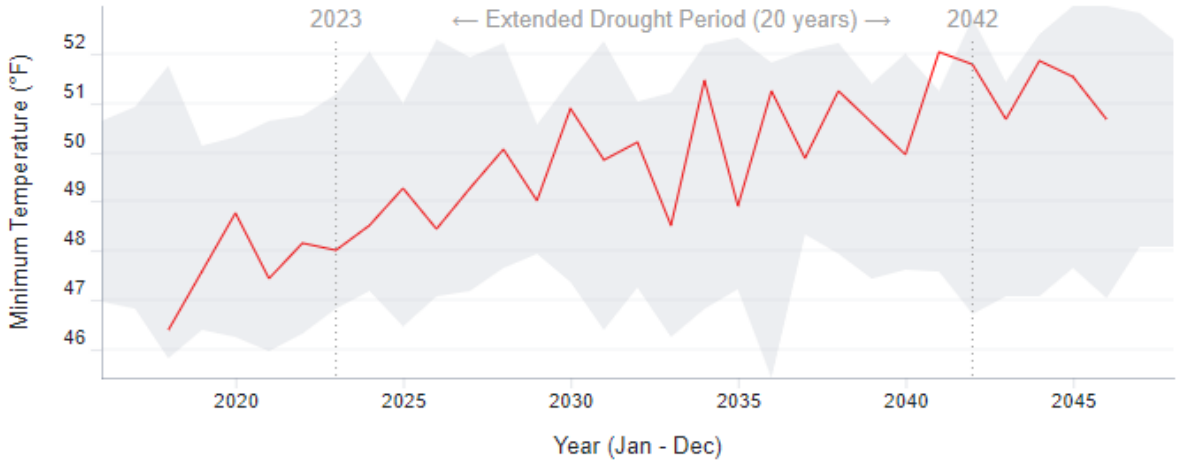


OBSERVED HISTORICAL
1961–1990 Average
70.4 °F

DROUGHT SCENARIO
2023–2042 Average
75.1 °F

Minimum Temperature

Minimum daily temperature which typically occurs in the early morning before sunrise.

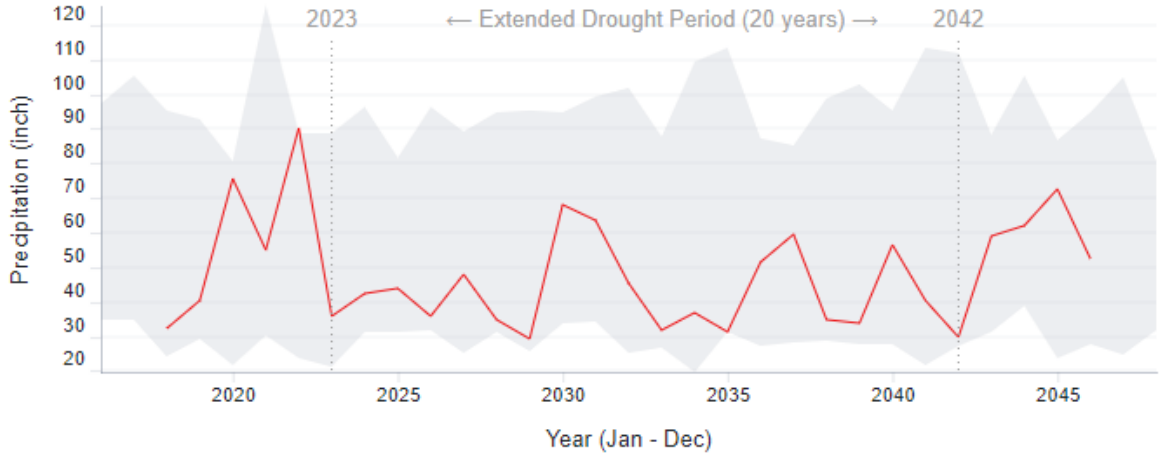


OBSERVED HISTORICAL
1961–1990 Average
46.7 °F

DROUGHT SCENARIO
2023–2042 Average
50.0 °F

Precipitation

Accumulated rainfall and snowfall.



OBSERVED HISTORICAL
1961–1990 Average
52.2 inch

DROUGHT SCENARIO
2023–2042 Average
42.7 inch

Appendix D – 2015 SBX7-7 Verification Form

SB X7-7 Table 0: Units of Measure Used in UWMP*
(select one from the drop down list)
Acre Feet
**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	8,078	Acre Feet
	2008 total volume of delivered recycled water	-	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range[3]	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2004	
	Year ending baseline period range[4]	2008	

[1] 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. [2] 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.

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] 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)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES: DOF figures for Town of Paradise adjusted for Del Oro Lime Saddle District estimated population.	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	1999	26,084
Year 2	2000	26,113
Year 3	2001	26,154
Year 4	2002	26,252
Year 5	2003	26,340
Year 6	2004	26,335
Year 7	2005	26,145
Year 8	2006	26,006
Year 9	2007	25,902
Year 10	2008	25,828
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2004	26,335
Year 2	2005	26,145
Year 3	2006	26,006
Year 4	2007	25,902
Year 5	2008	25,828
2015 Compliance Year Population		
2015		25,977
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1999	7,869			-	353	-	7,516
Year 2	2000	7,772			-	325	-	7,447
Year 3	2001	8,302			-	357	-	7,945
Year 4	2002	8,308			-	257	-	8,051
Year 5	2003	7,858			-	217	-	7,641
Year 6	2004	8,349			-	254	-	8,095
Year 7	2005	7,490			-	200	-	7,290
Year 8	2006	7,992			-	218	-	7,774
Year 9	2007	7,922			-	221	-	7,701
Year 10	2008	8,178	100		-	158	-	7,920
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**7,738**
5 Year Baseline - Gross Water Use								
Year 1	2004	8,349			-	254	-	8,095
Year 2	2005	7,490			-	200	-	7,290
Year 3	2006	7,992			-	218	-	7,774
Year 4	2007	7,922			-	221	-	7,701
Year 5	2008	8,178	100		-	158	-	7,920
5 year baseline average gross water use								**7,756**
2015 Compliance Year - Gross Water Use								
2015		4,282			-	118	-	**4,164**

* NOTE that the units of measure 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.

Name of Source	Little Butte Creek
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1999	7,740		7,740
Year 2	2000	7,521		7,521
Year 3	2001	8,302		8,302
Year 4	2002	8,308		8,308
Year 5	2003	7,858		7,858
Year 6	2004	8,349		8,349
Year 7	2005	7,435		7,435
Year 8	2006	7,966		7,966
Year 9	2007	7,815		7,815
Year 10	2008	8,005		8,005
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2004	8,349		8,349
Year 2	2005	7,435		7,435
Year 3	2006	7,966		7,966
Year 4	2007	7,815		7,815
Year 5	2008	8,005		8,005
2015 Compliance Year - Water into Distribution System				
2015		4,267		4,267

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source	D Tank Well			
This water source is:				
☑	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1,999	129		129
Year 2	2,000	251		251
Year 3	2,001	0		0
Year 4	2,002	0		0
Year 5	2,003	0		0
Year 6	2,004	0		0
Year 7	2,005	55		55
Year 8	2,006	26		26
Year 9	2,007	107		107
Year 10	2,008	173		173
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,004	0		0
Year 2	2,005	55		55
Year 3	2,006	26		26
Year 4	2,007	107		107
Year 5	2,008	173		173
2015 Compliance Year - Water into Distribution System				
2015		15		15
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	26,084	7,516	257
Year 2	2000	26,113	7,447	255
Year 3	2001	26,154	7,945	271
Year 4	2002	26,252	8,051	274
Year 5	2003	26,340	7,641	259
Year 6	2004	26,335	8,095	274
Year 7	2005	26,145	7,290	249
Year 8	2006	26,006	7,774	267
Year 9	2007	25,902	7,701	265
Year 10	2008	25,828	7,920	274
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**265**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2004	26,335	8,095	274
Year 2	2005	26,145	7,290	249
Year 3	2006	26,006	7,774	267
Year 4	2007	25,902	7,701	265
Year 5	2008	25,828	7,920	274
5 Year Average Baseline GPCD				**266**
2015 Compliance Year GPCD				
2015		25,977	4,164	**143**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	265
5 Year Baseline GPCD	266
2015 Compliance Year GPCD	143
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
265	**212**
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[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
266	253	212	**212**
[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*			
NOTES:			

SB X7-7 Table 8: 2015 Interim Target		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
212	265	**238**
NOTES:		

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)*					2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
143	238	-	-	-	-	143	143	**YES**
NOTES:								

Appendix E – 2020 SBX7-7 Compliance Form

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**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)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	8,955
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	4,046	441	-	-	-	-	**3,605**

* **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: While an Agricultural Irrigation deduction was made in the calculation of the baseline, there was no agricultural water use in 2020 and the deduction is equal to zero.

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Little Butte Creek
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	4,046	-	4,046

[1] ***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.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: All values are in AF.

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	D Tank Well
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	-		0

[1] ***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.*

[2] ***Meter Error Adjustment -*** *See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: The groundwater well was non-operational in 2020 and water production was equal to zero.

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
3,605	8,955	**359**
NOTES:		

Appendix F – Water Rights Permits

STATE OF CALIFORNIA
THE RESOURCES AGENCY
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS

STATEMENT OF WATER DIVERSION AND USE

This statement should be typewritten or legibly written in ink.

S8459

A. Name of person diverting water Paradise Irrigation District
Address P. O. Box 128, Paradise, Ca. 95969

B. Name of body of water at point of diversion Little Butte Creek
Tributary to Butte Creek

C. Place of diversion SE ¼ SE ¼ Section 25, Township 23N, Range 3E, MD B&M, Butte County, or locate it on sketch of section grid on reverse side with regard to section lines or prominent local landmarks.

D. Name of works Magalia Dam

E. Capacity of diversion works 50 cfs (cubic feet per second / gallons per minute)
Capacity of storage reservoir 1950 AF (useable) (gallons / acre-feet)

State quantity of water used each month in gallons or acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Annual
1974	229	209	228	360	496	300	496	148	187	189	253	249	3344 AF

If monthly and annual use are not known, check months in which water was used. State extent of use in units, such as acres of each crop irrigated, average number of persons served, number of stock watered, etc.

Maximum annual water use in recent years 3645 AF (gallons / acre-feet)
Minimum annual water use in recent years 3344 AF (gallons / acre-feet)
Type of diversion facility: gravity X, pump ____

Method of measurement: weir ____, flume ____, electric power meter ____, water meter X, estimate ____

F. Purpose of use (what water is being used for) Domestic & irrigation

G. General description or location of place of use (use sketch of section grid on reverse side if you desire)
Approx. 11,250 acres within Paradise, Butte County

H. Year of first use as nearly as known 1916 by P. I. D. Prior to 1914 by others.

I. Name of person filing statement C. Phillip Kelly, Jr.
Position Manager Organization Paradise Irrigation District
Address P. O. Box 128, Paradise, Ca. 95969

I declare under penalty of perjury that the above is true and correct to the best of my knowledge and belief.
Dated: January 17, 19 75, at Paradise, California.
Signature: C. Phillip Kelly, Jr.

See Instructions on Reverse Side

SWRCB 40 (4/74)

0-217-70-00-0

P271.

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

In the Matter of Water Right Permits of the
PARADISE IRRIGATION DISTRICT

ORDER APPROVING OF TEMPORARY URGENCY CHANGE IN PLACE OF USE

PERMITS 271 AND 16040 (APPLICATIONS 476, AND 22061)

1.0 INTRODUCTION

On June 9, 2000, the Paradise Irrigation District (PID) filed a petition requesting renewal of the Temporary Urgency Change Order approved October 18, 1999, by the State Water Resources Control Board (SWRCB), pursuant to Water Code section 1435 et seq. The extension would allow PID to maintain the expanded place of use for an additional 180 days to allow continued service to a portion of the Del Oro Water Company service area under PID Permits 476 and 22061.

I am delegated authority to approve this temporary urgency change, pursuant to Water Code section 1435(d) and SWRCB Resolution No. 99-31, section 3.2.22.

2.0 SUBSTANCE OF THE PETITION

PID is requesting that the SWRCB, under Water Code section 1435 et seq., approve a renewal of the October 18, 1999, SWRCB Order that temporarily expanded PID's place of use under Permits 271 and 16040. The expansion will allow PID to continue to provide domestic water service to portions of Del Oro Water Company's (Company) Paradise Pines service area and Lime Saddle service area.

BACKGROUND

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040 that provides municipal, domestic and irrigation water to the PID service area. In addition, PID has a standby well centrally located within the district. Last fall, the Company approached PID with a request to purchase 125 acre-feet of water to offset the anticipated domestic water supply shortfall. The Order approving the PID expansion of place of use was approved on October 18, 1999. At this time, the Company still finds that there will be a shortfall this summer and fall season and has asked PID if they could receive an additional 120 acre-feet of water to serve the lower portion of the Paradise Pines and upper portion of the Lime Saddle service areas.

The water will be provided through the existing intertie connections that allow transfer of water between the districts in the event of emergencies. No physical changes will be made to any facilities or sites and the existing reservoir levels will be maintained. Due to the configuration of PID's distribution system, well water cannot be served directly to the Company. Therefore, PID will provide the 120 acre-feet of treated surface water through the intertie to the Company, while at the same time pumping 120 acre-feet from groundwater from PID's existing standby well to PID customers in the vicinity of the well.

PID has requested that the State Water Resources Control Board renew the temporary expansion of the place of use under Permits 476 and 22061. The expanded place of use includes the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

3.0 OBJECTIONS TO THE PETITION

A public notice of the proposed temporary urgency change was mailed to interested parties on June 27, 2000, and published in the Paradise Post. The SWRCB has received no objections to the request to the temporary urgency change, as proposed.

4.0 CRITERIA FOR APPROVING THE PROPOSED TEMPORARY CHANGE •

Chapter 6.6 of Part 2, Division 2, of the Water Code, commencing at section 1435, provides that any permittee or licensee who has an urgent need to change a point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. Additionally in accordance with section 1441, the SWRCB may renew a temporary change order.

The SWRCB must make the findings specified in section 1435(b) when issuing a temporary change order pursuant to Chapter 6.6. The required findings are:

1. The permittee or licensee has an urgent need to make the proposed change.
2. The proposed change may be made without injury to any other lawful user of water.
3. The proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses.
4. The proposed change is in the public interest, including findings to support change order conditions imposed to ensure that the change is in the public interest, and may be made without injury to any other lawful user of the water, and without unreasonable effect upon fish, wildlife, and other instream beneficial uses.

5.1 Urgency of the Proposed Change

Under Chapter 6.6, an urgent need to make a proposed change exists when the SWRCB concludes that the proposed temporary change is necessary to further the constitutional policy

that the water resources of the State be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented. An urgent need does not exist, however, if the petitioner has failed to exercise due diligence either in petitioning for a change pursuant to other provisions of Division 2 of the Water Code or in pursuing the petition for change.

The Company has determined that they have a real potential to run short of available domestic water supplies. PID has an available supply of domestic water that can be readily supplied to the Company to alleviate the shortfall. Therefore, the permittee has an urgent need for the proposed temporary change to allow them to supply water to the water-short Company.

5.2 No injury to Any Other Lawful User of Water

No water right holder has objected to the proposed temporary change. Additionally, to insure that no unreasonable impacts will affect local groundwater pumpers, PID will be asked to monitor the well levels and stop pumping or compensate reasonable claims if impacts are found to occur. Therefore, based upon the information before me, I find that the proposed change will not cause injury to any lawful user of water. Impacts on instream beneficial uses, which may also be considered legal users of water to the extent that those uses are protected by the public trust or other legal doctrines, are discussed in section 5.3.

5.3 No Unreasonable Effect Upon Fish, Wildlife, or Other Instream Beneficial Uses

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040. The water is collected and stored in Paradise and Magalia Reservoirs. However, the transfer will have no effect of the operation of the reservoirs, the amount of water taken from these reservoirs, or the fish and wildlife habitat of the reservoirs during the transfer. The additional 120 acre-feet of water to be transferred to the Company, will be offset within PID's service area by pumping an existing groundwater well. Thus, the surface water levels in the reservoirs will remain at levels that would have existed had the transfer not occurred. Additionally, a 0.5 cubic foot per second continuous downstream release, required to be made from Magalia Reservoir under Permit 16040, will continue to be released to maintain the downstream fishery in Little Butte Creek.

Therefore, with respect to potential impacts on instream beneficial uses other than fish, I find that the change will not have an unreasonable effect on aquatic vegetation or wildlife dependent on that vegetation.

5.4 The Proposed Change is in the Public Interest

The service area of the Company is anticipated to have limited domestic water supplies available. PID has sufficient water and resources available to assist the Company during this period of shortage. Since the water to be provided will ultimately come from a well, no injury to legal users of water or fish and wildlife habitat appears evident. Additionally, the users within the Company's service are will not see the potential impacts from a water shortage situation. This would appear to be the most reasonable use of the water supply. Therefore, I find that the change is in the public interest.

6.0 ENVIRONMENTAL COMPLIANCE

PID is the lead agency under the California Environmental Quality Act (CEQA). PID held a public hearing on September 15, 1999, and thereafter certified the Negative Declaration as complying with the requirements of CEQA on September 17, 1999. SWRCB staff have reviewed the Negative Declaration and issued a Notice of Determination as a responsible agency under CEQA. .

7.0 CONCLUSIONS

1. In the fall of 1999, the Company had an urgent need to insure adequate domestic water supplies to its service area. An Order approving the temporary change in PID's place of use was approved. The Company still finds itself in urgent need of adequate domestic supplies. PID has sufficient supplies available to provide the needed water.
2. The proposed temporary change may be made without injury to any other lawful user of water.
3. The proposed temporary change may be made without unreasonable effect upon fish, wildlife, and other instream beneficial uses of water.
4. The proposed temporary change is in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED THAT:

As allowed by Water Code Section 1441, PID's petition for renewal of the October 18,1999 temporary urgency change Order is approved, subject to the following terms and conditions.

1. The place of use under Permits 271 and 16040 shall be temporarily modified and expanded to include the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

2. All current terms and conditions of Permits 271 and 16040 (Applications 476 and 22061) shall remain in effect, except as temporarily modified by the terms and conditions of this Order and any further related Order that may be issued during the effective period of the temporary changes.

3. The temporary change in the place of use will be effective for a period of 180 days commencing on the date of this order and may be renewed for additional periods of time, not to exceed 180 day from the date of renewal.

4. PID shall monitor the groundwater levels in the water supply well activated to accommodate this transfer. In addition, PID shall monitor the groundwater of adjacent wells. If the Groundwater levels in the adjacent wells fall to levels below normal operating levels for normal years, PID shall either cease pumping or compensate affected owners for the additional pumping costs due to the lower groundwater levels.

5. Not later than February 1, 2001, PID shall provide to the Chief of the Division of Water Rights and to any parties requesting a copy, a summary of the amount of water actually served to the Company during the period of the temporary change.

6. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this temporary change Order, are subject to the continuing authority of the SWRCB in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

7. This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

8. I reserve jurisdiction to supervise the transfer, exchange, and use of water under this Order and to coordinate or modify terms and conditions for the protection of vested rights; fish, and wildlife, instream beneficial uses; and the public interest as future conditions may warrant.

Gerald G. Johns
For Harry M. Schueller, Chief
Division of Water Rights

Dated: 6/30/2000

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

In the Matter of Water Right Permits of the PARADISE IRRIGATION DISTRICT Petitioners

ORDER APPROVING

TEMPORARY URGENCY CHANGE IN PLACE OF USE

PERMITS 271 AND 16040 (APPLICATIONS 476, AND 22061)

1.0 INTRODUCTION

On September 20, 1999, the Paradise Irrigation District (PID) filed a petition requesting approval of a Temporary Urgency Change with the State Water Resources Control Board (SWRCB), pursuant to Water Code section 1435 et seq. The petition requests a temporary expansion of PID's place of use to allow PID to provide domestic water to portions of the adjacent water district.

I am delegated authority to approve this temporary urgency change, pursuant to Water Code section 1435(d) and SWRCB Resolution No. 99-31, section 3.2.22.

2.0 SUBSTANCE OF THE PETITION

PID is requesting that the SWRCB, under Water Code section 1435 et seq., temporarily approve an expansion of PID's place of use under Permits 271 and 16040. The expansion will allow PID to provide domestic water service to portions of Del Oro Water Company's (Company) Paradise Pines service area and Lime Saddle service area.

BACKGROUND

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040 that provides municipal, domestic and irrigation water to the PID service area. In addition, PID has a standby well centrally located within the district.

The Company has approached PID with a request to purchase and transfer 125 acre-feet of water to cover an anticipated end of the year shortfall in their available domestic water supplies. This

water is required to provide domestic water supply to customers within the lower portion of the Paradise Pines and upper portion of the Lime Saddle service areas.

PID is agreeable to a one-time transfer of 125 acre-feet of treated water to the Company. PID considered providing the Company with well water, but due to the configuration of PID's distribution system, well water cannot be served directly to the Company. Therefore, PID will provide 125 acre-feet of treated surface water from Paradise and Magalia Reservoirs, through two existing interties to the Company's identified service areas while at the same time pumping 125 acre-feet of groundwater from PID's existing standby well to PID customers in the vicinity of the well. By making use of existing groundwater and surface water supplies, no physical changes will be required to be made to any facilities and the existing water level in Paradise and Magalia Reservoirs will not be impacted by the transfer.

3.0 OBJECTIONS TO THE PETITION

A public notice of the proposed temporary urgency change was mailed to interested parties on September 30, 1999, and published in the Paradise Post. The SWRCB has received no objections to the request for the temporary urgency change, as proposed.

4.0 CRITERIA FOR APPROVING THE PROPOSED TEMPORARY CHANGE

Chapter 6.6 of Part 2, Division 2, of the Water Code, commencing at section 1435, provides that any permittee or licensee who has an urgent need to change a point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. The SWRCB's regulation, at California Code of Regulations, Title 23, section 791(e), provides that the SWRCB shall follow as nearly as possible the procedures for changes in point of diversion, place of use, or purpose of use when processing petitions for other types of changes in water right permits and licenses. Accordingly, the procedures under section 1435 are applicable to changes to water right permits and licenses that the SWRCB approves pursuant to its duty of continuing supervision over the diversion and use of water.

The SWRCB must make the findings specified in section 1435(b) when issuing a temporary change order pursuant to Chapter 6.6. The required findings are:

1. The permittee or licensee has an urgent need to make the proposed change.
2. The proposed change may be made without injury to any other lawful user of water.
3. The proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses.
4. The proposed change is in the public interest, including findings to support change order conditions imposed to ensure that the change is in the public interest, and may be made without injury to any other lawful user of the water, and without unreasonable effect upon fish, wildlife, and other instream beneficial uses.

5.1 Urgency of the Proposed Change

Under Chapter 6.6, an urgent need to make a proposed change exists when the SWRCB concludes that the proposed temporary change is necessary to further the constitutional policy that the water resources of the State be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented. An urgent need does not exist, however, if the petitioner has failed to exercise due diligence either in petitioning for a change pursuant to other provisions of Division 2 of the Water Code or in pursuing the petition for change.

The Company has determined that they have a real potential to run short of available domestic water supplies this fall. PID has an available supply of domestic water that can be readily supplied to the Company to alleviate the shortfall. Therefore, the permittee has an urgent need for the proposed temporary change

5.2 No injury to Any Other Lawful User of Water

No surface water right holder has objected to the proposed temporary change. Additionally, to insure that no unreasonable impacts will affect local groundwater pumpers, PID will be asked to monitor the well levels and stop pumping or compensate reasonable claims if impacts are found to occur. Therefore, based upon the information before me, I find that the proposed change will not cause injury to any lawful user of water. Impacts on instream beneficial uses, which may also be considered legal users of water to the extent that those uses are protected by the public trust or other legal doctrines, are discussed in section 5.3.

5.3 No Unreasonable Effect Upon Fish, Wildlife, or Other Instream Beneficial Uses

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040. The water is collected and stored in Paradise and Magalia Reservoirs. However, the transfer will have no effect of the operation of the reservoirs, the amount of water taken from these reservoirs, or the fish and wildlife habitat of the reservoirs during the transfer. The additional 125 acre-feet of water to be transferred to the Company, although coming from the reservoirs will be offset within the PID service area by pumping an existing groundwater well. Thus, the surface water levels in the reservoirs will remain at levels that would have existed had the transfer not occurred. Additionally, a 0.5 cubic foot per second continuous downstream release, required to be made from Magalia Reservoir under Permit 16040, will continue to maintain the downstream fishery in Little Butte Creek.

Therefore, with respect to potential impacts on instream beneficial uses other than fish, I find that the change will not have an unreasonable effect on aquatic vegetation or wildlife dependent on that vegetation.

5.4 The Proposed Change is in the Public Interest

The service area of the Company is anticipated to have limited domestic water supplies available. PID has sufficient water and resources available to assist the Company during this period of shortage. Since the water to be provide will ultimately come from a well, no injury to legal users of water or fish and wildlife habitat appears evident. Additionally, the users within the Company's service are will not see the potential impacts from a water shortage situation.

This would appear to be the most reasonable use of the water supply. Therefore I find that the change is in the public interest.

6.0 ENVIRONMENTAL COMPLIANCE

PID is the lead agency under the California Environmental Quality Act (CEQA). PID held a public hearing on September 15, 1999 and thereafter certified the Negative Declaration as complying with the requirements of CEQA on September 17, 1999. SWRCB staff have reviewed the Negative Declaration and are prepared to issue a Notice of Determination as a responsible agency under CEQA. .

7.0 CONCLUSIONS

1. Del Oro Water Company has an urgent need to insure adequate domestic water supplies to its service area. PID has sufficient supplies available to provide the needed water and has requested a proposed temporary change.
2. The proposed temporary change may be made without injury to any other lawful user of water.
3. The proposed temporary change may be made without unreasonable effect upon fish, wildlife, and other instream beneficial uses of water.
4. The proposed temporary change is in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED THAT:

PID's petition for temporary urgency change to expand the place of use under permits 271 and 16040 under Water Code section 1435 is approved, subject to the following terms and conditions.

1. The place of use under Permits 271 and 16040 shall be temporarily modified and expanded to include the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

2. All current terms and conditions of Permits 271 and 16040 (Applications 476 and 22061) shall remain in effect, except as temporarily modified by the terms and conditions of this Order and any further related Order that may be issued during the effective period of the temporary changes.

3. The temporary change in the place of use will be effective for a period of 180 days commencing on the date of this order and may be renewed for additional periods of time, not to exceed 180 day from the date of renewal.

4. PID shall monitor the Groundwater levels in the water supply well activated to accommodate this transfer. In addition, PID shall monitor the groundwater of adjacent wells. If the Groundwater levels in the adjacent wells fall to levels below normal operating levels for normal years, PID shall either cease pumping or compensate affected owners for the additional pumping costs due to the lower groundwater levels.

5. Not later than May 1, 2000, PID shall provide to the Chief of the Division of Water Rights and to any parties requesting a copy, a summary of the amount of water actually served to the Company during the temporary change and information on the groundwater levels during the transfer.

6. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this temporary change Order, are subject to the continuing authority of the SWRCB in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

7. This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain an incidental take permit prior to construction or operation. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

8. I reserve jurisdiction to supervise the transfer, exchange, and use of water under this Order and to coordinate or modify terms and conditions for the protection of vested rights; fish, and wildlife, instream beneficial uses; and the public interest as future conditions may warrant.

Dated: OCT 1 8 1999

Harry M. Schueller, Chief
Division of Water Rights
State Water Resources Control Board

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

APPLICATION 476 PERMIT 271 LICENSE

ORDER APPROVING A NEW DEVELOPMENT SCHEDULE, AND AMENDING THE PERMIT

WHEREAS:

1. A petition for extension of time within which to develop the project and apply the water to the proposed use has been filed with the State Water Resources Control Board.

2. The permittee has proceeded with diligence and good cause has been shown for extension of time.

NOW, THEREFORE, IT IS ORDERED THAT:

1. Paragraph 7 of the amended permit is amended to read as follows:

   COMPLETE APPLICATION OF THE WATER TO THE PROPOSED USE SHALL BE MADE ON OR BEFORE December 1, 1996

2. Paragraph 10 of this amended permit is deleted. A new paragraph 10 is added as follows:

   Pursuant to California Water Code Sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

   The continuing authority of the Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest and is necessary to preserve or restore the uses protected by the public trust.

3. Paragraph 16 is added to this amended permit as follows:

Permitte shall consult with the Division of Water Rights and, within one year from the date of this order shall submit to the State Water Resources Control Board its Urban Water Management Plan as prepared and adopted in conformance with Section 10610, et seq. of the California Water Code, supplemented by an additional information that may be required by the Board.

All cost-effective measures identified in the Urban Water Management Plan and as supplemented, shall be implemented in accordance with the schedule for implementation found therein.

0000029

Dated: OCTOBER 3 1986

Raymond Walsh

Raymond Walsh, Chief
Division of Water Rights

STATE OF CALIFORNIA
THE RESOURCES AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

APPLICATION 476 PERMIT 271 LICENSE

ORDER APPROVING A NEW DEVELOPMENT SCHEDULE, REVISING PERMIT TERMS AND DIRECTING ISSUANCE OF AN AMENDED PERMIT CONTAINING APPLICABLE TERMS AND CONDITIONS OF ORIGINAL PERMIT AND SUBSEQUENT ORDERS, IN THE CURRENTLY APPROVED FORM

WHEREAS:

1. A petition for extension of time within which to develop the project and apply the water to the proposed use has been filed with the State Water Resources Control Board.

2. It appears that the permittee has proceeded with diligence and that good cause has been shown for an extension of time.

3. The original permit was approved on May 3, 1917 and presently includes numerous terms and conditions decreed in subsequent Board orders.

NOW, THEREFORE, IT IS ORDERED THAT:

An amended permit (attached) containing all applicable terms and conditions in the form currently used is approved.

Dated: JANUARY 18 1980

Michael A. Campos, Chief
Division of Water Rights

Attachment

WRCB
133 (12-67)

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS
2125 19TH STREET
SACRAMENTO, CALIFORNIA 95818

ORDER ALLOWING CHANGE IN DISTRIBUTION OF STORAGE, POINT OF DIVERSION AND PLACE OF USE

Application 476 — Permit 271
Application 22061 — Permit 16040

WHEREAS:

1. Petitions for change in distribution of storage under Permit 271; and change in point of diversion, and recreational place of use under Permit 16040, have been filed with the State Water Resources Control Board and said Board has determined that good cause for such changes has been shown.

2. The Board has determined that these changes in distribution of storage and change in point of diversion will not operate to the injury of any other user of water involved.

3. Order WR 75-14 limits the appropriation to be made under these permits in the event of a change in point of diversion to the capacities of Magalia and Paradise Reservoirs unless permittee demonstrates the need for such additional storage.

NOW, THEREFORE, IT IS ORDERED THAT:

1. Permission is hereby granted under Permit 271 to change the distribution of storage as follows:

   2,800 ACRE-FEET TO BE STORED AT MAGALIA DAM RESERVOIR
   6,700 ACRE-FEET TO BE STORED AT PARADISE DAM RESERVOIR

2. The water appropriated under Permit 16040 together with that appropriated under Permit 271 and any license issued pursuant thereto shall not exceed the combined gross capacities of Magalia and Paradise Reservoirs.

3. Permission is hereby granted under Permit 16040 to change the point of diversion as follows:

   PARADISE DAM (MOSQUITO JUNCTION DAM) S14°36'06" E, 1,939.87 FEET FROM NW CORNER OF SECTION 18, T23N, R4E, MDB&M, BEING WITHIN SW¼ OF NW¼ OF SAID SECTION 18.

4. That the place of use under Permit 16040 be changed to a place of use described as follows:

   MUNICIPAL AND DOMESTIC USES WITHIN PARADISE IRRIGATION DISTRICT INCLUDING ALL OR PORTIONS OF SECTIONS 6, 7, 18, 19 AND 30,

T22N, R4E, MDB&M, AND SECTIONS 1, 2, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27 AND 28, T22N, R3E, MDB&M; AND INCIDENTAL RECREATIONAL USE WITHIN SECTIONS 7 AND 18, T23N, R4E, MDB&M, AND SECTIONS 12 AND 13, T23N, R3E, MDB&M.

5. That Permit 271 and Condition 11 of Permit 16040, as amended by State Water Resources Control Board Order WR 73-42, be amended to read as follows:

PURSUANT TO CALIFORNIA WATER CODE SECTION 100, ALL RIGHTS AND PRIVILEGES UNDER THIS PERMIT AND UNDER ANY LICENSE ISSUED PURSUANT THERETO, INCLUDING METHOD OF DIVERSION, METHOD OF USE, AND QUANTITY OF WATER DIVERTED, ARE SUBJECT TO THE CONTINUING AUTHORITY OF THE STATE WATER RESOURCES CONTROL BOARD IN ACCORDANCE WITH LAW AND IN THE INTEREST OF THE PUBLIC WELFARE TO PREVENT WASTE, UNREASONABLE USE, UNREASONABLE METHOD OF USE, OR UNREASONABLE METHOD OF DIVERSION OF SAID WATER.

THIS CONTINUING AUTHORITY OF THE BOARD MAY BE EXERCISED BY IMPOSING SPECIFIC REQUIREMENTS OVER AND ABOVE THOSE CONTAINED IN THIS PERMIT WITH A VIEW TO MINIMIZING WASTE OF WATER AND TO MEETING THE REASONABLE WATER REQUIREMENTS OF PERMITTEE WITHOUT UNREASONABLE DRAFT ON THE SOURCE. PERMITTEE MAY BE REQUIRED TO IMPLEMENT SUCH PROGRAMS AS (1) REUSING OR RECLAIMING THE WATER ALLOCATED; (2) RESTRICTING DIVERSIONS SO AS TO ELIMINATE AGRICULTURAL TAILWATER OR TO REDUCE RETURN FLOW; (3) SUPPRESSING EVAPORATION LOSSES FROM WATER SURFACES; (4) CONTROLLING PHREATOPHYTIC GROWTH; AND (5) INSTALLING, MAINTAINING, AND OPERATING EFFICIENT WATER MEASURING DEVICES TO ASSURE COMPLIANCE WITH THE QUANTITY LIMITATIONS OF THIS PERMIT AND TO DETERMINE ACCURATELY WATER USE AS AGAINST REASONABLE WATER REQUIREMENTS FOR THE AUTHORIZED PROJECT. NO ACTION WILL BE TAKEN PURSUANT TO THIS PARAGRAPH UNLESS THE BOARD DETERMINES, AFTER NOTICE TO AFFECTED PARTIES AND OPPORTUNITY FOR HEARING, THAT SUCH SPECIFIC REQUIREMENTS ARE PHYSICALLY AND FINANCIALLY FEASIBLE AND ARE APPROPRIATE TO THE PARTICULAR SITUATION.

6. That the following condition be added to the Permit:

"PERMITTEE SHALL INCLUDE IN THE ANNUAL PROGRESS REPORT, REQUIRED IN PERMIT 271 BY PARAGRAPH 5 OF BOARD ORDER WR 73-42, AND IN PERMIT 16040 BY PERMIT TERM 10, INFORMATION FOR THE REPORTING PERIOD CONCERNING WATER CONSERVATION MEASURES UNDERTAKEN BY THE DISTRICT. THE INFORMATION SUBMITTED SHALL INCLUDE THE NUMBER OF CONNECTIONS SERVED, THE AMOUNT OF WATER SOLD, THE AMOUNT SERVED PER CONNECTION AND THE SCHEDULE OF WATER RATES IN FORCE FOR WATER DELIVERIES IN A MANNER SIMILAR TO THE REPORT MADE TO THE BOARD BY THE DISTRICT ON FEBRUARY 26, 1975. THIS REQUIREMENT SHALL REMAIN IN FORCE UNTIL FURTHER ORDER OF THE DIVISION OF WATER RIGHTS."

Dated: MAR 2 5 1976

R. L. Rosenberger

R. L. Rosenberger, Chief
Division of Water Rights

STATE OF CALIFORNIA
THE RESOURCES AGENCY
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

(AS AMENDED BY ORDER DATED: _____)

PERMIT 271

Application 476 of PARADISE IRRIGATION DISTRICT

P. O. BOX 128, PARADISE, CALIFORNIA 95969

filed on SEPTEMBER 21, 1916, has been approved by the State Water Resources Control Board SUBJECT TO VESTED RIGHTS and to the limitations and conditions of this Permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source: LITTLE BUTTE CREEK

Tributary to: BUTTE CREEK THENCE SACRAMENTO RIVER

2. Location of point of diversion:	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridan
(1) N 65°35' W, 1,377 FEET FROM SE CORNER OF SECTION 25	SE1/4 OF SE1/4	25	23N	3E	MD
(2) S 14°36'06" E, 1939.87 FEET FROM NW CORNER OF SECTION 18	SW1/4 OF NW1/4	18	23N	4E	MD

County of BUTTE

3. Purpose of use:	4. Place of use:	Section	Township	Range	Base and Meridan	Acres
RECREATIONAL	MAGALIA RESERVOIR	25	23N	3E	MD	
	PARADISE RESERVOIR (MOSQUITO JUNCTION RESERVOIR)	11,12 13	23N	3E	MD	
		7,8	23N	4E	MD	
MUNICIPAL						
INDUSTRIAL	WITHIN PARADISE IRRIGATION DISTRICT BOUNDARIES INCLUDING					
IRRIGATION	ALL OR PORTIONS OF SECTIONS 1, 2, 10, 11, 12, 13, 14, 15,		22N	3E	MD	
	16, 21, 22, 23, 24, 25, 26, 27 AND 28					
	SECTIONS 6, 7, 18, 19 AND 30		22N	4E	MD	
					TOTAL	11,100

The place of use is shown on map filed with the State Water Resources Control Board.

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed A TOTAL OF 9,500 ACRE-FEET PER ANNUM TO BE COLLECTED FROM JANUARY 1 TO DECEMBER 31 AS FOLLOWS: (1) 2,800 ACRE-FEET PER ANNUM IN MAGALIA RESERVOIR, (2) 6,700 ACRE-FEET PER ANNUM IN PARADISE RESERVOIR (MOSQUITO JUNCTION RESERVOIR).

(0000005)

6. The amount authorized for appropriation may be reduced in the license if investigation warrants. (0000006)

~~7. Actual construction work shall begin on or before two years from date of permit and shall thereafter be prosecuted with reasonable diligence and if not so commenced and prosecuted this permit may be revoked.~~

~~8. Said construction work shall be completed on or before~~

7. ~~9.~~ Complete application of the water to the proposed use shall be made on or before DECEMBER 1, 1985. (0000009)

8. ~~10.~~ Progress reports shall be submitted promptly by permittee when requested by the State Water Resources Control Board until license is issued. (0000010)

9. ~~11.~~ Permittee shall allow representatives of the State Water Resources Control Board and other parties, as may be authorized from time to time by said Board, reasonable access to project works to determine compliance with the terms of this permit. (0000011)

10. ~~12.~~ Pursuant to California Water Code Sections 100 and 275, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to minimizing waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement such programs as (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation. (0000012)

11. ~~13.~~ The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Resources Control Board if, after notice to the permittee and an opportunity for hearing, the Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges. (0000013)

12. RIGHTS UNDER THIS PERMIT ARE, AND SHALL BE, SUBJECT TO EXISTING RIGHTS DETERMINED BY THE BUTTE CREEK ADJUDICATION, SUPERIOR COURT, BUTTE COUNTY, NO. 18917 INSOFAR AS SAID ADJUDICATED RIGHTS ARE MAINTAINED AND SUCH OTHER RIGHTS AS MAY PRESENTLY EXIST.

0000023

13. THE WATER APPROPRIATED UNDER PERMIT 16040 TOGETHER WITH THAT APPROPRIATED UNDER PERMIT 271 AND ANY LICENSE ISSUED PURSUANT THERETO SHALL NOT EXCEED THE COMBINED GROSS CAPACITIES OF MAGALIA AND PARADISE RESERVOIRS.

0000114

14. PERMITTEE SHALL INCLUDE IN THE ANNUAL PROGRESS REPORT, INFORMATION FOR THE REPORTING PERIOD CONCERNING WATER CONSERVATION MEASURES UNDERTAKEN BY THE DISTRICT. THE INFORMATION SUBMITTED SHALL INCLUDE THE NUMBER OF CONNECTIONS SERVED, THE AMOUNT OF WATER SOLD, THE AMOUNT SERVED PER CONNECTION AND THE SCHEDULE OF WATER RATES IN FORCE FOR WATER DELIVERIES IN A MANNER SIMILAR TO THE REPORT MADE TO THE BOARD BY THE DISTRICT ON FEBRUARY 26, 1975. THIS REQUIREMENT SHALL REMAIN IN FORCE UNTIL FURTHER ORDER OF THE DIVISION OF WATER RIGHTS.

0580300

15. UNTIL SUCH TIME AS A COMMUNITY WASTEWATER DISPOSAL PROJECT IS IN OPERATION, SERVICE SHALL NOT BE EXTENDED TO NEW CONNECTIONS FOR DELIVERY OF WATER UNDER THIS PERMIT TO COMMERCIAL, INDUSTRIAL, OR MOBILE HOME PARK DEVELOPMENTS, OR TO RESIDENTIAL SERVICES INVOLVING MORE THAT THREE LIVING UNITS ON A SINGLE LOT UNLESS THE DISPOSAL OF WASTEWATER CONFORMS TO POLICY GUIDELINES OF THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD. ADEQUACY OF SAID FACILITIES SHALL BE CERTIFIED TO THE STATE WATER RESOURCES CONTROL BOARD BY THE EXECUTIVE OFFICER OF THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD OR HIS DESIGNATED REPRESENTATIVE. CONTINUED SERVICE OF WATER TO SUCH CONNECTIONS SHALL BE CONTINGENT UPON CONTINUED COMPLIANCE WITH SAID POLICY GUIDELINES AND WITH ANY WASTE DISCHARGE REQUIREMENTS OF THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD.

029 0101

This permit is issued and permittee takes it **subject to the following provisions of the Water Code:**

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Dated: JANUARY 18 1980

STATE WATER RESOURCES CONTROL BOARD

M A Campos

CHIEF, DIVISION OF WATER RIGHTS

67809-983 2-79 4M ◊ OSP

P 16040

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

In the Matter of Water Right Permits of the
PARADISE IRRIGATION DISTRICT

ORDER APPROVING OF TEMPORARY URGENCY CHANGE IN PLACE OF USE

PERMITS 271 AND 16040 (APPLICATIONS 476, AND 22061)

1.0 INTRODUCTION

On June 9, 2000, the Paradise Irrigation District (PID) filed a petition requesting renewal of the Temporary Urgency Change Order approved October 18, 1999, by the State Water Resources Control Board (SWRCB), pursuant to Water Code section 1435 et seq. The extension would allow PID to maintain the expanded place of use for an additional 180 days to allow continued service to a portion of the Del Oro Water Company service area under PID Permits 476 and 22061.

I am delegated authority to approve this temporary urgency change, pursuant to Water Code section 1435(d) and SWRCB Resolution No. 99-31, section 3.2.22.

2.0 SUBSTANCE OF THE PETITION

PID is requesting that the SWRCB, under Water Code section 1435 et seq., approve a renewal of the October 18, 1999, SWRCB Order that temporarily expanded PID's place of use under Permits 271 and 16040. The expansion will allow PID to continue to provide domestic water service to portions of Del Oro Water Company's (Company) Paradise Pines service area and Lime Saddle service area.

BACKGROUND

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040 that provides municipal, domestic and irrigation water to the PID service area. In addition, PID has a standby well centrally located within the district. Last fall, the Company approached PID with a request to purchase 125 acre-feet of water to offset the anticipated domestic water supply shortfall. The Order approving the PID expansion of place of use was approved on October 18, 1999. At this time, the Company still finds that there will be a shortfall this summer and fall season and has asked PID if they could receive an additional 120 acre-feet of water to serve the lower portion of the Paradise Pines and upper portion of the Lime Saddle service areas.

The water will be provided through the existing intertie connections that allow transfer of water between the districts in the event of emergencies. No physical changes will be made to any facilities or sites and the existing reservoir levels will be maintained. Due to the configuration of PID's distribution system, well water cannot be served directly to the Company. Therefore, PID will provide the 120 acre-feet of treated surface water through the intertie to the Company, while at the same time pumping 120 acre-feet from groundwater from PID's existing standby well to PID customers in the vicinity of the well.

PID has requested that the State Water Resources Control Board renew the temporary expansion of the place of use under Permits 476 and 22061. The expanded place of use includes the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

3.0 OBJECTIONS TO THE PETITION

A public notice of the proposed temporary urgency change was mailed to interested parties on June 27, 2000, and published in the Paradise Post. The SWRCB has received no objections to the request to the temporary urgency change, as proposed.

4.0 CRITERIA FOR APPROVING THE PROPOSED TEMPORARY CHANGE

Chapter 6.6 of Part 2, Division 2, of the Water Code, commencing at section 1435, provides that any permittee or licensee who has an urgent need to change a point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. Additionally in accordance with section 1441, the SWRCB may renew a temporary change order.

The SWRCB must make the findings specified in section 1435(b) when issuing a temporary change order pursuant to Chapter 6.6. The required findings are:

1. The permittee or licensee has an urgent need to make the proposed change.
2. The proposed change may be made without injury to any other lawful user of water.
3. The proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses.
4. The proposed change is in the public interest, including findings to support change order conditions imposed to ensure that the change is in the public interest, and may be made without injury to any other lawful user of the water, and without unreasonable effect upon fish, wildlife, and other instream beneficial uses.

5.1 Urgency of the Proposed Change

Under Chapter 6.6, an urgent need to make a proposed change exists when the SWRCB concludes that the proposed temporary change is necessary to further the constitutional policy

that the water resources of the State be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented. An urgent need does not exist, however, if the petitioner has failed to exercise due diligence either in petitioning for a change pursuant to other provisions of Division 2 of the Water Code or in pursuing the petition for change.

The Company has determined that they have a real potential to run short of available domestic water supplies. PID has an available supply of domestic water that can be readily supplied to the Company to alleviate the shortfall. Therefore, the permittee has an urgent need for the proposed temporary change to allow them to supply water to the water-short Company.

5.2 No injury to Any Other Lawful User of Water

No water right holder has objected to the proposed temporary change. Additionally, to insure that no unreasonable impacts will affect local groundwater pumpers, PID will be asked to monitor the well levels and stop pumping or compensate reasonable claims if impacts are found to occur. Therefore, based upon the information before me, I find that the proposed change will not cause injury to any lawful user of water. Impacts on instream beneficial uses, which may also be considered legal users of water to the extent that those uses are protected by the public trust or other legal doctrines, are discussed in section 5.3.

5.3 No Unreasonable Effect Upon Fish, Wildlife, or Other Instream Beneficial Uses

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040. The water is collected and stored in Paradise and Magalia Reservoirs. However, the transfer will have no effect of the operation of the reservoirs, the amount of water taken from these reservoirs, or the fish and wildlife habitat of the reservoirs during the transfer. The additional 120 acre-feet of water to be transferred to the Company, will be offset within PID's service area by pumping an existing groundwater well. Thus, the surface water levels in the reservoirs will remain at levels that would have existed had the transfer not occurred. Additionally, a 0.5 cubic foot per second continuous downstream release, required to be made from Magalia Reservoir under Permit 16040, will continue to be released to maintain the downstream fishery in Little Butte Creek.

Therefore, with respect to potential impacts on instream beneficial uses other than fish, I find that the change will not have an unreasonable effect on aquatic vegetation or wildlife dependent on that vegetation.

5.4 The Proposed Change is in the Public Interest

The service area of the Company is anticipated to have limited domestic water supplies available. PID has sufficient water and resources available to assist the Company during this period of shortage. Since the water to be provided will ultimately come from a well, no injury to legal users of water or fish and wildlife habitat appears evident. Additionally, the users within the Company's service are will not see the potential impacts from a water shortage situation. This would appear to be the most reasonable use of the water supply. Therefore, I find that the change is in the public interest.

6.0 ENVIRONMENTAL COMPLIANCE

PID is the lead agency under the California Environmental Quality Act (CEQA). PID held a public hearing on September 15, 1999, and thereafter certified the Negative Declaration as complying with the requirements of CEQA on September 17, 1999. SWRCB staff have reviewed the Negative Declaration and issued a Notice of Determination as a responsible agency under CEQA. .

7.0 CONCLUSIONS

1. In the fall of 1999, the Company had an urgent need to insure adequate domestic water supplies to its service area. An Order approving the temporary change in PID's place of use was approved. The Company still finds itself in urgent need of adequate domestic supplies. PID has sufficient supplies available to provide the needed water.
2. The proposed temporary change may be made without injury to any other lawful user of water.
3. The proposed temporary change may be made without unreasonable effect upon fish, wildlife, and other instream beneficial uses of water.
4. The proposed temporary change is in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED THAT:

As allowed by Water Code Section 1441, PID's petition for renewal of the October 18,1999 temporary urgency change Order is approved, subject to the following terms and conditions.

1. The place of use under Permits 271 and 16040 shall be temporarily modified and expanded to include the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

2. All current terms and conditions of Permits 271 and 16040 (Applications 476 and 22061) shall remain in effect, except as temporarily modified by the terms and conditions of this Order and any further related Order that may be issued during the effective period of the temporary changes.

3. The temporary change in the place of use will be effective for a period of 180 days commencing on the date of this order and may be renewed for additional periods of time, not to exceed 180 day from the date of renewal.

4. PID shall monitor the groundwater levels in the water supply well activated to accommodate this transfer. In addition, PID shall monitor the groundwater of adjacent wells. If the Groundwater levels in the adjacent wells fall to levels below normal operating levels for normal years, PID shall either cease pumping or compensate affected owners for the additional pumping costs due to the lower groundwater levels.

5. Not later than February 1, 2001, PID shall provide to the Chief of the Division of Water Rights and to any parties requesting a copy, a summary of the amount of water actually served to the Company during the period of the temporary change.

6. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this temporary change Order, are subject to the continuing authority of the SWRCB in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

7. This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

8. I reserve jurisdiction to supervise the transfer, exchange, and use of water under this Order and to coordinate or modify terms and conditions for the protection of vested rights; fish, and wildlife, instream beneficial uses; and the public interest as future conditions may warrant.

Gerald G. Johns
For Harry M. Schueller, Chief
Division of Water Rights

Dated: 6/30/2000

P 16040

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

In the Matter of Water Right Permits of the
PARADISE IRRIGATION DISTRICT
Petitioners

ORDER APPROVING

TEMPORARY URGENCY CHANGE IN PLACE OF USE

PERMITS 271 AND 16040 (APPLICATIONS 476, AND 22061)

1.0 INTRODUCTION

On September 20, 1999, the Paradise Irrigation District (PID) filed a petition requesting approval of a Temporary Urgency Change with the State Water Resources Control Board (SWRCB), pursuant to Water Code section 1435 et seq. The petition requests a temporary expansion of PID's place of use to allow PID to provide domestic water to portions of the adjacent water district.

I am delegated authority to approve this temporary urgency change, pursuant to Water Code section 1435(d) and SWRCB Resolution No. 99-31, section 3.2.22.

2.0 SUBSTANCE OF THE PETITION

PID is requesting that the SWRCB, under Water Code section 1435 et seq., temporarily approve an expansion of PID's place of use under Permits 271 and 16040. The expansion will allow PID to provide domestic water service to portions of Del Oro Water Company's (Company) Paradise Pines service area and Lime Saddle service area.

BACKGROUND

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040 that provides municipal, domestic and irrigation water to the PID service area. In addition, PID has a standby well centrally located within the district.

The Company has approached PID with a request to purchase and transfer 125 acre-feet of water to cover an anticipated end of the year shortfall in their available domestic water supplies. This

water is required to provide domestic water supply to customers within the lower portion of the Paradise Pines and upper portion of the Lime Saddle service areas.

PID is agreeable to a one-time transfer of 125 acre-feet of treated water to the Company. PID considered providing the Company with well water, but due to the configuration of PID's distribution system, well water cannot be served directly to the Company. Therefore, PID will provide 125 acre-feet of treated surface water from Paradise and Magalia Reservoirs, through two existing interties to the Company's identified service areas while at the same time pumping 125 acre-feet of groundwater from PID's existing standby well to PID customers in the vicinity of the well. By making use of existing groundwater and surface water supplies, no physical changes will be required to be made to any facilities and the existing water level in Paradise and Magalia Reservoirs will not be impacted by the transfer.

3.0 OBJECTIONS TO THE PETITION

A public notice of the proposed temporary urgency change was mailed to interested parties on September 30, 1999, and published in the Paradise Post. The SWRCB has received no objections to the request for the temporary urgency change, as proposed.

4.0 CRITERIA FOR APPROVING THE PROPOSED TEMPORARY CHANGE

Chapter 6.6 of Part 2, Division 2, of the Water Code, commencing at section 1435, provides that any permittee or licensee who has an urgent need to change a point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. The SWRCB's regulation, at California Code of Regulations, Title 23, section 791(e), provides that the SWRCB shall follow as nearly as possible the procedures for changes in point of diversion, place of use, or purpose of use when processing petitions for other types of changes in water right permits and licenses. Accordingly, the procedures under section 1435 are applicable to changes to water right permits and licenses that the SWRCB approves pursuant to its duty of continuing supervision over the diversion and use of water.

The SWRCB must make the findings specified in section 1435(b) when issuing a temporary change order pursuant to Chapter 6.6. The required findings are:

1. The permittee or licensee has an urgent need to make the proposed change.
2. The proposed change may be made without injury to any other lawful user of water.
3. The proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses.
4. The proposed change is in the public interest, including findings to support change order conditions imposed to ensure that the change is in the public interest, and may be made without injury to any other lawful user of the water, and without unreasonable effect upon fish, wildlife, and other instream beneficial uses.

5.1 Urgency of the Proposed Change

Under Chapter 6.6, an urgent need to make a proposed change exists when the SWRCB concludes that the proposed temporary change is necessary to further the constitutional policy that the water resources of the State be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented. An urgent need does not exist, however, if the petitioner has failed to exercise due diligence either in petitioning for a change pursuant to other provisions of Division 2 of the Water Code or in pursuing the petition for change.

The Company has determined that they have a real potential to run short of available domestic water supplies this fall. PID has an available supply of domestic water that can be readily supplied to the Company to alleviate the shortfall. Therefore, the permittee has an urgent need for the proposed temporary change

5.2 No injury to Any Other Lawful User of Water

No surface water right holder has objected to the proposed temporary change. Additionally, to insure that no unreasonable impacts will affect local groundwater pumpers, PID will be asked to monitor the well levels and stop pumping or compensate reasonable claims if impacts are found to occur. Therefore, based upon the information before me, I find that the proposed change will not cause injury to any lawful user of water. Impacts on instream beneficial uses, which may also be considered legal users of water to the extent that those uses are protected by the public trust or other legal doctrines, are discussed in section 5.3.

5.3 No Unreasonable Effect Upon Fish, Wildlife, or Other Instream Beneficial Uses

PID holds storage water rights to approximately 18,300 acre-feet of water under Permits 271 and 16040. The water is collected and stored in Paradise and Magalia Reservoirs. However, the transfer will have no effect of the operation of the reservoirs, the amount of water taken from these reservoirs, or the fish and wildlife habitat of the reservoirs during the transfer. The additional 125 acre-feet of water to be transferred to the Company, although coming from the reservoirs will be offset within the PID service area by pumping an existing groundwater well. Thus, the surface water levels in the reservoirs will remain at levels that would have existed had the transfer not occurred. Additionally, a 0.5 cubic foot per second continuous downstream release, required to be made from Magalia Reservoir under Permit 16040, will continue to maintain the downstream fishery in Little Butte Creek.

Therefore, with respect to potential impacts on instream beneficial uses other than fish, I find that the change will not have an unreasonable effect on aquatic vegetation or wildlife dependent on that vegetation.

5.4 The Proposed Change is in the Public Interest

The service area of the Company is anticipated to have limited domestic water supplies available. PID has sufficient water and resources available to assist the Company during this period of shortage. Since the water to be provide will ultimately come from a well, no injury to legal users of water or fish and wildlife habitat appears evident. Additionally, the users within the Company's service are will not see the potential impacts from a water shortage situation.

This would appear to be the most reasonable use of the water supply. Therefore I find that the change is in the public interest.

6.0 ENVIRONMENTAL COMPLIANCE

PID is the lead agency under the California Environmental Quality Act (CEQA). PID held a public hearing on September 15, 1999 and thereafter certified the Negative Declaration as complying with the requirements of CEQA on September 17, 1999. SWRCB staff have reviewed the Negative Declaration and are prepared to issue a Notice of Determination as a responsible agency under CEQA. .

7.0 CONCLUSIONS

1. Del Oro Water Company has an urgent need to insure adequate domestic water supplies to its service area. PID has sufficient supplies available to provide the needed water and has requested a proposed temporary change.
2. The proposed temporary change may be made without injury to any other lawful user of water.
3. The proposed temporary change may be made without unreasonable effect upon fish, wildlife, and other instream beneficial uses of water.
4. The proposed temporary change is in the public interest.

ORDER

NOW, THEREFORE, IT IS ORDERED THAT:

PID's petition for temporary urgency change to expand the place of use under permits 271 and 16040 under Water Code section 1435 is approved, subject to the following terms and conditions.

1. The place of use under Permits 271 and 16040 shall be temporarily modified and expanded to include the Company's Paradise Pines service area south of Elmira Circle and the Company's Lime Saddle service area north of Lago Vista Way, as shown on the map dated September 20, 1999, on file with the SWRCB.

2. All current terms and conditions of Permits 271 and 16040 (Applications 476 and 22061) shall remain in effect, except as temporarily modified by the terms and conditions of this Order and any further related Order that may be issued during the effective period of the temporary changes.

3. The temporary change in the place of use will be effective for a period of 180 days commencing on the date of this order and may be renewed for additional periods of time, not to exceed 180 day from the date of renewal.

4. PID shall monitor the Groundwater levels in the water supply well activated to accommodate this transfer. In addition, PID shall monitor the groundwater of adjacent wells. If the Groundwater levels in the adjacent wells fall to levels below normal operating levels for normal years, PID shall either cease pumping or compensate affected owners for the additional pumping costs due to the lower groundwater levels.

5. Not later than May 1, 2000, PID shall provide to the Chief of the Division of Water Rights and to any parties requesting a copy, a summary of the amount of water actually served to the Company during the temporary change and information on the groundwater levels during the transfer.

6. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this temporary change Order, are subject to the continuing authority of the SWRCB in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

7. This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain an incidental take permit prior to construction or operation. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit.

8. I reserve jurisdiction to supervise the transfer, exchange, and use of water under this Order and to coordinate or modify terms and conditions for the protection of vested rights; fish, and wildlife, instream beneficial uses; and the public interest as future conditions may warrant.

Dated: OCT 18 1999

Harry M. Schueller, Chief
Division of Water Rights
State Water Resources Control Board

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

Application 22061 Permit 16040 License _____

ORDER APPROVING A NEW DEVELOPMENT SCHEDULE AND AMENDING THE PERMIT

WHEREAS:

1. Permit 16040 was issued to Paradise Irrigation District on June 17, 1970 pursuant to Application 22061.

2. A petition for an extension of time within which to develop the project and apply the water to the proposed use has been filed with the State Water Resources Control Board.

2. The permittee has proceeded with diligence and good cause has been shown for said extension of time.

NOW, THEREFORE, IT IS ORDERED THAT:

Condition 9 of the permit be amended to read:

CONSTRUCTION WORK SHALL BE COMPLETED ON OR BEFORE December 31, 2007 (0000008)

Dated: MARCH 14 1997

Roger Johnson

for Edward C. Anton, Chief
Division of Water Rights

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

Application 22061 Permit 16040 License _____

ORDER APPROVING A NEW DEVELOPMENT SCHEDULE AND AMENDING THE PERMIT

WHEREAS:

1. Permit 16040 was issued to Paradise Irrigation District on June 17, 1970 pursuant to Application 22061.

2. A petition for an extension of time within which to develop the project and apply the water to the proposed use has been filed with the State Water Resources Control Board.

2. The permittee has proceeded with diligence and good cause has been shown for said extension of time.

NOW, THEREFORE, IT IS ORDERED THAT:

Condition 9 of the permit be amended to read:

CONSTRUCTION WORK SHALL BE COMPLETED ON OR BEFORE December 31, 2007 (0000008)

Dated: MARCH 14 1997

Roger Johnson

for Edward C. Anton, Chief
Division of Water Rights

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

APPLICATION 22061 PERMIT 16040 LICENSE

ORDER APPROVING A NEW DEVELOPMENT SCHEDULE, AND AMENDING THE PERMIT

WHEREAS:

1. A petition for extension of time within which to develop the project and apply the water to the proposed use has been filed with the State Water Resources Control Board.

2. The permittee has proceeded with diligence and good cause has been shown for extension of time.

NOW, THEREFORE, IT IS ORDERED THAT:

1. Paragraph 9 of the permit is amended to read as follows:

   COMPLETE APPLICATION OF THE
   WATER TO THE PROPOSED USE
   SHALL BE MADE ON OR BEFORE December 1, 1995

2. Paragraph 11 of this amended permit is deleted. A new Paragraph 11 is added as follows:

   Pursuant to California Water Code Sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

   The continuing authority of the Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest and is necessary to preserve or restore the uses protected by the public trust. (0000012)

3. Paragraph ~~16~~ 26 is added to this amended permit as follows: IAL

should be 21 ?

Permitte shall consult with the Division of Water Rights and, within one year from the date of this order shall submit to the State Water Resources Control Board its Urban Water Management Plan as prepared and adopted in conformance with Section 10610, et seq. of the California Water Code, supplemented by an additional information that may be required by the Board.

All cost-effective measures identified in the Urban Water Management Plan and as supplemented, shall be implemented in accordance with the schedule for implementation found therein. (000029A)

Dated: OCTOBER 3 1986

Raymond Walsh

Raymond Walsh, Chief
Division of Water Rights

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

ORDER

APPLICATION 22061 PERMIT 16040 LICENSE

ORDER APPROVING A CHANGE IN PERMIT TERMS

WHEREAS:

1. Decision 1594 was adopted by the State Water Resources Control Board on November 17, 1983.

2. Order WR 84-2 Amending Decision 1594 was adopted by the State Water Resources Control Board on February 1, 1984.

3. The Decision and the Order set forth changes to be made in permits containing Standard Water Right Permit Term 80.

NOW, THEREFORE, IT IS ORDERED:

1. Standard Water Right Permit Term 91 is added to the permit as follows:

   "No diversion is authorized by this permit when satisfaction of inbasin entitlements requires release of supplemental Project water by the Central Valley Project or the State Water Project.

   a. Inbasin entitlements are defined as rights to divert water from streams tributary to the Sacramento-San Joaquin Delta or the Delta for use within the respective basins of origin of the Legal Delta, unavoidable natural requirements for riparian habitat and conveyance losses, and flows required by the Board for maintenance of water quality and fish and wildlife. Export diversions and Project carriage water are specifically excluded from the definition of inbasin entitlements.

   b. Supplemental Project water is defined as water imported to the basin by the Projects, and water released from Project storage, which is in excess of export diversions, Project carriage water, and Project inbasin deliveries.

   "The Board shall notify the permittee of curtailment of diversion under this term after it finds that supplemental Project water has been released or will be released. The Board will advise the permittee of the probability of imminent curtailment of diversion as far in advance as practicable based on anticipated requirements for supplemental Project water provided by the Project operators."

Dated: JUNE 26 1984

(0000091)
Term 25

Raymond Walsh

Raymond Walsh, Chief
Division of Water Rights

WR 133 (2-83)

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS
2125 19TH STREET
SACRAMENTO, CALIFORNIA 95818

ORDER ALLOWING CHANGE IN DISTRIBUTION OF STORAGE, POINT OF DIVERSION AND PLACE OF USE

Application 476
Application 22061

Permit 271
Permit 16040

WHEREAS:

1. Petitions for change in distribution of storage under Permit 271; and change in point of diversion, and recreational place of use under Permit 16040, have been filed with the State Water Resources Control Board and said Board has determined that good cause for such changes has been shown.

2. The Board has determined that these changes in distribution of storage and change in point of diversion will not operate to the injury of any other user of water involved.

3. Order WR 75-14 limits the appropriation to be made under these permits in the event of a change in point of diversion to the capacities of Magalia and Paradise Reservoirs unless permittee demonstrates the need for such additional storage.

NOW, THEREFORE, IT IS ORDERED THAT:

1. Permission is hereby granted under Permit 271 to change the distribution of storage as follows:

   2,800 ACRE-FEET TO BE STORED AT MAGALIA DAM RESERVOIR
   6,700 ACRE-FEET TO BE STORED AT PARADISE DAM RESERVOIR

2. The water appropriated under Permit 16040 together with that appropriated under Permit 271 and any license issued pursuant thereto shall not exceed the combined gross capacities of Magalia and Paradise Reservoirs.

3. Permission is hereby granted under Permit 16040 to change the point of diversion as follows:

   PARADISE DAM (MOSQUITO JUNCTION DAM) S14°36'06" E, 1,939.87 FEET FROM NW CORNER OF SECTION 18, T23N, R4E, MDB&M, BEING WITHIN SW¼ OF NW¼ OF SAID SECTION 18.

4. That the place of use under Permit 16040 be changed to a place of use described as follows:

   MUNICIPAL AND DOMESTIC USES WITHIN PARADISE IRRIGATION DISTRICT INCLUDING ALL OR PORTIONS OF SECTIONS 6, 7, 18, 19 AND 30,

T22N, R4E, MDB&M, AND SECTIONS 1, 2, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27 AND 28, T22N, R3E, MDB&M; AND INCIDENTAL RECREATIONAL USE WITHIN SECTIONS 7 AND 18, T23N, R4E, MDB&M, AND SECTIONS 12 AND 13, T23N, R3E, MDB&M.

5. That Permit 271 and Condition 11 of Permit 16040, as amended by State Water Resources Control Board Order WR 73-42, be amended to read as follows:

PURSUANT TO CALIFORNIA WATER CODE SECTION 100, ALL RIGHTS AND PRIVILEGES UNDER THIS PERMIT AND UNDER ANY LICENSE ISSUED PURSUANT THERETO, INCLUDING METHOD OF DIVERSION, METHOD OF USE, AND QUANTITY OF WATER DIVERTED, ARE SUBJECT TO THE CONTINUING AUTHORITY OF THE STATE WATER RESOURCES CONTROL BOARD IN ACCORDANCE WITH LAW AND IN THE INTEREST OF THE PUBLIC WELFARE TO PREVENT WASTE, UNREASONABLE USE, UNREASONABLE METHOD OF USE, OR UNREASONABLE METHOD OF DIVERSION OF SAID WATER.

THIS CONTINUING AUTHORITY OF THE BOARD MAY BE EXERCISED BY IMPOSING SPECIFIC REQUIREMENTS OVER AND ABOVE THOSE CONTAINED IN THIS PERMIT WITH A VIEW TO MINIMIZING WASTE OF WATER AND TO MEETING THE REASONABLE WATER REQUIREMENTS OF PERMITTEE WITHOUT UNREASONABLE DRAFT ON THE SOURCE. PERMITTEE MAY BE REQUIRED TO IMPLEMENT SUCH PROGRAMS AS (1) REUSING OR RECLAIMING THE WATER ALLOCATED; (2) RESTRICTING DIVERSIONS SO AS TO ELIMINATE AGRICULTURAL TAILWATER OR TO REDUCE RETURN FLOW; (3) SUPPRESSING EVAPORATION LOSSES FROM WATER SURFACES; (4) CONTROLLING PHREATOPHYTIC GROWTH; AND (5) INSTALLING, MAINTAINING, AND OPERATING EFFICIENT WATER MEASURING DEVICES TO ASSURE COMPLIANCE WITH THE QUANTITY LIMITATIONS OF THIS PERMIT AND TO DETERMINE ACCURATELY WATER USE AS AGAINST REASONABLE WATER REQUIREMENTS FOR THE AUTHORIZED PROJECT. NO ACTION WILL BE TAKEN PURSUANT TO THIS PARAGRAPH UNLESS THE BOARD DETERMINES, AFTER NOTICE TO AFFECTED PARTIES AND OPPORTUNITY FOR HEARING, THAT SUCH SPECIFIC REQUIREMENTS ARE PHYSICALLY AND FINANCIALLY FEASIBLE AND ARE APPROPRIATE TO THE PARTICULAR SITUATION.

6. That the following condition be added to the Permit:

"PERMITTEE SHALL INCLUDE IN THE ANNUAL PROGRESS REPORT, REQUIRED IN PERMIT 271 BY PARAGRAPH 5 OF BOARD ORDER WR 73-42, AND IN PERMIT 16040 BY PERMIT TERM 10, INFORMATION FOR THE REPORTING PERIOD CONCERNING WATER CONSERVATION MEASURES UNDERTAKEN BY THE DISTRICT. THE INFORMATION SUBMITTED SHALL INCLUDE THE NUMBER OF CONNECTIONS SERVED, THE AMOUNT OF WATER SOLD, THE AMOUNT SERVED PER CONNECTION AND THE SCHEDULE OF WATER RATES IN FORCE FOR WATER DELIVERIES IN A MANNER SIMILAR TO THE REPORT MADE TO THE BOARD BY THE DISTRICT ON FEBRUARY 26, 1975. THIS REQUIREMENT SHALL REMAIN IN FORCE UNTIL FURTHER ORDER OF THE DIVISION OF WATER RIGHTS."

Dated: MAR 2 5 1976

R. L. Rosenberger

R. L. Rosenberger, Chief
Division of Water Rights

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Permit 16040 Issued on Application 22061, PARADISE IRRIGATION DISTRICT, Permittee.	Order: WR 75-14 Source: Little Butte Creek County: Butte

ORDER GRANTING EXTENSION OF TIME TO SUBMIT PROOF OF FINANCIAL ABILITY TO PROCEED WITH CONSTRUCTION OF PROJECT

BY BOARD MEMBER DODSON:

Time to commence construction work under Permit 16040 expired June 1, 1971. On April 24, 1972, the Paradise Irrigation District filed a petition requesting an extension of time to commence construction work under Permit 16040. A hearing on the petition, along with other petitions by the permittee was held before the State Water Resources Control Board (Board) on September 25, 1972 and on July 23, 1973. On September 6, 1973, the Board adopted its order WR 73-42 which required the permittee to submit proof of financial ability to proceed with construction of its project on or before July 1, 1974. On November 18, 1974, the permittee filed a petition for an extension of time until June 1, 1978 to submit proof of financial ability to proceed with construction under Permit 16040.

A hearing having been held before the State Water Resources Control Board on June 3, 1975 in the Resources Building, 1416 Ninth Street, Sacramento, California, for the purpose of

determining whether further extension of time should be granted, or whether Permit 16040 should be revoked in accordance with Section 790, Title 23 of the California Administrative Code, which provides that the Board shall revoke a permit after hearing if the permittee has failed to observe any of the terms and conditions of the permit; due notice of the time, place, and nature of said hearing having been given by certified mail to said permittee; said permittee having appeared at said hearing; evidence having been presented and received at said hearing and having been duly considered, the Board finds as follows:

1. The permittee filed a request for preliminary determination of eligibility for financial assistance under the Davis-Grunsky Act. On November 14, 1973, the permittee was declared eligible for a loan (RT 6).

2. Shortly after issuance of Board Order WR 73-42 referred to above, the Division of Safety of Dams, Department of Water Resources concluded that permittee's existing Magalia Dam required a complete engineering study and permittee immediately undertook such study (RT 7). The permittee has spent over $125,000 on engineering studies and a grouting program for the Magalia Dam (RT 8). Permittee has entered into a joint venture with Butte County for a roadway embankment which will make the Magalia Dam more stable and satisfy the Division of Dam Safety. On June 14, 1975, the Division of Dam Safety approved Magalia Dam with a roadway embankment (RT 23). The permittee could not proceed with its project until the stability of the Magalia Dam was determined as its available funds would have to be directed to replacing or substantially modifying the dam it if was declared unsafe.

3. The district has restudied its project and has decided to raise its existing Paradise Dam rather than construct a new dam downstream from Magalia Dam. The project's cost will fall within the $4 million limit of a loan under the Davis-Grunsky Act (RT 9). The permittee has filed petitions to change distribution of storage under Permit 271 (Application 476) and to change the point of diversion under Permit 16040 since it now intends to enlarge Paradise reservoir rather than to construct "New Magalia" reservoir as covered by the permit. The Division of Water Rights is issuing notice of the requested change. Since the project proposed will have less storage than now covered by the permit, any order changing the point of diversion should reduce the amount of storage to that equal, together with Permit 271, to the total gross capacity of the two reservoirs, unless the permittee can show the Board through an operation study that the additional storage is necessary.

4. The permittee has completed a preliminary feasibility report and a draft of an Environmental Impact Report (RT 26). The draft Environmental Impact Report has been filed with the State Clearinghouse.

5. The California Water Commission is expected to make a decision on the permittee's application for a Davis-Grunsky loan sometime in August or September of this year. If its decision is favorable, a contract will be negotiated with the Department of Water Resources sometime before October of this year. Voter approval of the loan and project will be on the ballot in November of this year (RT 26). The permittee expects to call for bids for construction of the project by the end of March, 1976, and commence construction the following May (RT 27).

It is concluded from the foregoing findings that an extension of time to June 30, 1976 for the permittee to submit proof of financial ability to proceed with the construction of its project is justified. If such proof is not submitted within that time Permit 16040 should be revoked without further proceedings.

NOW, THEREFORE IT IS ORDERED that the permittee's time for submitting proof of financial ability to proceed with the construction of its project is extended to June 30, 1976 and that such proof will include approval of project financing by the permittee's electorate.

IT IS FURTHER ORDERED that if satisfactory evidence of the permittee's ability to finance its project is not received by June 30, 1976, Permit 16040 will be revoked without further hearing and the permittee in accepting this extension agrees to this condition.

Dated: AUG 21 1975

We Concur:

Roy E. Dodson, Member

W. W. Adams, Chairman

W. Don Maughan, Vice Chairman

Jean Auer, Member

Permit 16040

STATE OF CALIFORNIA—THE RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS
2125 19TH STREET
SACRAMENTO, CALIFORNIA 95818

ORDER ALLOWING CHANGE IN DISTRIBUTION OF STORAGE, POINT OF DIVERSION AND PLACE OF USE

Application 476
Application 22061

Permit 271
Permit 16040

WHEREAS:

1. Petitions for change in distribution of storage under Permit 271; and change in point of diversion, and recreational place of use under Permit 16040, have been filed with the State Water Resources Control Board and said Board has determined that good cause for such changes has been shown.

2. The Board has determined that these changes in distribution of storage and change in point of diversion will not operate to the injury of any other user of water involved.

3. Order WR 75-14 limits the appropriation to be made under these permits in the event of a change in point of diversion to the capacities of Magalia and Paradise Reservoirs unless permittee demonstrates the need for such additional storage.

NOW, THEREFORE, IT IS ORDERED THAT:

1. Permission is hereby granted under Permit 271 to change the distribution of storage as follows:

   2,800 ACRE-FEET TO BE STORED AT MAGALIA DAM RESERVOIR
   6,700 ACRE-FEET TO BE STORED AT PARADISE DAM RESERVOIR

2. The water appropriated under Permit 16040 together with that appropriated under Permit 271 and any license issued pursuant thereto shall not exceed the combined gross capacities of Magalia and Paradise Reservoirs. (0000114) Term 24

3. Permission is hereby granted under Permit 16040 to change the point of diversion as follows:

   PARADISE DAM (MOSQUITO JUNCTION DAM) S14°36'06" E, 1,939.87 FEET FROM NW CORNER OF SECTION 18, T23N, R4E, MDB&M, BEING WITHIN SW¼ OF NW¼ OF SAID SECTION 18.

4. That the place of use under Permit 16040 be changed to a place of use described as follows:

   MUNICIPAL AND DOMESTIC USES WITHIN PARADISE IRRIGATION DISTRICT INCLUDING ALL OR PORTIONS OF SECTIONS 6, 7, 18, 19 AND 30,

T22N, R4E, MDB&M, AND SECTIONS 1, 2, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 27 AND 28, T22N, R3E, MDB&M; AND INCIDENTAL RECREATIONAL USE WITHIN SECTIONS 7 AND 18, T23N, R4E, MDB&M, AND SECTIONS 12 AND 13, T23N, R3E, MDB&M.

5. That Permit 271 and Condition 11 of Permit 16040, as amended by State Water Resources Control Board Order WR 73-42, be amended to read as follows:

PURSUANT TO CALIFORNIA WATER CODE SECTION 100, ALL RIGHTS AND PRIVILEGES UNDER THIS PERMIT AND UNDER ANY LICENSE ISSUED PURSUANT THERETO, INCLUDING METHOD OF DIVERSION, METHOD OF USE, AND QUANTITY OF WATER DIVERTED, ARE SUBJECT TO THE CONTINUING AUTHORITY OF THE STATE WATER RESOURCES CONTROL BOARD IN ACCORDANCE WITH LAW AND IN THE INTEREST OF THE PUBLIC WELFARE TO PREVENT WASTE, UNREASONABLE USE, UNREASONABLE METHOD OF USE, OR UNREASONABLE METHOD OF DIVERSION OF SAID WATER.

THIS CONTINUING AUTHORITY OF THE BOARD MAY BE EXERCISED BY IMPOSING SPECIFIC REQUIREMENTS OVER AND ABOVE THOSE CONTAINED IN THIS PERMIT WITH A VIEW TO MINIMIZING WASTE OF WATER AND TO MEETING THE REASONABLE WATER REQUIREMENTS OF PERMITTEE WITHOUT UNREASONABLE DRAFT ON THE SOURCE. PERMITTEE MAY BE REQUIRED TO IMPLEMENT SUCH PROGRAMS AS (1) REUSING OR RECLAIMING THE WATER ALLOCATED; (2) RESTRICTING DIVERSIONS SO AS TO ELIMINATE AGRICULTURAL TAILWATER OR TO REDUCE RETURN FLOW; (3) SUPPRESSING EVAPORATION LOSSES FROM WATER SURFACES; (4) CONTROLLING PHREATOPHYTIC GROWTH; AND (5) INSTALLING, MAINTAINING, AND OPERATING EFFICIENT WATER MEASURING DEVICES TO ASSURE COMPLIANCE WITH THE QUANTITY LIMITATIONS OF THIS PERMIT AND TO DETERMINE ACCURATELY WATER USE AS AGAINST REASONABLE WATER REQUIREMENTS FOR THE AUTHORIZED PROJECT. NO ACTION WILL BE TAKEN PURSUANT TO THIS PARAGRAPH UNLESS THE BOARD DETERMINES, AFTER NOTICE TO AFFECTED PARTIES AND OPPORTUNITY FOR HEARING, THAT SUCH SPECIFIC REQUIREMENTS ARE PHYSICALLY AND FINANCIALLY FEASIBLE AND ARE APPROPRIATE TO THE PARTICULAR SITUATION. (000012)

6. That the following condition be added to the Permit:

"PERMITTEE SHALL INCLUDE IN THE ANNUAL PROGRESS REPORT, REQUIRED IN PERMIT 271 BY PARAGRAPH 5 OF BOARD ORDER WR 73-42, AND IN PERMIT 16040 BY PERMIT TERM 10, INFORMATION FOR THE REPORTING PERIOD CONCERNING WATER CONSERVATION MEASURES UNDERTAKEN BY THE DISTRICT. THE INFORMATION SUBMITTED SHALL INCLUDE THE NUMBER OF CONNECTIONS SERVED, THE AMOUNT OF WATER SOLD, THE AMOUNT SERVED PER CONNECTION AND THE SCHEDULE OF WATER RATES IN FORCE FOR WATER DELIVERIES IN A MANNER SIMILAR TO THE REPORT MADE TO THE BOARD BY THE DISTRICT ON FEBRUARY 26, 1975. THIS REQUIREMENT SHALL REMAIN IN FORCE UNTIL FURTHER ORDER OF THE DIVISION OF WATER RIGHTS."

(0580300)
Terms 23

Dated: MAR 25 1976

R. L. Rosenberger
R. L. Rosenberger, Chief
Division of Water Rights

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Permits 271, 3678, 9079 and 16040, Issued Pursuant to Applications 476, 6204, 14185 and 22061, PARADISE IRRIGATION DISTRICT, Permittee.	Order No.: WR 73-42 Sources: Little Butte Creek, Long Ravine and West Branch of North Fork Feather River County: Butte

ORDER DENYING REQUEST FOR SINGLE ENTERPRISE AND UNIT, REVOKING PERMITS, ESTABLISHING NEW DEVELOPMENT SCHEDULES AND AMENDING PERMITS, AND APPROVING IN PART PETITIONS TO CHANGE CHARACTER OF USE

BY BOARD VICE CHAIRMAN ROBIE AND MEMBER DODSON:

On June 17, 1971, Paradise Irrigation District filed a petition to include its Permits 271, 3678, 9079 and 16040 in a single enterprise and unit in accordance with Section 1475 of the Water Code. On September 17, 1971, petitions were filed requesting extensions of time to complete use of water under Permit 271 and to commence construction work under Permits 3678 and 9079. On April 24, 1972, petitions were filed requesting extension of time to commence construction under Permit 16040 and requesting change in character of use under all four permits to municipal, irrigation, industrial, and recreational purposes.

A hearing was held before the State Water Resources Control Board on September 25, 1972 to determine what action should be taken concerning the various petitions filed by the permittee. The hearing was continued on January 29, 1973 to receive further evidence concerning specific plans of the District and water quality problems which

might occur as a result of increased water supply to the District. Following that hearing questions were raised as to the effects of water rate changes by the District and the District's intent to proceed with the project previously indicated. Therefore, a continuation of the hearing to complete the record was held on July 23, 1973. Permittee and others interested having appeared at said hearing, evidence having been presented at said hearing and having been duly considered, the Board finds as follows:

1. Time to complete construction work and use of water under Permits 271, 3678 and 9079 expired December 1, 1970, and time to commence construction work under Permit 16040 expired June 1, 1971. Time to complete use of water under Permit 16040 will expire December 1, 1985. Construction work under Permit 271 is complete and use of water has been increasing. Construction work has not commenced under Permit 3678 issued April 9, 1931, under Permit 9079 issued August 11, 1952, or under Permit 16040 issued June 17, 1970.

2. The District has failed to commence and complete construction work and beneficial use of water pursuant to Permits 3678 and 9079 with due diligence. The District has no present definite plans to proceed with construction of the diversion facilities needed to appropriate water under these permits. However, the District has petitioned the Board to declare all the works described in its permits a single enterprise and unit so that it can rely on diligence under its Permits 271 and 16040 until such time as it is ready to proceed under Permits 3678 and 9079.

The District now plans to construct a new dam (Permit 16040) on Little Butte Creek approximately one-quarter mile below Magalia Dam which will be inundated. The combined storage capacity of the new reservoir and the District's existing Paradise Reservoir (Permit 271) will be 20,800 acre-feet

and together they will have a maximum annual yield of 10,000 acre-feet. This will take care of the District's project needs until about the year 1990 (District's Exh. 9, Plate 9). By 1976 it is estimated that the cost of the proposed dam will be more than 12 million dollars. The ability of the District to finance a project of this magnitude is marginal and may depend upon availability of state or federal financial assistance. The District has no specific plan to store water from Long Ravine under Permit 3678 or water from West Branch North Fork Feather River under Permit 9079 at its proposed new reservoir. There is no schedule for construction work under these permits and they are being held as a possible alternative to other projects. Under such circumstances it is not in the public interest that these permits be freed from the requirement of diligence indefinitely by declaring that they, together with Permits 271 and 16040, constitute a single enterprise and unit.

3. In May 1973 the District lowered its water rates substantially, particularly for users of large quantities of water. The Board is unable to determine whether the rate change may result in a wasteful or unreasonable use of water. However, the District plans to analyze its records of water deliveries in the next year to determine the effects of the rate changes on water deliveries and jurisdiction will be reserved to allow the Board to review the matter when the information is available.

4. The District has shown good cause for an extension of time to complete use of water under Permit 271 and to commence construction work and complete construction work and complete use of water under Permit 16040, provided said permits are amended in accordance with the order following.

5. The use now allowed under Permit 271 is agricultural. Permit 16040 allows use of water for municipal, domestic, and incidental recreational purposes. Irrigation once was the principal use of water in the District's service area. That use has been declining steadily until it now represents

only a small proportion of the total water deliveries. In Decision 1344 the Board deleted irrigation as one of the uses to be allowed in Permit 16040 issued pursuant to Application 22061, based on a finding that the District's other water rights were sufficient to supply its irrigation needs. The requested change in character of use will not result in injury to other users of water and should be allowed except for irrigation use under Permit 16040.

6. Some waste water disposal problems have occurred as a result of water supply furnished by the District, as water use has shifted from irrigation to residential and commercial services. With the continued conversion of land from irrigation to municipal uses and with the increased water supply proposed under Permit 16040, hazards to public health and deterioration of ground and surface water quality are likely to occur unless a community wastewater disposal system becomes operative. Therefore, Permits 271 and 16040 should be conditioned to control extension of water service to new connections in order to protect water quality and public health.

It is concluded from the foregoing findings that the petitions for extension of time under Permits 3678 and 9079 should be denied, that the petition for single enterprise and unit should be denied, that Permits 3678 and 9079 should be revoked, that the petitions for change in character of use under Permits 271 and 16040 should be approved in part, that an extension of time should be granted to complete use of water under Permit 271, and that extension of time to submit proof of financial feasibility, commence construction, and to complete construction under Permit 16040 should be allowed. From the evidence (District's Exh. 10) it appears diversion from West Branch Feather River may be feasible and required at some date in the future and revocation of Permit 9079 will not preclude the District from filing a new application to appropriate from that source at such time the District is in a position to proceed with the project. In addition to being conditioned to protect water quality and

and public health, the permits on which extensions are granted should be further revised to include standard terms not required at the time the permits were issued, but which are now required by Board regulations.

NOW, THEREFORE, IT IS ORDERED:

1. Application of water to beneficial use pursuant to Permit 271 shall be completed on or before December 1, 1977.

2. The development schedule pursuant to Permit 16040 shall be as follows:

Proof of financial ability to proceed with construction of the project shall be submitted on or before July 1, 1974.

Construction work shall commence on or before June 1, 1979.

Construction work shall be completed on or before December 1, 1981.

Application of water to beneficial use shall be completed on or before December 1, 1985.

3. Permit 271 is amended to include the following condition and Condition 11 of Permit 16040 is amended to read as follows:

All rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

This continuing authority of the Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to minimizing waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement such programs as (1) reusing or reclaiming the water allocated; (2) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (3) suppressing evaporation losses from water

surfaces; (4) controlling phreatophytic growth; and (5) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation. (000012)

4. Permits 271 and 16040 are amended to include the following conditions:

Until such time as a community wastewater disposal project is in operation, service shall not be extended to new connections for delivery of water under this permit to commercial, industrial, or mobile home park developments, or to residential services involving more than three living units **on a single lot unless the disposal of wastewater conforms to policy guidelines of the Central Valley Regional Water Quality Control Board.** Adequacy of said facilities shall be certified to the State Water Resources Control Board by the Executive Officer of the Central Valley Regional Water Quality Control Board or his designated representative. Continued service of water to such connections shall be contingent upon continued compliance with said policy guidelines and with any waste discharge requirements of the Central Valley Regional Water Quality Control Board.

Permittee shall submit to the State Water Resources Control Board, not later than July 1, 1974, a study of the effects of water rate changes made in May 1973 on water deliveries within the District and the Board reserves the jurisdiction to make such additional order **as may be appropriate as a result of the study in order to prevent unreasonable or wasteful use of water.**

(000300)
Term 22

5. Permit 271 is amended to include the following conditions:

The amount authorized for appropriation may be reduced in the license if investigation warrants.

Progress reports shall be submitted promptly by permittee when requested by the State Water Resources Control Board until license is issued.

Permittee shall allow representatives of the State Water Resources Control Board and other parties, as may be authorized from time to time by said Board, reasonable access to project works to determine compliance with the terms of this permit.

The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Resources Control Board, if, after notice to the permittee and an opportunity for hearing, the Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

6. Permit 16040 is amended to include the following condition:

In order to prevent degradation of the quality of water during and after construction of the project, prior to commencement of construction permittee shall file a report pursuant to Water Code Section 13260 and shall comply with any waste discharge requirements imposed by the California Regional Water Quality Control Board, Central Valley Region, or by the State Water Resources Control Board.

(0000100)
Term 21

7. Permit 271 is amended to change the character of use to municipal, irrigation, industrial and recreational purposes.

8. Permit 16040 is amended to change the character of use to municipal, industrial and recreational purposes.

9. The petition for single enterprise and unit is denied.

10. Permits 3678 and 9079 are revoked.

Dated: **September 6, 1973**

We Concur:

RONALD B. ROBIE
Ronald B. Robie, Vice Chairman

W. W. ADAMS
W. W. Adams, Chairman

ROY E. DODSON
Roy E. Dodson, Member

MRS. CARL H. AUER
Mrs. Carl H. (Jean) Auer, Member

W. DON MAUGHAN
W. Don Maughan, Member

STATE OF CALIFORNIA
THE RESOURCES AGENCY
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

PERMIT No. 16040

Application 22061 of Paradise Irrigation District
Paradise, California 95969

filed on February 25, 1965, has been approved by the State Water Resources Control Board SUBJECT TO VESTED RIGHTS and to the limitations and conditions of this Permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source:	Tributary to:
Little Butte Creek	Butte Creek thence
	Butte Slough thence
	Sacramento River

2. Location of point of diversion:	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
South 700' east 1,020' from N¼ corner of Section 36, T23N, R3E	NW ¼ of NE ¼	36	23N	3E	MD
	¼ of ¼				
	¼ of ¼				
	¼ of ¼				
	¼ of ¼				
	¼ of ¼				

County of Butte

3. Purpose of use:	4. Place of use:	Section	Township	Range	Base and Meridian	Acres
Municipal, Domestic	within Paradise Irrigation District					
	including all or portions of					
	Sections 6, 7, 18, 19, and 30		22N	4E	MD	
	and Sections 1, 2, 10, 11,					
	12, 13, 14, 15, 16, 21, 22,					
	23, 24, 25, 26, 27, and 28		22N	3E	MD	
Incidental	within Sections 24, 25, and					
Recreational	36		23N	3E	MD	

34

The place of use is shown on map filed with the State Water Resources Control Board.

5. The water appropriated shall be limited to the quantity which can be beneficially used, and shall not exceed 8,800 acre-feet per annum by storage to be collected from about October 1 of each year to about May 31 of the succeeding year for municipal, domestic, and incidental recreational uses. (0000005)

This permit does not authorize collection of water to storage outside the specified season to offset evaporation and seepage losses or for any other purpose. (0000005)

6. The maximum quantity herein stated may be reduced in the license if investigation warrants. (0000006)

7. Actual construction work shall begin on or before June 1, 1971, and shall thereafter be prosecuted with reasonable diligence, and if not so commenced and prosecuted this permit may be revoked. (0000007)

8. Said construction work shall be completed on or before December 1, 1973. (0000008)

9. Complete application of the water to the proposed use shall be made on or before December 1, 1985. (0000009)

10. Progress reports shall be filed promptly by permittee on forms which will be provided annually by the State Water Resources Control Board until license is issued. (0000010)

11. All rights and privileges under this permit including method of diversion, method of use and quantity of water diverted are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water. (0000012) amended 10/3/86

12. Permittee shall allow representatives of the State Water Resources Control Board and other parties, as may be authorized from time to time by said Board, reasonable access to project works to determine compliance with the terms of this permit. (0000011)

13. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Resources Control Board, if, after notice to the permittee and an opportunity for hearing, the Board finds that such modification is necessary to meet water quality objectives which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges. (0000013)

14. Permittee shall install and maintain an outlet pipe of adequate capacity in his dam as near as practicable to the bottom of the natural stream channel, or provide other means satisfactory to the State Water Resources Control Board, in order that water entering the reservoir or collected in the reservoir during and after the current storage season may be released into the downstream channel to the extent necessary to satisfy downstream prior rights. (0050043)

15. Permittee shall install and maintain measuring devices satisfactory to the Board in order that accurate measurement can be made of the quantity of water flowing into and out of said reservoir. (0060046)

35

~~5. The water appropriated shall be limited to the quantity which can be beneficially used, and shall not exceed~~

16. While diverting water to storage as authorized in this permit, permittee shall bypass a minimum of 0.5 cubic foot per second to maintain fishlife. (0140060)

17. In accordance with the requirements of Water Code Section 1393, permittee shall clear the site of the proposed reservoir of all structures, trees, and other vegetation which would interfere with the use of the reservoir for water storage and recreational purposes. (0120050)

18. Construction of the dam shall not be commenced until the Department of Water Resources has approved plans and specifications. (0130049)

19. The State Water Resources Control Board reserves jurisdiction over this permit for the purpose of conforming the season of diversion to later findings of the Board on prior applications involving water in the Sacramento River Basin and Delta. Action by the Board will be taken only after notice to interested parties and opportunity for hearing. (0000080)

20. Rights under this permit are, and shall be, subject to existing rights defined by the Butte Creek Adjudication, Superior Court, Butte County, No. 18917, and such other rights as may presently exist on the stream, insofar as said existing and adjudicated rights are maintained. (0000023)

This permit is issued and permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Dated: JUN 17 1970

STATE WATER RESOURCES CONTROL BOARD

K. L. Woodward

Chief, Division of Water Rights

36

WRCB 14-2 (11-68) 27276-D-983 11-68 2500 ② OSP

Map to Accompany Petitions for Addition of Point of Diversion and Rediversion, and Change in Method of Diversion, Place of Use and Purpose of Use

Paradise Irrigation District –
Butte County, California

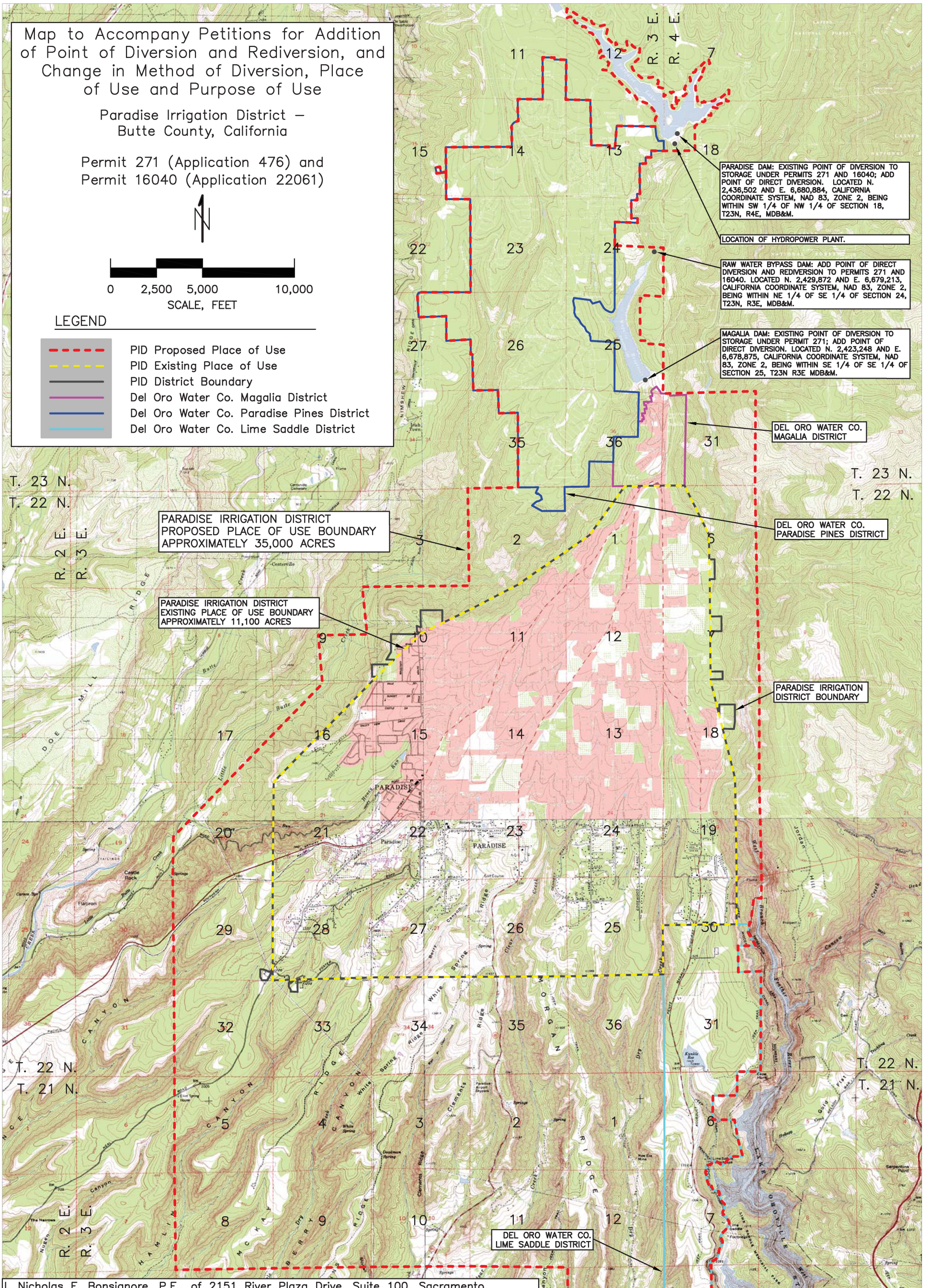
Permit 271 (Application 476) and
Permit 16040 (Application 22061)

N

0 2,500 5,000 10,000
SCALE, FEET

LEGEND

- PID Proposed Place of Use
- PID Existing Place of Use
- PID District Boundary
- Del Oro Water Co. Magalia District
- Del Oro Water Co. Paradise Pines District
- Del Oro Water Co. Lime Saddle District



I, Nicholas F. Bonsignore, P.E., of 2151 River Plaza Drive, Suite 100, Sacramento, California, do hereby certify the following: This map was prepared by Paradise Irrigation District staff based on U.S.G.S. 7.5–minute quadrangles for Cherokee, Hamlin Canyon, Paradise East, and Paradise West, California; information obtained from Paradise Irrigation District and Del Oro Water Company files; information from the Geographical Information Center, California State University, Chico; and information from the Butte County GIS Division. I have reviewed this map and conferred with Paradise Irrigation District staff as to its preparation, and it correctly represents the project described in the accompanying petitions and shows the locations of streams and ditches in the immediate vicinity, and is true and correct to the best of my knowledge and belief.

ORIGINAL SIGNED November 14, 2017

Nicholas F. Bonsignore Date
R.C.E. No. 39422
Expires: 12/31/2017

Appendix G - USGS Watershed Scale Response to Climate Change – Feather River Basin, California

Watershed Scale Response to Climate Change—Feather River Basin, California

Introduction

General Circulation Model (GCM) simulations of future climate through 2099 project a wide range of possible scenarios (Intergovernmental Panel on Climate Change, 2007). To determine the sensitivity and potential effect of long-term climate change on the freshwater resources of the United States, the U.S. Geological Survey Global Change study, "An integrated watershed scale response to global change in selected basins across the United States" was started in 2008. The long-term goal of this national study is to provide the foundation for hydrologically based climate-change studies across the nation.

Fourteen basins for which the Precipitation Runoff Modeling System (PRMS) has been calibrated and evaluated were selected as study sites. PRMS is a deterministic, distributed-parameter watershed model developed to evaluate the effects of various combinations of precipitation, temperature, and land use on streamflow and general basin hydrology. Output from five GCMs and four emission scenarios were used to develop an ensemble of climate-change scenarios for each basin. These ensembles were simulated with the corresponding PRMS model. This fact sheet summarizes the hydrologic effect and sensitivity of the PRMS simulations to climate change for the Feather River Basin in California (fig. 1) presented in the project summary report (Markstrom and others, 2012) and a journal article (Hay and others, 2011).

Study Area

The Feather River Basin, California, is a valuable hydrologic resource for California (Koczot and others, 2005). The basin is a major contributor to the California State Water Project (SWP), which distributes water throughout California for domestic use, irrigation, and hydropower production. The basin outlet reservoir, Lake Oroville, holds 8 percent of the state's reservoir capacity and plays an important role in flood management, water quality, and the health of fisheries, affecting areas downstream at least as far south as the Sacramento/San Joaquin River Delta. The climate is Mediterranean, with warm dry summers and cool wet winters. Spring snowmelt from the basin is relied upon to meet the SWP's summer water demands.

The Feather River Basin is senstive to slight changes in temperature which affect the formation and melting of snow. The 9,324-square-kilometer (km^2) basin ranges in elevation from 325 to 2,212 meters and includes large areas that are at or near the historical snowline; winter rain or rain-on-snow occurrences are common. This basin is recognized as one of the first in California anticipated to be affected by climate-induced change to the snowpack. Changes to the snowpack will have large effects on the timing and quantity of streamflow (Freeman, 2008).

Previous studies focused on seasonal (3 to 9 month) and medium-range (1 week to 1 month) streamflow forecasts (Koczot and others, 2005). In the Feather River Basin, the California Department of Water Resources makes seasonal and medium-range forecasts of total streamflow into Lake Oroville, and hydroelectric power operators use their own suite of statistical models to manage power generation within the basin (David Rizzardo, California Department of Water Resources Division of Flood Management Hydrology Branch, written commun., 2010). Agricultural, fishery, logging, and local user groups may benefit from improved forecasts of long term climatological trends. Improved understanding of how the Feather River Basin responds to changing climatic conditions will help water managers safeguard this resource.

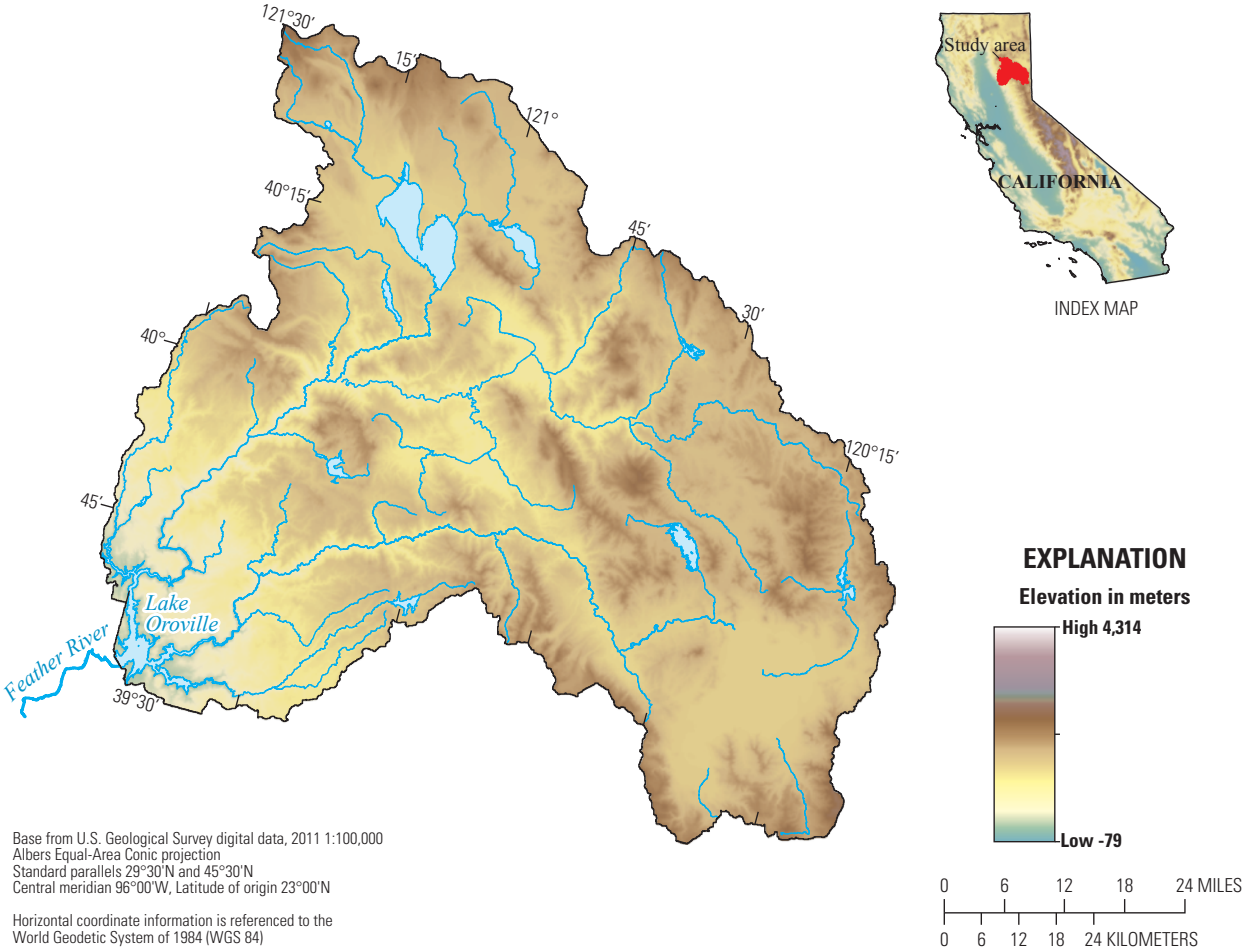


Figure 1. Precipitation Runoff Modeling System study locations and location of the Feather River Basin, California, with a drainage area of 9,324 square kilometers and elevation range from 325 to 2,212 meters.

General Circulation Models

Given the uncertainty in climate modeling, it is desirable to use more than one GCM to obtain a range of potential future climatic conditions. Monthly precipitation and temperature output from five GCMs were processed (table 1).

Table 1. General Circulation Model (GCM) projections used in this study.

GCM	Center and country of origin
BCC–BCM2.0	Bjerknes Centre for Climate Research, Norway
CSIRO–Mk3.0	Australia's Commonwealth Scientific and Industrial Research Organization, Australia
CSIRO–Mk3.5	Australia's Commonwealth Scientific and Industrial Research Organization, Australia
INM–CM3.0	Institute for Numerical Mathematics, Russia
MIROC3.2	National Institute for Environmental Studies, Japan

The GCM outputs were obtained from the World Climate Research Programme's Coupled Model Intercomparison Project phase 3 multi-model dataset archive, which was referenced in the Intergovernmental Panel on Climate Change Fourth Assessment Special Report on Emission scenarios (Intergovernmental Panel on Climate Change, 2007). For each GCM, one current (water years 1988–1999) and three future emission scenarios were used and are described in table 2.

Table 2. Climate-change emission scenarios simulated by the General Circulation Models in this study.

Emission scenario	Description/assumptions
20C3M	20th century climate used to determine baseline (1989–1999) conditions
A1B	Rapid economic growth, a global population that peaks in mid-21st century and rapid introduction of new and more efficient technologies with a balanced emphasis on all energy sources
B1	Convergent world, with the same global population as Emission scenario A1B, but with more rapid changes in economic structures toward a service and information economy that is more ecologically friendly
A2	Heterogeneous world with high population growth, slow economic development, and slow technological change

Climate-change fields were derived by calculating the change in climate from current (water years 1988–1999) to future conditions simulated by each GCM. The 20C3M simulation for water years 1988–1999 was used to represent current climatic conditions. This 12-year period of record was chosen based on the overlap of the available historical records from the 14 basins included in the national study. Climate change fields (percentage changes in precipitation and degree changes in temperature) were computed for 12-year moving window periods (from 2001–2099) using the 20C3M (1988–1999) and the A1B, B1, and A2 emission scenarios. A 12-year moving window, starting in 2001 and ending in 2099, results in 1,320 future scenarios [(88, 12-year climatologies, 1 per year starting with 2001–2012 and ending with 2088–2099) x (3 emission scenarios) x (5 GCMs)].

Climate-change scenarios were generated for PRMS by modifying PRMS precipitation and temperature inputs with the mean monthly climate change fields derived from the GCMs, resulting in 1,320 PRMS-input files. Table 3 shows the change (slope) and adjusted R^2 (adjR2) for the least squares fit to the trend line for selected output variables from the PRMS projections. The slope indicates the change in the selected variable by year. The adjusted R^2 value gives an indication of the variability in the central tendency of the trend line.

Figure 2 shows a summary of the projected range in 11-year moving mean daily values of maximum temperature (fig. 2*A*), minimum temperature (fig. 2*B*), and precipitation (fig. 2*C*) by emission scenario. The first year of each 12-year simulation was used as PRMS initialization and is not included in the results. The three solid-colored lines indicate the 11-year moving mean values (x-axis indicates center of 11-year window) for the three future emission scenarios (central tendency of the five GCMs for each emission scenario). The projected range shown for each emission scenario indicates the range of potential future climatic conditions simulated by the five GCMs. All GCM simulations project steady increases in maximum and minimum temperature (table 3), with uncertainties associated with these GCM projections increasing with time. Both maximum and minimum temperatures show the smallest projected changes for the B1 emission scenario. Projections of mean annual precipitation for the Feather River Basin are highly variable, with no significant overall positive or negative trend (table 3). The wide range in the precipitation projections indicates a large amount of uncertainty. For the Feather River Basin area, the GCM models simulate precipitation as decadal oscillations of wetter and drier cycles, as seen in the central tendency lines for each scenario (fig. 2*C*).

Results

PRMS simulates spatially distributed streamflow, components of flow (surface, subsurface, and groundwater), snowpack conditions, and many other hydrologic components of interest. Figure 3 shows the projected range in 11-year moving mean daily values of streamflow (fig. 3*A*) and the components of flow (figs. 3*B*-3*D*) by emission scenario. In all plots, especially in GCM simulations made using the A2 scenario (red), decadal oscillations of higher and lower flows are evident. These correspond with the wetter and drier precipitation oscillation cycles in figure 2*C*. No significant overall trends are detected in the central tendencies of streamflow and components of flow with the exception of a negative trend in the A1B emission scenario for the groundwater flow component (table 3).

Projected changes in simulated monthly snowmelt are shown in figure 4. The solid-red lines in figure 4 show PRMS-simulated mean monthly baseline conditions (1989–1999) for snowmelt. The boxplots represent the range in the projected

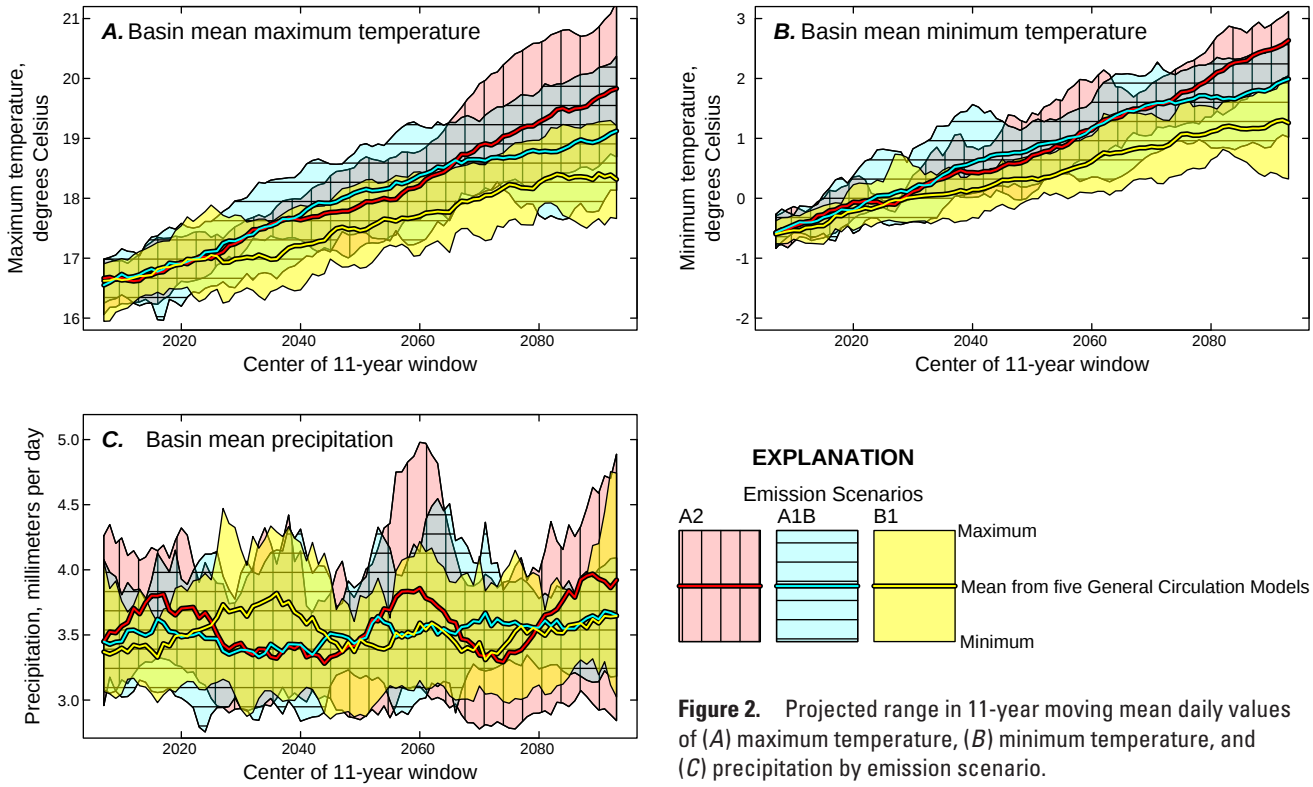


Figure 2. Projected range in 11-year moving mean daily values of (*A*) maximum temperature, (*B*) minimum temperature, and (*C*) precipitation by emission scenario.

Table 3. Projected change by year (slope) and adjusted R^2 (adjR2) based on the central tendencies of the five General Circulation Models for the three carbon emission scenarios for selected Precipitation Runoff Modeling System (PRMS) output variables.

[Blue indicates a significant negative trend and yellow indicates a significant positive trend ($p<0.05$) accounting for lag-1 autocorrelation]

PRMS output variable	Emission scenario A1B		Emission scenario A2		Emission scenario B1	
	slope	adjR2	slope	adjR2	slope	adjR2
Maximum temperature in degrees Celsius	0.030	0.98	0.038	0.99	0.023	0.98
Minimum temperature in degrees Celsius	0.030	0.99	0.036	0.98	0.022	0.99
Precipitation in millimeters per day	0.0021	0.38	0.0018	0.04	0.0003	-0.01
Streamflow in cubic meters per second	0.1132	0.16	0.0820	0.00	-0.0378	-0.00
Surface runoff in cubic meters per second	0.00450	0.15	0.00810	0.07	0.00074	-0.01
Subsurface flow in cubic meters per second	0.15873	0.37	0.14958	0.06	0.01897	-0.01
Groundwater flow in cubic meters per second	-0.04999	0.59	-0.07566	0.43	-0.05747	0.52
Percent snow in percent per day	-0.15	0.96	-0.19	0.99	-0.14	0.96
Snowmelt in millimeters per day	-0.0052	0.84	-0.0074	0.71	-0.0052	0.72

mean monthly snowmelt for the five GCMs and three scenarios for 2030 (green, 2025–2035), 2060 (tan, 2055–2065) and 2090 (blue, 2085–2095). Snowmelt is projected to increase in December and January and decrease for March through June. Currently, peak streamflow in the Feather River is the result of snowmelt runoff. The warmer projected temperatures may result in less snowfall resulting in less snow available to melt in the spring. This could reduce the importance of the spring snowmelt to the stream and may alter the characterization of the Feather River as being spring snowmelt dominated.

Related streamflow variables produced by PRMS are summarized in Markstrom and others (2007). Analysis of these intermediate states may indicate areas of the water balance most susceptible to changes in climate. For example, figure 5 shows a decrease in the fraction of simulated precipitation that falls as snow. This possibly indicates less snowpack, an earlier melt season, and more rain falling on the snowpack in the Feather River Basin.

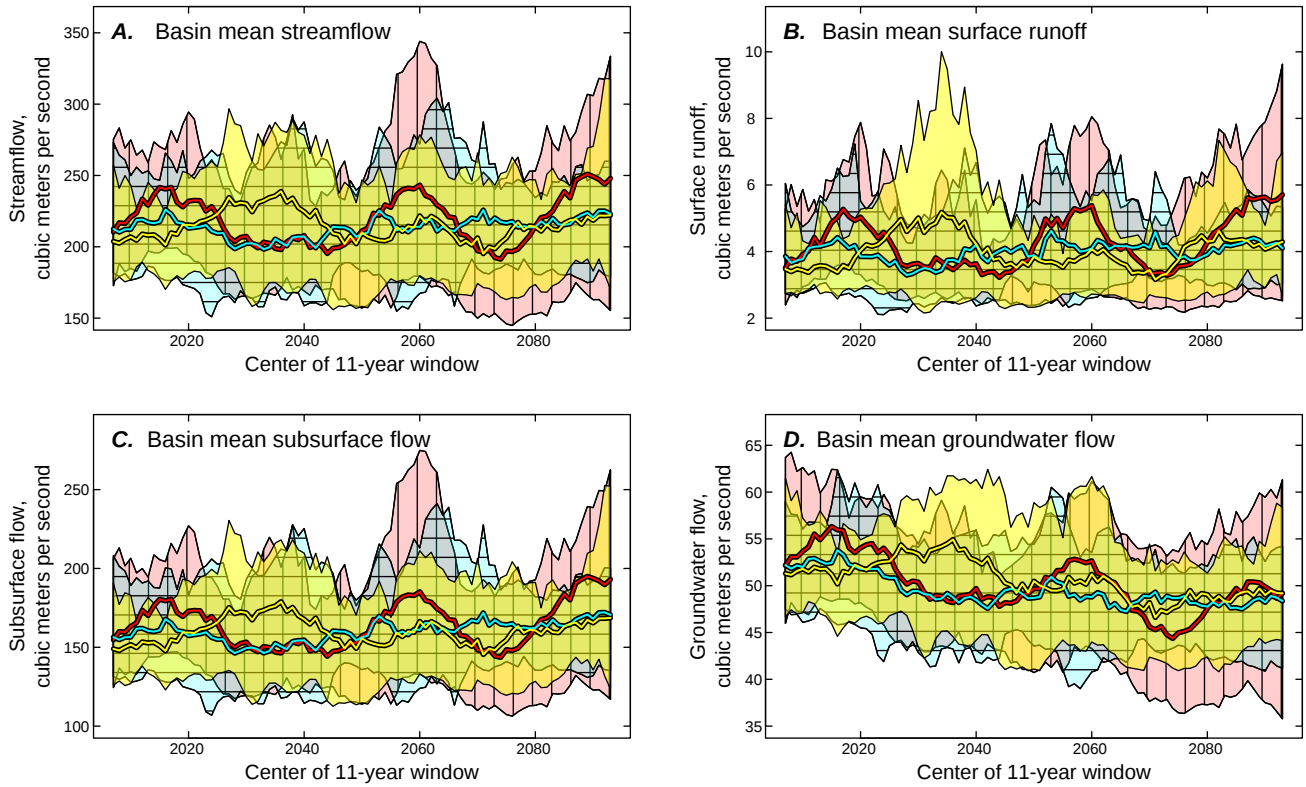


Figure 3. Projected range in 11-year moving mean daily values of (*A*) streamflow, (*B*) surface runoff, (*C*) subsurface flow, and (*D*) groundwater flow by emission scenario.

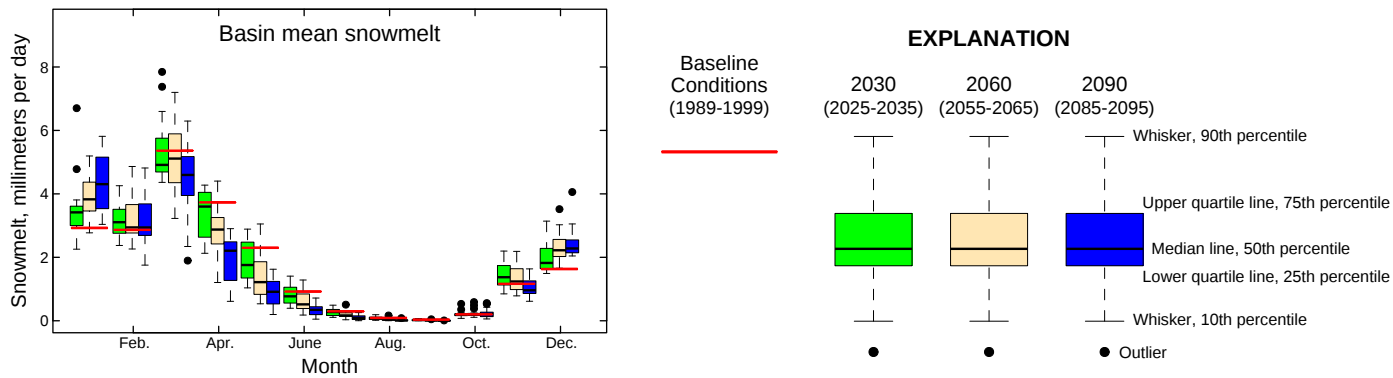


Figure 4. Mean daily snowmelt values by month for baseline conditions and projected range (2030, 2060, and 2090) using the five General Circulation Models and three emission scenarios.

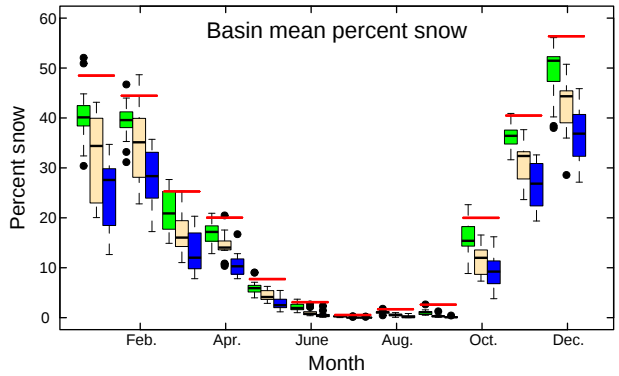


Figure 5. Mean daily values of precipitation that falls as snow by month for baseline conditions and projected range (2030, 2060, and 2090) using the five General Circulation Models and three emission scenarios.

Conclusion and Discussion

For the Feather River Basin, GCM scenario simulations indicate that basin temperatures are to increase over the next century, and precipitation in the basin is to follow cycles of wetter and drier decadal oscillations. Because large areas of this basin straddle the historical snowline, slight changes in temperature will affect precipitation form. The GCM and PRMS simulations indicate that the cumulative effect of climatic effects on the basin will produce more winter runoff, earlier peak streamflow, and less spring snowmelt. The broader-scale effects of climate change on the flow regime of the Feather River project no significant overall trend in mean annual streamflow in the basin, but the uncertainty associated with this is large. These results did not consider many of the important feedback mechanisms which act between the land surface and the atmosphere.

The effects of climate change in the vicinity of the Feather River Basin may alter both the quantity and timing of streamflow. These changes potentially could affect management strategies that currently affect water availability in summer for the SWP, winter high flows, and water quality and quantity for fisheries. This research has implications for the management of the watershed and reservoir operations at Lake Oroville. The scientific techniques described in the fact sheet can be augmented with other techniques in developing the science needed to address these complicated dynamics.

Selected References

Freeman, G., 2008, Runoff impacts of climate change on northern California's watersheds as influenced by geology and elevation—a mountain hydroelectric system perspective: proceedings Western Snow Conference, v. 76, 12 p.

Hay, L.E., Markstrom, S.L., and Ward-Garrison, C.D., 2011, Watershed-scale response to climate change through the twenty-first century for selected basins across the United States, Earth Interactions, v. 15, 37 p.

Intergovernmental Panel on Climate Change, 2007, Summary for policymakers, *in* Climate change 2007—The physical science basis, Contributions of Working Group 1 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change: Cambridge and New York, Cambridge University Press, 18 p.

Koczot, K.M., Jeton, A.E., McGurk, B.J., and Dettinger, M.D., 2005, Precipitation-runoff processes in the Feather River Basin, northeastern California, with prospects for streamflow predictability, water years 1971–97: U.S. Geological Survey Scientific Investigations Report 2004–5202, 82 p.

Markstrom, S.L., Hay, L.E., Ward-Garrison, C.D., Risley, J.C., Battaglin, W.A., Bjerklie, D.M., Chase, K.J., Christiansen, D.E., Dudley, R.W., Hunt, R.J., Koczot, K.M., Mastin, M.C., Regan, R.S., Viger, R.J., Vining, K.C., and Walker, J.F., 2012, An integrated watershed scale response to climate change for selected basins across the United States: U.S. Geological Survey Scientific Investigations Report 2011–5077, 142 p.

By Kathryn M. Koczot, Steven L. Markstrom, and Lauren E. Hay

For more information visit the following Web sites:

http://wwwbrr.cr.usgs.gov/projects/SW_MoWS/
http://pubs.usgs.gov/sir/2004/5202/
http://ca.water.usgs.gov/
http://www.usgs.gov/climate_landuse/

Appendix H – Water Shortage Contingency Plan

Paradise Irrigation District Draft Water Shortage Contingency Plan

June 2021

Prepared by Water Works Engineers, LLC
Colleen Boak, PE
Esmeralda Diego
Sheila Magladry, PE
Ameen Tohmeh

Checked by:
Tim Durbin, PE
Cindy Bertsch, PE

Table of Contents

Water Shortage Contingency Plan 1
1.1 Water Supply Reliability Analysis 1
1.1.1 Constraints on Water Supply 1
1.1.2 Drought Risk Assessment 2
1.1.3 Seismic Risk Analysis 3
1.2 Legal Authorities 3
1.3 Standard Water Shortage Levels 4
1.4 Annual Water Supply and Demand Assessment Procedures 4
1.5 Supply Augmentation and Operational Changes 9
1.6 Compliance and Enforcement 9
1.7 Financial Consequences 9
1.8 Plan Adoption, Submittal, and Availability 10

Tables

WSCP Table 1 Near-Term Five-Year Drought Risk Assessment 2
WSCP Table 2 Long-Term Single and Five-Year Drought Risk Assessment 3
WSCP Table 3 Water Shortage Contingency Plan Levels 4
WSCP Table 4 Water Supply and Demand Assessment Procedure 5
WSCP Table 5 Demand Reduction Actions to be Implemented at Each Shortage Level 7
WSCP Table 6 Supply Augmentation During Water Shortages 9

Exhibits

Exhibit A – Butte County Local Hazard Mitigation Plan Update: Annex F Paradise Irrigation District
Exhibit B – Recent Water Conservation Programs
Exhibit C – Ordinance No. 2015-01 An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures
Exhibit D – Water Shortage Contingency Plan Adoption Resolution

Water Shortage Contingency Plan

Following the severe drought of 2012-2016, the State of California Legislature sought to expand the water shortage contingency analysis, which was required to be included in Urban Water Management Plans under prior law and mandated that a Water Shortage Contingency Plan (WSCP) be adopted by suppliers. The California Water Code (CWC) recognizes WSCPs as a critical tool during a drought emergency and grants that the State defer to locally adopted WSCPs, to the extent practicable.

> *California Water Code Section 10632.3*
>
> *It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.*

The WSCP is Paradise Irrigation District's operational plan in the event of a water shortage. Water shortage would occur when available water supplies are insufficient to meet normal customer water demands. Various causes can bring about a water shortage including population growth, climate change, drought, natural disasters, and other catastrophic events.

The WSCP shall address the ten following elements:

1. Water supply reliability analysis
2. Annual water shortage assessment procedures
3. Six standard water shortage stages
4. Shortage response actions
5. Communication protocols
6. Compliance and enforcement
7. Legal authorities
8. Financial consequences of WSCP implementation
9. Monitoring and reporting
10. WSCP refinement procedures

1.1 Water Supply Reliability Analysis

Pursuant to 10632(a)(1) of the CWC, a near-term (5 years) and long-term (20 years) water supply reliability analysis is provided herein. The water supply reliability analysis consists of a water service reliability assessment and drought risk assessment (DRA).

1.1.1 Constraints on Water Supply

PID's primary source of water is surface water from Little Butte Creek Watershed. Surface water is stored in Paradise Reservoir and Magalia Reservoir and diverted to PID's Water Treatment Plant (WTP) through the Magalia intake facility. Under normal conditions, PID's existing three water rights – two storage rights and a direct diversion right – are sufficient to meet PID's water demands. There are no legal or water quality factors that result in inconsistency of supply from Little Butte Creek Watershed for the period studied in this plan. However, variation

in seasonal rainfall in the Little Butte Creek Watershed can impact surface water supply availability. Additionally, physical constraints exist on the volume of water that can be stored in both Paradise and Magalia Reservoirs. In 1997, the Department of Water Resources Division of Safety of Dams identified seismic stability concerns on the upstream slope of Magalia Dam. Consequently, DSOD directed PID to lower the maximum water elevation of Magalia Dam to 2,200 feet above mean sea level, whereas the spillway crest elevation is 2,258 feet above mean sea level. The lower water level has reduced the maximum operating storage capacity of Magalia Reservoir from 2,574 acre-feet (AF) to 796 AF, until such time that PID can rectify the portions of the facility that are seismically unstable.

PID operates a single groundwater well located at the D Tank site facility with a maximum output estimated at 350 acre-feet per year (AF/yr). The primary purpose of the well is to augment PID's water supply during times of drought or emergency, but under normal conditions, well production is minimal, and the well is only operated for maintenance purposes. At the time of plan preparation this well is non-operational due to mechanical failure of the pump.

1.1.2 Drought Risk Assessment

The near-term and long-term drought risk assessment was performed by comparing the unconstrained potable water demands to the water supply availability for a single dry year and 5 consecutive dry years. The near-term DRA for a five-year drought is provided in WSCP Table 1. The long-term single and five-year DRA is provided in WSCP Table 2. Note that groundwater supplies are not included in WSCP Table 1, as the groundwater well is not currently operational. However, after 2030 total supplies presented in WSCP Table 2 are inclusive of groundwater supplies when it can reasonably be assumed that the well would be operational. For both the near-term and long-term drought risk assessment no water shortage is projected. Consequently, no augmentation or conservation methods are incorporated into WSCP Table 1 WSCP Table 2.

WSCP Table 1 Near-Term Five-Year Drought Risk Assessment

Category	2021	2022	2023	2024	2025
Total Supplies	15,223	16,465	12,182	9,239	6,071
Gross Water Use	4,287	4,205	4,122	4,040	3,957
Surplus without WSCP Action	10,936	12,260	8,060	5,199	2,114
Notes: All volumes are in AF/yr.					

WSCP Table 2 Long-Term Single and Five-Year Drought Risk Assessment

Drought Type/ Year	Category	2025	2030	2035	2040	2045
Single Year	Total Supplies	6,071	6,421	6,421	6,421	6,421
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	2,114	2,065	1,507	1,312	1,337
Year 1	Total Supplies	15,223	15,573	15,573	15,573	15,573
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	11,266	11,217	10,659	10,464	10,489
Year 2	Total Supplies	16,465	16,815	16,815	16,815	16,815
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	12,508	12,459	11,901	11,706	11,731
Year 3	Total Supplies	12,182	12,532	12,532	12,532	12,532
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	8,225	8,176	7,618	7,423	7,448
Year 4	Total Supplies	9,239	9,589	9,589	9,589	9,589
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	5,282	5,233	4,675	4,480	4,505
Year 5	Total Supplies	6,071	6,421	6,421	6,421	6,421
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	2,114	2,065	1,507	1,312	1,337
NOTES: All values are in AF/yr.						

1.1.3 Seismic Risk Analysis

Seismic risk in California can pose a significant threat to facilities and infrastructure. PID participated in the preparation of the 2019 Butte County Local Hazard Mitigation Plan Update (LHMP), which addresses seismic risk of critical PID facilities. Annex F of the LHMP details the hazard mitigation planning elements specific to PID and is provided in Exhibit A.

1.2 Legal Authorities

California Water Code Section 375(a), as stated below, grants PID the legal authority to adopt and enforce a water conservation program.

> *California Water Code Section 375(a)*
>
> *Notwithstanding any other law, any public entity that supplies water at retail or wholesale for the benefit of persons within the service area or area of jurisdiction of the public entity may, by ordinance or resolution adopted by a majority of the members of the governing body after holding a public hearing upon notice and making appropriate findings of necessity for the adoption of a water conservation program, adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity.*

In 2014, 2015, and 2016 PID adopted Water Conservation Programs to address existent dry conditions within PID's watershed. Copies of those resolutions are provided in Exhibit B. The Water Conservation Programs established mandatory conservation measures to be implemented at such times when measures are necessary for the preservation of public health and safety standards, as determined by majority action of the Board of Directors.

In 2015, PID passed Ordinance No. 2015-01, An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures (Ord. No. 2015-01). Ord. No. 2015-01 set forth the administrative citation process for users in violation of the Water Conservation Program and all other PID policies and rules and regulations. The Water Conservation Programs and Ord. No. 2015-01 are further discussed herein.

1.3 Standard Water Shortage Levels

The California Water Code Section 10632(a)(3) defines six standard water shortage levels. Standardization of water shortage levels provide a consistent regional and statewide approach to characterizing and conveying the severity of a water shortage. The previously adopted 2015 UWMP established water conservation measures for varying water shortage stages. However, those stages do not cover all requisite shortage levels as defined by the CWC. Consequently, the standard water shortage levels set forth in the CWC are used herein and shall supersede the stages of the 2015 UWMP. WSCP Table 3 lists all shortage levels and a brief description of shortage response actions.

WSCP Table 3 Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	PID will promote wise water use and the restriction of water waste actions. PID will dedicate resources to supporting the actions identified in WSCP Table 5 and WSCP Table 6 PID will encourage voluntary rationing by customers.
2	Up to 20%	PID will uphold all WSCP actions of shortage level 1 and in addition will impose mandatory demand reduction of up to 10%.
3	Up to 30%	PID will uphold all WSCP actions of shortage level 2 and in addition will impose mandatory demand reduction of up to 20%.
4	Up to 40%	PID will uphold all WSCP actions of shortage level 3 and in addition will impose mandatory demand reduction of up to 30%.
5	Up to 50%	PID will uphold all WSCP actions of shortage level 4 and in addition will impose mandatory demand reduction of up to 40%.
6	Greater than 50%	PID will uphold all WSCP actions of shortage level 5.

1.4 Annual Water Supply and Demand Assessment Procedures

Pursuant to CWC 10632.1, all water suppliers are required to conduct an annual water supply and demand assessment on or before July 1 of each year beginning in 2022. If the supplier receives imported water from the State Water Project or the U.S. Bureau of Reclamation (USBR) they shall submit the report within 14 days of receiving final allocations or by July 1 of each year, whichever is later. The steps for conducting the Annual Water Supply and Demands Assessment are outlined in WSCP Table 4.

WSCP Table 4 Water Supply and Demand Assessment Procedure

Step	Description	Time Frame	Participants
Step 1	Compile water demand data from previous calendar year.	Jan 1 - Jan 31	Utility Billing Technician Finance and Accounting Manager
Step 2	Coordinate with Town of Paradise (TOP) Planning Department for current pace of development and project water demands.	Jan 15 - Jan 31	Assistant District Manager TOP Planning Department District Engineer
Step 3	Compile water utility data into Water Utility Reporting Master spreadsheet.	Feb 1 - Feb 14	WTP Superintendent District Engineer
Step 4	Calculate total projected unconstrained water demands for current year.	Feb 15 - Feb 28	WTP Superintendent District Engineer
Step 5	Identify any constraints on facilities or infrastructure that could impact the supply of water, such as planned maintenance that would take facilities offline or known damage to facilities or infrastructure.	Feb 15 - Feb 28	WTP Superintendent Distribution Superintendent District Engineer
Step 6	Commence preparation of Annual Water Shortage Assessment Report.	March - April	WTP Superintendent District Engineer
Step 7	Analyze anticipated volume of surface water supply. Subtract current year projected water demand from volume of anticipated supplies to determine shortage percentage and volume.	By April 1	WTP Superintendent District Engineer
Step 8	If a shortage is identified, managers are to hold an internal meeting to inform participants that a water shortage for the current year is anticipated and the extent of that shortage. Review the WSCP and identify any concerns from the group regarding the ability to carry out the actions described in the WSCP. Assign an individual or group, among the participants, the responsibility of resolving the concern.	By April 15	District Manager Assistant District Manager WTP Superintendent Distribution Superintendent District Engineer
Step 9	The District Manager shall inform the Board of Directors of the water shortage emergency condition and the "Drought stage," under which the emergency falls. The Board of Directors shall declare a water shortage emergency condition to prevail within the area served by PID.	By April 30	District Manager Board of Directors
Step 10	PID shall coordinate with any town or county within which it provides water supply services for the possible proclamation of a local emergency.	May	District Manager Assistant District Manager TOP – Town Manager
Step 11	Finalize and submit Annual Water Shortage Assessment Report to DWR.	By July 1	WTP Superintendent District Engineer

Step 12	The public, interested parties, and local, regional, and state governments shall be notified of the water shortage emergency condition and of all water shortage response actions triggered by the emergency declaration. Pursuant to Government Code 6060, PID shall publish in a newspaper of general circulation the resolution adopting a declaration of water shortage emergency condition. Public notification in addition to a newspaper publication may include noticing through mass media, mailings, utility billings or by any combination thereof.	Beginning 1 business day after declaration of emergency condition and continuing for as long as the emergency condition persists as necessary	District Manager Assistant District Manager District Secretary
Step 13	The appropriate Water Shortage Response Actions for the drought stage, outlined in WSCP Table 5 and 6, will be carried out by the public and PID. PID will enforce compliance in accordance with Ord. No. 2015-01.	Duration of emergency condition	District Manager Compliance Officer
Step 14	Track customer water use at a minimum of a monthly basis. Ensure that total gross water use for that month, or more frequent tracking period, is reduced by the necessary percentage when compared to that same tracking period of the last normal supply year.	Duration of emergency condition	Utility Billing Technician Finance and Accounting Manager District Engineer WTP Superintendent
Step 15	If the needed water use reduction percentage is not met for any month, determine which additional strategies or actions would result in the needed reduction.	Upon determination of insufficient water use reduction	District Manager Assistant District Manager WTP Superintendent District Engineer Additional participants as needed
Step 16	The District Manager shall consider additional shortage response actions and whether those actions would necessitate an update of the WSCP and Water Conservation Program.	Upon determination of insufficient water use reduction	District Manager
Step 17	If it is deemed necessary that the WSCP be updated, the public shall be noticed of an update to the WSCP as described in Step 13, a draft of the updated WSCP will be made publicly available, and a public hearing held.	Upon determination of need for additional conservation measures	Public District Manager
Step 18	Upon majority action by the Board of Directors, the updated WSCP shall be adopted.	No later than the earliest Board Meeting following the Public Hearing.	Board of Directors

WSCP Table 5 Demand Reduction Actions to be Implemented at Each Shortage Level

Shortage Level	Demand Reduction Actions	Percent Reduction	Additional Explanation or Reference *As needed*	Penalty, Charge, or Other Enforcement?
1	Landscape - Limit landscape irrigation to specific times	3%	No outdoor watering between noon and 6pm	Yes
1	Landscape - Other landscape restriction or prohibition	1%	No outdoor irrigation, sprinkling, or outdoor watering shall take place during or within 48 hours after a measurable rainfall.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	1%	Watering in a manner that, as determined at the discretion of PID, results in excessive runoff onto hard surfaces.	Yes
1	Landscape - Other landscape restriction or prohibition	1%	No irrigation with potable water of ornamental turf will be allowed on public street medians within PID's service area.	Yes
1	Landscape - Other landscape restriction or prohibition	1%	For newly constructed structures, irrigation with potable water shall not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	1%	Water fountains and decorative water features must use a water recirculation system.	Yes
1	CII - Lodging establishment must offer opt out of linen service	1%		Yes
1	CII - Restaurants may only serve water upon request	1%		Yes
1	Other - Prohibit use of potable water for washing hard surfaces	1%	No washing driveways or hard surfaces. No watering overspray to hardscaped areas.	Yes

1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	1%	Upon notification by PID, customer must repair leaks on customer side plumbing.	Yes
1	Other - Require automatic shut off hoses	1%	Vehicle washing with potable water only permissible with use of a bucket and a hose with a shut-off nozzle.	Yes
1	Offer Water Use Surveys	1%	Customers are encouraged to sign up for AquaHawk to monitor water use and receive leak alerts	No
1	Expand Public Information Campaign	1-10%	PID shall communicate to customers severity of water shortage through newspaper publication, mass media, mailings, utility billings or any combination thereof.	No
1	Other	0-10%	Voluntary rationing by customers	Yes
1	Reduce System Water Loss	1-25%	PID operations will continue to dedicate resources to repair of leaks caused by the Camp Fire and regularly occurring leaks.	No
1	Decrease Line Flushing	1%	PID operations will restrict line flushing to occur only as needed to promote water quality	No
2	Other	10-20%	Mandatory Rationing	Yes
3	Other	20-30%	Mandatory Rationing	Yes
4	Other	30-40%	Mandatory Rationing	Yes
5 & 6	Other	40-50%	Mandatory Rationing	Yes
NOTES: All demand reduction actions listed under shortage level 1 shall continue in place for all other more restrictive drought stages.				

1.5 Supply Augmentation and Operational Changes

Under normal operational conditions PID's groundwater strategy is to pump water from the well located at D Tank site only as needed for maintenance. In the event of a water shortage, if not already repaired, PID shall prioritize dedicating the needed resources to ensuring the operability of the groundwater well. The well may be operated at its maximum projected yield to produce 350 AF/yr.

PID also has an intertie agreement with Del Oro Water Company to provide mutual assistance during water shortage emergencies up to 1,000 AF.

WSCP Table 6 Supply Augmentation During Water Shortages

Standard Shortage Level	Supply Augmentation Methods by Water Supplier	Volume	Additional Explanation
1-6	Stored Emergency Supply	Up to 350	Groundwater pumped
1-6	Transfers	Up to 1,000	Purchased water through Del Oro intertie
NOTES: PID may choose to implement these augmentation actions during any shortage level. Volume of augmentation methods are in AF/yr.			

PID would need to adjust its operations to support a drought stage that would prompt increased reliance on well water. Tasks for operations may include more frequent maintenance of well pumps and chemical injection pumps, monitoring of ground water level, and filter backwashing.

1.6 Compliance and Enforcement

As stated in Section 1.2, Ord. No. 2015-01 grants PID the authority to enforce compliance with PID policies and rules and regulations related to water conservation. A complete copy of Ord. No. 2015-01 is provided as Exhibit C. The following components are detailed in the ordinance:

- Applicability
- Definitions
- Administrative Citation
- Administrative Citation Fines
- Payment of the Fine(s)
- Hearing Request
- Hearing Procedure
- Right to Judicial Review
- Recovery of Administrative Citations Fines and Costs

1.7 Financial Consequences

During times of a water shortage PID is expected to see revenue reduction as a result of demand reduction actions lowering the total gross water use. Additionally, enforcement of demand reduction actions, which could include investigating water leaks or water waste, follow ups to check for compliance, and administering citations would incur additional expenses that would not be present during non-shortage conditions.

By current policy, PID charges a service charge and a consumption charge to customers. In previous years consumption revenue accounted for approximately 25% of total revenue. Revenue loss for each drought stage is anticipated to be approximately equal to the product of the 25% consumption revenue and the demand reduction percentage for each respective shortage level.

Enforcement expenses will vary based on customer compliance and drought stage. For instance, at the onset of demand reduction action implementation, resources needed for enforcement may be high as customers adjust to altering their use or compliance from customers could vary seasonally with customers finding it more difficult to comply during warmer months.

PID plans to mitigate the financial consequences associated with water shortage response actions primarily through cash reserves. PID's cash reserves include an Operating Fund, Water Rate Stabilization Fund, Emergency Fund, and Drought Management Fund. All of these are potentially available to mitigate financial consequences of a water shortage emergency declaration.

1.8 Plan Adoption, Submittal, and Availability

The Water Shortage Contingency Plan, which is included as an appendix in the 2020 Urban Water Management Plan (UWMP), was introduced and discussed with the public in the same meeting as the public hearing for the UWMP and the adoption hearing of both the WSCP and UWMP. However, public hearings and adoption hearings for both plans were each a separate agenda item. The WSCP is intended to be a stand-alone document and as such has been adopted by PID independently of the UWMP. Note that while the water shortage contingency analysis was titled Water Shortage Contingency Plan in the 2015 UWMP, it was only an element of the UWMP and was not adopted independent of the 2015 UWMP. This 2020 WSCP may be updated as needed between the required UWMP updates, which occur every five years, and no WSCP update shall necessitate an update of the UWMP.

PID has encouraged community and public interest involvement in the WSCP using public meetings and web-based communication. A public meeting will be held on June 21, 2021 and will provide an opportunity for the public to ask questions and raise concerns regarding the WSCP. Prior to the public hearing, the draft WSCP was made available for public inspection on PID's website.

The WSCP will be presented to the Board of Directors for adoption on June 21, 2021 following the public hearing. Copies of the adoption resolutions will be provided in Exhibit D. A copy of this WSCP will be submitted to DWR within 30 days of adoption and by July 1, 2021. The adopted WSCP will be submitted electronically to DWR. A CD or hardcopy of the adopted WSCP will also be submitted to the California State Library. No later than 30 days after submittal to DWR, copies of the WSCP will be available for public review at PID's office. An electronic copy of this plan will also be available for review and download on PID's website: https://pidwater.com/uwmp.

Exhibit A – Butte County Local Hazard Mitigation Plan Update: Annex F Paradise Irrigation District

Annex F Paradise Irrigation District

F.1 Introduction

This Annex details the hazard mitigation planning elements specific to Paradise Irrigation District (PID or District), a previously participating jurisdiction to the 2014 Butte County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the PID. This Annex provides additional information specific to the District, with a focus on providing additional details on the risk assessment and mitigation strategy for the PID.

F.2 Planning Process

As described above, the PID followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Butte County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table F-1. Additional details on plan participation and District representatives are included in Appendix A.

Table F-1 PID Planning Team

Name	Position/Title	How Participated
Kevin Phillips	District Manager	Planning and implementation. Provided data and reviewed drafts
Jim Ladrini	Distribution Superintendent	Planning and implementation
Bill Taylor	Water Treatment Superintendent	Planning and implementation

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP. This section provides information on how the District integrated the previously approved 2014 Plan into existing planning mechanisms and programs. Specifically, the PID incorporated into or implemented the 2014 LHMP through other plans and programs shown in Table F-2.

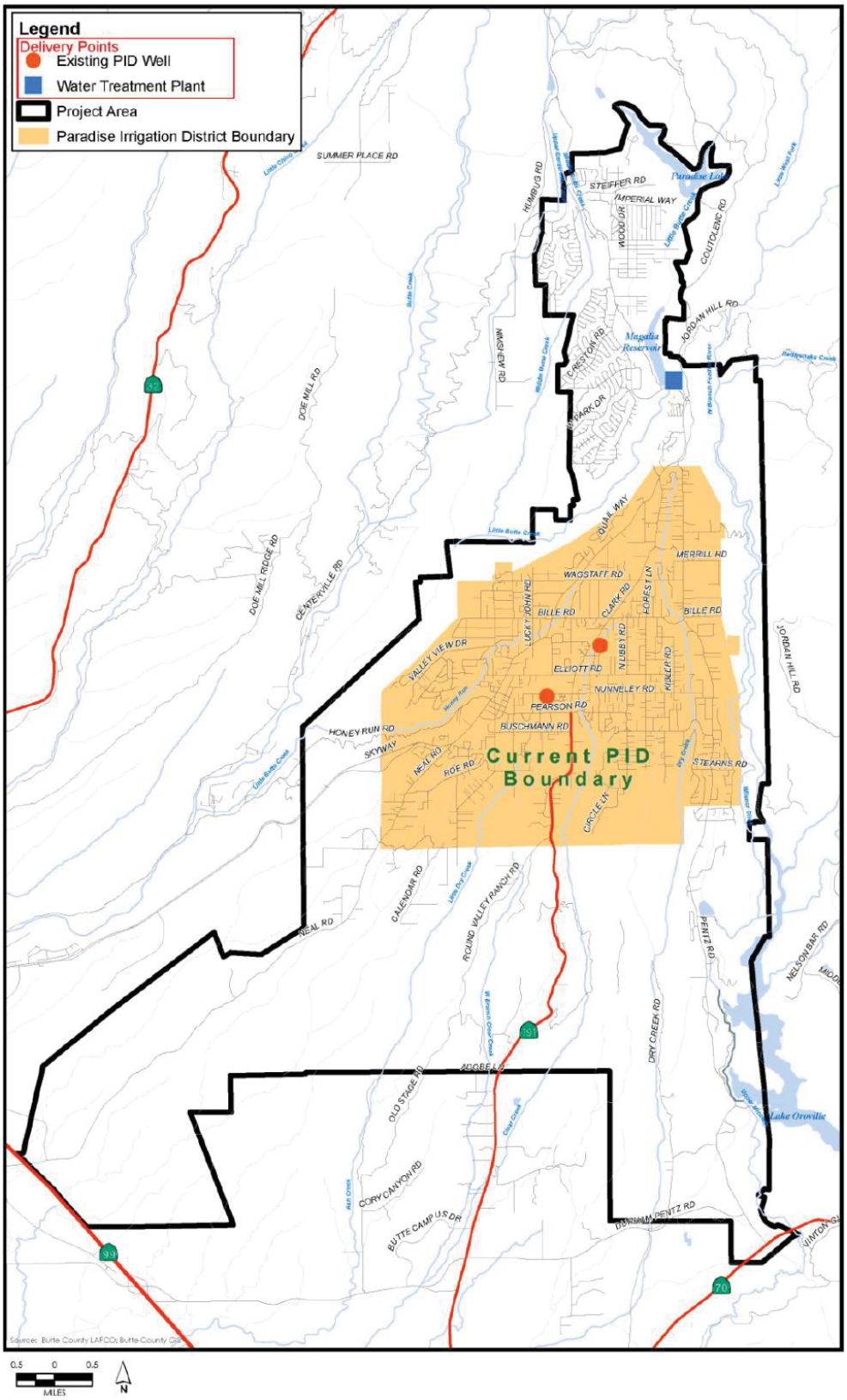
Table F-2 2014 LHMP Incorporation

Planning Mechanism 2014 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
Public Agency Capital Improvement Plan	The District replaced approximately 5 miles of pipe within the District
Drought Planning through the District's strategic Business Plan, Capital Improvement Plan and Urban Water Management Plan	The District replaced leaking pipelines and designed a replacement of the B-Reservoir to increase storage.

F.3 District Profile

The community profile for the PID is detailed in the following sections. Figure F-1 displays a map and the location of the District within Butte County.

Figure F-1 Paradise Irrigation District Boundaries



Source: PID 2015 Urban Water Management Plan

F.3.1. Overview and Background

The Paradise Irrigation District was formed in 1916. The District purchased water rights from Pacific Gas and Electric for $14,000. The idea was that water would turn Paradise into the "Fruit Capital of California." Once the District was formed there was much work to be done in order to bring water to the average citizen who had hopes of prospering as a California grower. In February of 1917 Paradise citizens voted 224 to 24 to tax themselves $350,000 for a bond issue that would finance the building of pipelines and Magalia Dam. The assessed land value at that time was $348,000. The optimistic outlook of Ridge residents soon became gloomy as the declaration of war against Germany came in April of 1917. Prices on everything went up, and steel was not available. Early settlers of this area had some very rough years and several residents lost their land due to unpaid tax assessments during the years of World War I, World War II, and the Depression. In 1956, the Paradise Dam was built for just under $1 million dollars.

Remedial works were completed on Magalia Dam in 1964. The work consisted of stabilizing the existing dam by adding fill material to flatten the downstream slope of the western section below the county road. Approximately 13,000 cubic yards of earth were utilized in the reconstruction. Also 3,200 cubic yards of crushed drain and transition rock were placed on the bottom 3 to 8 feet of the embankment. The Bechtel Corporation served as engineer for the District and District personnel and equipment were used whenever possible. Paradise Dam was raised an additional 24.5 feet in 1976 increasing the available storage to 11,497 acre-feet. A water filtration plant was added to the District's water system in 1986 due to the increased turbidity within the reservoirs during the winter months. In January of 1995 the new treatment plant was completed and placed in service. The new filtration plant has the capacity to treat 22.8 million gallons per day.

F.4 Hazard Identification

PID's planning team identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to the District (see Table F-3).

Table F-3 Paradise Irrigation District – Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Extensive	Likely	Limited	Low	–
Dam Failure	Extensive	Unlikely	Catastrophic	High	Medium
Drought & Water shortage	Extensive	Likely	Catastrophic	High	High
Earthquake	Extensive	Unlikely	Catastrophic	High	Low
Floods: 100/200/500 year	Limited	Occasional	Limited	Low	Medium
Floods: Localized Stormwater	Extensive	Likely	Catastrophic	Medium	Medium
Hazardous Materials Transportation	Limited	Unlikely	Negligible	Low	Low
Invasive Species: Aquatic	Limited	Occasional	Negligible	Low	Low
Invasive Species: Pests/Plants	Limited	Unlikely	Negligible	Low	Low
Landslide, Mudslide, and Debris Flow	Occasional	Unlikely	Catastrophic	Low	Medium
Levee Failure	Limited	Unlikely	Negligible	Low	Medium
Severe Weather: Extreme Heat	Extensive	Occasional	Negligible	Low	High
Severe Weather: Freeze and Winter Storm	Extensive	Occasional	Negligible	Medium	Medium
Severe Weather: Heavy Rain and Storms (Hail, Lightning)	Occasional	Likely	Catastrophic	Medium	Medium
Severe Weather: Wind and Tornado	Limited	Unlikely	Negligible	Low	Low
Stream Bank Erosion	Occasional	Occasional	Negligible	Low	Low
Volcano	Limited	Unlikely	Negligible	Low	Low
Wildfire	Extensive	Likely	Catastrophic	High	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Likelihood of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Climate Change Influence
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

F.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile PID's hazards and assess the District's vulnerability separate from that of the Planning Area as a whole, which has already been assessed in Sections 4.2 Hazard Profiles and 4.3 Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Planning Area and describes the hazard problem description, hazard extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the District is included in this Annex. This vulnerability assessment analyzes the property and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

F.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section F.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard affects the District and includes information on past hazard occurrences. The intent of this section is to provide jurisdictional specific information on hazards and further describe how the hazards and risks differ across the Planning Area.

F.5.2. Vulnerability Assessment and Assets at Risk

This section identifies PID's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the District. This data is not hazard specific but is representative of total assets at risk within the District.

Assets at Risk and Critical Facilities

This section considers the PID's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this Plan. Critical facilities are defined for this Plan as:

> ***Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.***

Table F-4 lists critical facilities and other District assets identified by the PID planning team as important to protect in the event of a disaster. PID's physical assets, valued at over $71 million, consist of the buildings and infrastructure to support PID's operations.

Table F-4 Paradise Irrigation District Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
PID Treatment Plant	Water Treatment Plant	$14,000,000	Earthquake and dam failure
PID Pumping Station	Treated Water Delivery Pumps	$400,000	Earthquake, dam failure, wildfire
42-inch Transmission Pipeline	Above Ground Pipeline and Creek Crossing	$90,000	Earthquake and dam failure
Paradise Dam	Dam	$100,000,000	Earthquake and dam failure
Magalia Dam	Dam	$30,000,000	Earthquake and dam failure
Diversion Dam	Raw Water Supply	$3,000,000	Earthquake and dam failure
Water District Storage Tanks	Treated Water Delivery	$24,000,000	Earthquake and Wildfire
Total		**$171,490,000**	

Source: PID

Natural Resources

PID has a variety of natural resources of value to the District. These natural resources parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Historic and Cultural Resources

PID has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Growth and Development Trends

General growth in the District parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Development since 2014

No District facilities have been constructed since 2014.

Future Development

The District has no control over future development in areas the District provides water in. Future development in these areas parallels that of the Town of Paradise. Due to the Camp Fire, future development in Paradise is currently unclear. More general information on growth and development in

Butte County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Butte County Vulnerability and Assets at Risk of the Base Plan.

The District Planning Team noted that the District is in the process of investigating the opportunity to expand its service area to the west of the District boundaries. The expansion could include an intertie with Cal Water Chico to support the Vina Subbasin groundwater users.

F.5.3. Vulnerability to Specific Hazards

This section provides the hazard profile discussion and vulnerability assessment for those hazards identified above in Table F-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Butte County Planning Area).

An estimate of the vulnerability of the PID to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

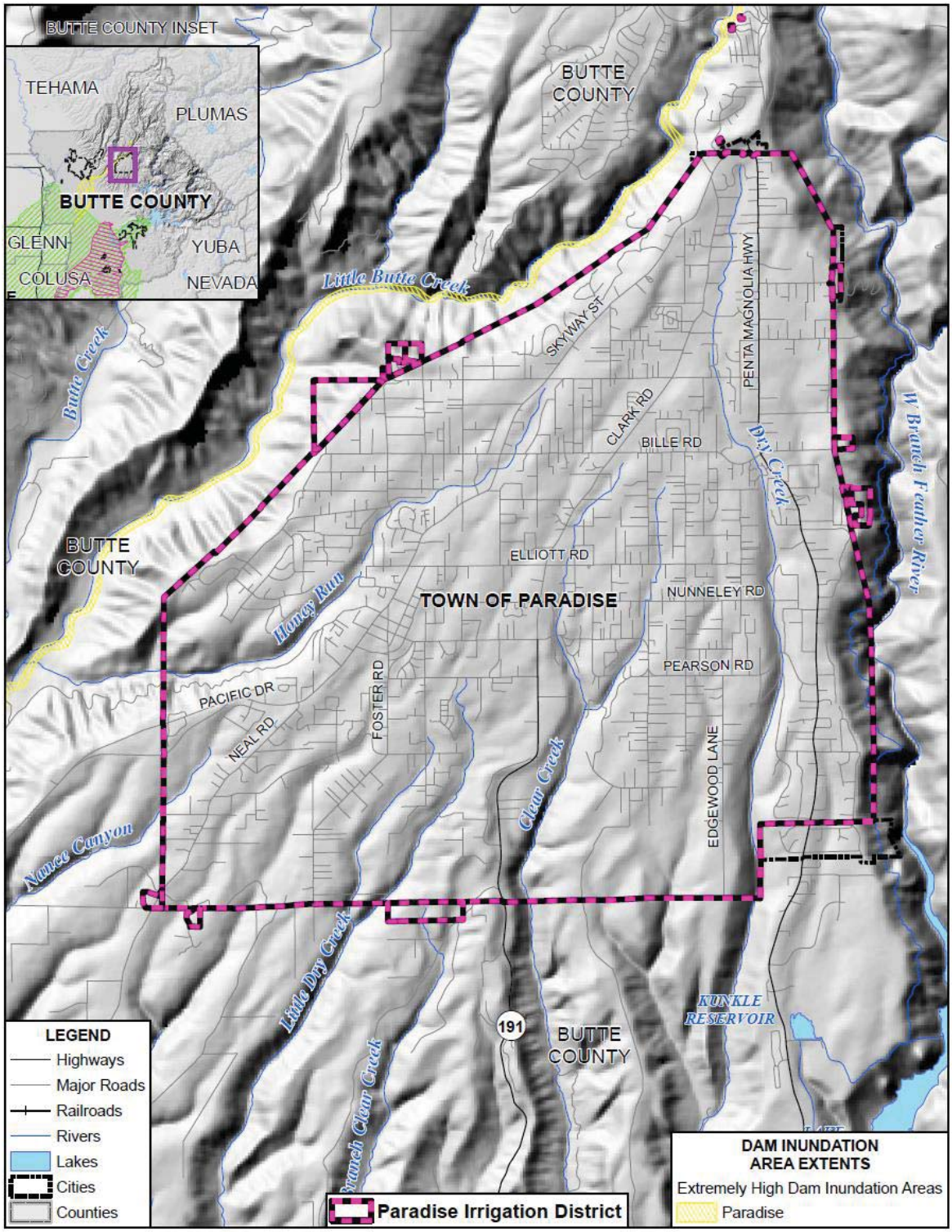
Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

Location and Extent

Paradise Irrigation District maintains two dams north of the Town of Paradise that impound stormwater flows in reservoirs used to provide drinking water to the community. The Skyway two lane road located on top of the dam is the primary access route into the Pines community (>10,000 residents). The upstream Paradise Reservoir is the main storage facility with a storage capacity of approximately 11,500 acre-feet. Magalia Reservoir was originally constructed with a storage capacity of 2,570 acre-feet.

Due to their location and proximity to the Town of Paradise, the Paradise dam is an extremely High classification and the Magalia is classified as a high hazard dam. There has been no history of failure of either of these two dams. Dam failure would affect mainly those living in the canyon and would likely have a limited effect on the Town of Paradise. Both of these dams had available inundation maps from Cal OES. District boundaries and dam inundation areas can be seen on Figure F-2, Figure F-3, and Figure F-4.

Figure F-2 Paradise Irrigation District – Extremely High Hazard Dam Inundation Areas



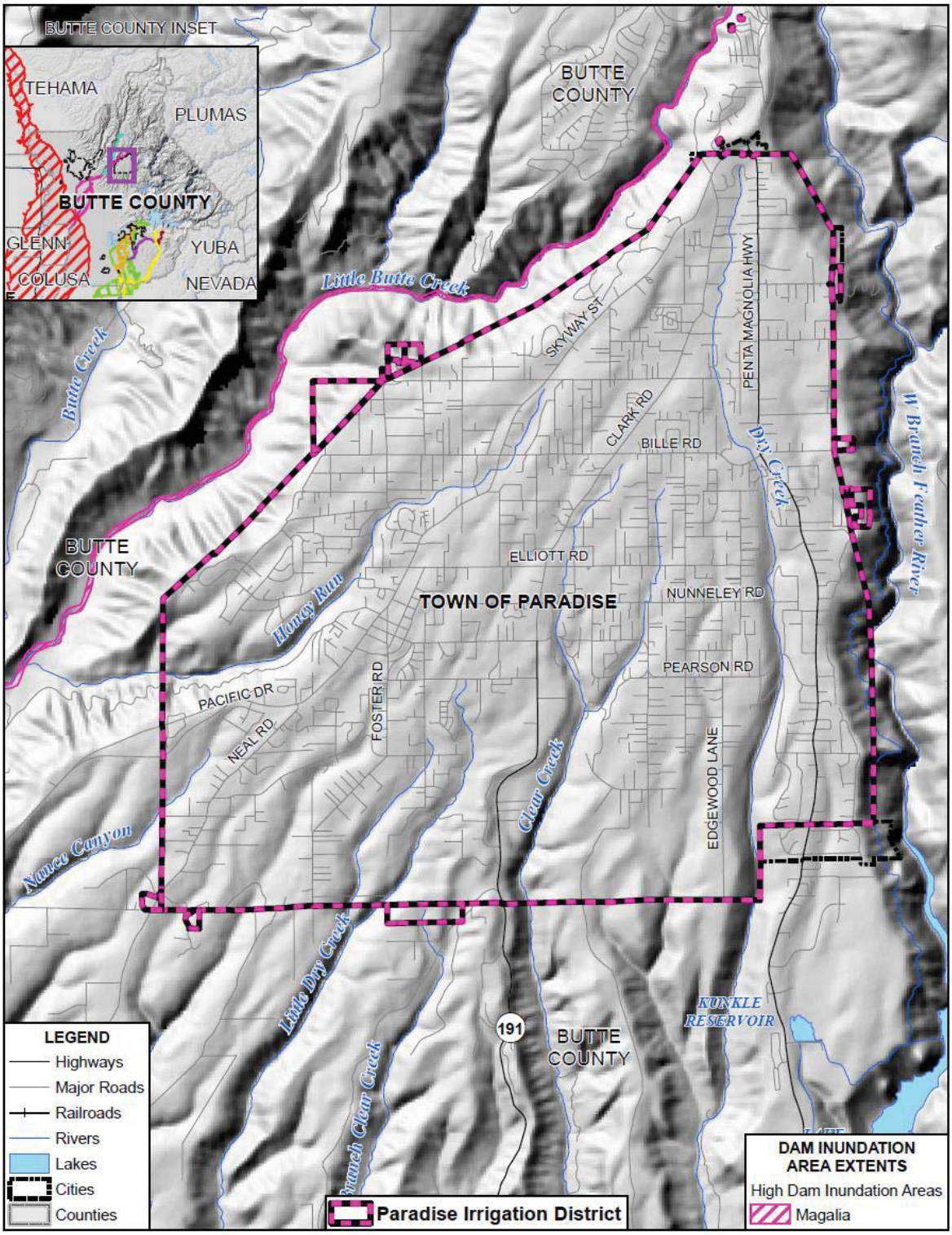
Foster Morrison

0 1 2 Miles

Butte County CALIFORNIA

Data Source: Cal OES Dam Status 10/2017, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Figure F-3 Paradise Irrigation District – High Hazard Dam Inundation Areas



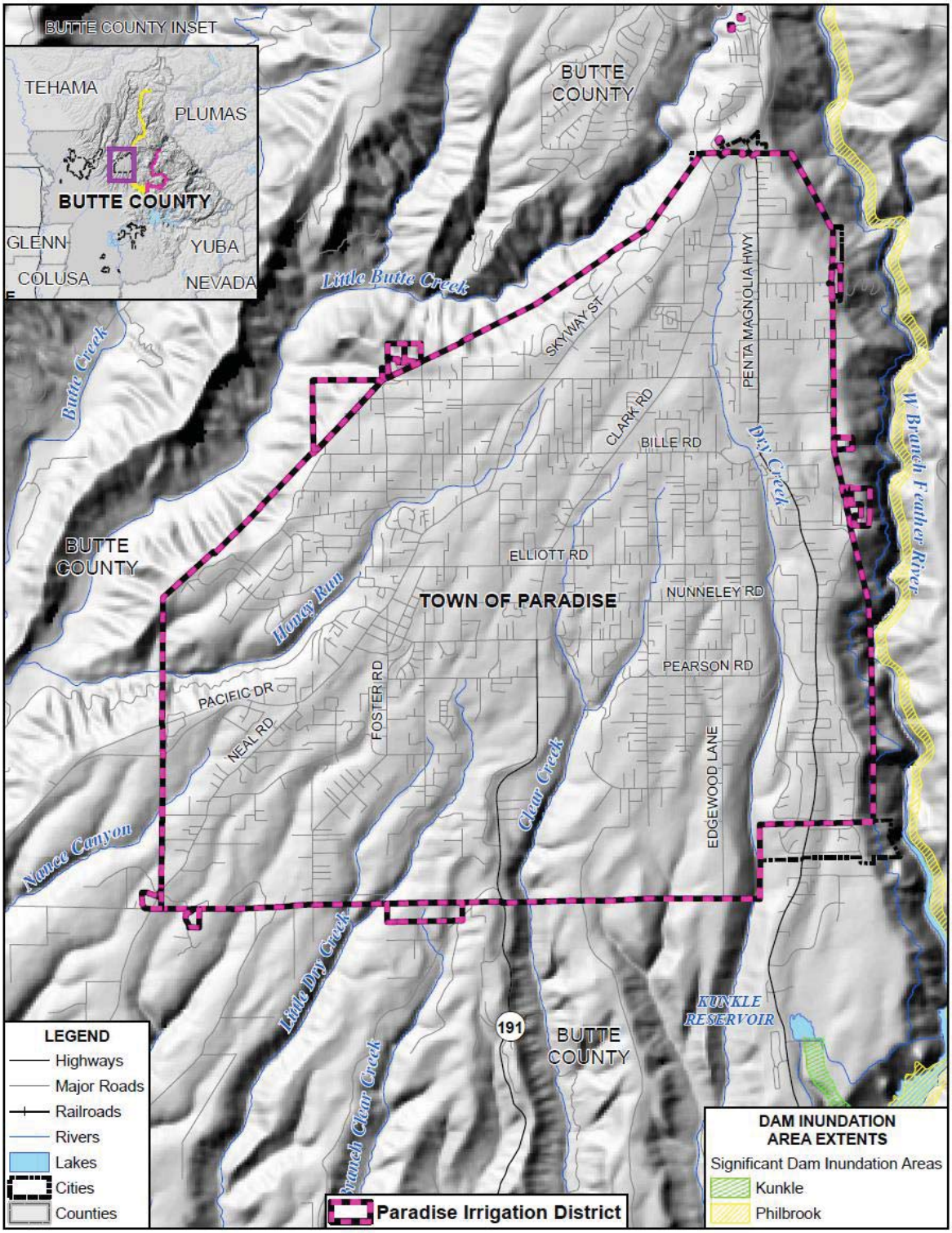
Foster Morrison

0 1 2 Miles

Butte County

Data Source: Cal OES Dam Status 10/2017, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Figure F-4 Paradise Irrigation District – Significant Hazard Dam Inundation Areas



There is no scale with which to measure dam failure, just the hazard classification system for each dam. While a dam may fill slowly with runoff from winter storms, a dam break can have a very quick speed of onset. The duration of dam failure can vary depending on the nature of the dam break or failure.

Past Occurrences

The District Planning Team noted no past occurrences of dam failure that have affected the District.

Vulnerability and Impacts to Dam Failure

Dam failure flooding can occur as the result of partial or complete collapse of an impoundment. Dam failures often result from prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam.

A dam failure can range from a small, uncontrolled release to a catastrophic failure. Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Secondary losses would include loss of the multi-use functions of the facility and associated revenues that accompany those functions. Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding.

Magalia Dam has been identified by the Division of Safety of Dams (DSOD) as at risk to failure in the event of significant seismic activity. In the event of such failure, floodwater would cause significant damages in the Little Butte Creek and Butte Creek Canyons and the town of Durham and exceed the capacity of the downstream Butte Creek levees. The Town of Paradise would be affected since the water treatment plant and the 42-inch supply line that provides drinking water for the residents in the community could be severely damaged since it is located at the downstream toe of the dam. The primary access road to the Pines Community would be eliminated and impact >10,000 residents. Reconstruction of the damaged facilities would be difficult, cause a significant water outage, take many months to restore, and the repair costs would be very high.

In a 1992 study of Magalia Dam it was concluded that the upstream slope of the dam was found to have inadequate stability under seismic loading conditions. In 1997 in response to this concern, the DSOD required the water storage in the reservoir to be decreased to 800 acre-feet. If stabilized, the capacity of Magalia Reservoir could be restored to 2,570 acre-feet. The change in water level elevation from 2,225 feet when full, was lowered to the current restricted operating level of 2,199 feet, or a reduction of 26 change feet. Each year the DSD conducts a dam inspection and the District prepares a “Surveillance Report”, with assistance from the URS Corporation.

In 2004, the PID constructed a diversion structure above Magalia Reservoir and a raw water pipeline to the water treatment plant. This improvement will supply untreated water to the treatment plant during any reconstruction of Magalia Dam, or the widening of Skyway across Magalia Dam. The PID is working on extending its water rights permits, which must be secured before further work is contemplated on Magalia Dam.

The applications for extending the District’s Water Rights were filed on time. The District hired a consultant to complete the CEQA process for the water rights renewal and Sphere of Influence expansion.

The District is in the process of completing an EIR for the water rights extension and sphere of influence expansion. The field work is completed, and the document is being developed.

The County did preliminary engineering on a project to widen the Skyway's two lanes to four lanes across Magalia Dam. The PID's preferred alternative for the widening project involves stabilizing the dam that would restore the design water level of 2,225 feet behind Magalia Dam, or 2,570 acre-feet.

Dam failure flooding presents a threat to life and property, including buildings, their contents, and their use. Large flood events can affect crops and livestock as well as lifeline utilities (e.g., water, sewerage, and power), transportation, jobs, tourism, the environment, and the local and regional economies.

Impacts to the PID from dam failure include damage to property and critical facilities. Other impacts include the costs to PID to rebuild any owned dam that failed. The District would also face the loss of water revenue if the reservoirs were drained.

Assets at Risk

Based on the dam failure inundation maps for the Magalia and Paradise Dams, the following District facilities would be at risk:

- PID Water Treatment Plant
- 42-inch Water Supply Transmission Pipeline
- The Skyway two-lane road on top of Magalia Dam

The following communities and the environment would be at risk:

- Town of Durham - 12 to 15 miles downstream with a population greater than 1000
- Little Butte Creek - Riparian environment
- Little Butte Canyon - 5 to 7 miles downstream with a population less than 1000
- Pines Community - adjacent to Magalia Dam with a population of greater than 10,000

Future Development

The District takes multiple factors into account, including dam inundation areas, when siting new projects. The District has potential projects to mitigate dam inundation for District property, as well as downstream facilities:

- Hazard assessment study
- Dam replacement

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Hazard Profile and Problem Description

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or wildfires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends. Water districts normally require at least a 10-year planning horizon to implement a multiagency improvement project to mitigate the effects of a drought and water supply shortage.

Location and Extent

As discussed in the Base Plan, drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the PID, is at risk. Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages. Should a drought last for a long period of time, water shortage becomes a larger issue.

Past Occurrences

Since drought is a regional phenomenon, past occurrences of drought for Paradise are similar to those for the County. Those past occurrences can be found in Section 4.2.8 of the Base Plan.

The District did note that PID's primary water supply system is reliant upon water captured and stored from Little Butte Creek. Little Butte Creek is a minor stream in the Sacramento Valley drainage that rises in the northwestern foothills of the Sierra Nevada and lies wholly within Butte County. Elevations range from 2,150 feet at the base of Magalia Dam to 3,850 feet at the uppermost elevation in the watershed. Flow in the catchment area is seasonal and responds to and follows the pattern of precipitation. Data for the runoff in the catchment area is from 1907 to 2004. The average annual runoff for the past 97 years has been approximately 15,750 acre-feet. The water year 1935-36 (estimated runoff 15,960 acre-feet) was used to represent the average year. The lowest estimated runoff was in the 1923-24 water year at 1,763 acre-feet. Average runoff far exceeds the District's current and projected needs of 7,000 to 8,000 acre-feet of water demand each year, although the District is vulnerable to potential water shortages during extended dry periods. The District's firm yield is 7,300 acre-feet plus 350 acre-feet from a well (groundwater).

Firm yield is defined as the amount of water that could be annually utilized from the Little Butte Creek system during a critical drought period. PID stores water from Little Butte Creek in two reservoirs located on the drainage. Magalia Reservoir originally had a storage capacity of 2,574 AF, but in 1997 the reservoir was drawn down to comply with safety requirements of DSOD. After drawdown, Magalia Reservoir has a storage capacity of 800 AF. Paradise Reservoir has a storage capacity of 11,497 AF. The total storage capacity of both reservoirs is 12,293 AF. The District has approximately 6,000 acre-feet of additional water rights that are not being utilized due to a lack of storage.

The District drilled a well in 1996. The output from the well is estimated to be 350 acre-feet per year but is operated annually at only 30 acre-feet per year to keep the well operational. The primary purpose of the well is to augment the District's water supply during times of drought or emergency. Ground water supply in the District's area is not expected to provide a significant source of water.

Vulnerability and Impacts to Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the District, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts is often extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. The vulnerability of the PID to drought is District-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels. The increased dry fuels result in an increased fire danger. Areas of Paradise are in the foothill interface and become more susceptible to wildfire as drought conditions increase. Residents of these areas are often times dependent upon ground water (water wells), as these water wells begin to fail the ability of the residents to water landscaping decreases, fire fuel loads increase.

The most significant qualitative impacts associated with drought in the planning area are those related to water intensive activities such as wildfire protection, municipal usage, commerce, tourism, and recreation. Voluntary conservation measures are typically implemented during extended droughts. A reduction of electric power generation and water quality deterioration are also potential problems. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

Assets at Risk

The drought and water shortage impacts are thoroughly evaluated in the Paradise Irrigation District's 2015 Urban Water Management Plan, including a Water Shortage Contingency Plan and a Catastrophic Supply Interruption Plan. The District's 2012 updated Water System Emergency Response plan includes an Emergency Action Plan (EAP) for dam failure as well as EAPs for other natural disaster and man-made malevolent events.

Future Development

Future development of District facilities is unlikely to be affected by drought during the process of siting the project. The District has potential projects to mitigate drought's affects to District customers:

- Hydraulic Modeling of the water distribution
- Distribution system and water treatment plant upgrades
- Increase storage of the B-Reservoir
- Upsizing of Customer service-lines with backflow assemblies

Earthquake and Liquefaction

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

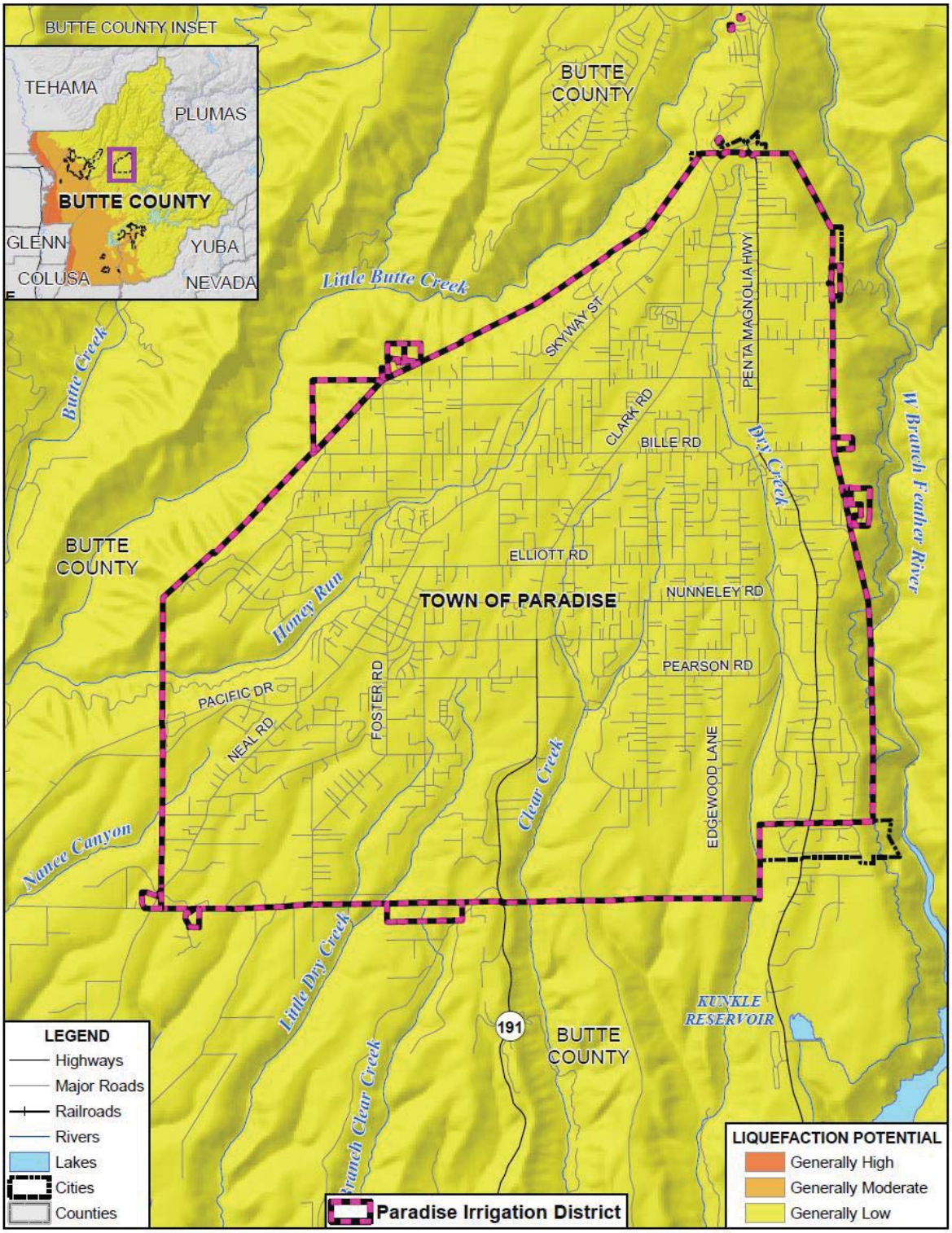
The State of California has identified five areas of critical seismic concern including surface ruptures, ground shaking, ground failure, tsunamis, and seiches. Each of these is caused by earthquake activity

thereby creating hazards for life and property, which has the potential anywhere in California. The District is not at risk for tsunamis or seiches due to its inland location and the absence of nearby large bodies of water. The only known active fault in Butte County is the Cleveland Hills fault, the site of the August 1975 Oroville earthquake. This earthquake had a Richter magnitude of 5.7. Due to the proximity of the District to the Cleveland Hills Fault, the District is at risk to an earthquake occurring on this fault. These earthquakes can cause liquefaction within the District. Liquefaction is a process whereby soil is temporarily transformed to a fluid formed during intense and prolonged ground shaking. In a 1992 study of Magalia Dam it was concluded that the upstream slope of the dam was found to have inadequate stability under seismic loading conditions. In 1997 the water level in the reservoir was lowered, due to seismic stability concerns. There is concern that the Magalia dam could fail under stress from seismic shaking.

Location and Extent

Since earthquakes are regional events, the whole of the District is at risk to earthquake. Hazus earthquake analysis for the region is shown in Section 4.3.6 of the Base Plan. PID and the surrounding area is located in a region of relatively low risk of earthquake occurrence. Additionally, the District is potentially at risk to liquefaction from earthquake shaking; the District falls within an area of generally low liquefaction potential A map of liquefaction potential and District locations is shown on Figure F-5.

Figure F-5 Paradise Irrigation District – Liquefaction Areas



Data Source: Butte County General Plan 2030, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.2.10 of the Base Plan. Earthquake and liquefaction both have a short onset period, and the duration of shaking and liquefaction is short as well.

Past Occurrences

As shown in the Base Plan, only the 1975 5.7 magnitude Oroville earthquake that resulted in a federal disaster declaration has occurred in the County. The District was not affected by this earthquake. The HMPC noted no other past occurrences of earthquakes or liquefaction that affected the District in any meaningful way.

Vulnerability and Impacts to Earthquake

Earthquake vulnerability and impacts are primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable. The primary impacts of concern are life safety, property damage., and impacts to critical facilities and infrastructure, including the road system.

Ground shaking is the primary earthquake hazard. Many factors affect the survivability of structures and systems from earthquake-caused ground motions. These factors include proximity to the fault, direction of rupture, epicentral location and depth, magnitude, local geologic and soils conditions, types and quality of construction, building configurations and heights, and comparable factors that relate to utility, transportation, and other network systems.

The California DSOD is concerned that if the epicenter of an earthquake of significant magnitude were to occur nearby a dam, the likelihood of a structural failure is high. Local dams vulnerable to earthquake damage are hydraulic-filled embankment dams built with sluicing materials from an adjacent area and depositing the slurry into the embankment, such as the Magalia and De Salba Dams.

While not considered an active fault like the Cleveland Hills fault discussed above, there are a number of faults within Butte County and a large number of relatively nearby faults that could be considered potentially active, based on criteria developed by the California Mining and Geology Board. Following is a description of the active faults near the Magalia Dam. These faults are detailed below and include the following:

- Magalia Fault. The Magalia Fault is located near the northern end of the Foothill Fault System, a system of northwest trending east dipping normal fault formed along the margin of the Great Valley and the Sierra Nevada provinces. The DSOD, based on Fault Activity Guidelines in 2001 reclassified the Magalia Fault as conditionally active. The Paradise Irrigation District commissioned a study by Holdrege & Kull, dated January 2007 to evaluate the Magalia Fault.
- Foothills Shear Zone. The Foothills shear zone extends into southern Butte County. A possible magnitude 7.0 earthquake in this zone would result in intensities as high as IX in Butte County

In 2007, The District hired a consultant to determine the status of the Magalia Fault. The consultant's opinion was that the fault is inactive, but the DSOD would not accept the finding without additional studies. Below is information from the 2007 Fault Evaluation Report prepared by Holdrege and Kull.

Seismic studies were performed in 1973 and updated in 1992 by Harlan Tait Associates (HTA) to evaluate the potential for the hydraulic fill within the dam to liquefy under earthquake loading. The later HTA study concluded that the upstream slope was potentially unstable during seismic events and the Division of Safety of Dams (DOSD) required that the dam be strengthened or the water level behind the dam be lowered. DOSD performed their own evaluation of the dam and concluded that the reservoir be lowered to 35 feet below the crest of the dam. In 1994, Dames & Moore (D&M) performed an independent study for PID to further evaluate a safe reservoir level. D&M's study indicated that the reservoir would be safe if the water level was further reduced an additional 5 feet; lowering the reservoir to 40 feet below the crest of the dam. The DOSD accepted the findings and stipulated that the reservoir elevation be restricted to elevation 2,200 feet, above mean sea level (MSL).

A Feasibility Study was performed in 2002 by URS Corporation (URS) to further evaluate the restricted reservoir level as previously imposed by DSOD. The purpose of that study was to determine if it was possible to revise the restricted storage capacity of the reservoir. The scope of the study included review of the extensive amount of field and laboratory tests that were performed during previous investigations and additional static and dynamic analyses using current software and correction procedures for penetration resistance N1 (60)cs. URS concluded that the water elevation of the reservoir could be safely raised an additional 13 feet to elevation 2,213 feet, above MSL. The URS evaluation was based on an assumed magnitude 6.5 earthquake occurring on the Chico Monocline Fault with an 84th percentile peak ground acceleration (PGA) value of 0.34g.

However, based on the Fault Activity Guidelines established by DSOD in 2001, the Magalia Fault was reclassified as conditionally active in a DSOD memorandum dated July 1, 2002. Because the Magalia Fault was reclassified to be conditionally active, DSOD recommended that the 50th percentile PGA of 0.61g for the Magalia Fault be used to update previous static and dynamic analyses related to the Magalia Reservoir. The reservoir elevation is currently restricted to 2,199 feet above mean seal level.

Impacts to the District included damage to facilities and distribution lines. Dams owned by the District could also be impacted. Other impacts include damage to structures; critical infrastructure and facilities, and loss of life and injury to people in downstream dam areas.

Assets at Risk

Aging water distribution systems comprised of steel pipe requires ongoing replacement that is vulnerable to earthquake damage due to corrosion issues. The District identified 60 miles of pipe that should be replaced. District personnel installed 29,821 feet of mainline in the last five years. In addition to that, grant funding helped with the installation of 12,000 feet of mainline installed by a contractor. While the total fell short of the 5-year goal to complete the replacement of 75,000 feet, a deferral of mainline installation was realized with the freezing of three full-time positions and a dispute with the union over temporary worker status. Pipe replacement avoids unnecessary water losses that deplete water storage supply, reduce water to

the Bay-Delta and increase operations costs. The high cost for unplanned pipeline repairs that damage public and private property can be avoided by replacing the steel pipes before they become problematic.

The water treatment plant and 42-inch transmission water line are highly vulnerable to severe damage and critical loss of water supply due to dam failure due to earthquake shaking. The following District facilities would be at risk due to an earthquake:

- PID Water Treatment Plant
- 42-inch Water Supply Transmission Pipeline
- Water Distribution Storage Tanks
- Magalia Dam

Future Development

The District will build any new development to current California Building Code, which includes construction standards designed to mitigate hazards. In addition, the District has a potential project to mitigate the hazards of earthquake to the District and its customers:

- Replacement of B-Reservoir with steel tanks

Floods: Localized Stormwater

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Localized flooding and other issues caused by severe weather events, primarily heavy rains and severe storms, are an annual occurrence in the District. Normally storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that overwhelm the drainage system. Primary concerns include impacts to infrastructure that provides a means of ingress and egress throughout the community.

Location and Extent

The Town of Paradise and areas of the District are subject to localized flooding. The extent of localized flooding is usually measured in volume, velocity, and depths of flooding. Expected flood depths in the District vary by location. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Localized flooding in the District tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

Past Occurrences

The District Planning Team noted that localized flooding has not affected District facilities in the past. It can cause issues with District personnel traveling to and from work, as well as to and from District facilities.

Vulnerability and Impacts to Localized Flood

Localized flooding occurs throughout the District primarily during the winter and spring months during periods of heavy rains. Localized flooding can cause road closures, pavement deterioration, washouts, landslides/mudslides, debris areas, and downed trees. The amount and type of damage or flooding that occurs varies from year to year and storm to storm, depending on the quantity of runoff. Heavy rains may produce ponding around storm drains and in low lying areas, but these events are short in duration and do not typically cause property damage.

The drainage patterns of the Paradise area and the District reflect the uniqueness of its location on a gently sloping ridge surface. The Paradise area is dominated by a somewhat continuous overland runoff flow which is organized into local rills or depressions as the runoff is collected. The Paradise area is divided into fairly distinct drainage basins.

The drainage systems often coincide with groundwater seeps and springs which serve to increase the moisture availability beyond the intermittent flows directly related to storm runoff. Consequently, the drainage depressions and their downslope channels are often thickly vegetated.

As these areas are developed, the undergrowth and grass cover are often removed and channels are randomly excavated to suit the individual owner's or developer's interest. Often when this takes place, either through lack of knowledge, lack of funds or indifference, the resulting channel is inadequate in capacity and poses a real possibility of promoting damage. While the soils and subsoils of the Paradise area do not markedly aggravate the runoff situation, they also do not prove to be highly permeable. This often results in localized flooding which can be exacerbated by such land use activities as grading operations, vegetation clearance, inattention to storm runoff from construction sites during the peak winter rainfall period, large-scale paving and the lack of a collection system for storm waters. Storm runoff arrives at the principal drainage channels through overland flow for most of the Paradise area. Very few collector systems have been constructed and the primary form of collection has been through roadside ditches.

Impacts to the District from localized flood include possible damage to facilities and infrastructure. Localized flooding can also affect transportation routes that District personnel must take to get to District facilities.

Assets at Risk

The PID treatment plant and the 42-inch above ground pipeline are vulnerable to flooding from the overtopping of the spillway for Magalia Dam. The spillway currently flows toward the treatment plant below the dam.

Future Development

Future development is unlikely to be affected by localized flooding. The District has noted potential projects to mitigate localized flood for the District and its customers:

- Hazard assessment study
- Dam replacement

Severe Weather: Freeze and Winter Storm

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

According to the National Weather Service (NWS) and the Western Regional Climate Center (WRCC), extreme cold often accompanies a winter storm or is left in its wake. Winter snowstorms in the District can include freezing temperatures, snow, and ice. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Infants and the elderly are most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures can cause significant damage to the agricultural industry.

Location and Extent

Freeze and winter storms are regional issues, meaning the entire District is at risk to freeze and winter storms. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of freeze, temperature data from the County from the WRCC indicates that there are 21.8 days that fall below 32°F in western Butte County, with no days falling below 0°F. Freeze has a slow onset and can be generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time. Snowfall is generally measured in snow fall and snow depths. It is rare for snow to fall, and even rarer that snow accumulates in the District. Snowfall has an onset that is similar to freeze in the District.

Past Occurrences

While the District Planning Team noted that while freeze and winter storms are annual events, there have been no events that have damages District facilities.

Vulnerability and Impacts to Severe Weather: Freeze and Winter Storms

The District experiences temperatures below 32 degrees and occasional snowfall during the winter months. The temperature moves to the teens in rather extreme situations. Occasionally, winter storms with freezing weather, snow and ice can affect the District. Winter storms can include snow and ice, and are occasionally accompanied by high winds, which can cause downed trees and power lines, power outages, broken pipes, accidents, and road closures. District facilities can be affected by loss of electricity.

Assets at Risk

The following District facilities would be at risk due to a severe weather:

- PID Water Treatment Plant
- PID Pumping Station

Future Development

The District builds all facilities to current California Building Code, and takes freeze and winter storm into account when siting facilities. Potential projects to mitigate freeze and winter storms for the District and its customers are:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.

Severe Weather: Heavy Rain and Storms (Hail, Lightning)

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Storms in the District occur annually and are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in the District falls mainly in the fall, winter, and spring months.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the District. All portions of the District are at risk to heavy rains. Most of the severe rains occur during the winter months. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of severe storms in California, Butte County, and the District is often short, ranging from minutes to hours. In some cases, rains can continue for days at a time. Information on precipitation extremes can be found in Section 4.2.4 of the Base Plan.

Past Occurrences

While the District Planning Team noted that while heavy rain and storms are annual events, there have been no events that have damages District facilities.

Vulnerability and Impacts to Heavy Rain and Storms

According to historical hazard data, severe weather is an annual occurrence in the District. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rain and severe storms are the most frequent type of severe weather occurrences in the District. Wind and lightning often accompany these storms and have caused damage in the past. Hail is rare.

Actual damage associated with the primary effects of severe weather have been limited. It is the secondary hazards caused by weather, such as flooding, that have had the greatest impact on the District. Impacts to District assets, critical facilities (such as utilities), and the transportation system can occur. Life safety issues can occur but are less of a concern during heavy rains and storms. The risk and vulnerability associated with these secondary hazards are discussed in the localized flood section of this Annex.

Assets at Risk

The water treatment plan and the above ground 42-inch transmission waterline are at critical risk due to this hazard.

Future Development

The District builds all facilities to current California Building Code, and takes heavy rain and storms into account when siting facilities. Potential projects to mitigate heavy rain and storms for the District and its customers are:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–Extremely High

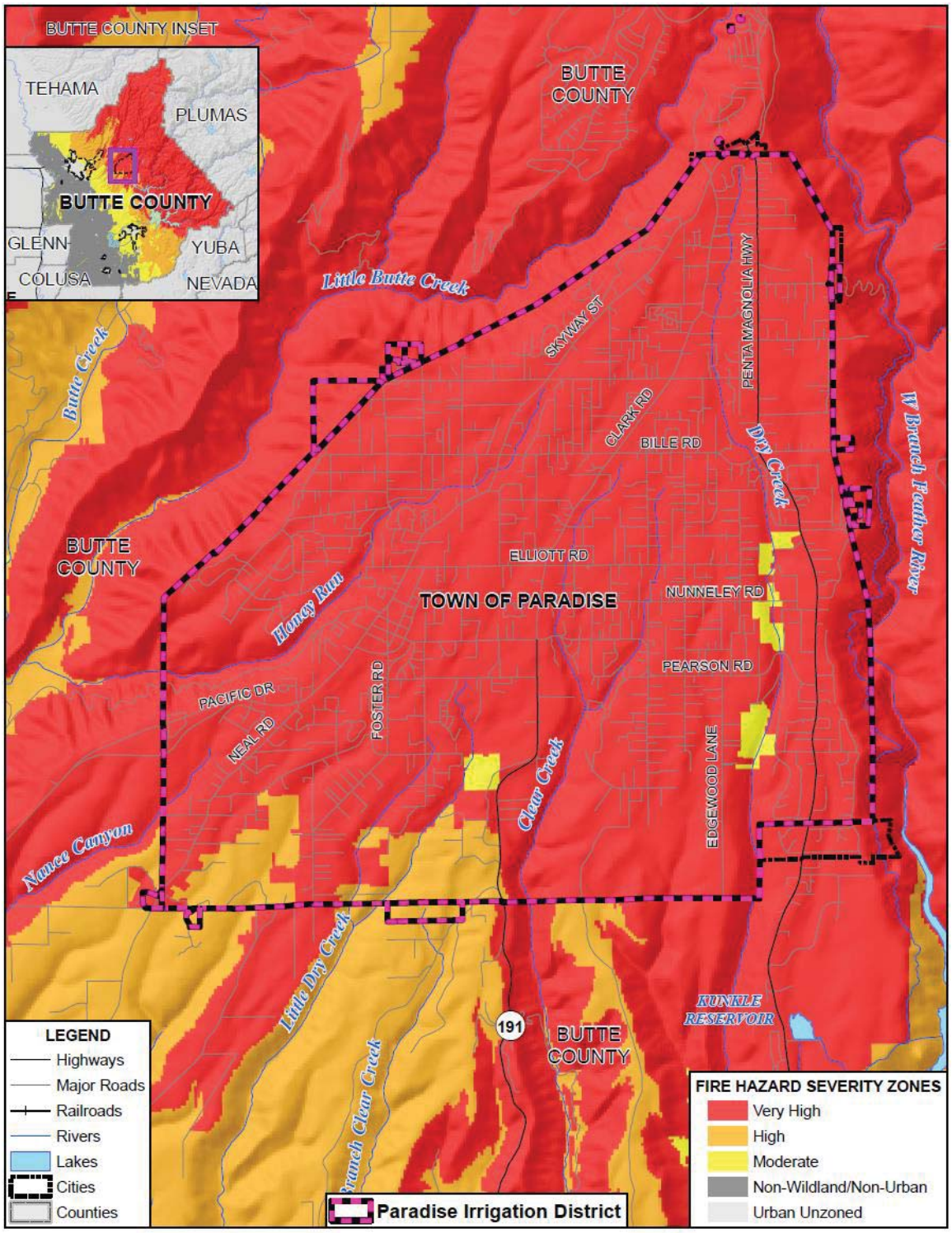
Hazard Profile and Problem Description

Wildland fire is an ongoing concern for the PID. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire suppression practices have affected the natural cycle of the ecosystem. While the fire season was considered to be predominantly May through October, it has now become a year around concern. Complicating wildfire issues is the threat of PG&E shutdowns during red flag days. This affects the District's ability to treat water and pump water to the upper zones of the District.

Location and Extent

The whole of the District lies in a Moderate to Very High Fire Hazard Severity Zone. Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought. Fires can burn for a short period of time or may have durations lasting for a week or more. Fire Hazard Severity Zones in the District can be seen on Figure F-6.

Figure F-6 Paradise Irrigation District – Fire Hazard Severity Zones



Foster Morrison

0 1 2 Miles

Butte County CALIFORNIA

Data Source: CAL FIRE (Adopted SRA 11/2007 - fhszs06_3_4, Draft 9/2007 - c4fhszl06_1), Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Past Occurrences

2008 Ophir Fire- Lightning from storms, particularly during dry summer months is a potential natural ignition source for wildfire. An example of this would be the June 2008 fires. A large fire surrounded the Town of Paradise. No damages were done to the District facilities, but a fire of this nature underscores the risk of wildfire to the District (see discussion of Camp Fire below). The 2008 fires showed that further education in the community is needed to stop the use of yard sprinklers during evacuations. The water is not beneficial and takes water away from firefighting efforts.

2018 Camp Fire – During the Camp Fire, toxic chemicals (especially volatile organic compounds, VOCs, such as benzene) contaminated the Paradise Irrigation District (PID) distribution system. The distribution system is comprised of 172 miles (almost a million feet) of water mains and 10,480 service laterals. A significant number of the 10,480 individual service laterals and/or meters melted and the system partially drained. Following the Camp Fire, the distribution system was re-pressurized, leaks were repaired, and initial water quality testing began. It was discovered in the 2017 Tubbs Fire in Santa Rosa, that VOC contamination may be an issue in areas impacted by wildfire, especially coupled with depressurization of the water distribution system. The initial water quality testing discovered VOC contamination in multiple samples. Immediately, a "do not drink" advisory was initiated by PID. The full extent of the contamination is not yet known, but the system needs to be confirmed to be clear of contaminants and determined safe for use in distributing drinking water. A Water System Recovery Plan has been developed to accomplish this task.

Vulnerability and Impacts to Wildfire

Risk and vulnerability to the Butte County Planning Area and the District from wildfire is of significant concern, with some areas of the planning area being at greater risk than others. High fuel loads in the planning area, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. During the May to November fire season, the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the Planning Area, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

PID is not immune to numerous types of grass, brush, and wildland fires and any one of them may accelerate into a large WUI wildfire. As evidenced by the Camp Fire, such a situation could lead to evacuation of large portions of the population and the potential for significant loss of property, structures and rangeland. The natural fuels available in or near the District vary greatly in the rate and intensity of burning. Fires in heavy brush and stands of trees burn with great intensity but more slowly than in dry grass and leaves. Dense fuels will propagate fire better than sparse fuels.

Compounding the problem is the lack of ingress and egress roads in Paradise and around the District. Due to the sheer volume of people that can be affected at one time by a wildland fire, a number of potential traffic flow problems exist. These are complicated by the existence of only one north route out of town;

only four south routes out of town, two of which could easily be affected by a single fire; and only three through east-west streets. The plan concludes that any fire in the Magalia area would have a major impact on the roads in Paradise because access is via a two-lane road.

Wildfires in or near the PID service area in the Town of Paradise provide a significant impact to the District's ability to deliver water. The 2008 fires showed that further education in the community is needed to stop the use of yard sprinklers during evacuations. The water is not beneficial and takes water away from firefighting efforts.

The PID service area is located directly adjacent to the communities of Paradise and Magalia in the WUI.

Wildfires can cause short-term and long-term disruption to the County, the Town of Paradise and the PID, as evidenced by the Camp Fire in Paradise and the resultant loss of housing stock and population in Paradise. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the County by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires may result in casualties and can destroy buildings and infrastructure.

Although the physical damages and casualties arising from wildland-urban interface fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings, infrastructure, and tax base. In some cases, the economic impact of this loss of services may be comparable to the economic impact of physical damages or, in some cases, even greater. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Fires can also cause major damage to power plants and power lines needed to distribute electricity to operate facilities.

Assets at Risk

The following District facilities would be at risk due to wildfire:

- PID Water Treatment Plant
- PID Pumping Station
- Magalia Dam
- Paradise Dam
- Distribution Water Storage Tank

Future Development

Wildfire risk will be taken into account when siting new District facilities. The District has sought to undertake projects that will reduce the risk of wildfire to the District and its customers. These projects include:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.
- Upgrading B-Reservoir with steel tanks

- Upgrading all service-lines in the District to support fire sprinklers and plumbed with a backflow device.
- Upgrading the treatment plant and distribution system to allow maximum flow throughout the District.

F.6 Capability Assessment

Capabilities are the programs and policies currently in place to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

F.6.1. Regulatory Mitigation Capabilities

Table F-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table F-5 Paradise Irrigation District – Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N/A	
Capital Improvements Plan	Y 2017	
Economic Development Plan	N/A	
Local Emergency Operations Plan	Y 2018	
Continuity of Operations Plan	N/A	
Transportation Plan	N/A	
Stormwater Management Plan/Program	N/A	
Engineering Studies for Streams	N/A	
Community Wildfire Protection Plan	N/A	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N/A	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N/A	
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	
Fire department ISO rating:	N/A	
Site plan review requirements	N/A	

Land Use Planning and Ordinances	
Zoning ordinance	N/A
Subdivision ordinance	N/A
Floodplain ordinance	N/A
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N/A
Flood insurance rate maps	N/A
Elevation Certificates	N/A
Acquisition of land for open space and public recreation uses	N/A
Erosion or sediment control program	N/A
Other	
How can these capabilities be expanded and improved to reduce risk?	
The District will continue to seek to expand capabilities to mitigate hazards, especially in light of the 2018 Camp Fire.	

Source: PID

Paradise Irrigation District Urban Water Management Plan (2015)

The purpose of the Paradise Irrigation District's (PID) Urban Water Management Plan (UWMP) is to inform the public and state agencies of the PID water supply availability, exposure to droughts, conservation efforts, and plans for future supply. In this plan PID shows the current supply calculations, what impacts a customer can expect during drought periods and the impacts to water supply into the future.

Urban Water Management Plans are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. PID has been completing Urban Water Management Plans since 1986, required every five years.

State law requires water agencies to reduce the amount of water each person uses per day (Per Capita Daily Consumption, which is measured in gallons per capita per day) by 20 percent by the year 2020. PID completed calculations, which are provided in the UWMP establishing our base per capita per day (pcpd) that our 20% will be measured from. PID has made significant reductions in water uses in the last few years through pipeline replacement, leak detection, water conservation measures and public response to the statewide drought. It will be important for PID and its customers to remain diligent in their efforts to conserve and continue to use water wisely.

Water Shortage Contingency Plan (2012)

As the water purveyor, the District must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure this goal is met. Although an actual shortage may occur at any time during the year, the District will use the Yield Analysis Model during the critical months of January through March to determine potential restrictions.

In Stage I shortages, customers may adjust either interior or outdoor water use (or both), in order to meet the voluntary water reduction goal.

Under Stage II and Stage III mandatory rationing programs, the District has determined that a reduction of 20% (Stage II) and 30% (Stage III) will be required. That amount of water is sufficient for essential interior water with no habit or plumbing fixture changes.

Under Stage IV mandatory rationing, which is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster, the health and safety allotment is reduced to 50% of average use. This allotment still provides enough water for essential interior water use plus a minimal amount of outside use.

Catastrophic Supply Interruption Plan

Interruptions in the District's water supply could be caused by events such as drought, fire, earthquake, flood, reservoir contamination and major power outages.

Determine What Constitutes a Proclamation of a Water Shortage

Interruptions in the District's water supply could be caused by events such as drought, fire, earthquake, flood, reservoir contamination and major power outages.

A proclamation of water shortage can be declared by following the steps outlined in this Water Shortage Contingency Plan. An immediate proclamation will be made by the District Manager and reviewed by the Board of Directors in an emergency meeting as soon as it can be coordinated. The various stages of this plan are dependent on the severity and nature of the catastrophe and its effect on the total water supply of the District. The following is an example of events and remedies that might likely affect the District's water supply and therefore require implementation of water rationing.

- Fire- In the event of a major fire, the District's water treatment and distribution storage tanks will be operated at maximum capacity.
- Earthquake- In the event of a major earthquake where significant portions of the distribution system or treatment facilities are damaged District crews or contractors will work on isolating and re-routing water supplies. In the event that the District's raw water reservoirs are damaged beyond use, the District would activate the intertie agreement with Del Oro Water Company. An intertie with the DOWC has a maximum capacity of 1,000 gallons per minute (GPM) or 4.4 AF/day.
- Flood- Due to the terrain of the District, the possibility of flooding is quite remote.
- Reservoir Contamination- If contamination of the District's raw water supply occurs, the District would implement rationing, activate the intertie agreement and begin pumping from the "D" Tank well site.
- Major Power Outages- The District is able to operate, at full capacity, the raw water pump station and water treatment plant during power outages using a 500 KVA, diesel generator. External plumbing provisions have also been provided at the District's booster pump station to allow for portable pump hook-up.

F.6.2. Administrative/Technical Mitigation Capabilities

Table F-6 identifies the District staff/roles responsible for activities related to mitigation and loss prevention in the District.

Table F-6 Paradise Irrigation District – Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N/A	
Mitigation Planning Committee	N/A	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N/A	
Mutual aid agreements	N/A	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N/A	
Floodplain Administrator	N/A	
Emergency Manager	N/A	
Community Planner	N/A	
Civil Engineer	N/A	
GIS Coordinator	N/A	
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	N/A	
Hazard data and information	N/A	
Grant writing	N/A	
Hazus analysis	N/A	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Many of these areas the District does not have existing capabilities. The District works with the County and the Town of Paradise on mitigation projects, and will continue to seek to expand that activity.		

Source: PID

F.6.3. Fiscal Mitigation Capabilities

Table F-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table F-7 Paradise Irrigation District – Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	Y	
Community Development Block Grant	Y	
Other federal funding programs	N	
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District will continue to pursue outside funding for mitigation related work, especially in light of the 2018 Camp Fire.		

Source: PID

F.6.4. Mitigation Education, Outreach, and Partnerships

Table F-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table F-8 Paradise Irrigation District – Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District will continue to pursue for mitigation related outreach and partnerships with the County and Town of Paradise, especially in light of the 2018 Camp Fire.		

Source: PID

Continuous work on fuels reduction in the PID watershed is ongoing with assistance by Butte Fire Safe Council. In 2012, the Butte County Fire Safe Council and Paradise Irrigation District successfully partnered on three grant applications which were awarded to improve watershed and forest health in Magalia on Paradise Irrigation District Lands (PID).

The three grant projects will reduce wildfire threat by thinning small overstocked trees and brush. These projects link to four existing shaded fuel break/forest health projects. Partners have included US Forest Service Plumas National Forest, Bureau of Land Management and Cal-Fire.

The neighboring water provider, Del Oro Water Company has a limited supply of water available and none available at this time for transfer. The District does have an agreement in place with them that would provide a small amount of water available to the District in an emergency from their Paradise Pines District. The Paradise Pines District is solely served by groundwater that is limited.

F.6.5. Other Mitigation Efforts

Water Education is provided for annually to fourth grade students in Paradise. The Creekside 6 Elementary School partners with the District to provide an annual watershed education event at the Paradise Lake.

F.7 Mitigation Strategy

F.7.1. Mitigation Goals and Objectives

PID adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

F.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Dam Failure
- Drought and Water Shortage
- Earthquake and Liquefaction
- Floods: Localized Stormwater
- Severe Weather: Freeze and Winter Storm
- Severe Weather: Heavy Rain and Storms (Hail, Lightning, Wind)
- Wildfire

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5-years covered by this plan.

Mitigation Actions

Action 1. Hydraulic Modeling Pipe Replacement Program

Hazards Addressed: Drought & Water Supply; Earthquake; Wildfire

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: 60 miles of aging steel pipe are leaking water and are vulnerable to earthquake damage due to corrosion issues. The District's primary effort at demand management is pipeline replacement. In 2003 the District began replacing 8.4 miles of pipelines with a grant from the California Department of Water resources, and also 2.3 miles with in-house resources. The District's goal is to replace 2 miles per year with in-house resources; however, this will take 30 years to complete the program. The recent pipe replacement fell short of the District's goal due to a reduction of in-house resources that include the following: 1. freezing three full-time positions, 2. a dispute with the union over temporary worker status, and 3. the workforce has been diverted to remodel the Administration building and construct major portions of the Corporation Yard replacement project.

To optimally plan transmission and distributions system improvements; such as maintaining flows and pressures during disaster events; a hydraulic model of the system is needed. The hydraulic model allows planners and designers to simulate multiple scenarios of water demands and pipeline configurations inexpensively. Additionally; the model can be used to estimate prepare emergency operations plans for use during disasters. The mitigation goal is to provide PID a tool to model the hydraulic performance of their transmission and distribution systems during normal and extreme events (such as a large wildland fire).

Water Treatment Plant upgrade: To effectively fight both structure and wildland fires; the system flows must meet minimum flow; pressure; and duration requirements. During fire flow events; the flow restrictions in portions of the distribution system contribute to low pressures; increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health.

Water Treatment Plant upgrades in accordance with the hydrology study will mitigate future losses protecting lives, property and public health.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Agency Capital Improvement program long-term planning and annual budgeting.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $60,000,000: 60 miles @ $1,000,000 per mile of PVC pipe, with diameter varying from 8-inch to 12-inch (includes engineering).

Benefits (Losses Avoided): Avoidance of unnecessary water losses that deplete water storage supply, increase operations costs and provides additional water to the Bay-Delta. The higher cost for unplanned pipeline repairs that damage public and private property can be avoided by replacing the steel pipes before they become problematic. Avoid loss of revenue due to the loss of unsold treated water.

To optimally plan transmission and distributions system improvements; such as maintaining flows and pressures during disaster events; a hydraulic model of the system is needed. The hydraulic model allows planners and designers to simulate multiple scenarios of water demands and pipeline configurations inexpensively. Additionally; the model can be used to estimate prepare emergency operations plans for use during disasters. The mitigation goal is to provide PID a tool to model the hydraulic performance of their transmission and distribution systems during normal and extreme events (such as a large wildland fire).

Water Treatment Plant upgrade: To effectively fight both structure or wildland fires; the system flows must meet minimum flow; pressure; and duration requirements. During fire flow events; the flow restrictions in portions of the distribution system contribute to low pressures; increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health. Water Treatment Plant upgrades in accordance with the hydrology study will mitigate future losses protecting lives, property and public health.

Wildfire threat within the Town ranges from moderate to very high. The Paradise Irrigation District lists Wildfires on the LHMP Hazard Identification and Vulnerability Assessment. This project aligns with the Butte County LHMP Goals and Objectives #1 by minimizing the risk and vulnerability of the community to hazards and reduce damages and protect lives, property, and public health. Also Goal 2 to provide protection to critical facilities, infrastructure, and services from hazard impacts.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of outside funding. Currently an initial replacement goal is 2 miles of pipeline per year. An increased replacement rate schedule will be implemented should outside funding sources become available.

Action 2. Drought Water Supply

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: The District has experienced periods of drought historically as described in the 2010 Urban Water Management Plan (UWMP). The analysis in the UWMP determined that on average the District can expect ongoing drought conditions to occur and would require cutbacks in one year in ten on average. The District has been in negotiations for many years with PG&E and the Del Oro Water Company for a drought supply project that would mitigate the District's water supply from drought.

Other Alternatives: Implement additional conservation measures not deemed to be cost effective. Adding additional groundwater sources to meet future supply needs is not feasible due to an inadequate supply in the area.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Drought has been addressed in the District's updated Strategic Business Plan, Capital Improvement Plan, Budget, and the Urban Water Management Plan.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $5,000,000

Benefits (Losses Avoided): Up to $832,500 annual revenue will be lost in a drought situation due to a reduction in water sales to normally used by the District customers, including their current water conservation efforts. This does not include the long-term impact from the customers demand reduction after loss of outside landscaping.

Potential Funding: Apply for State Revolving Fund Loans; EPA Grants; Water Rates; and borrow funds for the remainder of the appropriations needed.

Timeline: No schedule determined yet, pending completion of negotiations with PG&E and the Del Oro Water District, and the extension of water right permits.

Action 3. Magalia Dam Replacement

Hazards Addressed: Drought & Water Supply; Earthquake; Dam Failure; Flooding, Localized Flooding, Heavy Rain and Storms

Goals Addressed: 1, 2, 3, 4, 7, 9

Issue/Background: Paradise Irrigation District (PID) is responsible for the operation of the Magalia Dam. Geotechnical deficiencies in Magalia Dam are limiting the operational storage volumes within the reservoir. Portions of the dam embankment were constructed hydraulically in 1917 and, due to the dam being over

100 years old (typical dam lifespan is 50 years), do not meet current dam safety standards. Studies performed in 1972, 1992, 1994, and 2002 found that those hydraulic fill materials within the dam embankment could liquefy during a seismic event. To mitigate risk of failure and subsequent flood during an earthquake, the water surface of the reservoir, originally designed to be at elevation 2225.8 starting in 1996, was limited to elevation 2,200 and that elevation was further lowered to 2,199 feet in 2002, which is 26.8 feet below the original design water surface elevation and spillway and 41 feet below the dam crest. This restriction has reduced the maximum storage capacity from 2,800 acre-feet to 796 acre-feet.

It is not unusual to find that foundation and/or embankment soils for dams have susceptibility to liquefaction. Lopez, Anderson, Almaden, Calero and other dams were assessed as having a potential for failure due to liquefaction and improved to reduce those risks. Typically, mitigations for liquefaction of dam embankment soils consist of ground modifications to increase the density (consistency) of embankment soils, reduce the pore water pressures of those soils, and/or decrease deformation that might occur to embankment soils during a seismic event. Those mitigations can include mass grading (retrofit or buttress), compaction grouting, deep soil mixing, driven piles, stone columns, or combinations thereof.

Additionally, the pipe supports for the outlet pipe which connects Magalia Reservoir to the PID WTP through a tunnel in the Magalia Dam have been suspected by DSOD inspectors as being deficient. These supports have to be improved and seismically stable in order to prevent failure in an earthquake, which could cause significant flooding on its own, and also could undermine the dam from within, causing more catastrophic dam failure and significantly more flooding.

Wildfire threat within the Town ranges from moderate to very high. The Paradise Irrigation District lists Wildfires on the LHMP Hazard Identification and Vulnerability Assessment. This project aligns with the Butte County LHMP Goals and Objectives #1 by minimizing the risk and vulnerability of the community to hazards and reduce damages and protect lives, property, and public health. Also Goal 2 to provide protection to critical facilities, infrastructure, and services from hazard impacts.

Other Alternatives: Develop regional intertie alternatives; however, this does not mitigate the extensive damage to public and private property and loss of life that may be realized by a dam failure.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Agency Capital Improvement program long-term planning and annual budgeting.

Responsible Office: Paradise Irrigation District;

Priority (H, M, L): High

Cost Estimate: $30,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within 12 miles of the dam failure. Avoid major damage the District's water treatment plant and 42-inch water transmission pipeline for the Town of Paradise. Avoid loss of the sole access to the Pines community (10,000 people) by widening the existing 2-lane road to 4-lanes to improve emergency access.

Potential Funding: Federal Transportation funding; Apply for State Revolving Fund Loans; EPA Grants; Water Rates; and borrow funds for the remainder of the appropriations needed.

Timeline: To be determined based on the availability of funding.

Action 4. Install Bladder Dam in the Paradise Lake Spillway

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 7, 9

Issue/Background: To increase supply to help mitigate drought the District investigated this mitigation action and determined it was feasible to install a 3-foot high bladder dam within the spillway channel at Paradise Lake. The bladder dam would provide approximately 750 acre-feet of additional storage. The feasibility was discussed with the DSD; per the DSD the chimney drain inside the dam would be raised an equivalent amount.

Other Alternatives: Intertie projects with PG&E, and the Del Oro Water District. The cost for an intertie alternative is estimated at 5 times the cost for this mitigation action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Environmental work necessary for this project would be partially duplicated with the District's efforts to extend the existing water rights permits. The Board of Directors deferred this project pending the completion of the permit extensions.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $1,500,000

Benefits (Losses Avoided): Up to $832,500 annual revenue will be lost in a drought situation due to a reduction in water sales normally used by the District customers, including their current water conservation efforts. This does not include the long-term impact from the customer demand reduction after loss of outside landscaping.

Potential Funding: State Revolving Fund Loans; EPA Grants; Water Rates

Timeline: Schedule to be determined pending the completion of the water rights permit extensions.

Action 5. Service Line Replacement

Hazards Addressed: Wildfire; Earthquake, Winter Storm

Goals Addressed: 1, 2, 3, 4, 5, 7,9

Issue/Background: Paradise Irrigation District (PID) is responsible for providing potable and fire service water to their customers. Potable use is a fraction of the water demand compared to fire flows. To effectively fight both structure and wildland fires, the system flows must meet minimum flow, pressure, and duration requirements. Flow and pressure are a function of pipe sizes and connectivity (a looped system typically is more reliable and has less pressure losses). During fire flow events, the flow restrictions in portions of the distribution system contribute to low pressures, increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health.

The area is highly susceptible to wildland fires (as demonstrated in Camp Fire, November 2018) that can cause substantial loss to life and property. Additionally, the rural nature of the area increases the response time of firefighting equipment, thereby increasing the magnitude of a fire when adequate resources arrive – thereby needing greater quantities of water.

In the aftermath of the Camp Fire; many customers will begin the process of rebuilding and will be installing fire sprinkler systems; now required by the 2016 California Residential Building Code for all construction within the Wildland-Urban Interface. Paradise Irrigation District must be able to provide the appropriate amount of flow and pressure at the service connection to support this change in code allowing residents to rebuild and increasing the tax base.

Adequate water flow and pressure reduces the likelihood of loss of life, minimizes property damage, and protects public health.

Other Alternatives: The alternative would be to add a supplementary second line adjacent to the original line, in order to increase overall flow to the structure. This would result in needing to add an additional service lateral connection to the main, as well as connecting it to the connection at the meter. It would also result in a wider trench and additional displacement of soil. This would be inefficient and unnecessarily complicated.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Butte County Transportation Division must determine the optimal way to improve the Skyway road crossing the dam before the design of the dam can proceed.

Responsible Office: Paradise Irrigation District; Butte County Transportation Division

Priority (H, M, L): High

Cost Estimate: $65,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within the town of Paradise. Avoid major damage the District's water distribution system.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of funding.

Action 6. B-Reservoir Replacement

Hazards Addressed: Wildfire; Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: The Paradise Irrigation District provides potable water to the Town of Paradise with 10,507 connections, serving a population of 26,800. The distribution system includes 7 distribution zones (Zones A through G), one water treatment plant, and five storage reservoirs ranging in size from just under 1 million gallons to 2 million gallons capacity. All of the reservoirs are steel tank reservoirs, with the exception of Reservoir B, which is an earth embankment lined reservoir with a flexible membrane cover. Reservoir B was designed to store 3 million gallons (MG) of potable water, however, storage capacity is limited to 2 MG due to hydraulic considerations. Treated, potable water is transferred from the PID water treatment plant (WTP) via a 12,500 42-inch gravity water transmission main to Zone B and Reservoir B.

Reservoir A is supplied potable water from Zone B via pump stations.

Reservoir B is a 3 MG earth embankment reservoir lined with reinforced polypropylene and with a floating high-density polyethylene (HDPE) cover. The reservoir was constructed in 1984 and the cover and line were replaced in 2005. Floating cover reservoirs are subject to many issues related to the integrity of the cover---tears, contamination, and failures of other systems that all pose a threat of drinking water contamination. The cover is also subject to vandalism by trespassers and wildlife; it gathers rainwater, and the sump pump installed to drain the rainwater constantly requires maintenance. Maintenance must also be scheduled regularly to remove debris; as debris accumulates, it attracts vectors (e.g. mosquitos) and leads to decay and detritus sitting on the cover of the drinking water reservoir. As the only reservoir that directly feeds Zone B (21% of customers) and Zone A (12% of customers), it is a critical point in the distribution system that does not have any redundancy, and the WTP pumping conditions make it reliant on Reservoir B to deliver water through the transmission main, impacting other zones and residents in the event of Reservoir B failing. See Reservoirs' Schematic under Tab 15, which shows Reservoir B feeds the entire District distribution system by gravity and Zone A through Pump Station A.

Total storage capacity for each zone must include sufficient fire storage. Paradise is in a wildland interface area and, in support of wildland firefighting, PID provides water storage for use in fighting wildfires should they enter the service area. fire storage volume is intended to be available in all zones, at all times (including during peak demand). Prior to the Camp Fire of 2018, the largest fire in recent history in Paradise was the Camp Fire of 2008. On July 8, 2008 the fire increased in sized by 17,000 acres in one day (source: CalFire, "2008 June Fire Siege," pg. 61 and noted on page 18 in the PID Reservoir B Replacement Conceptual Design Report, August 2017), destroying 50 homes only one month after the Humboldt Fire had destroyed 20 homes in Paradise and approximately 75 homes in the Chico area. Reservoir storage levels for reservoirs A, B, C, and D and plant flow data were analyzed for the week of the 2008 Camp Fire to determine system demand during the fire. The calculated hourly system demand and the resulting daily system demand during the week of the 2008 Camp Fire show the 24-hour firefighting period of July 8, 2008 at noon to July 9, 2008 showed a 4 MG increase in system demand.

This 4.0 MG increase is attributed to firefighting efforts within Paradise using fire hydrant flow data. In order to determine needed fire storage requirements, the following firefighting conditions and associated storage requirements were considered:

1. Actual Usage during the 2008 Camp Fire.

2. A "Model" wildfire which requires two hydrants be run at 1,000 gallons per minute (gpm) for 24 hours.

3. A single commercial structure fire which requires 3,000 gpm for 3 hours.

4. A single residential fire which requires 1,500 gpm of firefighting flow for 2 hours.

Based on the regulatory minimum water storage requirements and the fire storage calculation using the above parameters, the total current available storage and minimum water storage requirements by zone was tabulated. According to the Conceptual Design Report prepared by Water Works Engineering in 2017, there is a total storage deficiency in Zone B and a usable storage deficiency in both Zone A and Zone B. Further analysis using operating data and reservoir levels for the peak week of June 30 - July 2013 were examined. This data shows similar deficiencies during peak periods during a drought year, with only 0.66 MG of usable water in Reservoir B, falling 2.2 MG short of the target amount of 2.88 MG.

According to a news article published by Bay Area News Group December 2, 2018 (See Tab 15), since 1999 13 large wildfires have burned in the 153,000 acre footprint of the recent 2018 Camp Fire, including the Bloomer (1999), Bucks (1999), Doe Mill (1999), Concow (2000), Highway 70 (2001), Poe (2001), Skyway (2002 & 2006), Honey (2007), BTU Lightning Complex (2008), Camp Fire (2008), Humboldt (2008), Ninety Nine (2016), and Saddle (2016). Not all of these were declared national disasters, but they all exceeded 300 acres.

The proposed project is to construct an additional 2.5 MG above ground, steel tank reservoir to support fire flow storage requirements and storage needs during drought years. This project also supports water quality protection by eliminating the risks associated with the flexible membrane cover.

Other Alternatives: The construction of new water reservoir tanks is commonly constructed of either prestressed concrete or welded steel. This alternative would be to use prestressed concrete tank. Advantages include:

1. Prestressed concrete tanks do not require coatings, and therefore do not require the maintenance of re-coating.

2. Concrete tanks can be created to be narrower and taller than steel tanks, if needed, however, this site does not require narrower tanks and the tank height is limited by the WTP hydraulics.

3. The tank can be partially buried.

Negatives for this alternative include:

1. Prestressed concrete tanks take longer to construct than steel tanks.

2. Prestressed concrete tanks must be NSF-61 compliant concrete, since the concrete is in contact with drinking water. NSF-61 compliant concrete is not commonly available and the rural location would likely demand a premium price.

3. Prestressed concrete tanks require more significant subgrade earthwork preparation than steel tanks, and are more sensitive to differential settlement conditions. This adds time and expense to construction.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The District has plans to implement this project.

Responsible Office: Paradise Irrigation District;

Priority (H, M, L): High

Cost Estimate: $15,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within the town of Paradise. Avoid major damage the District's water distribution system.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of funding.

Action 7. A-Zone Pipeline and Generator

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 5 7, 9

Issue/Background: The Paradise Irrigation District (PID) provides drinking water to the community of Paradise located in Butte County, California. The PID has multiple potential risks from flooding, earthquakes, severe weather, fire, and power outages. As a result, the PID has evaluated its infrastructure for potential hazards and identified priority capital improvements necessary to mitigate such risks to the community's water supply. The priority infrastructure identified for this project are: 1) Re-align the 42" Raw Water Supply Pipeline, 2) Alternate, emergency treated water transmission pipeline and A Zone Pump Station, and 3) the Water Treatment Plant Back-up Power Supply.

The Raw Water Supply Pipeline currently crosses the Little Butte Creek supported by three (3) concrete pillars. These concrete pillars are at least as old as the pipeline, which was put into service in 1955. Prior to the pipeline, a wooden flume was in its place and it is possible that these concrete supports were used to support this flume prior to 1955. This critical facility is at risk of damage by either earthquake or flood due to the condition of the un-reinforced concrete support piers, the age and the condition of the raw water pipe, and the fact it crosses a creek that is subject to rapid increases in water volumes makes this facility highly vulnerable to seismic and or flooding events. Furthermore, this pipeline crosses the creek downstream from the Magalia Dam, which has been evaluated and characterized by the California Division of Safety of Dams

(DSOD) as the "worst dam" in the state of California. The concern is damage may occur to either the unreinforced concrete supports and/or to the pipeline should another flood event and/or earthquake occur in the future. The current configuration and condition of the pipe and the concrete supports puts the raw water pipeline at risk for a total loss. If this pipeline were to be damaged, the entire Town of Paradise population would be without water until the pipeline could be repaired or an alternate temporary line be installed. Depending on the circumstances of the disaster, this effort may be hindered due to rushing water through the creek and the overtopping of the Magalia Dam as was experienced in 1997, further increasing the likelihood and duration of a water outage to the entire population. Had this pipeline failed in 1997, it is unclear what recourse the District would have had given the flood conditions.

A 16" transmission pipeline from the water treatment plant to the "A" zone section of the District's service area is needed to provide an alternative supply of water to the District's service area. Currently, only one transmission 42" pipeline from the water treatment plant provides all of the Town's treated water via Zone "B". In the event that this pipeline fails, there is no alternative pipeline to deliver the water resulting in a District-wide outage. Furthermore, water service to the District's "A" pressure zone is currently pumped from "B" zone by Pump Station Number 2. If this pump station, or its ancillary facilities, fail all customers will experience a water outage. This pipeline will also allow the District to distribute water more efficiently to the "A" zone portion of the District and improve fire flow to this area of the District. Located in the foothills, the Town of Paradise has a high fire risk (see CalFire map of the Town of Paradise). Additionally, the District's only transmission line is predominantly located along a steep embankment and would be difficult to access in the event of a landslide. Damage to the pipeline itself from fire is not likely, but to the pumping facility, storage tank, or landslide following a fire are potential risks (see 42-inch Transmission Pipeline Location Map).

The Town of Paradise experiences frequent power outages resulting from storms, high winds, and forest trees, without outages averaging six per year and durations of up to 4 – 6 hours. The Water Treatment Plant is also at risk for flooding, due to its location near the Little Butte Creek and Magalia Reservoir. During periods of power outages, the District issues a community order to reduce water use and if the outage persists, a boil water notice would be required, and the District could run out of water if the plant were without power for 24 hours during the warmer months.

Other Alternatives: Construct a water treatment plant and pumping station from Oroville Lake to serve water to the entire Paradise Irrigation Customer base.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $11,500,000

Benefits (Losses Avoided): In order to reduce and potentially eliminate the risk to the raw water line, the District will abandon the current pipeline crossing and install a new, 36" raw water pipe aligned along the roadway so it does not cross the creek, which will alleviate any potential damage to the pipeline itself and/or

from the concrete supports being damaged by a future flood or seismic activity. By eliminating the creek crossing at this lower point downstream of the Magalia Dam, the threat of damage due to flooding will be greatly reduced if not eliminated. See the attached photos of the existing and new alignments, and the site plan.

The installation of the alternate 16" transmission pipeline and pump station will allow the District to continue to distribute water throughout this District in the event that the transmission main pipeline or the pumping and/or tank suffers a failure. This is an essential activity, because if only the pump station fails, at a minimum 10% of the District (Zone A) will not receive water; and if the main pipeline is damaged, all of the District will suffer a water outage once the storage tanks drain. This pipeline is also important for fire flow, because if the is power outage that affects pumping capabilities while there is a fire, pressure for fire flow will diminish.

The new, emergency generator will be at least a 1600 kW, diesel generator with an enclosure. This generator will provide 100% of the power needed to operate the water treatment plant and also be of sufficient capacity to provide emergency power into the future to allow for future expansion for the useful life of the generator (19 years). Given the age and the strain on the existing generator, there is potential for it to fail when needed most. Power outages occur, on average, six times per year; and often for extended periods of time (e.g. more than 4 hours). The current generator has also been "grandfathered" for use and only for emergency and maintenance purposes due to its inability to meet current air quality standards---use is limited to 90 hours/year. The new generator will meet current environmental standards.

Potential Funding: State Revolving Fund Loans; EPA Grants; Water Rates

Timeline: To be determined based on the availability of funding.

Action 8. Water Shed Fuel Reduction

Hazards Addressed: Wildfire, Drought, Severe Weather, Extreme Heat, Severe Weather: Wind

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: Paradise Irrigation District has 389 acres within the project area, located around the Magalia Reservoir and Little Butte Creek. The property has multiple vegetation types including: Mixed Conifer, Fir/Cedar/Oak, Grey Pine/Live Oak, and Serpentine. The current stocking level for the property is approx. 385 trees per acre, with about 270 (~70%) being 10" DBH or less. About 108 trees per acre are

10" DBH or larger. There are approx. 8 snags per acre under 10" DBH and 5 snags per acre 10" DBH and larger, which is a slightly less average than the rest of the Magalia plan area. Therefore, throughout PIDs land it is estimated that there are currently 1,945 10" DBH and larger standing dead trees. There are also less diseased trees per acre on PIDs land than the project areas average, with close to 80 trees being diseased. The expected conifer mortality is about 1 tree 10" DBH or larger per two acres. This means that about 195 conifers 10" DBH and larger may die in per year. Paradise Irrigation District has 59 acres of Hazard Zone in the project, where vulnerable trees are within 150 feet of houses and infrastructure, posing a health and safety risk. This means roughly 295 10" DBH and larger dead trees are located in the hazard areas of their property. There are also approx. 12 diseased trees in the PID Hazard Zone. Expected conifer mortality of

trees 10” DBH and larger in this zone is about 31 trees per year. There is an average of 6.4 tons per acre of dead, downed woody debris located throughout PIDs land holdings.

Project Description: Fuel reduction treatments should remove trees and snags below 10" DBH until the canopy cover reaches 70%. Smaller diameter trees that are in a suppressed or intermediate crown position (the tree is being overtopped by taller, more mature trees and doesn’t receive direct sunlight throughout the majority of its crown) should be targeted first. Leave trees should be pruned up to 12-16 feet or until 1/3 the live crown has been removed for smaller trees. With the stand aging it is vital to make sure there are trees available to regenerate the overstory once mature trees start dying.

Other Alternatives: Prescribed burns were also considered as an additional treatment method, particularly for Starthistle.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Magalia Forest Management Plan and CEQA.

Responsible Office/Partners: Paradise Irrigation District and Butte County Fire Safe Council

Cost Estimate: $5,000,000

Benefits (Losses Avoided): Over $50 million estimated valuation of structures within a 2-mile radius of the project area and water quality issues for the customers of Paradise Irrigation District.

Potential Funding: Paradise Irrigation District in-kind labor, volunteer labor, and the use of CA Conservation Corps and/or Alliance for Work Force Development crews as local match.

Timeline: 36 months implementation period

Project Priority: High

Action 9. Backup Portable Generators

Hazards Addressed: Flooding and Localized Flooding, Earthquake, Wildfire, Dam Failure, Severe Weather, Power Outages

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: Backup generation is the main way in which the District maintains continued function of its critical facilities. Currently the District has only one portable generator that can be used in case of power outage. It is housed at the District office. In the instance of a widespread and prolonged power outage there is a risk that additional power generation would be needed at facilities that do not have backup generation or current backup generation fails. Additional generators would mitigate some of the risk of a prolonged outage.

Project Description: Purchase additional portable backup generators.

Other Alternatives: Install permanent backup generation at the District main office and other critical facilities without permanent backup power generation.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Unknown

Responsible Office/Partners: Paradise Irrigation District

Cost Estimate: $500,000

Benefits (Losses Avoided): The District would not experience a depressurization of distribution system, lose the ability to treat water for the Town of Paradise, and the loss of communication between the treatment plant and distribution system tanks

Potential Funding: General funds

Timeline: When funding is available.

Project Priority: High

Action 10. Earthquake Vulnerability Assessment on Water Distribution Infrastructure

Hazards Addressed: Earthquake and Liquefaction

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: California has high susceptibility to earthquake events. Evaluate Agency infrastructure located in fault line and seismically active areas

Project Description: Overlay fault line and seismic activity maps with our infrastructure maps to evaluate a predictability curve. Potentially a project that could be completed by a U.C. or Cal State Engineering program.

Other Alternatives: N/A

Existing Planning Mechanisms through which Action will be implemented:

Responsible Office: Paradise Irrigation District

Priority (H, M, L): Low

Cost Estimate: Approximately $500,000 Potential Funding: Split between the agency and a FEMA Hazard Mitigation Grant

Benefits (avoided Losses): Understand vulnerable areas and ensure our system is capable of withstanding significant seismic/earthquake events

Schedule: When funding is available.

Exhibit B – Recent Water Conservation Programs

PARADISE IRRIGATION DISTRICT

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2014-03
ADOPTING A WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, the District, as an urban retail water supplier, is mandated pursuant to SB7x-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, given historically dry conditions existing within the District's watershed in 2013 and continuing for much of the 2014 winter season, the District has determined that additional water conservation, in addition to those mandated by SB7x-7, is needed to conserve the District's water supplies for the remainder of 2014 and, potentially into 2015 and beyond; and

WHEREAS, careful water management that includes active water conservation measures, particularly in times of drought is essential to ensure a reliable minimum supply of water to meet current and future water supply needs; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the adoption and enforcement of a water conservation program is necessary to manage Paradise Irrigation District's water supply to avoid or minimize the effects of drought within Paradise Irrigation District and to ensure a reliable and sustainable minimum supply of water for the public health, safety, and welfare.

WHEREAS, on January 17, 2014, the Governor of California proclaimed the existence of a statewide drought state of emergency; and

WHEREAS, on April 2, 2014, Paradise Irrigation District held a public hearing and demonstrated the necessity for the adoption of a water conservation program; and

WHEREAS, on April 2, 2014, Paradise Irrigation District's reservoir storage was at 82% of its historical average; and

WHEREAS, Paradise Irrigation District's 2008 Urban Water Management Plan and subsequent updates have confirmed that the District must operate in a perpetual state of drought until the District develops or acquires a reliable drought water supply;

WHEREAS, water conserved by the District's customers will be carried over in storage for public health and safety uses in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby adopt this "Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporate them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting a water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately and at such other times when, in the opinion of the Board of Directors, such measures are necessary for the preservation of public health and safety standards. The Board finds that the mandatory conservation measures will be in place until the earlier of (a) suspension by the Board of Directors; or (b) when Paradise Reservoir next fills and spills. The mandatory conservation measures may be imposed at a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Plan will be considered waste and an unreasonable use of water. The following mandatory conservation measures are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Irrigation watering is prohibited between the hours of 10:00 a.m. and 8:00 p.m., and irrigation systems are limited to no more than 15 minutes of watering per day per station. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, an irrigation system that uses stream rotor sprinklers with an application rate of less than one-half inch per hour, very low-flow irrigation systems where no emitter produces more than two gallons of water per hour, or to commercial nurseries and growers. In addition, irrigation for the purpose of installing and germinating new lawns or landscaping is exempt from these restrictions for a period not to exceed three weeks, unless the General Manager gives written permission to a water user for an extension beyond three weeks due to unique circumstances.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, in the opinion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited except when necessary to alleviate safety or sanitary hazards or as surface preparation for the application of any architectural coating or painting. All such permitted washing must be done by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Obligation to Fix Leaks**. Leaks in distribution, irrigation, or plumbing systems on the customer's side of the meter must be promptly repaired after discovery, and in no event more than one week after receiving notice from the Paradise Irrigation District.

e. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

f. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device and in accordance with conservation measure 5(c), above. This provision does not apply to a commercial car washing facility.

g. **Drinking Water Served Upon Request**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

h. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

i. **Restaurants Required to Use Water Conserving Spray Valves**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold must utilize water conserving nozzles on pre-rinse spray valves.

j. **Commercial Car Wash Facilities**. Commercial car wash facilities may not use or permit the use of any water to wash any car, truck, boat, trailer, bus, recreation vehicle, camper, or any other vehicle, or any portion thereof, except by the use of the equipment provided by the facility.

k. **Outdoor Residential Watering Restrictions**. Watering or irrigating of lawns, landscaping, or other vegetated areas is limited based on the following schedule: Properties whose street address bears a final digit that is an odd number may water or irrigate when the day of the month is an odd number. Properties whose street address bears a final digit that is an even number may water or irrigate when the day of the month is an even number. Watering and irrigating will be prohibited on the 31st day of any month that has 31 days.

This provision does not apply to landscape irrigation zones that exclusively use very low-flow irrigation system in which no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

l. **Voluntary 20% Reduction in Water Use by All Customers.** In addition to implementing the foregoing mandatory conservation measures, Customers are asked to implement measures within their households and businesses to reduce per capita water use by 20% from 2013 consumption. Water saving tips are available at www.paradiseirrigation.com or by contacting District staff at 877-4971.

m. **Rainy Days**. No water, sprinkling or irrigating shall take place on, or one day after days with measureable local rainfall.

n. **Reporting Water Waste**. Paradise Irrigation District shall maintain a program for residents to report waste of water throughout the District boundaries. District staff will investigate all reports of water waste.

7. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both as provided in Water Code section 377.

b. Each day that a violation of this resolution occurs is a separate offense.

c. Repeat offenders of this Water Conservation Program may, in the discretion of the District, be placed on the District's highest tiered rate for water usage or be subject to other administrative penalties pursuant to the District's rules and regulations and applicable law.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a special meeting of said Board on this 2nd day of April, 2014, by the following vote:

AYES: Directors Sep Carola, Ken Hunt, Doug Flesher, Bill Kellogg, and Larry Duncan

NOES: None

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

Larry R. Duncan

Larry R. Duncan, President

ATTEST:

Georgeanna Borrayo

Georgeanna Borrayo, Secretary

PARADISE IRRIGATION DISTRICT

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2015-04
AMENDING AND READOPTING A WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, on January 17, 2014, the Governor of California proclaimed the existence of a statewide drought state of emergency and asked all Californians to reduce their water usage by 20%; and

WHEREAS, the District answered the Governor's call for a 20% reduction in water use by achieving a 21% cumulative reduction in use in 2014, as compared to 2013, and was one of the few suppliers in California to respond to and exceed the Governor's request; and

WHEREAS, Paradise Irrigation District (District), as an urban retail water supplier, is mandated pursuant to SB7x-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, the District has prepared and amended from time to time an urban water management plan that, among other things, sets forth the District's drought contingency plan and process to analyze the District's surface water storage levels on April 1 of each year to determine if drought conditions exist and water shortage contingency stages should be enacted; and

WHEREAS, on April 1, 2015, the District duly noticed and conducted a public hearing at a special meeting of its Board of Directors to receive public input and to analyze and consider then-existing water supply conditions of the District which were determined to be 10,449 acre-feet of stored supply, equating to 85% of average and 85% of reservoir storage capacity; and

WHEREAS, in accordance with the District's urban water management plan the aforementioned water supply conditions would have triggered Rationing Stage I, which is the lowest (least restrictive) conservation stage in the District's urban water management plan; and

WHEREAS, during the last eighteen years, the District's storage capacity on April 1 equaled or was less than its levels on April 1, 2015, one time, and the District in the succeeding year, was able to supply adequate water for its customers; and

WHEREAS, since April 1, 2015, the District storage capacity has decreased only 275 acre-feet. WHEREAS, in the absence of any state mandate, the District in accordance with its urban water management plan would be implementing a voluntary 15% reduction in potable water deliveries to all District customers; and

WHEREAS, on April 1, 2015, Governor Brown issued Executive Order B-29-15, which includes in paragraph 2, a mandate that the State Water Resources Control Board impose a 25% reduction in potable urban water usage through February 28, 2016; and

WHEREAS, given the Governor's April 1, 2015, Executive Order, the District at its public hearing on April 1, 2015, amended its proposed Water Conservation Program to require a 25% reduction in deliveries to customers; and

WHEREAS, the District's 2014 Water Conservation Program and April 1, 2015 Water Conservation Program are incorporated herein by this reference; and

WHEREAS, on April 7, 2015, the State Water Resources Control Board (State Water Board) released a Draft Regulatory Framework for implementing paragraph 2 of the Governor's April 1, 2015, Executive Order that, among other requirements, would have mandated the District to achieve a 35% reduction in residential gallons delivered per capita per day (R-GPCD) compared to September, 2013 usage; and

WHEREAS, on April 13, 2015, the District timely submitted written comments to the State Water Board's Draft Regulatory Framework, which are incorporated herein by this reference; and

WHEREAS, on April 20, 2015, the State Water Board released for public comment draft urban conservation regulations that, among other requirements, mandated the District to achieve a 36% reduction in R-GPCD from June 1, 2015, through February, 2016 as compared to certain months in 2013 usage; and

WHEREAS, on April 22, 2015, the District timely submitted written comments to the draft urban conservation regulations, which are incorporated herein by this reference; and

WHEREAS, on April 28, 2015, the State Water Board released for public comment revised draft urban conservation regulations that, among other requirements, continued to mandate that the District achieve a 36% reduction in R-GPCD; and

WHEREAS, on May 4, 2015, the District timely submitted written comments to the revised draft urban conservation regulations, which are incorporated herein by this reference; and

WHEREAS on May 5, 2015, the District, through its Legal Counsel, offered testimony at the State Water Board's meeting at which the urban conservation emergency regulations were ultimately adopted (hereinafter Regulations); and

WHEREAS, the District's written and oral comments were largely ignored by the State Water Board and the Regulations were adopted without substantial amendments; and

WHEREAS, the District's current available water supply does not necessitate a 36% reduction in R-GPCD; and

WHEREAS, the District, as set forth in its comment letters, believes there are substantial procedural and substantive deficiencies in the Regulations and the record does not support the Regulations that the District is now mandated to impose on its customers; and

WHEREAS, nonetheless, the District through this amendment and readoption of its Water Conservation Program, intends to utilize its best efforts to comply with the Regulations' mandates applicable to the District; and

WHEREAS, though the District intends on complying with the mandates in the Regulations, it does so specifically reserving all rights, claims and defenses available to the District; and

WHEREAS, the District is concerned that a 36% across-the-board reduction in R-GPCD to its customers would pose problems maintaining minimum health and safety standards, including without limitation, to District customers that currently use 55 gallons per person per day or less, to customers that utilize outdoor irrigation as part of a defensible space program, and to the community of Paradise as a whole in preventing and mitigating potentially catastrophic damages to life and property from wildfires given the District's geographic location in a Very High Fire Hazard Severity Zone; and

WHEREAS, the District and its customers achieved a 21% reduction in R-GPCD as compared to 2013 by implementing various wise water use practices and programs as set forth in the District's 2014 Water Conservation Program; and

WHEREAS, the District's 2014 Water Conservation Program balanced the District's need and interest in conserving water with the District's customers' need to utilize water for beneficial use and for a variety of health and safety uses; and

WHEREAS, the District's customers are asked to redouble conservation efforts that were successful in 2014 and to immediately implement new and expanded conservation measures to achieve an additional 15% reduction in R-GPCD, so that cumulatively, the District will comply with the 36% reduction in R-GPCD as mandated by the Regulations; and

WHEREAS, in 2014 the District's top 20% of residential customers used 47% of the District's total residential water deliveries (hereinafter "High Residential Users"); and

WHEREAS, in 2014 High Residential Users' R-GPCD value, on average, was 319 gallons per person per day (assuming District average of 2.6 persons per household), which is far in excess of other customers within the District, and far in excess of levels necessary to maintain health and safety standards; and

WHEREAS, in comparison, the District's other customers used, on average, 90 gallons per person per day (with the same 2.6 person per household assumption), and the District's bottom 20% of residential customers used, on average, 40 gallons per person per day (with an assumption of 2 persons per household); and

WHEREAS, the District delivers approximately 5% of its potable water supply to commercial agricultural operations (hereinafter "Agricultural Users"); and

WHEREAS, the District delivers approximately 12.5% of its potable water supply to the Town of Paradise, schools, businesses, Paradise Park & Recreation District and hospitals within its service area (hereinafter "Institutional Users"); and

WHEREAS, the District delivers less than 5% of its potable water supply to customers using less than or equal to 5 units per month, and the District finds that such usage cannot be reduced without unreasonable impacts to health and safety needs for water (hereinafter "Low Residential Users"); and

WHEREAS, the District believes that it can comply with the mandates in the Regulations through a combination of actions, including requiring all District customers to implement mandatory conservation measures (as set forth below); requiring High Residential Users to reduce their usage by 50% compared to 2013; requiring Agricultural Users to reduce their usage by 20% compared to 2013; and requiring Institutional Users to reduce their usage by 25% compared to 2013; and

WHEREAS, the District finds that adherence to this amended Water Conservation Program and the required measures and conservation targets will balance the District's need to conserve water for possible continuation of the drought in 2016 and beyond and the District's customers' need to use water in 2015 for beneficial uses, including health and safety demands; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the amendment and readoption and enforcement of a water conservation program is necessary to comply with the mandated actions set forth in the Regulations; and

WHEREAS, on May 20, 2015, Paradise Irrigation District held a public hearing and demonstrated the necessity for the amendments and re-adoption of its water conservation program to comply with state mandates; and

WHEREAS, water conserved by the District's customers will be carried over in storage for the beneficial use of the District's customers, including possible public health and safety uses of District customers in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby amend and readopt its "Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporates them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting this revised water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately by all District customers and at such other times when, in the opinion of the Board of Directors, such

measures are necessary for the preservation of public health and safety standards. The Board finds that these mandatory conservation measures constitute an equitable distribution of water given the current drought conditions. The Board finds that the mandatory conservation measures will be in place until the earlier of (a) suspension of this Program by the Board of Directors; or (b) when Paradise Reservoir next fills and spills. The mandatory conservation measures may be imposed at a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Program will be considered waste and an unreasonable use of water. The following mandatory conservation measures must be implemented and complied with by all District customers and are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Outdoor irrigation and watering is prohibited between the hours of 10:00 a.m. and 8:00 p.m., and irrigation systems are limited to no more than 15 minutes of watering per day per station. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, an irrigation system that uses stream rotor sprinklers with an application rate of less than one-half inch per hour, very low-flow irrigation systems where no emitter produces more than two gallons of water per hour, or to commercial nurseries and growers. In addition, irrigation for the purpose of installing and germinating new lawns or landscaping is exempt from these restrictions for one period not to exceed three weeks per installation, unless the General Manager gives written permission to a water user for an extension beyond three weeks due to unique circumstances.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, as determined in the sole discretion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited, except when necessary to alleviate safety or sanitary hazards or as surface preparation for the application of any architectural coating or painting. All such permitted washing must be done by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Obligation to Fix Leaks**. Leaks in distribution, irrigation, or plumbing systems on the customer's side of the meter must be promptly repaired after discovery, and in no event more than one week after receiving notice of the leak from the District.

e. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

f. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This provision does not apply to a commercial car washing facility.

g. **Drinking Water Served Upon Request**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

h. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

i. **Restaurants Required to Use Water Conserving Spray Valves**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold must utilize water conserving nozzles on pre-rinse spray valves.

j. **Commercial Car Wash Facilities**. Commercial car wash facilities may use or permit the use of any water to wash any car, truck, boat, trailer, bus, recreation vehicle, camper, or any other vehicle, but only with the use of the equipment provided by the facility.

k. **Outdoor Watering Restrictions**. All outdoor irrigation with potable water (excepting golf courses, parks, and other public open space and landscaped areas); including without limitation, ornamental watering, is limited based on the following schedule: Properties whose street address bears a final digit that is an odd number may water or irrigate when the day of the month is an odd number. Properties whose street address bears a final digit that is an even number may water or irrigate when the day of the month is an even number. Outdoor Watering will be prohibited on the 31st day of any month that has 31 days.

This provision does not apply to landscape irrigation zones that exclusively use very low-flow irrigation system in which no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

l. **Rainy Days**. No outdoor irrigation, sprinkling, or outdoor watering shall take place during, or within 48 hours after measureable local rainfall.

m. **Irrigation of Public Street Medians.** In accordance with Regulation section 864(a)(7) no irrigation with potable water of ornamental turf will be allowed on public street medians within the District's service area.

n. **Outdoor Irrigation of New Construction**. In accordance with Regulation section 864(a)(8), irrigation using potable water of landscapes outside of newly constructed homes and buildings in the District's service area will not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.

o. **Reporting Water Waste**. Paradise Irrigation District shall maintain a program for residents to report waste of water throughout the District boundaries. District staff will investigate all reports of water waste. The District will continue its leak detection and notification process for leaks detected on the customer's side of the meter through the District's automated meter reading system.

7. The District's General Manager is directed to initiate and sustain for the duration of the Regulations, a public awareness and education campaign to implement the mandates of the Regulations and the requirements of this Water Conservation Program.

a. The General Manager is directed to write a letter to each owner of property that constitutes a High Residential User advising of the immediate need to reduce their usage by 50% compared to their usage in 2013, and instructing such customers on efficient water use. If necessary, or requested, the General Manager or his designee will meet with High Residential Users to discuss ways to achieve the required 50% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each High Residential Water User that did not achieve their required water conservation in that month.

b. The General Manager is directed to write a letter to each Agricultural User advising of the immediate need to reduce their usage by 20%. If necessary or requested, the General Manager or his designee will meet with Agricultural Users to discuss ways to achieve the required 20% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each Agricultural User showing each such user's progress towards achieving the required water conservation.

c. The General Manager is directed to meet with Institutional Users advising of the immediate need to reduce their usage by 25%. If necessary or requested, the General Manager or his designee will meet with Institutional Users to discuss ways to achieve the required 25% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each Institutional User showing each such user's progress towards achieving the required water conservation.

d. The District's Low Residential Users are recognized for previous conservation efforts and, provided such customers continue to not exceed a 5 unit per month usage threshold, will not be asked to reduce under this Water Conservation Program their usage compared to 2013. Low Residential Users will be required to abide by the mandatory conservation measures set forth in section 6 of this Water Conservation Program.

e. All other District customers are required to reduce their usage by 25% compared to their usage in 2013.

f. To determine 2013 water use, all customers are encouraged to sign up for Aquahawk at PID.aquahawk.us. Water saving tips are available at www.paradiseirrigation.com, www.paradisesaveswater.com, or by contacting District staff at 877-4971.

8. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted (i) as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both, as provided in Water Code section 377, and/or (ii) as an infraction punishable by a fine of up to $500 for each day in which the violation occurs, as provided in title 23, California Code of Regulations, section 864(d).

b. Each day that a violation of this resolution occurs is a separate offense.

c. Repeat offenders of this Water Conservation Program may, in the discretion of the District, (i) be placed on the District's highest tiered rate for water usage in lieu of and as a proxy for prosecution as described in section 8(a), above, and/or (ii) have a flow restrictor placed in their meter, and/or (iii) be subject to other administrative penalties pursuant to the District's rules and regulations and applicable law.

9. The District's General Counsel, in coordination with the District's General Manager, is directed to prepare a draft Excess Water Use Ordinance under Government Code section 53069.4 setting forth potential additional remedies available to the District in the event of noncompliance with the terms of this Water Conservation Program. A draft of the Excess Water Use Ordinance shall be provided to the District's Water Conservation Committee for review and input by the Committee and interested members of the public. If the Committee recommends adoption of the Excess Water Use Ordinance, it shall be considered as soon thereafter as possible by the District Board of Directors at a public meeting.

10. The District's General Manager or his designee may modify this Water Conservation Program without further action or approval of the Board of Directors when said modification is required in order to comply with any law, regulation, action by the Governor or state agency, or similar mandate. Such modification shall not constitute an amendment to the Water Conservation Program under section 376(b) of the Water Code. The General Manager shall give notice of any such modification as soon as possible prior to its effective date, by posting notice and the text of the modification on the District's website and in a conspicuous place at the District office. Any action taken under this paragraph 10 will be agendized at the next regularly scheduled board meeting for ratification by the Board of Directors.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a regular meeting of said Board on this 20th day of May, 2015, by the following vote:

AYES: Directors Sep Carola, Larry Duncan, Doug Flesher, Bill Kellogg and Ken Hunt

NOES: None

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

Kenneth G. Hunt, President

ATTEST:

Georgeanna Borrayo, Secretary

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2016-13
ADOPTING THE 2016 WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, on May 9, 2016, the Governor of California executed Executive Order B-37-16 making conservation a way of life; and

WHEREAS, Paradise Irrigation District (District), as an urban retail water supplier, is mandated pursuant to SBx7-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, the District has prepared and amended from time to time an urban water management plan that, among other things, sets forth the District's drought contingency plan and process to analyze the District's surface water storage levels on April 1 of each year to determine if drought conditions exist and water shortage contingency stages should be enacted; and

WHEREAS, on April 1, 2016, the District analyzed the water supply conditions of the District which were determined to be 12,297 acre-feet of stored supply, equating to 102% of average and 100% of available reservoir storage capacity; and

WHEREAS, in accordance with the District's urban water management plan the aforementioned water supply conditions require no rationing of supplies during the 2016 water year; and

WHEREAS, the State Water Resources Control Board (SWRCB) intends on modifying its current emergency urban water conservation regulations and has circulated a draft modification to the pending emergency regulations that would include a self-certification process to demonstrate an urban supplier can satisfy treated water demands in the event the drought extends another three years; and

WHEREAS, under this draft approach, the District has more than adequate water supply to provide its customers with three years of supply assuming a continuation of drought conditions and establishes a conservation standard of 0%; and

WHEREAS, given the Governor's May 9, 2016, Executive Order B-37-16 and the anticipated adoption by the SWRCB of draft regulations mandating certain wise water use practices, the District hereby continues water use limitations on end-users to eliminate water waste; and

WHEREAS, the end user limitations and wise water use practices set forth in the District's 2014 Water Conservation Program and 2015 Water Conservation Program are incorporated herein by this reference; and

WHEREAS, though the District intends on complying with the mandates established by the State of California, it does so specifically reserving all rights, claims and defenses available to the District; and

WHEREAS, the District finds that adherence to this Water Conservation Program and the required measures will balance the District's need to conserve water for possible future drought in 2017 and beyond and the District's customers' need to use water in 2016 for beneficial uses, including health and safety demands; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the amendment and readoption and enforcement of a water conservation program is necessary to comply with the mandated actions set forth in the emergency regulations as currently drafted and as the SWRCB may modify the same; and

WHEREAS, on May 18, 2016, Paradise Irrigation District held a public hearing and demonstrated the necessity for the adoption of its water conservation program to comply with state mandates; and

WHEREAS, water conserved by the District's customers will be carried over in storage for the beneficial use of the District's customers, including possible public health and safety uses of District customers in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby adopt its "2016 Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporates them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting this revised water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately by all District customers and at such other times when, in the opinion of the Board of Directors, such measures are necessary for the preservation of public health and safety standards. The Board finds that these mandatory conservation measures constitute equitable rules governing use of water given the state's conservation mandates and the potential for continued drought conditions in 2017 or beyond. The Board finds that the mandatory conservation measures will be in place for the duration of the state's emergency regulations concerning urban conservation. The mandatory conservation measures may be re-imposed at

a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Program will be considered waste and an unreasonable use of water. The following mandatory conservation measures must be implemented and complied with by all District customers and are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Outdoor irrigation and watering is prohibited between the hours of 12:00 p.m. and 6:00 p.m. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, irrigation systems where no emitter produces a spray pattern, or to commercial nurseries and growers.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, as determined in the sole discretion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited except with a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

e. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This provision does not apply to a commercial car washing facility.

f. **Rainy Days**. No outdoor irrigation, sprinkling, or Outdoor Watering shall take place during, or within 48 hours after measureable local rainfall.

g. **Irrigation of Public Street Medians.** In accordance with Regulation section 864(a)(7) no irrigation with potable water of ornamental turf will be allowed on public street medians within the District's service area.

h. **Outdoor Irrigation of New Construction**. In accordance with Regulation section 864(a)(8) irrigation using potable water of landscapes outside of newly constructed homes and buildings in the District's service area will not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.

i. **Drinking Water Served Upon Request.** Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

j. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

7. The District's General Manager is directed to continue outreach to encourage customers to sign up for Aquahawk at PID.aquahawk.us. Water saving tips are available at www.paradiseirrigation.com, www.paradisesaveswater.com, or by contacting District staff at 877-4971.

8. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted (i) as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both, as provided in Water Code section 377, and/or (ii) as an infraction punishable by a fine of up to $500 for each day in which the violation occurs, as provided in title 23, California Code of Regulations, section 864(d).

b. Each day that a violation of this resolution occurs is a separate offense.

9. The District's General Manager or his designee may modify this Water Conservation Program without further action or approval of the Board of Directors when said modification is required in order to comply with any law, regulation, action by the Governor or state agency, or similar mandate. Such modification shall not constitute an amendment to the Water Conservation Program under section 376(b) of the Water Code. The General Manager shall give notice of any such modification as soon as possible prior to its effective date, by posting notice and the text of the modification on the District's website and in a conspicuous place at the District office. Any action taken under this paragraph 9 will be agendized at the next regularly scheduled board meeting for ratification by the Board of Directors.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a regular meeting of said Board on this 18th day of May, 2016, by the following vote:

AYES: Directors Ken Hunt, Larry Duncan, Cliff Jacobson, and Sep Carola

NOES: Director Bill Kellogg

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

_____

Sep Carola, President

ATTEST:

_____

Georgeanna Borrayo, Secretary

Exhibit C – Ordinance No. 2015-01 An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures

PARADISE IRRIGATION DISTRICT
ORDINANCE NO. 2015-01

AN ORDINANCE ADOPTING ENFORCEMENT PROCEDURES AND FINES AND PENALTIES FOR WATER CONSERVATION MEASURES

WHEREAS, Governor Brown on April 1, 2015, issued Executive Order B-29-15 which includes in paragraph 2 a mandate that the State Water Resources Control Board impose a reduction in potable water usage through February 28, 2016, to achieve a statewide 25% water savings; and

WHEREAS, the State Water Resources Control Board on May 5, 2015, adopted emergency regulations setting forth, among other items, mandatory end-user conservation measures and a requirement that the Paradise Irrigation District ("District") reduce its total potable water production by 36% beginning June 1, 2015, through February 2016 as compared to the same months in 2013; and

WHEREAS, in order to implement these mandates, the District adopted Resolution No. 2015-04 Amending and Readopting a Water Conservation Program ("Water Conservation Program") on May 20, 2015, a true and correct copy of which is attached as Exhibit A and incorporated herein by this reference; and

WHEREAS, the District maintains policies and rules and regulations concerning water use within the District and incorporates the current versions of the District's policies and rules and regulations herein by this reference; and

WHEREAS, pursuant to Water Code §§ 375 et seq. and Government Code § 53069.4, the District is empowered to implement conservation measures, to conduct enforcement proceedings, and to impose fines and penalties for violations; and

WHEREAS, the District finds that sanctions, including fines and penalties for excessive water use, are reasonable and are necessary to deter customers from taking excess water from District supplies or engaging in wasteful or prohibited water use practices; and

WHEREAS, the Board of Directors of Paradise Irrigation District finds and determines, as set forth in detail below, that this Ordinance is necessary to comply with state conservation mandates and to strengthen enforcement of the District's Water Conservation Program, the District's policies, and its rules and regulations.

NOW, THEREFORE, the Board of Directors of Paradise Irrigation District does hereby ordain as follows:

1. Applicability.
    a. This ordinance provides for administrative citations which are in addition to all other legal remedies, criminal or civil, which may be pursued by the District.
    b. The administrative citation process set forth in this ordinance applies to all violations of:
        i. The Water Conservation Program;
        ii. The District's policies as currently written or hereafter duly adopted or revised by the Board of Directors; and/or

iii. The District's rules and regulations as currently written or hereafter duly adopted or revised by the Board of Directors.

c. The use of this Ordinance shall be at the sole discretion of the District.

2. Definitions. For purposes of this Ordinance:

a. "Compliance Officer" shall mean any District employee or agent of the District with the authority delegated by the General Manager to enforce any provision of this Ordinance; and

b. "Hearing Officer" shall mean the Chief Financial Officer, or persons appointed by the District's General Manager, including the General Manager himself, that presides over an administrative hearing provided for in this Ordinance.

3. Administrative Citation.

a. Whenever a Compliance Officer determines that a violation of this Ordinance has occurred, the Compliance Officer shall have the authority to issue an administrative citation to any person responsible for the violation.

b. Each administrative citation shall contain the following information:

i. The date of the violation(s);
ii. The address or a specific description of the location where the violation(s) occurred;
iii. The section(s), as applicable, of the Water Conservation Program, policies, and rules and regulations violated and a description of the violation(s);
iv. The amount of the fine for the violation(s);
v. A description of the fine payment process, including a description of the time within which and the place to which the fine shall be paid;
vi. An order prohibiting the continuation or repeated occurrence of the violation(s) described in the administrative citation;
vii. A description of the administrative citation review process, including the time within which the administrative citation may be contested by submitting a request for a hearing form;
viii. The name and signature of the citing Compliance Officer; and
ix. A statement that a failure to appeal shall constitute a failure to exhaust administrative remedies and result in the citation becoming a final administrative enforcement order.

4. Administrative Citation Fines.

a. Except in cases where the violation or violations, in the judgment of the Compliance Officer, pose an immediate threat to health and safety, the District will utilize the

following progressively more stringent enforcement procedure in issuing administrative citations:

i. First administrative citation: written warning. Whenever a Compliance Officer determines that a violation has occurred, the Compliance Officer may issue a warning of administrative citation to any person responsible for the violation. Service of a written warning shall be a prerequisite to the issuance of further administrative citations with attendant financial penalties. In addition to the information set forth in Section 3.b., and if applicable, the warning shall specify a time and date by which the violation shall be corrected, after which a second administrative citation may be issued if the violation is not fully corrected. The Compliance Officer shall provide for a reasonable amount of time to correct the violation after considering the circumstances of the case, except that at least 24 hours shall be allowed for from the time and date of the warning. A warning shall not be required before the issuance of a second or any subsequent administrative citation for a continuing or repeated violation.

ii. Second administrative citation within any twelve (12) month period: one hundred dollars ($100.00) for each violation cited.

iii. Third administrative citation within any twelve (12) month period: two hundred dollars ($200.00) for each violation cited.

iv. Fourth administrative citation within any twelve (12) month period: five hundred dollars ($500.00) for each violation cited.

v. Fifth and succeeding administrative citation within any twelve (12) month period: the District may resort to any and all available legal remedies, including without limitation, suspending or reducing deliveries to the property and referring the matter to the Butte County District Attorney's office.

b. Each day or portion thereof during which a violation is committed, continued, or permitted, is a separate and distinct violation for which an administrative citation may be issued. Each violation constitutes a separate offense for which a separate penalty may be imposed. The fine amounts shall be cumulative where multiple citations are issued and the aggregate amount will be set forth in the administrative citation.

c. Payment of the fine(s) shall not excuse the failure to correct the violation(s), nor shall it bar further enforcement action by the District.

d. Fines imposed on any person under the second administrative citation stage will be reimbursed by the District if the person receiving the citation attends a one (1) hour water conservation course offered by the District. Attendance and receipt of a refund will not relieve the person from any additional administrative citations and fines for subsequent violation(s) of this Ordinance.

5. Payment of the Fine(s).

   a. All fine(s) assessed shall be payable to the District unless otherwise directed on the citation. Payment must be made within thirty (30) days from the date of the administrative citation.

   b. Any fine paid shall be refunded in accordance with Section 7.g.ii., if it is determined after a hearing or appeal, the person charged with the administrative citation was not responsible for the violation, or that there was no violation as charged in the administrative citation.

   c. Payment of fines under this Ordinance shall not excuse or discharge any continuation or repeated occurrence of the violation that is the subject of the administrative citation.

   d. Any person who fails to pay the District any fine imposed pursuant to this Ordinance on or before the date that fine is due, shall also be liable for the payment of a late payment charge of 10% of administrative citation fine quantity. .

6. Hearing Request.

   a. Any recipient of an administrative citation in which fines are imposed may contest that there was a violation of this Ordinance or that the recipient is the responsible party, by completing a request for hearing form and returning it to the District office within thirty (30) days from the date of the administrative citation, together with an advance deposit of the fine(s).

   b. A request for hearing form may be obtained from the District's office, 6332 Clark Road, Paradise CA.

   c. The person requesting the hearing shall be notified of the time and place set for the hearing at least ten (10) days prior to the date of the hearing.

   d. If the Compliance Officer submits an additional written report concerning the administrative citations to the Hearing Officer for consideration at the hearing, then a copy of this report shall also be served on the person requesting the hearing at least five (5) days prior to the date of the hearing.

7. Hearing Procedure.

   a. No hearing to contest an administrative citation before a Hearing Officer shall be held unless the fine(s) has been deposited with the District in advance.

   b. A hearing before the Hearing Officer shall be set for a date that is not less than fifteen (15) days and not more than sixty (60) days from the date that the request for hearing is filed in accordance with the provisions of this Ordinance.

   c. At the hearing, the party contesting the administrative citation shall be given the opportunity to testify and to present evidence concerning the administrative citation.

d. The failure of any party contesting the administrative citation to appear at the hearing shall constitute a forfeiture of the fine and a failure to exhaust administrative remedies.

e. The administrative citation and any additional report submitted by the Compliance Officer, if compliant with Section 3.b., shall constitute prima facie evidence of a violation of this Ordinance.

f. The Hearing Officer shall be a disinterested employee, agent or consultant of the District. The employment, performance evaluation, compensation and benefits of the Hearing Officer shall not be directly or indirectly conditioned upon the amount of administrative citation fines upheld by the Hearing Officer.

g. Decision of the Hearing Officer:

    i. After considering all the testimony and evidence submitted at the hearing, the Hearing Officer shall issue a written decision to uphold or cancel the administrative citation and shall list in the decision, the reasons for that decision.
    ii. If the Hearing Officer decides to cancel the administrative citation, the District shall promptly refund the amount of the deposited fine.
    iii. The person receiving the administrative citation shall be served with a copy of the Hearing Officer's written decision.
    iv. For purposes of the Ordinance, service is accomplished by either personal delivery or deposit in the United States Mail in a sealed envelope sent first class, postage prepaid, addressed to the person to be notified at the mailing address for the person as set forth in the District's files, or such other address as provided by the person receiving notice.

h. Appeal of Hearing Officer's Decision to Board of Directors:

    i. If the Hearing Officer upholds the imposition of the administrative citation, the person aggrieved by the administrative citation may appeal the Hearing Officer's decision to the Board of Directors of the District.
    ii. A request for appeal to the Board of Directors must be made in writing to the District within ten (10) days of service of the Hearing Officer's decision. If an appeal to the Board of Directors is not timely received, the decision of the Hearing Officer shall be final. Timely appeal to the Board of Directors is a prerequisite to seeking judicial review under Section 8; failure to timely appeal to the Board of Directors constitutes a failure to exhaust administrative remedies.
    iii. Timely appeal requests will be considered by the Board at its next regularly scheduled board meeting.
    iv. The failure of any party appealing the Hearing Officer's decision to appear at the appeal shall constitute a denial of the appeal, forfeiture of the fine, and a failure to exhaust administrative remedies.

v. After considering the Hearing Officer's decision, evidence, testimony of the appealing party, and any public comments, the Board of Directors will make a decision, by motion and majority vote, to grant or deny the appeal.

8. Right to Judicial Review. Any person aggrieved by the Board of Directors' decision to uphold the administrative decision of a Hearing Officer on an administrative citation, may obtain review of the decision by filing a petition for review within the Butte County Superior Court in accordance with the timeliness and provisions set forth in Government Code section 53069.4.

9. Recovery of Administrative Citations Fines and Costs. The District may collect any past due administrative citation fines or late payment charges by any or all available legal means.

PASSED AND ADOPTED this 17th day of June, 2015 by the following vote at a regular meeting of the Board of Directors.

AYES:	Directors Sep Carola, Larry Duncan, Doug Flesher and Ken Hunt
NOES:	Director Bill Kellogg
ABSTAINED:	None
ABSENT:	None

PARADISE IRRIGATION DISTRICT

K.G. Hunt

Kenneth G. Hunt, President

ATTEST:

Georgeanna Borrayo

Georgeanna Borrayo, Secretary

Exhibit D – Water Shortage Contingency Plan Adoption Resolution

The adoption resolution will be included in the Final Water Shortage Contingency Plan.

Appendix I – Ordinance No. 2015-01

PARADISE IRRIGATION DISTRICT
ORDINANCE NO. 2015-01

AN ORDINANCE ADOPTING ENFORCEMENT PROCEDURES AND FINES AND PENALTIES FOR WATER CONSERVATION MEASURES

WHEREAS, Governor Brown on April 1, 2015, issued Executive Order B-29-15 which includes in paragraph 2 a mandate that the State Water Resources Control Board impose a reduction in potable water usage through February 28, 2016, to achieve a statewide 25% water savings; and

WHEREAS, the State Water Resources Control Board on May 5, 2015, adopted emergency regulations setting forth, among other items, mandatory end-user conservation measures and a requirement that the Paradise Irrigation District ("District") reduce its total potable water production by 36% beginning June 1, 2015, through February 2016 as compared to the same months in 2013; and

WHEREAS, in order to implement these mandates, the District adopted Resolution No. 2015-04 Amending and Readopting a Water Conservation Program ("Water Conservation Program") on May 20, 2015, a true and correct copy of which is attached as Exhibit A and incorporated herein by this reference; and

WHEREAS, the District maintains policies and rules and regulations concerning water use within the District and incorporates the current versions of the District's policies and rules and regulations herein by this reference; and

WHEREAS, pursuant to Water Code §§ 375 et seq. and Government Code § 53069.4, the District is empowered to implement conservation measures, to conduct enforcement proceedings, and to impose fines and penalties for violations; and

WHEREAS, the District finds that sanctions, including fines and penalties for excessive water use, are reasonable and are necessary to deter customers from taking excess water from District supplies or engaging in wasteful or prohibited water use practices; and

WHEREAS, the Board of Directors of Paradise Irrigation District finds and determines, as set forth in detail below, that this Ordinance is necessary to comply with state conservation mandates and to strengthen enforcement of the District's Water Conservation Program, the District's policies, and its rules and regulations.

NOW, THEREFORE, the Board of Directors of Paradise Irrigation District does hereby ordain as follows:

1. Applicability.
    a. This ordinance provides for administrative citations which are in addition to all other legal remedies, criminal or civil, which may be pursued by the District.
    b. The administrative citation process set forth in this ordinance applies to all violations of:
        i. The Water Conservation Program;
        ii. The District's policies as currently written or hereafter duly adopted or revised by the Board of Directors; and/or

iii. The District's rules and regulations as currently written or hereafter duly adopted or revised by the Board of Directors.

c. The use of this Ordinance shall be at the sole discretion of the District.

2. Definitions. For purposes of this Ordinance:

a. "Compliance Officer" shall mean any District employee or agent of the District with the authority delegated by the General Manager to enforce any provision of this Ordinance; and

b. "Hearing Officer" shall mean the Chief Financial Officer, or persons appointed by the District's General Manager, including the General Manager himself, that presides over an administrative hearing provided for in this Ordinance.

3. Administrative Citation.

a. Whenever a Compliance Officer determines that a violation of this Ordinance has occurred, the Compliance Officer shall have the authority to issue an administrative citation to any person responsible for the violation.

b. Each administrative citation shall contain the following information:

i. The date of the violation(s);
ii. The address or a specific description of the location where the violation(s) occurred;
iii. The section(s), as applicable, of the Water Conservation Program, policies, and rules and regulations violated and a description of the violation(s);
iv. The amount of the fine for the violation(s);
v. A description of the fine payment process, including a description of the time within which and the place to which the fine shall be paid;
vi. An order prohibiting the continuation or repeated occurrence of the violation(s) described in the administrative citation;
vii. A description of the administrative citation review process, including the time within which the administrative citation may be contested by submitting a request for a hearing form;
viii. The name and signature of the citing Compliance Officer; and
ix. A statement that a failure to appeal shall constitute a failure to exhaust administrative remedies and result in the citation becoming a final administrative enforcement order.

4. Administrative Citation Fines.

a. Except in cases where the violation or violations, in the judgment of the Compliance Officer, pose an immediate threat to health and safety, the District will utilize the

following progressively more stringent enforcement procedure in issuing administrative citations:

i. First administrative citation: written warning. Whenever a Compliance Officer determines that a violation has occurred, the Compliance Officer may issue a warning of administrative citation to any person responsible for the violation. Service of a written warning shall be a prerequisite to the issuance of further administrative citations with attendant financial penalties. In addition to the information set forth in Section 3.b., and if applicable, the warning shall specify a time and date by which the violation shall be corrected, after which a second administrative citation may be issued if the violation is not fully corrected. The Compliance Officer shall provide for a reasonable amount of time to correct the violation after considering the circumstances of the case, except that at least 24 hours shall be allowed for from the time and date of the warning. A warning shall not be required before the issuance of a second or any subsequent administrative citation for a continuing or repeated violation.

ii. Second administrative citation within any twelve (12) month period: one hundred dollars ($100.00) for each violation cited.

iii. Third administrative citation within any twelve (12) month period: two hundred dollars ($200.00) for each violation cited.

iv. Fourth administrative citation within any twelve (12) month period: five hundred dollars ($500.00) for each violation cited.

v. Fifth and succeeding administrative citation within any twelve (12) month period: the District may resort to any and all available legal remedies, including without limitation, suspending or reducing deliveries to the property and referring the matter to the Butte County District Attorney's office.

b. Each day or portion thereof during which a violation is committed, continued, or permitted, is a separate and distinct violation for which an administrative citation may be issued. Each violation constitutes a separate offense for which a separate penalty may be imposed. The fine amounts shall be cumulative where multiple citations are issued and the aggregate amount will be set forth in the administrative citation.

c. Payment of the fine(s) shall not excuse the failure to correct the violation(s), nor shall it bar further enforcement action by the District.

d. Fines imposed on any person under the second administrative citation stage will be reimbursed by the District if the person receiving the citation attends a one (1) hour water conservation course offered by the District. Attendance and receipt of a refund will not relieve the person from any additional administrative citations and fines for subsequent violation(s) of this Ordinance.

5. Payment of the Fine(s).

   a. All fine(s) assessed shall be payable to the District unless otherwise directed on the citation. Payment must be made within thirty (30) days from the date of the administrative citation.

   b. Any fine paid shall be refunded in accordance with Section 7.g.ii., if it is determined after a hearing or appeal, the person charged with the administrative citation was not responsible for the violation, or that there was no violation as charged in the administrative citation.

   c. Payment of fines under this Ordinance shall not excuse or discharge any continuation or repeated occurrence of the violation that is the subject of the administrative citation.

   d. Any person who fails to pay the District any fine imposed pursuant to this Ordinance on or before the date that fine is due, shall also be liable for the payment of a late payment charge of 10% of administrative citation fine quantity. .

6. Hearing Request.

   a. Any recipient of an administrative citation in which fines are imposed may contest that there was a violation of this Ordinance or that the recipient is the responsible party, by completing a request for hearing form and returning it to the District office within thirty (30) days from the date of the administrative citation, together with an advance deposit of the fine(s).

   b. A request for hearing form may be obtained from the District's office, 6332 Clark Road, Paradise CA.

   c. The person requesting the hearing shall be notified of the time and place set for the hearing at least ten (10) days prior to the date of the hearing.

   d. If the Compliance Officer submits an additional written report concerning the administrative citations to the Hearing Officer for consideration at the hearing, then a copy of this report shall also be served on the person requesting the hearing at least five (5) days prior to the date of the hearing.

7. Hearing Procedure.

   a. No hearing to contest an administrative citation before a Hearing Officer shall be held unless the fine(s) has been deposited with the District in advance.

   b. A hearing before the Hearing Officer shall be set for a date that is not less than fifteen (15) days and not more than sixty (60) days from the date that the request for hearing is filed in accordance with the provisions of this Ordinance.

   c. At the hearing, the party contesting the administrative citation shall be given the opportunity to testify and to present evidence concerning the administrative citation.

d. The failure of any party contesting the administrative citation to appear at the hearing shall constitute a forfeiture of the fine and a failure to exhaust administrative remedies.

e. The administrative citation and any additional report submitted by the Compliance Officer, if compliant with Section 3.b., shall constitute prima facie evidence of a violation of this Ordinance.

f. The Hearing Officer shall be a disinterested employee, agent or consultant of the District. The employment, performance evaluation, compensation and benefits of the Hearing Officer shall not be directly or indirectly conditioned upon the amount of administrative citation fines upheld by the Hearing Officer.

g. Decision of the Hearing Officer:

    i. After considering all the testimony and evidence submitted at the hearing, the Hearing Officer shall issue a written decision to uphold or cancel the administrative citation and shall list in the decision, the reasons for that decision.
    ii. If the Hearing Officer decides to cancel the administrative citation, the District shall promptly refund the amount of the deposited fine.
    iii. The person receiving the administrative citation shall be served with a copy of the Hearing Officer's written decision.
    iv. For purposes of the Ordinance, service is accomplished by either personal delivery or deposit in the United States Mail in a sealed envelope sent first class, postage prepaid, addressed to the person to be notified at the mailing address for the person as set forth in the District's files, or such other address as provided by the person receiving notice.

h. Appeal of Hearing Officer's Decision to Board of Directors:

    i. If the Hearing Officer upholds the imposition of the administrative citation, the person aggrieved by the administrative citation may appeal the Hearing Officer's decision to the Board of Directors of the District.
    ii. A request for appeal to the Board of Directors must be made in writing to the District within ten (10) days of service of the Hearing Officer's decision. If an appeal to the Board of Directors is not timely received, the decision of the Hearing Officer shall be final. Timely appeal to the Board of Directors is a prerequisite to seeking judicial review under Section 8; failure to timely appeal to the Board of Directors constitutes a failure to exhaust administrative remedies.
    iii. Timely appeal requests will be considered by the Board at its next regularly scheduled board meeting.
    iv. The failure of any party appealing the Hearing Officer's decision to appear at the appeal shall constitute a denial of the appeal, forfeiture of the fine, and a failure to exhaust administrative remedies.

v. After considering the Hearing Officer's decision, evidence, testimony of the appealing party, and any public comments, the Board of Directors will make a decision, by motion and majority vote, to grant or deny the appeal.

8. Right to Judicial Review. Any person aggrieved by the Board of Directors' decision to uphold the administrative decision of a Hearing Officer on an administrative citation, may obtain review of the decision by filing a petition for review within the Butte County Superior Court in accordance with the timeliness and provisions set forth in Government Code section 53069.4.

9. Recovery of Administrative Citations Fines and Costs. The District may collect any past due administrative citation fines or late payment charges by any or all available legal means.

PASSED AND ADOPTED this 17th day of June, 2015 by the following vote at a regular meeting of the Board of Directors.

AYES:	Directors Sep Carola, Larry Duncan, Doug Flesher and Ken Hunt
NOES:	Director Bill Kellogg
ABSTAINED:	None
ABSENT:	None

PARADISE IRRIGATION DISTRICT

K.G. Hunt

Kenneth G. Hunt, President

ATTEST:

Georgeanna Borrayo

Georgeanna Borrayo, Secretary

Appendix J – Copy of Newspaper Application for Public Outreach

Will be provided in final Urban Water Management Plan

Appendix K – Urban Water Management Plan Adoption Resolution

Will be provided in final Urban Water Management Plan

Appendix L – DWR Checklist

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
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 1.1 - 1.2
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	Executive Summary
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 2.1
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 2.4
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 2.4
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	NA
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Section 3.2 Section 3.5
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	DWR Table 3-1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.4.2
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Section 3.4.1
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3.5
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	PID Table 4-A DWR Table 4-1 DWR Table 4-2
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 4.2.6
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 4.2.7
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 4.2
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	DWR Table 4-4
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	PID Table 4-C
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 7.3
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	DWR Table 5-1
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.4
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	Section 5.4.1

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	DWR Table 5-1
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	Appendix E
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	Section 6.2 Section 6.13 Section 7.2
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 6.2 Section 6.13 Section 7.2
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	Section 6.2 Section 6.10
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.11
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	DWR Table 6-8 DWR Table 6-9
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.3
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	Section 6.4.1
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.4.1
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	Section 6.4.1
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	Section 6.3.1
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	DWR Table 6-1
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	Section 6.12 DWR Table 6-7
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 6.9.1 Section 6.11
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 6.5 DWR Table 6-2 DWR Table 6-3 DWR Table 6-4
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	DWR Table 6-5 DWR Table 6-5
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 6.6
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)	DWR Table 6-4
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 6.7
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 6.7
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.8

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 6.5
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 6.11 Section 6.12
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 6.14
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 6.2 Section 7.1.2
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	Section 7.1.3.2
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	Section 7.2
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 7.3
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 7.2.1
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 7.2.1
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	Section 7.2 Section 7.3
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	Section 6.13 Section 7.1.1 Section 7.1.3 Section 7.3
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix H
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	WSCP Table 1 WSCP Table 2
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	WSCP Table 4
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	WSCP Table 4
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	WSCP Table 4
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	WSCP Table 3
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	NA

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	WSCP Table 6
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	WSCP Table 5
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	WSCP Section 1.5
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	WSCP Table 5
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	WSCP Table 5
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	WSCP Exhibit A
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	WSCP Table 4
Section 8.5 and 8.6	2(a)(5)(B) 10632(a)(	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	WSCP Table 4
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	WSCP Section 1.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	WSCP Section 1.2
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	WSCP Table 4: Step 9
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	WSCP Table 4: Step 10
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	WSCP Section 1.7
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	WSCP Section 1.7
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	WSCP Section 1.7
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	WSCP Table 4
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	WSCP Table 5
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 Section 10.4
Section 8.12	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	WSCP Section 1.8

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 9.3
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 10.3
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	DWR Table 10-1 Appendix A
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 10.4
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 10.3 Appendix J
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	Appendix A
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 K WSCP Exhibit D
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 10.4
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 10.4
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 10.4
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	Section 10.5
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 10.5
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
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	N/A

Paradise Irrigation District Draft Water Shortage Contingency Plan

June 2021

Prepared by Water Works Engineers, LLC
Colleen Boak, PE
Esmeralda Diego
Sheila Magladry, PE
Ameen Tohmeh

Checked by:
Tim Durbin, PE
Cindy Bertsch, PE

Table of Contents

Water Shortage Contingency Plan 1
1.1 Water Supply Reliability Analysis 1
1.1.1 Constraints on Water Supply 1
1.1.2 Drought Risk Assessment 2
1.1.3 Seismic Risk Analysis 3
1.2 Legal Authorities 3
1.3 Standard Water Shortage Levels 4
1.4 Annual Water Supply and Demand Assessment Procedures 4
1.5 Supply Augmentation and Operational Changes 9
1.6 Compliance and Enforcement 9
1.7 Financial Consequences 9
1.8 Plan Adoption, Submittal, and Availability 10

Tables

WSCP Table 1 Near-Term Five-Year Drought Risk Assessment 2
WSCP Table 2 Long-Term Single and Five-Year Drought Risk Assessment 3
WSCP Table 3 Water Shortage Contingency Plan Levels 4
WSCP Table 4 Water Supply and Demand Assessment Procedure 5
WSCP Table 5 Demand Reduction Actions to be Implemented at Each Shortage Level 7
WSCP Table 6 Supply Augmentation During Water Shortages 9

Exhibits

Exhibit A – Butte County Local Hazard Mitigation Plan Update: Annex F Paradise Irrigation District
Exhibit B – Recent Water Conservation Programs
Exhibit C – Ordinance No. 2015-01 An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures
Exhibit D – Water Shortage Contingency Plan Adoption Resolution

Water Shortage Contingency Plan

Following the severe drought of 2012-2016, the State of California Legislature sought to expand the water shortage contingency analysis, which was required to be included in Urban Water Management Plans under prior law and mandated that a Water Shortage Contingency Plan (WSCP) be adopted by suppliers. The California Water Code (CWC) recognizes WSCPs as a critical tool during a drought emergency and grants that the State defer to locally adopted WSCPs, to the extent practicable.

> *California Water Code Section 10632.3*
>
> *It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.*

The WSCP is Paradise Irrigation District's operational plan in the event of a water shortage. Water shortage would occur when available water supplies are insufficient to meet normal customer water demands. Various causes can bring about a water shortage including population growth, climate change, drought, natural disasters, and other catastrophic events.

The WSCP shall address the ten following elements:

1. Water supply reliability analysis
2. Annual water shortage assessment procedures
3. Six standard water shortage stages
4. Shortage response actions
5. Communication protocols
6. Compliance and enforcement
7. Legal authorities
8. Financial consequences of WSCP implementation
9. Monitoring and reporting
10. WSCP refinement procedures

1.1 Water Supply Reliability Analysis

Pursuant to 10632(a)(1) of the CWC, a near-term (5 years) and long-term (20 years) water supply reliability analysis is provided herein. The water supply reliability analysis consists of a water service reliability assessment and drought risk assessment (DRA).

1.1.1 Constraints on Water Supply

PID's primary source of water is surface water from Little Butte Creek Watershed. Surface water is stored in Paradise Reservoir and Magalia Reservoir and diverted to PID's Water Treatment Plant (WTP) through the Magalia intake facility. Under normal conditions, PID's existing three water rights – two storage rights and a direct diversion right – are sufficient to meet PID's water demands. There are no legal or water quality factors that result in inconsistency of supply from Little Butte Creek Watershed for the period studied in this plan. However, variation

in seasonal rainfall in the Little Butte Creek Watershed can impact surface water supply availability. Additionally, physical constraints exist on the volume of water that can be stored in both Paradise and Magalia Reservoirs. In 1997, the Department of Water Resources Division of Safety of Dams identified seismic stability concerns on the upstream slope of Magalia Dam. Consequently, DSOD directed PID to lower the maximum water elevation of Magalia Dam to 2,200 feet above mean sea level, whereas the spillway crest elevation is 2,258 feet above mean sea level. The lower water level has reduced the maximum operating storage capacity of Magalia Reservoir from 2,574 acre-feet (AF) to 796 AF, until such time that PID can rectify the portions of the facility that are seismically unstable.

PID operates a single groundwater well located at the D Tank site facility with a maximum output estimated at 350 acre-feet per year (AF/yr). The primary purpose of the well is to augment PID's water supply during times of drought or emergency, but under normal conditions, well production is minimal, and the well is only operated for maintenance purposes. At the time of plan preparation this well is non-operational due to mechanical failure of the pump.

1.1.2 Drought Risk Assessment

The near-term and long-term drought risk assessment was performed by comparing the unconstrained potable water demands to the water supply availability for a single dry year and 5 consecutive dry years. The near-term DRA for a five-year drought is provided in WSCP Table 1. The long-term single and five-year DRA is provided in WSCP Table 2. Note that groundwater supplies are not included in WSCP Table 1, as the groundwater well is not currently operational. However, after 2030 total supplies presented in WSCP Table 2 are inclusive of groundwater supplies when it can reasonably be assumed that the well would be operational. For both the near-term and long-term drought risk assessment no water shortage is projected. Consequently, no augmentation or conservation methods are incorporated into WSCP Table 1 WSCP Table 2.

WSCP Table 1 Near-Term Five-Year Drought Risk Assessment

Category	2021	2022	2023	2024	2025
Total Supplies	15,223	16,465	12,182	9,239	6,071
Gross Water Use	4,287	4,205	4,122	4,040	3,957
Surplus without WSCP Action	10,936	12,260	8,060	5,199	2,114
Notes: All volumes are in AF/yr.					

WSCP Table 2 Long-Term Single and Five-Year Drought Risk Assessment

Drought Type/ Year	Category	2025	2030	2035	2040	2045
Single Year	Total Supplies	6,071	6,421	6,421	6,421	6,421
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	2,114	2,065	1,507	1,312	1,337
Year 1	Total Supplies	15,223	15,573	15,573	15,573	15,573
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	11,266	11,217	10,659	10,464	10,489
Year 2	Total Supplies	16,465	16,815	16,815	16,815	16,815
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	12,508	12,459	11,901	11,706	11,731
Year 3	Total Supplies	12,182	12,532	12,532	12,532	12,532
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	8,225	8,176	7,618	7,423	7,448
Year 4	Total Supplies	9,239	9,589	9,589	9,589	9,589
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	5,282	5,233	4,675	4,480	4,505
Year 5	Total Supplies	6,071	6,421	6,421	6,421	6,421
	Gross Water Use	3,957	4,356	4,914	5,109	5,084
	Surplus absent of WSCP action	2,114	2,065	1,507	1,312	1,337
NOTES: All values are in AF/yr.						

1.1.3 Seismic Risk Analysis

Seismic risk in California can pose a significant threat to facilities and infrastructure. PID participated in the preparation of the 2019 Butte County Local Hazard Mitigation Plan Update (LHMP), which addresses seismic risk of critical PID facilities. Annex F of the LHMP details the hazard mitigation planning elements specific to PID and is provided in Exhibit A.

1.2 Legal Authorities

California Water Code Section 375(a), as stated below, grants PID the legal authority to adopt and enforce a water conservation program.

> *California Water Code Section 375(a)*
>
> *Notwithstanding any other law, any public entity that supplies water at retail or wholesale for the benefit of persons within the service area or area of jurisdiction of the public entity may, by ordinance or resolution adopted by a majority of the members of the governing body after holding a public hearing upon notice and making appropriate findings of necessity for the adoption of a water conservation program, adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity.*

In 2014, 2015, and 2016 PID adopted Water Conservation Programs to address existent dry conditions within PID's watershed. Copies of those resolutions are provided in Exhibit B. The Water Conservation Programs established mandatory conservation measures to be implemented at such times when measures are necessary for the preservation of public health and safety standards, as determined by majority action of the Board of Directors.

In 2015, PID passed Ordinance No. 2015-01, An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures (Ord. No. 2015-01). Ord. No. 2015-01 set forth the administrative citation process for users in violation of the Water Conservation Program and all other PID policies and rules and regulations. The Water Conservation Programs and Ord. No. 2015-01 are further discussed herein.

1.3 Standard Water Shortage Levels

The California Water Code Section 10632(a)(3) defines six standard water shortage levels. Standardization of water shortage levels provide a consistent regional and statewide approach to characterizing and conveying the severity of a water shortage. The previously adopted 2015 UWMP established water conservation measures for varying water shortage stages. However, those stages do not cover all requisite shortage levels as defined by the CWC. Consequently, the standard water shortage levels set forth in the CWC are used herein and shall supersede the stages of the 2015 UWMP. WSCP Table 3 lists all shortage levels and a brief description of shortage response actions.

WSCP Table 3 Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	PID will promote wise water use and the restriction of water waste actions. PID will dedicate resources to supporting the actions identified in WSCP Table 5 and WSCP Table 6 PID will encourage voluntary rationing by customers.
2	Up to 20%	PID will uphold all WSCP actions of shortage level 1 and in addition will impose mandatory demand reduction of up to 10%.
3	Up to 30%	PID will uphold all WSCP actions of shortage level 2 and in addition will impose mandatory demand reduction of up to 20%.
4	Up to 40%	PID will uphold all WSCP actions of shortage level 3 and in addition will impose mandatory demand reduction of up to 30%.
5	Up to 50%	PID will uphold all WSCP actions of shortage level 4 and in addition will impose mandatory demand reduction of up to 40%.
6	Greater than 50%	PID will uphold all WSCP actions of shortage level 5.

1.4 Annual Water Supply and Demand Assessment Procedures

Pursuant to CWC 10632.1, all water suppliers are required to conduct an annual water supply and demand assessment on or before July 1 of each year beginning in 2022. If the supplier receives imported water from the State Water Project or the U.S. Bureau of Reclamation (USBR) they shall submit the report within 14 days of receiving final allocations or by July 1 of each year, whichever is later. The steps for conducting the Annual Water Supply and Demands Assessment are outlined in WSCP Table 4.

WSCP Table 4 Water Supply and Demand Assessment Procedure

Step	Description	Time Frame	Participants
Step 1	Compile water demand data from previous calendar year.	Jan 1 - Jan 31	Utility Billing Technician Finance and Accounting Manager
Step 2	Coordinate with Town of Paradise (TOP) Planning Department for current pace of development and project water demands.	Jan 15 - Jan 31	Assistant District Manager TOP Planning Department District Engineer
Step 3	Compile water utility data into Water Utility Reporting Master spreadsheet.	Feb 1 - Feb 14	WTP Superintendent District Engineer
Step 4	Calculate total projected unconstrained water demands for current year.	Feb 15 - Feb 28	WTP Superintendent District Engineer
Step 5	Identify any constraints on facilities or infrastructure that could impact the supply of water, such as planned maintenance that would take facilities offline or known damage to facilities or infrastructure.	Feb 15 - Feb 28	WTP Superintendent Distribution Superintendent District Engineer
Step 6	Commence preparation of Annual Water Shortage Assessment Report.	March - April	WTP Superintendent District Engineer
Step 7	Analyze anticipated volume of surface water supply. Subtract current year projected water demand from volume of anticipated supplies to determine shortage percentage and volume.	By April 1	WTP Superintendent District Engineer
Step 8	If a shortage is identified, managers are to hold an internal meeting to inform participants that a water shortage for the current year is anticipated and the extent of that shortage. Review the WSCP and identify any concerns from the group regarding the ability to carry out the actions described in the WSCP. Assign an individual or group, among the participants, the responsibility of resolving the concern.	By April 15	District Manager Assistant District Manager WTP Superintendent Distribution Superintendent District Engineer
Step 9	The District Manager shall inform the Board of Directors of the water shortage emergency condition and the "Drought stage," under which the emergency falls. The Board of Directors shall declare a water shortage emergency condition to prevail within the area served by PID.	By April 30	District Manager Board of Directors
Step 10	PID shall coordinate with any town or county within which it provides water supply services for the possible proclamation of a local emergency.	May	District Manager Assistant District Manager TOP – Town Manager
Step 11	Finalize and submit Annual Water Shortage Assessment Report to DWR.	By July 1	WTP Superintendent District Engineer

Step 12	The public, interested parties, and local, regional, and state governments shall be notified of the water shortage emergency condition and of all water shortage response actions triggered by the emergency declaration. Pursuant to Government Code 6060, PID shall publish in a newspaper of general circulation the resolution adopting a declaration of water shortage emergency condition. Public notification in addition to a newspaper publication may include noticing through mass media, mailings, utility billings or by any combination thereof.	Beginning 1 business day after declaration of emergency condition and continuing for as long as the emergency condition persists as necessary	District Manager Assistant District Manager District Secretary
Step 13	The appropriate Water Shortage Response Actions for the drought stage, outlined in WSCP Table 5 and 6, will be carried out by the public and PID. PID will enforce compliance in accordance with Ord. No. 2015-01.	Duration of emergency condition	District Manager Compliance Officer
Step 14	Track customer water use at a minimum of a monthly basis. Ensure that total gross water use for that month, or more frequent tracking period, is reduced by the necessary percentage when compared to that same tracking period of the last normal supply year.	Duration of emergency condition	Utility Billing Technician Finance and Accounting Manager District Engineer WTP Superintendent
Step 15	If the needed water use reduction percentage is not met for any month, determine which additional strategies or actions would result in the needed reduction.	Upon determination of insufficient water use reduction	District Manager Assistant District Manager WTP Superintendent District Engineer Additional participants as needed
Step 16	The District Manager shall consider additional shortage response actions and whether those actions would necessitate an update of the WSCP and Water Conservation Program.	Upon determination of insufficient water use reduction	District Manager
Step 17	If it is deemed necessary that the WSCP be updated, the public shall be noticed of an update to the WSCP as described in Step 13, a draft of the updated WSCP will be made publicly available, and a public hearing held.	Upon determination of need for additional conservation measures	Public District Manager
Step 18	Upon majority action by the Board of Directors, the updated WSCP shall be adopted.	No later than the earliest Board Meeting following the Public Hearing.	Board of Directors

WSCP Table 5 Demand Reduction Actions to be Implemented at Each Shortage Level

Shortage Level	Demand Reduction Actions	Percent Reduction	Additional Explanation or Reference *As needed*	Penalty, Charge, or Other Enforcement?
1	Landscape - Limit landscape irrigation to specific times	3%	No outdoor watering between noon and 6pm	Yes
1	Landscape - Other landscape restriction or prohibition	1%	No outdoor irrigation, sprinkling, or outdoor watering shall take place during or within 48 hours after a measurable rainfall.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	1%	Watering in a manner that, as determined at the discretion of PID, results in excessive runoff onto hard surfaces.	Yes
1	Landscape - Other landscape restriction or prohibition	1%	No irrigation with potable water of ornamental turf will be allowed on public street medians within PID's service area.	Yes
1	Landscape - Other landscape restriction or prohibition	1%	For newly constructed structures, irrigation with potable water shall not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	1%	Water fountains and decorative water features must use a water recirculation system.	Yes
1	CII - Lodging establishment must offer opt out of linen service	1%		Yes
1	CII - Restaurants may only serve water upon request	1%		Yes
1	Other - Prohibit use of potable water for washing hard surfaces	1%	No washing driveways or hard surfaces. No watering overspray to hardscaped areas.	Yes

1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	1%	Upon notification by PID, customer must repair leaks on customer side plumbing.	Yes
1	Other - Require automatic shut off hoses	1%	Vehicle washing with potable water only permissible with use of a bucket and a hose with a shut-off nozzle.	Yes
1	Offer Water Use Surveys	1%	Customers are encouraged to sign up for AquaHawk to monitor water use and receive leak alerts	No
1	Expand Public Information Campaign	1-10%	PID shall communicate to customers severity of water shortage through newspaper publication, mass media, mailings, utility billings or any combination thereof.	No
1	Other	0-10%	Voluntary rationing by customers	Yes
1	Reduce System Water Loss	1-25%	PID operations will continue to dedicate resources to repair of leaks caused by the Camp Fire and regularly occurring leaks.	No
1	Decrease Line Flushing	1%	PID operations will restrict line flushing to occur only as needed to promote water quality	No
2	Other	10-20%	Mandatory Rationing	Yes
3	Other	20-30%	Mandatory Rationing	Yes
4	Other	30-40%	Mandatory Rationing	Yes
5 & 6	Other	40-50%	Mandatory Rationing	Yes
NOTES: All demand reduction actions listed under shortage level 1 shall continue in place for all other more restrictive drought stages.				

1.5 Supply Augmentation and Operational Changes

Under normal operational conditions PID's groundwater strategy is to pump water from the well located at D Tank site only as needed for maintenance. In the event of a water shortage, if not already repaired, PID shall prioritize dedicating the needed resources to ensuring the operability of the groundwater well. The well may be operated at its maximum projected yield to produce 350 AF/yr.

PID also has an intertie agreement with Del Oro Water Company to provide mutual assistance during water shortage emergencies up to 1,000 AF.

WSCP Table 6 Supply Augmentation During Water Shortages

Standard Shortage Level	Supply Augmentation Methods by Water Supplier	Volume	Additional Explanation
1-6	Stored Emergency Supply	Up to 350	Groundwater pumped
1-6	Transfers	Up to 1,000	Purchased water through Del Oro intertie
NOTES: PID may choose to implement these augmentation actions during any shortage level. Volume of augmentation methods are in AF/yr.			

PID would need to adjust its operations to support a drought stage that would prompt increased reliance on well water. Tasks for operations may include more frequent maintenance of well pumps and chemical injection pumps, monitoring of ground water level, and filter backwashing.

1.6 Compliance and Enforcement

As stated in Section 1.2, Ord. No. 2015-01 grants PID the authority to enforce compliance with PID policies and rules and regulations related to water conservation. A complete copy of Ord. No. 2015-01 is provided as Exhibit C. The following components are detailed in the ordinance:

- Applicability
- Definitions
- Administrative Citation
- Administrative Citation Fines
- Payment of the Fine(s)
- Hearing Request
- Hearing Procedure
- Right to Judicial Review
- Recovery of Administrative Citations Fines and Costs

1.7 Financial Consequences

During times of a water shortage PID is expected to see revenue reduction as a result of demand reduction actions lowering the total gross water use. Additionally, enforcement of demand reduction actions, which could include investigating water leaks or water waste, follow ups to check for compliance, and administering citations would incur additional expenses that would not be present during non-shortage conditions.

By current policy, PID charges a service charge and a consumption charge to customers. In previous years consumption revenue accounted for approximately 25% of total revenue. Revenue loss for each drought stage is anticipated to be approximately equal to the product of the 25% consumption revenue and the demand reduction percentage for each respective shortage level.

Enforcement expenses will vary based on customer compliance and drought stage. For instance, at the onset of demand reduction action implementation, resources needed for enforcement may be high as customers adjust to altering their use or compliance from customers could vary seasonally with customers finding it more difficult to comply during warmer months.

PID plans to mitigate the financial consequences associated with water shortage response actions primarily through cash reserves. PID's cash reserves include an Operating Fund, Water Rate Stabilization Fund, Emergency Fund, and Drought Management Fund. All of these are potentially available to mitigate financial consequences of a water shortage emergency declaration.

1.8 Plan Adoption, Submittal, and Availability

The Water Shortage Contingency Plan, which is included as an appendix in the 2020 Urban Water Management Plan (UWMP), was introduced and discussed with the public in the same meeting as the public hearing for the UWMP and the adoption hearing of both the WSCP and UWMP. However, public hearings and adoption hearings for both plans were each a separate agenda item. The WSCP is intended to be a stand-alone document and as such has been adopted by PID independently of the UWMP. Note that while the water shortage contingency analysis was titled Water Shortage Contingency Plan in the 2015 UWMP, it was only an element of the UWMP and was not adopted independent of the 2015 UWMP. This 2020 WSCP may be updated as needed between the required UWMP updates, which occur every five years, and no WSCP update shall necessitate an update of the UWMP.

PID has encouraged community and public interest involvement in the WSCP using public meetings and web-based communication. A public meeting will be held on June 21, 2021 and will provide an opportunity for the public to ask questions and raise concerns regarding the WSCP. Prior to the public hearing, the draft WSCP was made available for public inspection on PID's website.

The WSCP will be presented to the Board of Directors for adoption on June 21, 2021 following the public hearing. Copies of the adoption resolutions will be provided in Exhibit D. A copy of this WSCP will be submitted to DWR within 30 days of adoption and by July 1, 2021. The adopted WSCP will be submitted electronically to DWR. A CD or hardcopy of the adopted WSCP will also be submitted to the California State Library. No later than 30 days after submittal to DWR, copies of the WSCP will be available for public review at PID's office. An electronic copy of this plan will also be available for review and download on PID's website: https://pidwater.com/uwmp.

Exhibit A – Butte County Local Hazard Mitigation Plan Update: Annex F Paradise Irrigation District

Annex F Paradise Irrigation District

F.1 Introduction

This Annex details the hazard mitigation planning elements specific to Paradise Irrigation District (PID or District), a previously participating jurisdiction to the 2014 Butte County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the PID. This Annex provides additional information specific to the District, with a focus on providing additional details on the risk assessment and mitigation strategy for the PID.

F.2 Planning Process

As described above, the PID followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Butte County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table F-1. Additional details on plan participation and District representatives are included in Appendix A.

Table F-1 PID Planning Team

Name	Position/Title	How Participated
Kevin Phillips	District Manager	Planning and implementation. Provided data and reviewed drafts
Jim Ladrini	Distribution Superintendent	Planning and implementation
Bill Taylor	Water Treatment Superintendent	Planning and implementation

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP. This section provides information on how the District integrated the previously approved 2014 Plan into existing planning mechanisms and programs. Specifically, the PID incorporated into or implemented the 2014 LHMP through other plans and programs shown in Table F-2.

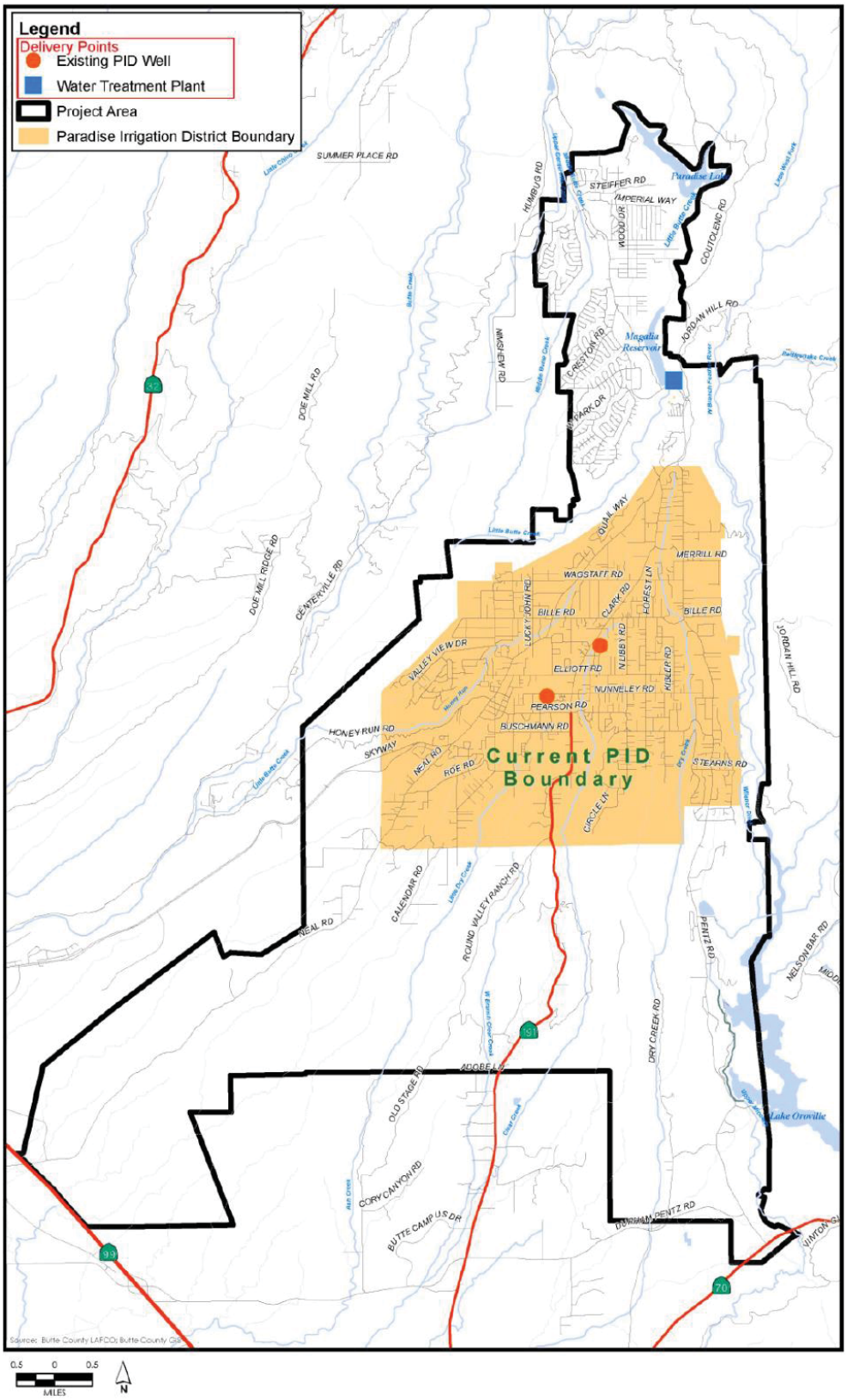
Table F-2 2014 LHMP Incorporation

Planning Mechanism 2014 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
Public Agency Capital Improvement Plan	The District replaced approximately 5 miles of pipe within the District
Drought Planning through the District's strategic Business Plan, Capital Improvement Plan and Urban Water Management Plan	The District replaced leaking pipelines and designed a replacement of the B-Reservoir to increase storage.

F.3 District Profile

The community profile for the PID is detailed in the following sections. Figure F-1 displays a map and the location of the District within Butte County.

Figure F-1 Paradise Irrigation District Boundaries



Source: PID 2015 Urban Water Management Plan

F.3.1. Overview and Background

The Paradise Irrigation District was formed in 1916. The District purchased water rights from Pacific Gas and Electric for $14,000. The idea was that water would turn Paradise into the "Fruit Capital of California." Once the District was formed there was much work to be done in order to bring water to the average citizen who had hopes of prospering as a California grower. In February of 1917 Paradise citizens voted 224 to 24 to tax themselves $350,000 for a bond issue that would finance the building of pipelines and Magalia Dam. The assessed land value at that time was $348,000. The optimistic outlook of Ridge residents soon became gloomy as the declaration of war against Germany came in April of 1917. Prices on everything went up, and steel was not available. Early settlers of this area had some very rough years and several residents lost their land due to unpaid tax assessments during the years of World War I, World War II, and the Depression. In 1956, the Paradise Dam was built for just under $1 million dollars.

Remedial works were completed on Magalia Dam in 1964. The work consisted of stabilizing the existing dam by adding fill material to flatten the downstream slope of the western section below the county road. Approximately 13,000 cubic yards of earth were utilized in the reconstruction. Also 3,200 cubic yards of crushed drain and transition rock were placed on the bottom 3 to 8 feet of the embankment. The Bechtel Corporation served as engineer for the District and District personnel and equipment were used whenever possible. Paradise Dam was raised an additional 24.5 feet in 1976 increasing the available storage to 11,497 acre-feet. A water filtration plant was added to the District's water system in 1986 due to the increased turbidity within the reservoirs during the winter months. In January of 1995 the new treatment plant was completed and placed in service. The new filtration plant has the capacity to treat 22.8 million gallons per day.

F.4 Hazard Identification

PID's planning team identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to the District (see Table F-3).

Table F-3 Paradise Irrigation District – Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Extensive	Likely	Limited	Low	–
Dam Failure	Extensive	Unlikely	Catastrophic	High	Medium
Drought & Water shortage	Extensive	Likely	Catastrophic	High	High
Earthquake	Extensive	Unlikely	Catastrophic	High	Low
Floods: 100/200/500 year	Limited	Occasional	Limited	Low	Medium
Floods: Localized Stormwater	Extensive	Likely	Catastrophic	Medium	Medium
Hazardous Materials Transportation	Limited	Unlikely	Negligible	Low	Low
Invasive Species: Aquatic	Limited	Occasional	Negligible	Low	Low
Invasive Species: Pests/Plants	Limited	Unlikely	Negligible	Low	Low
Landslide, Mudslide, and Debris Flow	Occasional	Unlikely	Catastrophic	Low	Medium
Levee Failure	Limited	Unlikely	Negligible	Low	Medium
Severe Weather: Extreme Heat	Extensive	Occasional	Negligible	Low	High
Severe Weather: Freeze and Winter Storm	Extensive	Occasional	Negligible	Medium	Medium
Severe Weather: Heavy Rain and Storms (Hail, Lightning)	Occasional	Likely	Catastrophic	Medium	Medium
Severe Weather: Wind and Tornado	Limited	Unlikely	Negligible	Low	Low
Stream Bank Erosion	Occasional	Occasional	Negligible	Low	Low
Volcano	Limited	Unlikely	Negligible	Low	Low
Wildfire	Extensive	Likely	Catastrophic	High	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Likelihood of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Climate Change Influence
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

F.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile PID's hazards and assess the District's vulnerability separate from that of the Planning Area as a whole, which has already been assessed in Sections 4.2 Hazard Profiles and 4.3 Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Planning Area and describes the hazard problem description, hazard extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the District is included in this Annex. This vulnerability assessment analyzes the property and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

F.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section F.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard affects the District and includes information on past hazard occurrences. The intent of this section is to provide jurisdictional specific information on hazards and further describe how the hazards and risks differ across the Planning Area.

F.5.2. Vulnerability Assessment and Assets at Risk

This section identifies PID's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the District. This data is not hazard specific but is representative of total assets at risk within the District.

Assets at Risk and Critical Facilities

This section considers the PID's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this Plan. Critical facilities are defined for this Plan as:

> ***Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.***

Table F-4 lists critical facilities and other District assets identified by the PID planning team as important to protect in the event of a disaster. PID's physical assets, valued at over $71 million, consist of the buildings and infrastructure to support PID's operations.

Table F-4 Paradise Irrigation District Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
PID Treatment Plant	Water Treatment Plant	$14,000,000	Earthquake and dam failure
PID Pumping Station	Treated Water Delivery Pumps	$400,000	Earthquake, dam failure, wildfire
42-inch Transmission Pipeline	Above Ground Pipeline and Creek Crossing	$90,000	Earthquake and dam failure
Paradise Dam	Dam	$100,000,000	Earthquake and dam failure
Magalia Dam	Dam	$30,000,000	Earthquake and dam failure
Diversion Dam	Raw Water Supply	$3,000,000	Earthquake and dam failure
Water District Storage Tanks	Treated Water Delivery	$24,000,000	Earthquake and Wildfire
Total		**$171,490,000**	

Source: PID

Natural Resources

PID has a variety of natural resources of value to the District. These natural resources parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Historic and Cultural Resources

PID has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Growth and Development Trends

General growth in the District parallels that of the Town of Paradise as a whole. Information can be found in Section D.5.2 of the Town of Paradise Annex.

Development since 2014

No District facilities have been constructed since 2014.

Future Development

The District has no control over future development in areas the District provides water in. Future development in these areas parallels that of the Town of Paradise. Due to the Camp Fire, future development in Paradise is currently unclear. More general information on growth and development in

Butte County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Butte County Vulnerability and Assets at Risk of the Base Plan.

The District Planning Team noted that the District is in the process of investigating the opportunity to expand its service area to the west of the District boundaries. The expansion could include an intertie with Cal Water Chico to support the Vina Subbasin groundwater users.

F.5.3. Vulnerability to Specific Hazards

This section provides the hazard profile discussion and vulnerability assessment for those hazards identified above in Table F-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Butte County Planning Area).

An estimate of the vulnerability of the PID to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

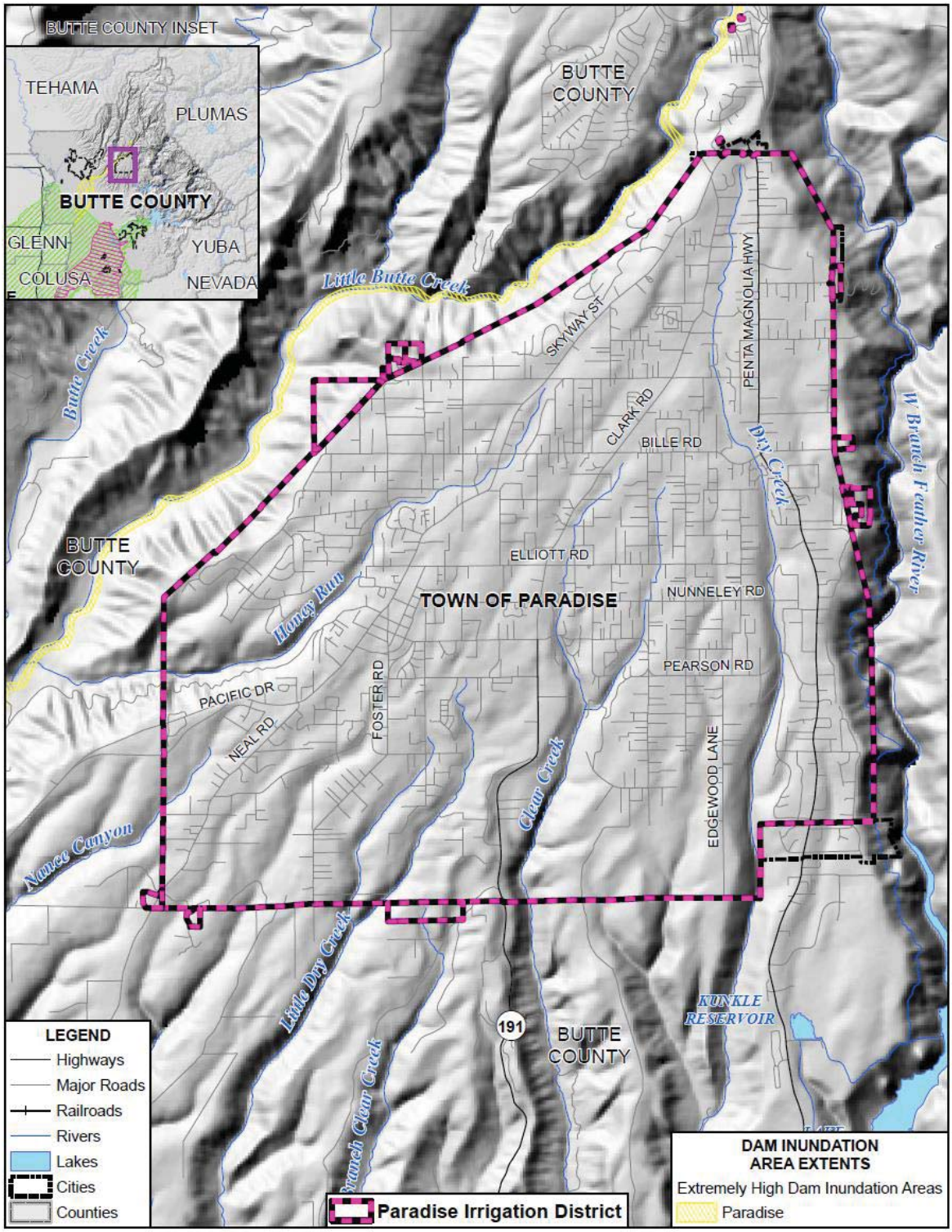
Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

Location and Extent

Paradise Irrigation District maintains two dams north of the Town of Paradise that impound stormwater flows in reservoirs used to provide drinking water to the community. The Skyway two lane road located on top of the dam is the primary access route into the Pines community (>10,000 residents). The upstream Paradise Reservoir is the main storage facility with a storage capacity of approximately 11,500 acre-feet. Magalia Reservoir was originally constructed with a storage capacity of 2,570 acre-feet.

Due to their location and proximity to the Town of Paradise, the Paradise dam is an extremely High classification and the Magalia is classified as a high hazard dam. There has been no history of failure of either of these two dams. Dam failure would affect mainly those living in the canyon and would likely have a limited effect on the Town of Paradise. Both of these dams had available inundation maps from Cal OES. District boundaries and dam inundation areas can be seen on Figure F-2, Figure F-3, and Figure F-4.

Figure F-2 Paradise Irrigation District – Extremely High Hazard Dam Inundation Areas



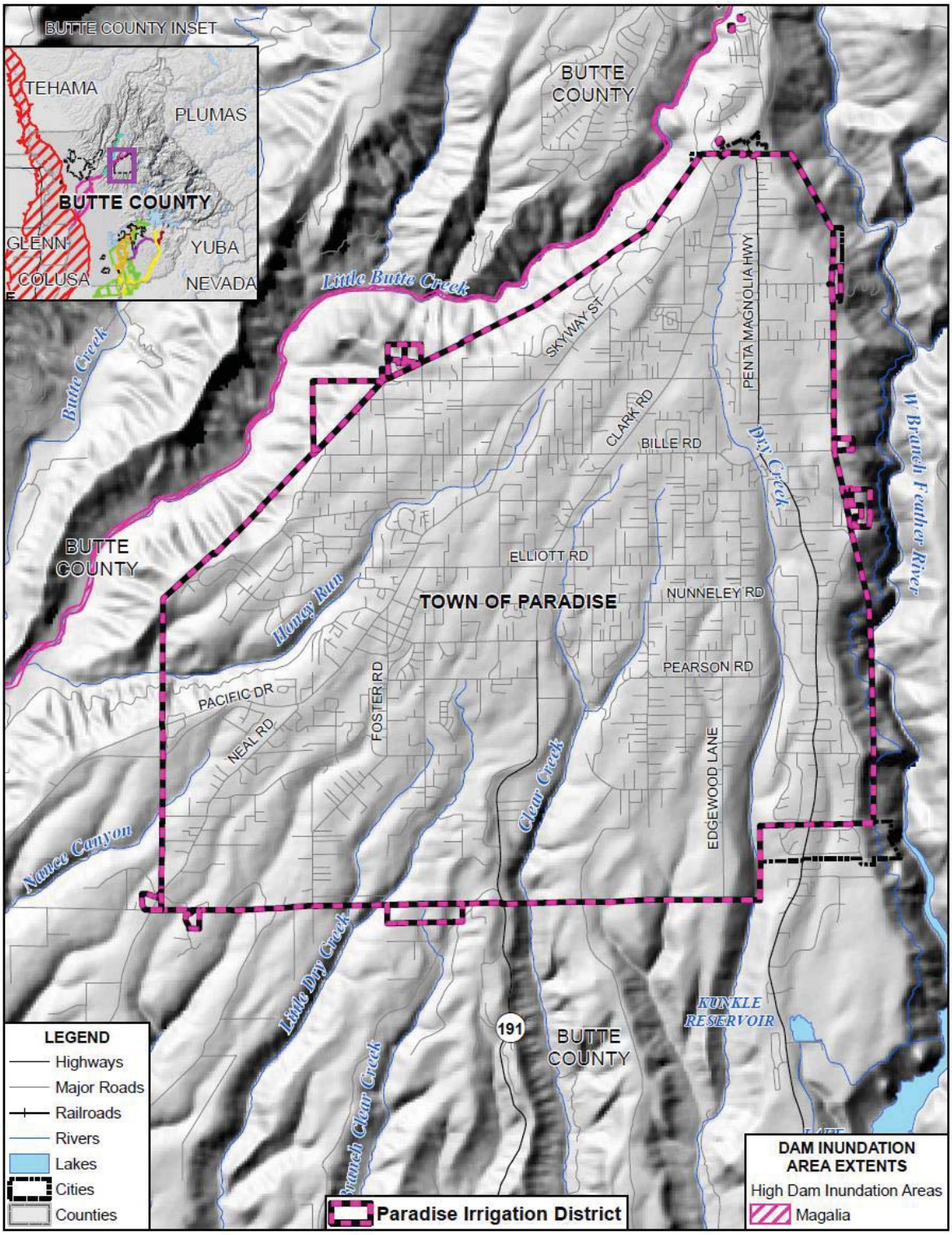
Foster Morrison

0 1 2 Miles

Butte County CALIFORNIA

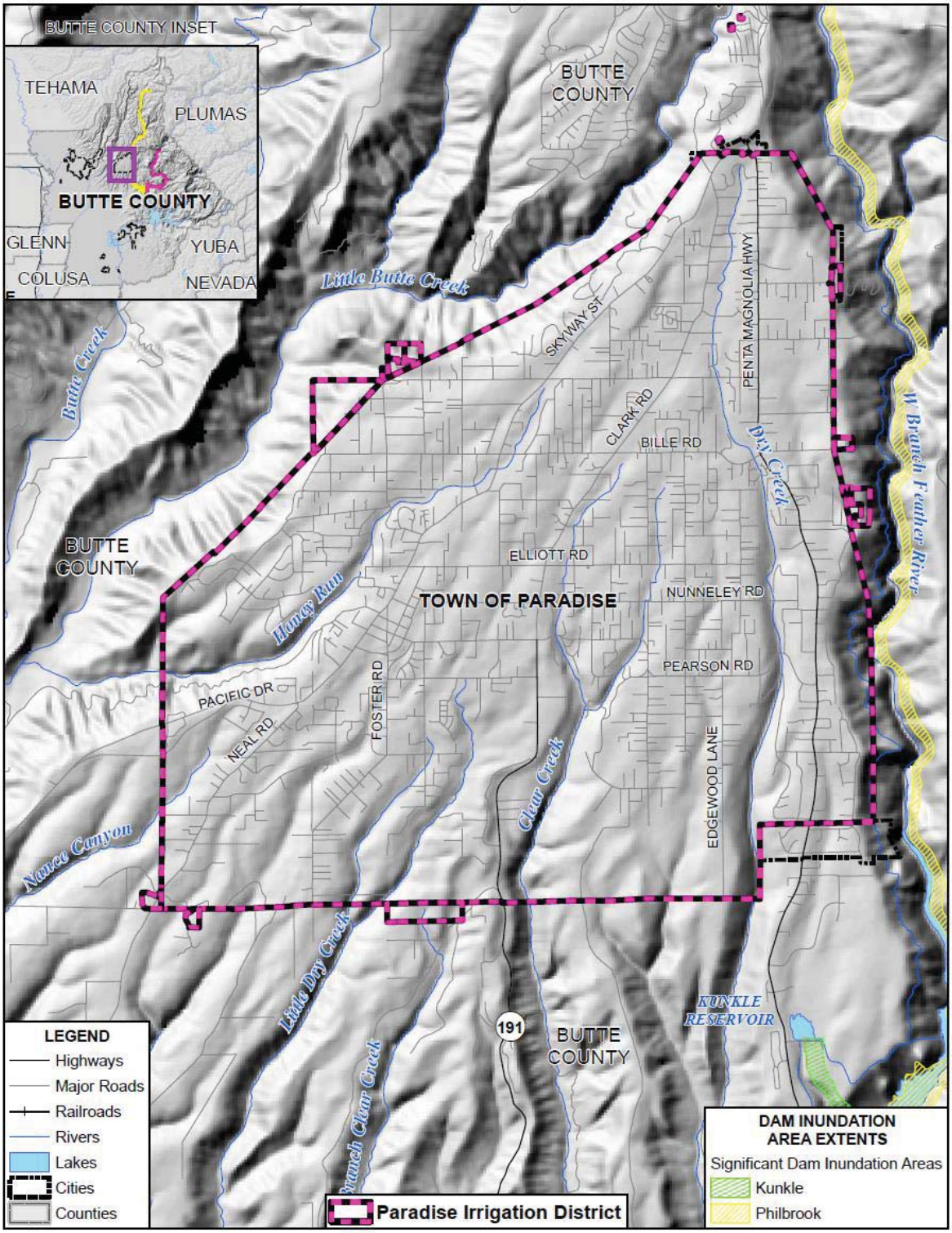
Data Source: Cal OES Dam Status 10/2017, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Figure F-3 Paradise Irrigation District – High Hazard Dam Inundation Areas



Data Source: Cal OES Dam Status 10/2017, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Figure F-4 Paradise Irrigation District – Significant Hazard Dam Inundation Areas



There is no scale with which to measure dam failure, just the hazard classification system for each dam. While a dam may fill slowly with runoff from winter storms, a dam break can have a very quick speed of onset. The duration of dam failure can vary depending on the nature of the dam break or failure.

Past Occurrences

The District Planning Team noted no past occurrences of dam failure that have affected the District.

Vulnerability and Impacts to Dam Failure

Dam failure flooding can occur as the result of partial or complete collapse of an impoundment. Dam failures often result from prolonged rainfall and flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam.

A dam failure can range from a small, uncontrolled release to a catastrophic failure. Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Secondary losses would include loss of the multi-use functions of the facility and associated revenues that accompany those functions. Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding.

Magalia Dam has been identified by the Division of Safety of Dams (DSOD) as at risk to failure in the event of significant seismic activity. In the event of such failure, floodwater would cause significant damages in the Little Butte Creek and Butte Creek Canyons and the town of Durham and exceed the capacity of the downstream Butte Creek levees. The Town of Paradise would be affected since the water treatment plant and the 42-inch supply line that provides drinking water for the residents in the community could be severely damaged since it is located at the downstream toe of the dam. The primary access road to the Pines Community would be eliminated and impact >10,000 residents. Reconstruction of the damaged facilities would be difficult, cause a significant water outage, take many months to restore, and the repair costs would be very high.

In a 1992 study of Magalia Dam it was concluded that the upstream slope of the dam was found to have inadequate stability under seismic loading conditions. In 1997 in response to this concern, the DSOD required the water storage in the reservoir to be decreased to 800 acre-feet. If stabilized, the capacity of Magalia Reservoir could be restored to 2,570 acre-feet. The change in water level elevation from 2,225 feet when full, was lowered to the current restricted operating level of 2,199 feet, or a reduction of 26 change feet. Each year the DSD conducts a dam inspection and the District prepares a “Surveillance Report”, with assistance from the URS Corporation.

In 2004, the PID constructed a diversion structure above Magalia Reservoir and a raw water pipeline to the water treatment plant. This improvement will supply untreated water to the treatment plant during any reconstruction of Magalia Dam, or the widening of Skyway across Magalia Dam. The PID is working on extending its water rights permits, which must be secured before further work is contemplated on Magalia Dam.

The applications for extending the District’s Water Rights were filed on time. The District hired a consultant to complete the CEQA process for the water rights renewal and Sphere of Influence expansion.

The District is in the process of completing an EIR for the water rights extension and sphere of influence expansion. The field work is completed, and the document is being developed.

The County did preliminary engineering on a project to widen the Skyway's two lanes to four lanes across Magalia Dam. The PID's preferred alternative for the widening project involves stabilizing the dam that would restore the design water level of 2,225 feet behind Magalia Dam, or 2,570 acre-feet.

Dam failure flooding presents a threat to life and property, including buildings, their contents, and their use. Large flood events can affect crops and livestock as well as lifeline utilities (e.g., water, sewerage, and power), transportation, jobs, tourism, the environment, and the local and regional economies.

Impacts to the PID from dam failure include damage to property and critical facilities. Other impacts include the costs to PID to rebuild any owned dam that failed. The District would also face the loss of water revenue if the reservoirs were drained.

Assets at Risk

Based on the dam failure inundation maps for the Magalia and Paradise Dams, the following District facilities would be at risk:

- PID Water Treatment Plant
- 42-inch Water Supply Transmission Pipeline
- The Skyway two-lane road on top of Magalia Dam

The following communities and the environment would be at risk:

- Town of Durham - 12 to 15 miles downstream with a population greater than 1000
- Little Butte Creek - Riparian environment
- Little Butte Canyon - 5 to 7 miles downstream with a population less than 1000
- Pines Community - adjacent to Magalia Dam with a population of greater than 10,000

Future Development

The District takes multiple factors into account, including dam inundation areas, when siting new projects. The District has potential projects to mitigate dam inundation for District property, as well as downstream facilities:

- Hazard assessment study
- Dam replacement

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Hazard Profile and Problem Description

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or wildfires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends. Water districts normally require at least a 10-year planning horizon to implement a multiagency improvement project to mitigate the effects of a drought and water supply shortage.

Location and Extent

As discussed in the Base Plan, drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the PID, is at risk. Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages. Should a drought last for a long period of time, water shortage becomes a larger issue.

Past Occurrences

Since drought is a regional phenomenon, past occurrences of drought for Paradise are similar to those for the County. Those past occurrences can be found in Section 4.2.8 of the Base Plan.

The District did note that PID's primary water supply system is reliant upon water captured and stored from Little Butte Creek. Little Butte Creek is a minor stream in the Sacramento Valley drainage that rises in the northwestern foothills of the Sierra Nevada and lies wholly within Butte County. Elevations range from 2,150 feet at the base of Magalia Dam to 3,850 feet at the uppermost elevation in the watershed. Flow in the catchment area is seasonal and responds to and follows the pattern of precipitation. Data for the runoff in the catchment area is from 1907 to 2004. The average annual runoff for the past 97 years has been approximately 15,750 acre-feet. The water year 1935-36 (estimated runoff 15,960 acre-feet) was used to represent the average year. The lowest estimated runoff was in the 1923-24 water year at 1,763 acre-feet. Average runoff far exceeds the District's current and projected needs of 7,000 to 8,000 acre-feet of water demand each year, although the District is vulnerable to potential water shortages during extended dry periods. The District's firm yield is 7,300 acre-feet plus 350 acre-feet from a well (groundwater).

Firm yield is defined as the amount of water that could be annually utilized from the Little Butte Creek system during a critical drought period. PID stores water from Little Butte Creek in two reservoirs located on the drainage. Magalia Reservoir originally had a storage capacity of 2,574 AF, but in 1997 the reservoir was drawn down to comply with safety requirements of DSOD. After drawdown, Magalia Reservoir has a storage capacity of 800 AF. Paradise Reservoir has a storage capacity of 11,497 AF. The total storage capacity of both reservoirs is 12,293 AF. The District has approximately 6,000 acre-feet of additional water rights that are not being utilized due to a lack of storage.

The District drilled a well in 1996. The output from the well is estimated to be 350 acre-feet per year but is operated annually at only 30 acre-feet per year to keep the well operational. The primary purpose of the well is to augment the District's water supply during times of drought or emergency. Ground water supply in the District's area is not expected to provide a significant source of water.

Vulnerability and Impacts to Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the District, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts is often extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. The vulnerability of the PID to drought is District-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels. The increased dry fuels result in an increased fire danger. Areas of Paradise are in the foothill interface and become more susceptible to wildfire as drought conditions increase. Residents of these areas are often times dependent upon ground water (water wells), as these water wells begin to fail the ability of the residents to water landscaping decreases, fire fuel loads increase.

The most significant qualitative impacts associated with drought in the planning area are those related to water intensive activities such as wildfire protection, municipal usage, commerce, tourism, and recreation. Voluntary conservation measures are typically implemented during extended droughts. A reduction of electric power generation and water quality deterioration are also potential problems. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

Assets at Risk

The drought and water shortage impacts are thoroughly evaluated in the Paradise Irrigation District's 2015 Urban Water Management Plan, including a Water Shortage Contingency Plan and a Catastrophic Supply Interruption Plan. The District's 2012 updated Water System Emergency Response plan includes an Emergency Action Plan (EAP) for dam failure as well as EAPs for other natural disaster and man-made malevolent events.

Future Development

Future development of District facilities is unlikely to be affected by drought during the process of siting the project. The District has potential projects to mitigate drought's affects to District customers:

- Hydraulic Modeling of the water distribution
- Distribution system and water treatment plant upgrades
- Increase storage of the B-Reservoir
- Upsizing of Customer service-lines with backflow assemblies

Earthquake and Liquefaction

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

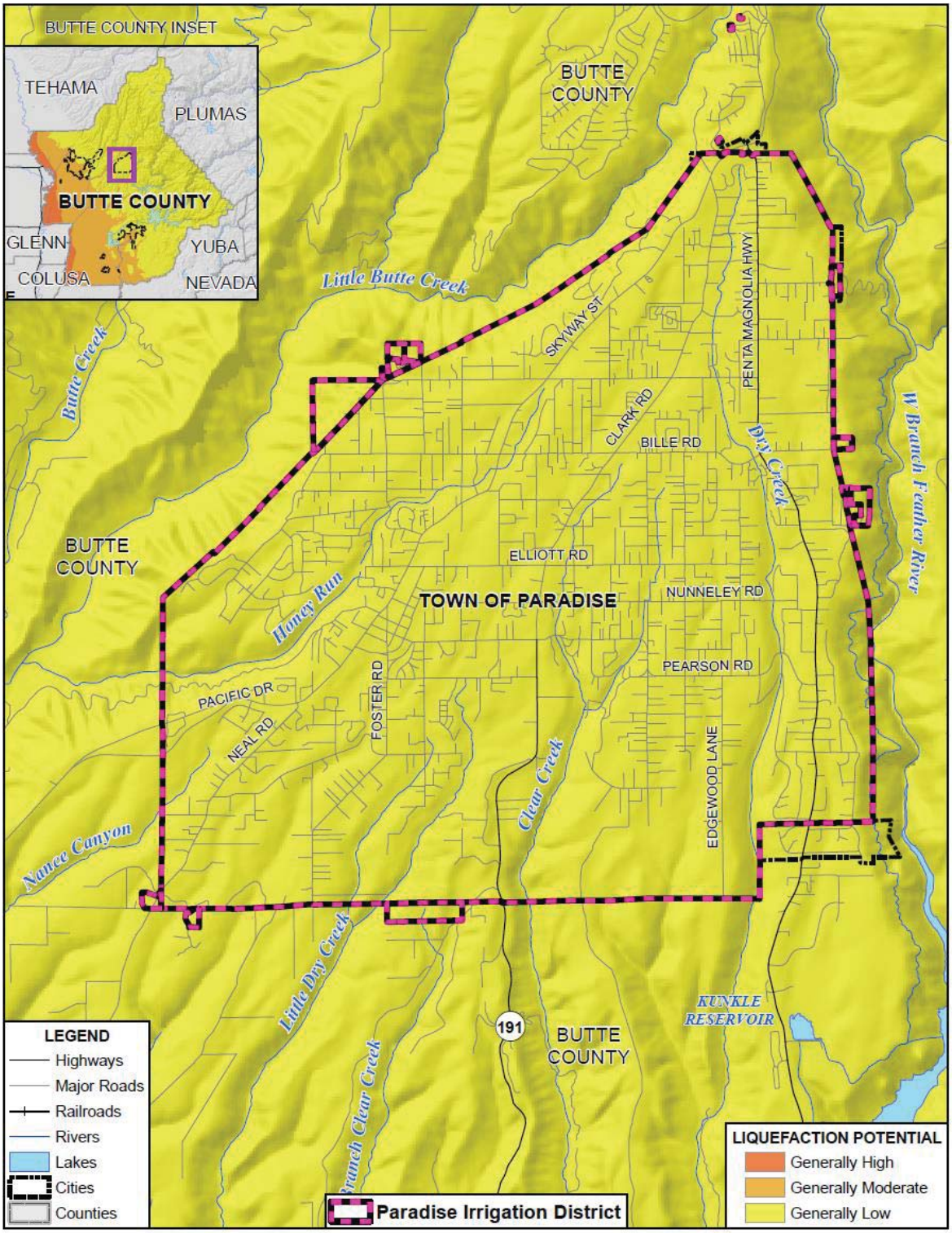
The State of California has identified five areas of critical seismic concern including surface ruptures, ground shaking, ground failure, tsunamis, and seiches. Each of these is caused by earthquake activity

thereby creating hazards for life and property, which has the potential anywhere in California. The District is not at risk for tsunamis or seiches due to its inland location and the absence of nearby large bodies of water. The only known active fault in Butte County is the Cleveland Hills fault, the site of the August 1975 Oroville earthquake. This earthquake had a Richter magnitude of 5.7. Due to the proximity of the District to the Cleveland Hills Fault, the District is at risk to an earthquake occurring on this fault. These earthquakes can cause liquefaction within the District. Liquefaction is a process whereby soil is temporarily transformed to a fluid formed during intense and prolonged ground shaking. In a 1992 study of Magalia Dam it was concluded that the upstream slope of the dam was found to have inadequate stability under seismic loading conditions. In 1997 the water level in the reservoir was lowered, due to seismic stability concerns. There is concern that the Magalia dam could fail under stress from seismic shaking.

Location and Extent

Since earthquakes are regional events, the whole of the District is at risk to earthquake. Hazus earthquake analysis for the region is shown in Section 4.3.6 of the Base Plan. PID and the surrounding area is located in a region of relatively low risk of earthquake occurrence. Additionally, the District is potentially at risk to liquefaction from earthquake shaking; the District falls within an area of generally low liquefaction potential A map of liquefaction potential and District locations is shown on Figure F-5.

Figure F-5 Paradise Irrigation District – Liquefaction Areas



Data Source: Butte County General Plan 2030, Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.2.10 of the Base Plan. Earthquake and liquefaction both have a short onset period, and the duration of shaking and liquefaction is short as well.

Past Occurrences

As shown in the Base Plan, only the 1975 5.7 magnitude Oroville earthquake that resulted in a federal disaster declaration has occurred in the County. The District was not affected by this earthquake. The HMPC noted no other past occurrences of earthquakes or liquefaction that affected the District in any meaningful way.

Vulnerability and Impacts to Earthquake

Earthquake vulnerability and impacts are primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable. The primary impacts of concern are life safety, property damage., and impacts to critical facilities and infrastructure, including the road system.

Ground shaking is the primary earthquake hazard. Many factors affect the survivability of structures and systems from earthquake-caused ground motions. These factors include proximity to the fault, direction of rupture, epicentral location and depth, magnitude, local geologic and soils conditions, types and quality of construction, building configurations and heights, and comparable factors that relate to utility, transportation, and other network systems.

The California DSOD is concerned that if the epicenter of an earthquake of significant magnitude were to occur nearby a dam, the likelihood of a structural failure is high. Local dams vulnerable to earthquake damage are hydraulic-filled embankment dams built with sluicing materials from an adjacent area and depositing the slurry into the embankment, such as the Magalia and De Salba Dams.

While not considered an active fault like the Cleveland Hills fault discussed above, there are a number of faults within Butte County and a large number of relatively nearby faults that could be considered potentially active, based on criteria developed by the California Mining and Geology Board. Following is a description of the active faults near the Magalia Dam. These faults are detailed below and include the following:

- Magalia Fault. The Magalia Fault is located near the northern end of the Foothill Fault System, a system of northwest trending east dipping normal fault formed along the margin of the Great Valley and the Sierra Nevada provinces. The DSOD, based on Fault Activity Guidelines in 2001 reclassified the Magalia Fault as conditionally active. The Paradise Irrigation District commissioned a study by Holdrege & Kull, dated January 2007 to evaluate the Magalia Fault.
- Foothills Shear Zone. The Foothills shear zone extends into southern Butte County. A possible magnitude 7.0 earthquake in this zone would result in intensities as high as IX in Butte County

In 2007, The District hired a consultant to determine the status of the Magalia Fault. The consultant's opinion was that the fault is inactive, but the DSOD would not accept the finding without additional studies. Below is information from the 2007 Fault Evaluation Report prepared by Holdrege and Kull.

Seismic studies were performed in 1973 and updated in 1992 by Harlan Tait Associates (HTA) to evaluate the potential for the hydraulic fill within the dam to liquefy under earthquake loading. The later HTA study concluded that the upstream slope was potentially unstable during seismic events and the Division of Safety of Dams (DOSD) required that the dam be strengthened or the water level behind the dam be lowered. DOSD performed their own evaluation of the dam and concluded that the reservoir be lowered to 35 feet below the crest of the dam. In 1994, Dames & Moore (D&M) performed an independent study for PID to further evaluate a safe reservoir level. D&M's study indicated that the reservoir would be safe if the water level was further reduced an additional 5 feet; lowering the reservoir to 40 feet below the crest of the dam. The DOSD accepted the findings and stipulated that the reservoir elevation be restricted to elevation 2,200 feet, above mean sea level (MSL).

A Feasibility Study was performed in 2002 by URS Corporation (URS) to further evaluate the restricted reservoir level as previously imposed by DSOD. The purpose of that study was to determine if it was possible to revise the restricted storage capacity of the reservoir. The scope of the study included review of the extensive amount of field and laboratory tests that were performed during previous investigations and additional static and dynamic analyses using current software and correction procedures for penetration resistance N1 (60)cs. URS concluded that the water elevation of the reservoir could be safely raised an additional 13 feet to elevation 2,213 feet, above MSL. The URS evaluation was based on an assumed magnitude 6.5 earthquake occurring on the Chico Monocline Fault with an 84th percentile peak ground acceleration (PGA) value of 0.34g.

However, based on the Fault Activity Guidelines established by DSOD in 2001, the Magalia Fault was reclassified as conditionally active in a DSOD memorandum dated July 1, 2002. Because the Magalia Fault was reclassified to be conditionally active, DSOD recommended that the 50th percentile PGA of 0.61g for the Magalia Fault be used to update previous static and dynamic analyses related to the Magalia Reservoir. The reservoir elevation is currently restricted to 2,199 feet above mean seal level.

Impacts to the District included damage to facilities and distribution lines. Dams owned by the District could also be impacted. Other impacts include damage to structures; critical infrastructure and facilities, and loss of life and injury to people in downstream dam areas.

Assets at Risk

Aging water distribution systems comprised of steel pipe requires ongoing replacement that is vulnerable to earthquake damage due to corrosion issues. The District identified 60 miles of pipe that should be replaced. District personnel installed 29,821 feet of mainline in the last five years. In addition to that, grant funding helped with the installation of 12,000 feet of mainline installed by a contractor. While the total fell short of the 5-year goal to complete the replacement of 75,000 feet, a deferral of mainline installation was realized with the freezing of three full-time positions and a dispute with the union over temporary worker status. Pipe replacement avoids unnecessary water losses that deplete water storage supply, reduce water to

the Bay-Delta and increase operations costs. The high cost for unplanned pipeline repairs that damage public and private property can be avoided by replacing the steel pipes before they become problematic.

The water treatment plant and 42-inch transmission water line are highly vulnerable to severe damage and critical loss of water supply due to dam failure due to earthquake shaking. The following District facilities would be at risk due to an earthquake:

- PID Water Treatment Plant
- 42-inch Water Supply Transmission Pipeline
- Water Distribution Storage Tanks
- Magalia Dam

Future Development

The District will build any new development to current California Building Code, which includes construction standards designed to mitigate hazards. In addition, the District has a potential project to mitigate the hazards of earthquake to the District and its customers:

- Replacement of B-Reservoir with steel tanks

Floods: Localized Stormwater

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Localized flooding and other issues caused by severe weather events, primarily heavy rains and severe storms, are an annual occurrence in the District. Normally storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that overwhelm the drainage system. Primary concerns include impacts to infrastructure that provides a means of ingress and egress throughout the community.

Location and Extent

The Town of Paradise and areas of the District are subject to localized flooding. The extent of localized flooding is usually measured in volume, velocity, and depths of flooding. Expected flood depths in the District vary by location. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Localized flooding in the District tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

Past Occurrences

The District Planning Team noted that localized flooding has not affected District facilities in the past. It can cause issues with District personnel traveling to and from work, as well as to and from District facilities.

Vulnerability and Impacts to Localized Flood

Localized flooding occurs throughout the District primarily during the winter and spring months during periods of heavy rains. Localized flooding can cause road closures, pavement deterioration, washouts, landslides/mudslides, debris areas, and downed trees. The amount and type of damage or flooding that occurs varies from year to year and storm to storm, depending on the quantity of runoff. Heavy rains may produce ponding around storm drains and in low lying areas, but these events are short in duration and do not typically cause property damage.

The drainage patterns of the Paradise area and the District reflect the uniqueness of its location on a gently sloping ridge surface. The Paradise area is dominated by a somewhat continuous overland runoff flow which is organized into local rills or depressions as the runoff is collected. The Paradise area is divided into fairly distinct drainage basins.

The drainage systems often coincide with groundwater seeps and springs which serve to increase the moisture availability beyond the intermittent flows directly related to storm runoff. Consequently, the drainage depressions and their downslope channels are often thickly vegetated.

As these areas are developed, the undergrowth and grass cover are often removed and channels are randomly excavated to suit the individual owner's or developer's interest. Often when this takes place, either through lack of knowledge, lack of funds or indifference, the resulting channel is inadequate in capacity and poses a real possibility of promoting damage. While the soils and subsoils of the Paradise area do not markedly aggravate the runoff situation, they also do not prove to be highly permeable. This often results in localized flooding which can be exacerbated by such land use activities as grading operations, vegetation clearance, inattention to storm runoff from construction sites during the peak winter rainfall period, large-scale paving and the lack of a collection system for storm waters. Storm runoff arrives at the principal drainage channels through overland flow for most of the Paradise area. Very few collector systems have been constructed and the primary form of collection has been through roadside ditches.

Impacts to the District from localized flood include possible damage to facilities and infrastructure. Localized flooding can also affect transportation routes that District personnel must take to get to District facilities.

Assets at Risk

The PID treatment plant and the 42-inch above ground pipeline are vulnerable to flooding from the overtopping of the spillway for Magalia Dam. The spillway currently flows toward the treatment plant below the dam.

Future Development

Future development is unlikely to be affected by localized flooding. The District has noted potential projects to mitigate localized flood for the District and its customers:

- Hazard assessment study
- Dam replacement

Severe Weather: Freeze and Winter Storm

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

According to the National Weather Service (NWS) and the Western Regional Climate Center (WRCC), extreme cold often accompanies a winter storm or is left in its wake. Winter snowstorms in the District can include freezing temperatures, snow, and ice. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Infants and the elderly are most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures can cause significant damage to the agricultural industry.

Location and Extent

Freeze and winter storms are regional issues, meaning the entire District is at risk to freeze and winter storms. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of freeze, temperature data from the County from the WRCC indicates that there are 21.8 days that fall below 32°F in western Butte County, with no days falling below 0°F. Freeze has a slow onset and can be generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time. Snowfall is generally measured in snow fall and snow depths. It is rare for snow to fall, and even rarer that snow accumulates in the District. Snowfall has an onset that is similar to freeze in the District.

Past Occurrences

While the District Planning Team noted that while freeze and winter storms are annual events, there have been no events that have damages District facilities.

Vulnerability and Impacts to Severe Weather: Freeze and Winter Storms

The District experiences temperatures below 32 degrees and occasional snowfall during the winter months. The temperature moves to the teens in rather extreme situations. Occasionally, winter storms with freezing weather, snow and ice can affect the District. Winter storms can include snow and ice, and are occasionally accompanied by high winds, which can cause downed trees and power lines, power outages, broken pipes, accidents, and road closures. District facilities can be affected by loss of electricity.

Assets at Risk

The following District facilities would be at risk due to a severe weather:

- PID Water Treatment Plant
- PID Pumping Station

Future Development

The District builds all facilities to current California Building Code, and takes freeze and winter storm into account when siting facilities. Potential projects to mitigate freeze and winter storms for the District and its customers are:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.

Severe Weather: Heavy Rain and Storms (Hail, Lightning)

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Storms in the District occur annually and are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in the District falls mainly in the fall, winter, and spring months.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the District. All portions of the District are at risk to heavy rains. Most of the severe rains occur during the winter months. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of severe storms in California, Butte County, and the District is often short, ranging from minutes to hours. In some cases, rains can continue for days at a time. Information on precipitation extremes can be found in Section 4.2.4 of the Base Plan.

Past Occurrences

While the District Planning Team noted that while heavy rain and storms are annual events, there have been no events that have damages District facilities.

Vulnerability and Impacts to Heavy Rain and Storms

According to historical hazard data, severe weather is an annual occurrence in the District. Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rain and severe storms are the most frequent type of severe weather occurrences in the District. Wind and lightning often accompany these storms and have caused damage in the past. Hail is rare.

Actual damage associated with the primary effects of severe weather have been limited. It is the secondary hazards caused by weather, such as flooding, that have had the greatest impact on the District. Impacts to District assets, critical facilities (such as utilities), and the transportation system can occur. Life safety issues can occur but are less of a concern during heavy rains and storms. The risk and vulnerability associated with these secondary hazards are discussed in the localized flood section of this Annex.

Assets at Risk

The water treatment plan and the above ground 42-inch transmission waterline are at critical risk due to this hazard.

Future Development

The District builds all facilities to current California Building Code, and takes heavy rain and storms into account when siting facilities. Potential projects to mitigate heavy rain and storms for the District and its customers are:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–Extremely High

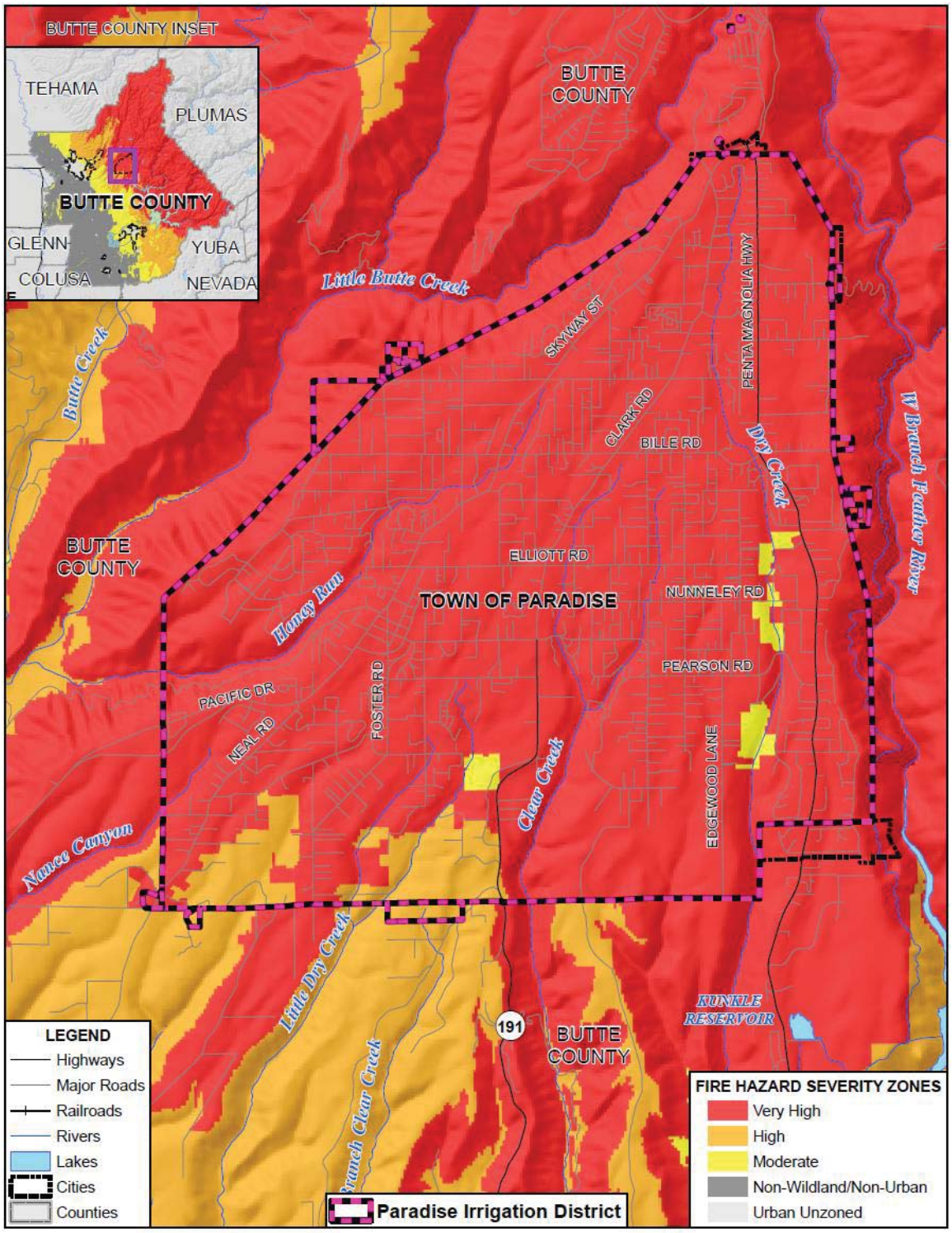
Hazard Profile and Problem Description

Wildland fire is an ongoing concern for the PID. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire suppression practices have affected the natural cycle of the ecosystem. While the fire season was considered to be predominantly May through October, it has now become a year around concern. Complicating wildfire issues is the threat of PG&E shutdowns during red flag days. This affects the District's ability to treat water and pump water to the upper zones of the District.

Location and Extent

The whole of the District lies in a Moderate to Very High Fire Hazard Severity Zone. Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought. Fires can burn for a short period of time or may have durations lasting for a week or more. Fire Hazard Severity Zones in the District can be seen on Figure F-6.

Figure F-6 Paradise Irrigation District – Fire Hazard Severity Zones



Data Source: CAL FIRE (Adopted SRA 11/2007 - fhszs06_3_4, Draft 9/2007 - c4fhszl06_1), Butte County GIS, Cal-Atlas; Map Date: 8/27/2019.

Past Occurrences

2008 Ophir Fire- Lightning from storms, particularly during dry summer months is a potential natural ignition source for wildfire. An example of this would be the June 2008 fires. A large fire surrounded the Town of Paradise. No damages were done to the District facilities, but a fire of this nature underscores the risk of wildfire to the District (see discussion of Camp Fire below). The 2008 fires showed that further education in the community is needed to stop the use of yard sprinklers during evacuations. The water is not beneficial and takes water away from firefighting efforts.

2018 Camp Fire – During the Camp Fire, toxic chemicals (especially volatile organic compounds, VOCs, such as benzene) contaminated the Paradise Irrigation District (PID) distribution system. The distribution system is comprised of 172 miles (almost a million feet) of water mains and 10,480 service laterals. A significant number of the 10,480 individual service laterals and/or meters melted and the system partially drained. Following the Camp Fire, the distribution system was re-pressurized, leaks were repaired, and initial water quality testing began. It was discovered in the 2017 Tubbs Fire in Santa Rosa, that VOC contamination may be an issue in areas impacted by wildfire, especially coupled with depressurization of the water distribution system. The initial water quality testing discovered VOC contamination in multiple samples. Immediately, a "do not drink" advisory was initiated by PID. The full extent of the contamination is not yet known, but the system needs to be confirmed to be clear of contaminants and determined safe for use in distributing drinking water. A Water System Recovery Plan has been developed to accomplish this task.

Vulnerability and Impacts to Wildfire

Risk and vulnerability to the Butte County Planning Area and the District from wildfire is of significant concern, with some areas of the planning area being at greater risk than others. High fuel loads in the planning area, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and sometimes catastrophic fires. During the May to November fire season, the dry vegetation and hot and sometimes windy weather, combined with continued growth in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the Planning Area, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

PID is not immune to numerous types of grass, brush, and wildland fires and any one of them may accelerate into a large WUI wildfire. As evidenced by the Camp Fire, such a situation could lead to evacuation of large portions of the population and the potential for significant loss of property, structures and rangeland. The natural fuels available in or near the District vary greatly in the rate and intensity of burning. Fires in heavy brush and stands of trees burn with great intensity but more slowly than in dry grass and leaves. Dense fuels will propagate fire better than sparse fuels.

Compounding the problem is the lack of ingress and egress roads in Paradise and around the District. Due to the sheer volume of people that can be affected at one time by a wildland fire, a number of potential traffic flow problems exist. These are complicated by the existence of only one north route out of town;

only four south routes out of town, two of which could easily be affected by a single fire; and only three through east-west streets. The plan concludes that any fire in the Magalia area would have a major impact on the roads in Paradise because access is via a two-lane road.

Wildfires in or near the PID service area in the Town of Paradise provide a significant impact to the District's ability to deliver water. The 2008 fires showed that further education in the community is needed to stop the use of yard sprinklers during evacuations. The water is not beneficial and takes water away from firefighting efforts.

The PID service area is located directly adjacent to the communities of Paradise and Magalia in the WUI.

Wildfires can cause short-term and long-term disruption to the County, the Town of Paradise and the PID, as evidenced by the Camp Fire in Paradise and the resultant loss of housing stock and population in Paradise. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the County by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires may result in casualties and can destroy buildings and infrastructure.

Although the physical damages and casualties arising from wildland-urban interface fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings, infrastructure, and tax base. In some cases, the economic impact of this loss of services may be comparable to the economic impact of physical damages or, in some cases, even greater. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Fires can also cause major damage to power plants and power lines needed to distribute electricity to operate facilities.

Assets at Risk

The following District facilities would be at risk due to wildfire:

- PID Water Treatment Plant
- PID Pumping Station
- Magalia Dam
- Paradise Dam
- Distribution Water Storage Tank

Future Development

Wildfire risk will be taken into account when siting new District facilities. The District has sought to undertake projects that will reduce the risk of wildfire to the District and its customers. These projects include:

- Hazard assessment study
- Upgrading backup generators throughout the District
- Running a redundant pipeline from the treatment plant to the junction box at the beginning of distribution system.
- Upgrading B-Reservoir with steel tanks

- Upgrading all service-lines in the District to support fire sprinklers and plumbed with a backflow device.
- Upgrading the treatment plant and distribution system to allow maximum flow throughout the District.

F.6 Capability Assessment

Capabilities are the programs and policies currently in place to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

F.6.1. Regulatory Mitigation Capabilities

Table F-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table F-5 Paradise Irrigation District – Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N/A	
Capital Improvements Plan	Y 2017	
Economic Development Plan	N/A	
Local Emergency Operations Plan	Y 2018	
Continuity of Operations Plan	N/A	
Transportation Plan	N/A	
Stormwater Management Plan/Program	N/A	
Engineering Studies for Streams	N/A	
Community Wildfire Protection Plan	N/A	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N/A	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N/A	
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	
Fire department ISO rating:	N/A	
Site plan review requirements	N/A	

Land Use Planning and Ordinances	
Zoning ordinance	N/A
Subdivision ordinance	N/A
Floodplain ordinance	N/A
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N/A
Flood insurance rate maps	N/A
Elevation Certificates	N/A
Acquisition of land for open space and public recreation uses	N/A
Erosion or sediment control program	N/A
Other	
How can these capabilities be expanded and improved to reduce risk?	
The District will continue to seek to expand capabilities to mitigate hazards, especially in light of the 2018 Camp Fire.	

Source: PID

Paradise Irrigation District Urban Water Management Plan (2015)

The purpose of the Paradise Irrigation District's (PID) Urban Water Management Plan (UWMP) is to inform the public and state agencies of the PID water supply availability, exposure to droughts, conservation efforts, and plans for future supply. In this plan PID shows the current supply calculations, what impacts a customer can expect during drought periods and the impacts to water supply into the future.

Urban Water Management Plans are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. PID has been completing Urban Water Management Plans since 1986, required every five years.

State law requires water agencies to reduce the amount of water each person uses per day (Per Capita Daily Consumption, which is measured in gallons per capita per day) by 20 percent by the year 2020. PID completed calculations, which are provided in the UWMP establishing our base per capita per day (pcpd) that our 20% will be measured from. PID has made significant reductions in water uses in the last few years through pipeline replacement, leak detection, water conservation measures and public response to the statewide drought. It will be important for PID and its customers to remain diligent in their efforts to conserve and continue to use water wisely.

Water Shortage Contingency Plan (2012)

As the water purveyor, the District must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure this goal is met. Although an actual shortage may occur at any time during the year, the District will use the Yield Analysis Model during the critical months of January through March to determine potential restrictions.

In Stage I shortages, customers may adjust either interior or outdoor water use (or both), in order to meet the voluntary water reduction goal.

Under Stage II and Stage III mandatory rationing programs, the District has determined that a reduction of 20% (Stage II) and 30% (Stage III) will be required. That amount of water is sufficient for essential interior water with no habit or plumbing fixture changes.

Under Stage IV mandatory rationing, which is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster, the health and safety allotment is reduced to 50% of average use. This allotment still provides enough water for essential interior water use plus a minimal amount of outside use.

Catastrophic Supply Interruption Plan

Interruptions in the District's water supply could be caused by events such as drought, fire, earthquake, flood, reservoir contamination and major power outages.

Determine What Constitutes a Proclamation of a Water Shortage

Interruptions in the District's water supply could be caused by events such as drought, fire, earthquake, flood, reservoir contamination and major power outages.

A proclamation of water shortage can be declared by following the steps outlined in this Water Shortage Contingency Plan. An immediate proclamation will be made by the District Manager and reviewed by the Board of Directors in an emergency meeting as soon as it can be coordinated. The various stages of this plan are dependent on the severity and nature of the catastrophe and its effect on the total water supply of the District. The following is an example of events and remedies that might likely affect the District's water supply and therefore require implementation of water rationing.

- Fire- In the event of a major fire, the District's water treatment and distribution storage tanks will be operated at maximum capacity.
- Earthquake- In the event of a major earthquake where significant portions of the distribution system or treatment facilities are damaged District crews or contractors will work on isolating and re-routing water supplies. In the event that the District's raw water reservoirs are damaged beyond use, the District would activate the intertie agreement with Del Oro Water Company. An intertie with the DOWC has a maximum capacity of 1,000 gallons per minute (GPM) or 4.4 AF/day.
- Flood- Due to the terrain of the District, the possibility of flooding is quite remote.
- Reservoir Contamination- If contamination of the District's raw water supply occurs, the District would implement rationing, activate the intertie agreement and begin pumping from the "D" Tank well site.
- Major Power Outages- The District is able to operate, at full capacity, the raw water pump station and water treatment plant during power outages using a 500 KVA, diesel generator. External plumbing provisions have also been provided at the District's booster pump station to allow for portable pump hook-up.

F.6.2. Administrative/Technical Mitigation Capabilities

Table F-6 identifies the District staff/roles responsible for activities related to mitigation and loss prevention in the District.

Table F-6 Paradise Irrigation District – Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N/A	
Mitigation Planning Committee	N/A	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N/A	
Mutual aid agreements	N/A	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N/A	
Floodplain Administrator	N/A	
Emergency Manager	N/A	
Community Planner	N/A	
Civil Engineer	N/A	
GIS Coordinator	N/A	
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	N/A	
Hazard data and information	N/A	
Grant writing	N/A	
Hazus analysis	N/A	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Many of these areas the District does not have existing capabilities. The District works with the County and the Town of Paradise on mitigation projects, and will continue to seek to expand that activity.		

Source: PID

F.6.3. Fiscal Mitigation Capabilities

Table F-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table F-7 Paradise Irrigation District – Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	Y	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	Y	
Community Development Block Grant	Y	
Other federal funding programs	N	
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District will continue to pursue outside funding for mitigation related work, especially in light of the 2018 Camp Fire.		

Source: PID

F.6.4. Mitigation Education, Outreach, and Partnerships

Table F-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table F-8 Paradise Irrigation District – Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District will continue to pursue for mitigation related outreach and partnerships with the County and Town of Paradise, especially in light of the 2018 Camp Fire.		

Source: PID

Continuous work on fuels reduction in the PID watershed is ongoing with assistance by Butte Fire Safe Council. In 2012, the Butte County Fire Safe Council and Paradise Irrigation District successfully partnered on three grant applications which were awarded to improve watershed and forest health in Magalia on Paradise Irrigation District Lands (PID).

The three grant projects will reduce wildfire threat by thinning small overstocked trees and brush. These projects link to four existing shaded fuel break/forest health projects. Partners have included US Forest Service Plumas National Forest, Bureau of Land Management and Cal-Fire.

The neighboring water provider, Del Oro Water Company has a limited supply of water available and none available at this time for transfer. The District does have an agreement in place with them that would provide a small amount of water available to the District in an emergency from their Paradise Pines District. The Paradise Pines District is solely served by groundwater that is limited.

F.6.5. Other Mitigation Efforts

Water Education is provided for annually to fourth grade students in Paradise. The Creekside 6 Elementary School partners with the District to provide an annual watershed education event at the Paradise Lake.

F.7 Mitigation Strategy

F.7.1. Mitigation Goals and Objectives

PID adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

F.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Dam Failure
- Drought and Water Shortage
- Earthquake and Liquefaction
- Floods: Localized Stormwater
- Severe Weather: Freeze and Winter Storm
- Severe Weather: Heavy Rain and Storms (Hail, Lightning, Wind)
- Wildfire

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5-years covered by this plan.

Mitigation Actions

Action 1. Hydraulic Modeling Pipe Replacement Program

Hazards Addressed: Drought & Water Supply; Earthquake; Wildfire

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: 60 miles of aging steel pipe are leaking water and are vulnerable to earthquake damage due to corrosion issues. The District's primary effort at demand management is pipeline replacement. In 2003 the District began replacing 8.4 miles of pipelines with a grant from the California Department of Water resources, and also 2.3 miles with in-house resources. The District's goal is to replace 2 miles per year with in-house resources; however, this will take 30 years to complete the program. The recent pipe replacement fell short of the District's goal due to a reduction of in-house resources that include the following: 1. freezing three full-time positions, 2. a dispute with the union over temporary worker status, and 3. the workforce has been diverted to remodel the Administration building and construct major portions of the Corporation Yard replacement project.

To optimally plan transmission and distributions system improvements; such as maintaining flows and pressures during disaster events; a hydraulic model of the system is needed. The hydraulic model allows planners and designers to simulate multiple scenarios of water demands and pipeline configurations inexpensively. Additionally; the model can be used to estimate prepare emergency operations plans for use during disasters. The mitigation goal is to provide PID a tool to model the hydraulic performance of their transmission and distribution systems during normal and extreme events (such as a large wildland fire).

Water Treatment Plant upgrade: To effectively fight both structure and wildland fires; the system flows must meet minimum flow; pressure; and duration requirements. During fire flow events; the flow restrictions in portions of the distribution system contribute to low pressures; increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health.

Water Treatment Plant upgrades in accordance with the hydrology study will mitigate future losses protecting lives, property and public health.

Other Alternatives: None

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Agency Capital Improvement program long-term planning and annual budgeting.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $60,000,000: 60 miles @ $1,000,000 per mile of PVC pipe, with diameter varying from 8-inch to 12-inch (includes engineering).

Benefits (Losses Avoided): Avoidance of unnecessary water losses that deplete water storage supply, increase operations costs and provides additional water to the Bay-Delta. The higher cost for unplanned pipeline repairs that damage public and private property can be avoided by replacing the steel pipes before they become problematic. Avoid loss of revenue due to the loss of unsold treated water.

To optimally plan transmission and distributions system improvements; such as maintaining flows and pressures during disaster events; a hydraulic model of the system is needed. The hydraulic model allows planners and designers to simulate multiple scenarios of water demands and pipeline configurations inexpensively. Additionally; the model can be used to estimate prepare emergency operations plans for use during disasters. The mitigation goal is to provide PID a tool to model the hydraulic performance of their transmission and distribution systems during normal and extreme events (such as a large wildland fire).

Water Treatment Plant upgrade: To effectively fight both structure or wildland fires; the system flows must meet minimum flow; pressure; and duration requirements. During fire flow events; the flow restrictions in portions of the distribution system contribute to low pressures; increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health. Water Treatment Plant upgrades in accordance with the hydrology study will mitigate future losses protecting lives, property and public health.

Wildfire threat within the Town ranges from moderate to very high. The Paradise Irrigation District lists Wildfires on the LHMP Hazard Identification and Vulnerability Assessment. This project aligns with the Butte County LHMP Goals and Objectives #1 by minimizing the risk and vulnerability of the community to hazards and reduce damages and protect lives, property, and public health. Also Goal 2 to provide protection to critical facilities, infrastructure, and services from hazard impacts.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of outside funding. Currently an initial replacement goal is 2 miles of pipeline per year. An increased replacement rate schedule will be implemented should outside funding sources become available.

Action 2. Drought Water Supply

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: The District has experienced periods of drought historically as described in the 2010 Urban Water Management Plan (UWMP). The analysis in the UWMP determined that on average the District can expect ongoing drought conditions to occur and would require cutbacks in one year in ten on average. The District has been in negotiations for many years with PG&E and the Del Oro Water Company for a drought supply project that would mitigate the District's water supply from drought.

Other Alternatives: Implement additional conservation measures not deemed to be cost effective. Adding additional groundwater sources to meet future supply needs is not feasible due to an inadequate supply in the area.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Drought has been addressed in the District's updated Strategic Business Plan, Capital Improvement Plan, Budget, and the Urban Water Management Plan.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $5,000,000

Benefits (Losses Avoided): Up to $832,500 annual revenue will be lost in a drought situation due to a reduction in water sales to normally used by the District customers, including their current water conservation efforts. This does not include the long-term impact from the customers demand reduction after loss of outside landscaping.

Potential Funding: Apply for State Revolving Fund Loans; EPA Grants; Water Rates; and borrow funds for the remainder of the appropriations needed.

Timeline: No schedule determined yet, pending completion of negotiations with PG&E and the Del Oro Water District, and the extension of water right permits.

Action 3. Magalia Dam Replacement

Hazards Addressed: Drought & Water Supply; Earthquake; Dam Failure; Flooding, Localized Flooding, Heavy Rain and Storms

Goals Addressed: 1, 2, 3, 4, 7, 9

Issue/Background: Paradise Irrigation District (PID) is responsible for the operation of the Magalia Dam. Geotechnical deficiencies in Magalia Dam are limiting the operational storage volumes within the reservoir. Portions of the dam embankment were constructed hydraulically in 1917 and, due to the dam being over

100 years old (typical dam lifespan is 50 years), do not meet current dam safety standards. Studies performed in 1972, 1992, 1994, and 2002 found that those hydraulic fill materials within the dam embankment could liquefy during a seismic event. To mitigate risk of failure and subsequent flood during an earthquake, the water surface of the reservoir, originally designed to be at elevation 2225.8 starting in 1996, was limited to elevation 2,200 and that elevation was further lowered to 2,199 feet in 2002, which is 26.8 feet below the original design water surface elevation and spillway and 41 feet below the dam crest. This restriction has reduced the maximum storage capacity from 2,800 acre-feet to 796 acre-feet.

It is not unusual to find that foundation and/or embankment soils for dams have susceptibility to liquefaction. Lopez, Anderson, Almaden, Calero and other dams were assessed as having a potential for failure due to liquefaction and improved to reduce those risks. Typically, mitigations for liquefaction of dam embankment soils consist of ground modifications to increase the density (consistency) of embankment soils, reduce the pore water pressures of those soils, and/or decrease deformation that might occur to embankment soils during a seismic event. Those mitigations can include mass grading (retrofit or buttress), compaction grouting, deep soil mixing, driven piles, stone columns, or combinations thereof.

Additionally, the pipe supports for the outlet pipe which connects Magalia Reservoir to the PID WTP through a tunnel in the Magalia Dam have been suspected by DSOD inspectors as being deficient. These supports have to be improved and seismically stable in order to prevent failure in an earthquake, which could cause significant flooding on its own, and also could undermine the dam from within, causing more catastrophic dam failure and significantly more flooding.

Wildfire threat within the Town ranges from moderate to very high. The Paradise Irrigation District lists Wildfires on the LHMP Hazard Identification and Vulnerability Assessment. This project aligns with the Butte County LHMP Goals and Objectives #1 by minimizing the risk and vulnerability of the community to hazards and reduce damages and protect lives, property, and public health. Also Goal 2 to provide protection to critical facilities, infrastructure, and services from hazard impacts.

Other Alternatives: Develop regional intertie alternatives; however, this does not mitigate the extensive damage to public and private property and loss of life that may be realized by a dam failure.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Agency Capital Improvement program long-term planning and annual budgeting.

Responsible Office: Paradise Irrigation District;

Priority (H, M, L): High

Cost Estimate: $30,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within 12 miles of the dam failure. Avoid major damage the District's water treatment plant and 42-inch water transmission pipeline for the Town of Paradise. Avoid loss of the sole access to the Pines community (10,000 people) by widening the existing 2-lane road to 4-lanes to improve emergency access.

Potential Funding: Federal Transportation funding; Apply for State Revolving Fund Loans; EPA Grants; Water Rates; and borrow funds for the remainder of the appropriations needed.

Timeline: To be determined based on the availability of funding.

Action 4. Install Bladder Dam in the Paradise Lake Spillway

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 7, 9

Issue/Background: To increase supply to help mitigate drought the District investigated this mitigation action and determined it was feasible to install a 3-foot high bladder dam within the spillway channel at Paradise Lake. The bladder dam would provide approximately 750 acre-feet of additional storage. The feasibility was discussed with the DSD; per the DSD the chimney drain inside the dam would be raised an equivalent amount.

Other Alternatives: Intertie projects with PG&E, and the Del Oro Water District. The cost for an intertie alternative is estimated at 5 times the cost for this mitigation action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Environmental work necessary for this project would be partially duplicated with the District's efforts to extend the existing water rights permits. The Board of Directors deferred this project pending the completion of the permit extensions.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $1,500,000

Benefits (Losses Avoided): Up to $832,500 annual revenue will be lost in a drought situation due to a reduction in water sales normally used by the District customers, including their current water conservation efforts. This does not include the long-term impact from the customer demand reduction after loss of outside landscaping.

Potential Funding: State Revolving Fund Loans; EPA Grants; Water Rates

Timeline: Schedule to be determined pending the completion of the water rights permit extensions.

Action 5. Service Line Replacement

Hazards Addressed: Wildfire; Earthquake, Winter Storm

Goals Addressed: 1, 2, 3, 4, 5, 7,9

Issue/Background: Paradise Irrigation District (PID) is responsible for providing potable and fire service water to their customers. Potable use is a fraction of the water demand compared to fire flows. To effectively fight both structure and wildland fires, the system flows must meet minimum flow, pressure, and duration requirements. Flow and pressure are a function of pipe sizes and connectivity (a looped system typically is more reliable and has less pressure losses). During fire flow events, the flow restrictions in portions of the distribution system contribute to low pressures, increasing the likelihood of system contamination. Keeping pressures up throughout the entire system better protects public health.

The area is highly susceptible to wildland fires (as demonstrated in Camp Fire, November 2018) that can cause substantial loss to life and property. Additionally, the rural nature of the area increases the response time of firefighting equipment, thereby increasing the magnitude of a fire when adequate resources arrive – thereby needing greater quantities of water.

In the aftermath of the Camp Fire; many customers will begin the process of rebuilding and will be installing fire sprinkler systems; now required by the 2016 California Residential Building Code for all construction within the Wildland-Urban Interface. Paradise Irrigation District must be able to provide the appropriate amount of flow and pressure at the service connection to support this change in code allowing residents to rebuild and increasing the tax base.

Adequate water flow and pressure reduces the likelihood of loss of life, minimizes property damage, and protects public health.

Other Alternatives: The alternative would be to add a supplementary second line adjacent to the original line, in order to increase overall flow to the structure. This would result in needing to add an additional service lateral connection to the main, as well as connecting it to the connection at the meter. It would also result in a wider trench and additional displacement of soil. This would be inefficient and unnecessarily complicated.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Butte County Transportation Division must determine the optimal way to improve the Skyway road crossing the dam before the design of the dam can proceed.

Responsible Office: Paradise Irrigation District; Butte County Transportation Division

Priority (H, M, L): High

Cost Estimate: $65,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within the town of Paradise. Avoid major damage the District's water distribution system.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of funding.

Action 6. B-Reservoir Replacement

Hazards Addressed: Wildfire; Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: The Paradise Irrigation District provides potable water to the Town of Paradise with 10,507 connections, serving a population of 26,800. The distribution system includes 7 distribution zones (Zones A through G), one water treatment plant, and five storage reservoirs ranging in size from just under 1 million gallons to 2 million gallons capacity. All of the reservoirs are steel tank reservoirs, with the exception of Reservoir B, which is an earth embankment lined reservoir with a flexible membrane cover. Reservoir B was designed to store 3 million gallons (MG) of potable water, however, storage capacity is limited to 2 MG due to hydraulic considerations. Treated, potable water is transferred from the PID water treatment plant (WTP) via a 12,500 42-inch gravity water transmission main to Zone B and Reservoir B.

Reservoir A is supplied potable water from Zone B via pump stations.

Reservoir B is a 3 MG earth embankment reservoir lined with reinforced polypropylene and with a floating high-density polyethylene (HDPE) cover. The reservoir was constructed in 1984 and the cover and line were replaced in 2005. Floating cover reservoirs are subject to many issues related to the integrity of the cover---tears, contamination, and failures of other systems that all pose a threat of drinking water contamination. The cover is also subject to vandalism by trespassers and wildlife; it gathers rainwater, and the sump pump installed to drain the rainwater constantly requires maintenance. Maintenance must also be scheduled regularly to remove debris; as debris accumulates, it attracts vectors (e.g. mosquitos) and leads to decay and detritus sitting on the cover of the drinking water reservoir. As the only reservoir that directly feeds Zone B (21% of customers) and Zone A (12% of customers), it is a critical point in the distribution system that does not have any redundancy, and the WTP pumping conditions make it reliant on Reservoir B to deliver water through the transmission main, impacting other zones and residents in the event of Reservoir B failing. See Reservoirs' Schematic under Tab 15, which shows Reservoir B feeds the entire District distribution system by gravity and Zone A through Pump Station A.

Total storage capacity for each zone must include sufficient fire storage. Paradise is in a wildland interface area and, in support of wildland firefighting, PID provides water storage for use in fighting wildfires should they enter the service area. fire storage volume is intended to be available in all zones, at all times (including during peak demand). Prior to the Camp Fire of 2018, the largest fire in recent history in Paradise was the Camp Fire of 2008. On July 8, 2008 the fire increased in sized by 17,000 acres in one day (source: CalFire, "2008 June Fire Siege," pg. 61 and noted on page 18 in the PID Reservoir B Replacement Conceptual Design Report, August 2017), destroying 50 homes only one month after the Humboldt Fire had destroyed 20 homes in Paradise and approximately 75 homes in the Chico area. Reservoir storage levels for reservoirs A, B, C, and D and plant flow data were analyzed for the week of the 2008 Camp Fire to determine system demand during the fire. The calculated hourly system demand and the resulting daily system demand during the week of the 2008 Camp Fire show the 24-hour firefighting period of July 8, 2008 at noon to July 9, 2008 showed a 4 MG increase in system demand.

This 4.0 MG increase is attributed to firefighting efforts within Paradise using fire hydrant flow data. In order to determine needed fire storage requirements, the following firefighting conditions and associated storage requirements were considered:

1. Actual Usage during the 2008 Camp Fire.

2. A "Model" wildfire which requires two hydrants be run at 1,000 gallons per minute (gpm) for 24 hours.

3. A single commercial structure fire which requires 3,000 gpm for 3 hours.

4. A single residential fire which requires 1,500 gpm of firefighting flow for 2 hours.

Based on the regulatory minimum water storage requirements and the fire storage calculation using the above parameters, the total current available storage and minimum water storage requirements by zone was tabulated. According to the Conceptual Design Report prepared by Water Works Engineering in 2017, there is a total storage deficiency in Zone B and a usable storage deficiency in both Zone A and Zone B. Further analysis using operating data and reservoir levels for the peak week of June 30 - July 2013 were examined. This data shows similar deficiencies during peak periods during a drought year, with only 0.66 MG of usable water in Reservoir B, falling 2.2 MG short of the target amount of 2.88 MG.

According to a news article published by Bay Area News Group December 2, 2018 (See Tab 15), since 1999 13 large wildfires have burned in the 153,000 acre footprint of the recent 2018 Camp Fire, including the Bloomer (1999), Bucks (1999), Doe Mill (1999), Concow (2000), Highway 70 (2001), Poe (2001), Skyway (2002 & 2006), Honey (2007), BTU Lightning Complex (2008), Camp Fire (2008), Humboldt (2008), Ninety Nine (2016), and Saddle (2016). Not all of these were declared national disasters, but they all exceeded 300 acres.

The proposed project is to construct an additional 2.5 MG above ground, steel tank reservoir to support fire flow storage requirements and storage needs during drought years. This project also supports water quality protection by eliminating the risks associated with the flexible membrane cover.

Other Alternatives: The construction of new water reservoir tanks is commonly constructed of either prestressed concrete or welded steel. This alternative would be to use prestressed concrete tank. Advantages include:

1. Prestressed concrete tanks do not require coatings, and therefore do not require the maintenance of re-coating.

2. Concrete tanks can be created to be narrower and taller than steel tanks, if needed, however, this site does not require narrower tanks and the tank height is limited by the WTP hydraulics.

3. The tank can be partially buried.

Negatives for this alternative include:

1. Prestressed concrete tanks take longer to construct than steel tanks.

2. Prestressed concrete tanks must be NSF-61 compliant concrete, since the concrete is in contact with drinking water. NSF-61 compliant concrete is not commonly available and the rural location would likely demand a premium price.

3. Prestressed concrete tanks require more significant subgrade earthwork preparation than steel tanks, and are more sensitive to differential settlement conditions. This adds time and expense to construction.

Existing Planning Mechanism(s) through which Action Will Be Implemented: The District has plans to implement this project.

Responsible Office: Paradise Irrigation District;

Priority (H, M, L): High

Cost Estimate: $15,000,000

Benefits (Losses Avoided): Avoid potential loss of life (greater than 1,000 people) within the town of Paradise. Avoid major damage the District's water distribution system.

Potential Funding: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Timeline: To be determined based on the availability of funding.

Action 7. A-Zone Pipeline and Generator

Hazards Addressed: Drought and Water Supply

Goals Addressed: 1, 2, 3, 4, 5 7, 9

Issue/Background: The Paradise Irrigation District (PID) provides drinking water to the community of Paradise located in Butte County, California. The PID has multiple potential risks from flooding, earthquakes, severe weather, fire, and power outages. As a result, the PID has evaluated its infrastructure for potential hazards and identified priority capital improvements necessary to mitigate such risks to the community's water supply. The priority infrastructure identified for this project are: 1) Re-align the 42" Raw Water Supply Pipeline, 2) Alternate, emergency treated water transmission pipeline and A Zone Pump Station, and 3) the Water Treatment Plant Back-up Power Supply.

The Raw Water Supply Pipeline currently crosses the Little Butte Creek supported by three (3) concrete pillars. These concrete pillars are at least as old as the pipeline, which was put into service in 1955. Prior to the pipeline, a wooden flume was in its place and it is possible that these concrete supports were used to support this flume prior to 1955. This critical facility is at risk of damage by either earthquake or flood due to the condition of the un-reinforced concrete support piers, the age and the condition of the raw water pipe, and the fact it crosses a creek that is subject to rapid increases in water volumes makes this facility highly vulnerable to seismic and or flooding events. Furthermore, this pipeline crosses the creek downstream from the Magalia Dam, which has been evaluated and characterized by the California Division of Safety of Dams

(DSOD) as the "worst dam" in the state of California. The concern is damage may occur to either the unreinforced concrete supports and/or to the pipeline should another flood event and/or earthquake occur in the future. The current configuration and condition of the pipe and the concrete supports puts the raw water pipeline at risk for a total loss. If this pipeline were to be damaged, the entire Town of Paradise population would be without water until the pipeline could be repaired or an alternate temporary line be installed. Depending on the circumstances of the disaster, this effort may be hindered due to rushing water through the creek and the overtopping of the Magalia Dam as was experienced in 1997, further increasing the likelihood and duration of a water outage to the entire population. Had this pipeline failed in 1997, it is unclear what recourse the District would have had given the flood conditions.

A 16" transmission pipeline from the water treatment plant to the "A" zone section of the District's service area is needed to provide an alternative supply of water to the District's service area. Currently, only one transmission 42" pipeline from the water treatment plant provides all of the Town's treated water via Zone "B". In the event that this pipeline fails, there is no alternative pipeline to deliver the water resulting in a District-wide outage. Furthermore, water service to the District's "A" pressure zone is currently pumped from "B" zone by Pump Station Number 2. If this pump station, or its ancillary facilities, fail all customers will experience a water outage. This pipeline will also allow the District to distribute water more efficiently to the "A" zone portion of the District and improve fire flow to this area of the District. Located in the foothills, the Town of Paradise has a high fire risk (see CalFire map of the Town of Paradise). Additionally, the District's only transmission line is predominantly located along a steep embankment and would be difficult to access in the event of a landslide. Damage to the pipeline itself from fire is not likely, but to the pumping facility, storage tank, or landslide following a fire are potential risks (see 42-inch Transmission Pipeline Location Map).

The Town of Paradise experiences frequent power outages resulting from storms, high winds, and forest trees, without outages averaging six per year and durations of up to 4 – 6 hours. The Water Treatment Plant is also at risk for flooding, due to its location near the Little Butte Creek and Magalia Reservoir. During periods of power outages, the District issues a community order to reduce water use and if the outage persists, a boil water notice would be required, and the District could run out of water if the plant were without power for 24 hours during the warmer months.

Other Alternatives: Construct a water treatment plant and pumping station from Oroville Lake to serve water to the entire Paradise Irrigation Customer base.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Pay-as-you-go utilizing funding from water rates. State Revolving Fund Loans or EPA grants.

Responsible Office: Paradise Irrigation District

Priority (H, M, L): High

Cost Estimate: $11,500,000

Benefits (Losses Avoided): In order to reduce and potentially eliminate the risk to the raw water line, the District will abandon the current pipeline crossing and install a new, 36" raw water pipe aligned along the roadway so it does not cross the creek, which will alleviate any potential damage to the pipeline itself and/or

from the concrete supports being damaged by a future flood or seismic activity. By eliminating the creek crossing at this lower point downstream of the Magalia Dam, the threat of damage due to flooding will be greatly reduced if not eliminated. See the attached photos of the existing and new alignments, and the site plan.

The installation of the alternate 16" transmission pipeline and pump station will allow the District to continue to distribute water throughout this District in the event that the transmission main pipeline or the pumping and/or tank suffers a failure. This is an essential activity, because if only the pump station fails, at a minimum 10% of the District (Zone A) will not receive water; and if the main pipeline is damaged, all of the District will suffer a water outage once the storage tanks drain. This pipeline is also important for fire flow, because if the is power outage that affects pumping capabilities while there is a fire, pressure for fire flow will diminish.

The new, emergency generator will be at least a 1600 kW, diesel generator with an enclosure. This generator will provide 100% of the power needed to operate the water treatment plant and also be of sufficient capacity to provide emergency power into the future to allow for future expansion for the useful life of the generator (19 years). Given the age and the strain on the existing generator, there is potential for it to fail when needed most. Power outages occur, on average, six times per year; and often for extended periods of time (e.g. more than 4 hours). The current generator has also been "grandfathered" for use and only for emergency and maintenance purposes due to its inability to meet current air quality standards---use is limited to 90 hours/year. The new generator will meet current environmental standards.

Potential Funding: State Revolving Fund Loans; EPA Grants; Water Rates

Timeline: To be determined based on the availability of funding.

Action 8. Water Shed Fuel Reduction

Hazards Addressed: Wildfire, Drought, Severe Weather, Extreme Heat, Severe Weather: Wind

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: Paradise Irrigation District has 389 acres within the project area, located around the Magalia Reservoir and Little Butte Creek. The property has multiple vegetation types including: Mixed Conifer, Fir/Cedar/Oak, Grey Pine/Live Oak, and Serpentine. The current stocking level for the property is approx. 385 trees per acre, with about 270 (~70%) being 10" DBH or less. About 108 trees per acre are

10" DBH or larger. There are approx. 8 snags per acre under 10" DBH and 5 snags per acre 10" DBH and larger, which is a slightly less average than the rest of the Magalia plan area. Therefore, throughout PIDs land it is estimated that there are currently 1,945 10" DBH and larger standing dead trees. There are also less diseased trees per acre on PIDs land than the project areas average, with close to 80 trees being diseased. The expected conifer mortality is about 1 tree 10" DBH or larger per two acres. This means that about 195 conifers 10" DBH and larger may die in per year. Paradise Irrigation District has 59 acres of Hazard Zone in the project, where vulnerable trees are within 150 feet of houses and infrastructure, posing a health and safety risk. This means roughly 295 10" DBH and larger dead trees are located in the hazard areas of their property. There are also approx. 12 diseased trees in the PID Hazard Zone. Expected conifer mortality of

trees 10” DBH and larger in this zone is about 31 trees per year. There is an average of 6.4 tons per acre of dead, downed woody debris located throughout PIDs land holdings.

Project Description: Fuel reduction treatments should remove trees and snags below 10" DBH until the canopy cover reaches 70%. Smaller diameter trees that are in a suppressed or intermediate crown position (the tree is being overtopped by taller, more mature trees and doesn’t receive direct sunlight throughout the majority of its crown) should be targeted first. Leave trees should be pruned up to 12-16 feet or until 1/3 the live crown has been removed for smaller trees. With the stand aging it is vital to make sure there are trees available to regenerate the overstory once mature trees start dying.

Other Alternatives: Prescribed burns were also considered as an additional treatment method, particularly for Starthistle.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Magalia Forest Management Plan and CEQA.

Responsible Office/Partners: Paradise Irrigation District and Butte County Fire Safe Council

Cost Estimate: $5,000,000

Benefits (Losses Avoided): Over $50 million estimated valuation of structures within a 2-mile radius of the project area and water quality issues for the customers of Paradise Irrigation District.

Potential Funding: Paradise Irrigation District in-kind labor, volunteer labor, and the use of CA Conservation Corps and/or Alliance for Work Force Development crews as local match.

Timeline: 36 months implementation period

Project Priority: High

Action 9. Backup Portable Generators

Hazards Addressed: Flooding and Localized Flooding, Earthquake, Wildfire, Dam Failure, Severe Weather, Power Outages

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: Backup generation is the main way in which the District maintains continued function of its critical facilities. Currently the District has only one portable generator that can be used in case of power outage. It is housed at the District office. In the instance of a widespread and prolonged power outage there is a risk that additional power generation would be needed at facilities that do not have backup generation or current backup generation fails. Additional generators would mitigate some of the risk of a prolonged outage.

Project Description: Purchase additional portable backup generators.

Other Alternatives: Install permanent backup generation at the District main office and other critical facilities without permanent backup power generation.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Unknown

Responsible Office/Partners: Paradise Irrigation District

Cost Estimate: $500,000

Benefits (Losses Avoided): The District would not experience a depressurization of distribution system, lose the ability to treat water for the Town of Paradise, and the loss of communication between the treatment plant and distribution system tanks

Potential Funding: General funds

Timeline: When funding is available.

Project Priority: High

Action 10. Earthquake Vulnerability Assessment on Water Distribution Infrastructure

Hazards Addressed: Earthquake and Liquefaction

Goals Addressed: 1, 2, 3, 4, 5, 7, 9

Issue/Background: California has high susceptibility to earthquake events. Evaluate Agency infrastructure located in fault line and seismically active areas

Project Description: Overlay fault line and seismic activity maps with our infrastructure maps to evaluate a predictability curve. Potentially a project that could be completed by a U.C. or Cal State Engineering program.

Other Alternatives: N/A

Existing Planning Mechanisms through which Action will be implemented:

Responsible Office: Paradise Irrigation District

Priority (H, M, L): Low

Cost Estimate: Approximately $500,000 Potential Funding: Split between the agency and a FEMA Hazard Mitigation Grant

Benefits (avoided Losses): Understand vulnerable areas and ensure our system is capable of withstanding significant seismic/earthquake events

Schedule: When funding is available.

Exhibit B – Recent Water Conservation Programs

PARADISE IRRIGATION DISTRICT

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2014-03
ADOPTING A WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, the District, as an urban retail water supplier, is mandated pursuant to SB7x-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, given historically dry conditions existing within the District's watershed in 2013 and continuing for much of the 2014 winter season, the District has determined that additional water conservation, in addition to those mandated by SB7x-7, is needed to conserve the District's water supplies for the remainder of 2014 and, potentially into 2015 and beyond; and

WHEREAS, careful water management that includes active water conservation measures, particularly in times of drought is essential to ensure a reliable minimum supply of water to meet current and future water supply needs; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the adoption and enforcement of a water conservation program is necessary to manage Paradise Irrigation District's water supply to avoid or minimize the effects of drought within Paradise Irrigation District and to ensure a reliable and sustainable minimum supply of water for the public health, safety, and welfare.

WHEREAS, on January 17, 2014, the Governor of California proclaimed the existence of a statewide drought state of emergency; and

WHEREAS, on April 2, 2014, Paradise Irrigation District held a public hearing and demonstrated the necessity for the adoption of a water conservation program; and

WHEREAS, on April 2, 2014, Paradise Irrigation District's reservoir storage was at 82% of its historical average; and

WHEREAS, Paradise Irrigation District's 2008 Urban Water Management Plan and subsequent updates have confirmed that the District must operate in a perpetual state of drought until the District develops or acquires a reliable drought water supply;

WHEREAS, water conserved by the District's customers will be carried over in storage for public health and safety uses in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby adopt this "Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporate them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting a water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately and at such other times when, in the opinion of the Board of Directors, such measures are necessary for the preservation of public health and safety standards. The Board finds that the mandatory conservation measures will be in place until the earlier of (a) suspension by the Board of Directors; or (b) when Paradise Reservoir next fills and spills. The mandatory conservation measures may be imposed at a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Plan will be considered waste and an unreasonable use of water. The following mandatory conservation measures are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Irrigation watering is prohibited between the hours of 10:00 a.m. and 8:00 p.m., and irrigation systems are limited to no more than 15 minutes of watering per day per station. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, an irrigation system that uses stream rotor sprinklers with an application rate of less than one-half inch per hour, very low-flow irrigation systems where no emitter produces more than two gallons of water per hour, or to commercial nurseries and growers. In addition, irrigation for the purpose of installing and germinating new lawns or landscaping is exempt from these restrictions for a period not to exceed three weeks, unless the General Manager gives written permission to a water user for an extension beyond three weeks due to unique circumstances.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, in the opinion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited except when necessary to alleviate safety or sanitary hazards or as surface preparation for the application of any architectural coating or painting. All such permitted washing must be done by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Obligation to Fix Leaks**. Leaks in distribution, irrigation, or plumbing systems on the customer's side of the meter must be promptly repaired after discovery, and in no event more than one week after receiving notice from the Paradise Irrigation District.

e. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

f. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device and in accordance with conservation measure 5(c), above. This provision does not apply to a commercial car washing facility.

g. **Drinking Water Served Upon Request**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

h. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

i. **Restaurants Required to Use Water Conserving Spray Valves**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold must utilize water conserving nozzles on pre-rinse spray valves.

j. **Commercial Car Wash Facilities**. Commercial car wash facilities may not use or permit the use of any water to wash any car, truck, boat, trailer, bus, recreation vehicle, camper, or any other vehicle, or any portion thereof, except by the use of the equipment provided by the facility.

k. **Outdoor Residential Watering Restrictions**. Watering or irrigating of lawns, landscaping, or other vegetated areas is limited based on the following schedule: Properties whose street address bears a final digit that is an odd number may water or irrigate when the day of the month is an odd number. Properties whose street address bears a final digit that is an even number may water or irrigate when the day of the month is an even number. Watering and irrigating will be prohibited on the 31st day of any month that has 31 days.

This provision does not apply to landscape irrigation zones that exclusively use very low-flow irrigation system in which no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

l. **Voluntary 20% Reduction in Water Use by All Customers.** In addition to implementing the foregoing mandatory conservation measures, Customers are asked to implement measures within their households and businesses to reduce per capita water use by 20% from 2013 consumption. Water saving tips are available at www.paradiseirrigation.com or by contacting District staff at 877-4971.

m. **Rainy Days**. No water, sprinkling or irrigating shall take place on, or one day after days with measureable local rainfall.

n. **Reporting Water Waste**. Paradise Irrigation District shall maintain a program for residents to report waste of water throughout the District boundaries. District staff will investigate all reports of water waste.

7. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both as provided in Water Code section 377.

b. Each day that a violation of this resolution occurs is a separate offense.

c. Repeat offenders of this Water Conservation Program may, in the discretion of the District, be placed on the District's highest tiered rate for water usage or be subject to other administrative penalties pursuant to the District's rules and regulations and applicable law.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a special meeting of said Board on this 2nd day of April, 2014, by the following vote:

AYES: Directors Sep Carola, Ken Hunt, Doug Flesher, Bill Kellogg, and Larry Duncan

NOES: None

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

Larry R. Duncan, President

ATTEST:

Georgeanna Borrayo, Secretary

PARADISE IRRIGATION DISTRICT

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2015-04
AMENDING AND READOPTING A WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, on January 17, 2014, the Governor of California proclaimed the existence of a statewide drought state of emergency and asked all Californians to reduce their water usage by 20%; and

WHEREAS, the District answered the Governor's call for a 20% reduction in water use by achieving a 21% cumulative reduction in use in 2014, as compared to 2013, and was one of the few suppliers in California to respond to and exceed the Governor's request; and

WHEREAS, Paradise Irrigation District (District), as an urban retail water supplier, is mandated pursuant to SB7x-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, the District has prepared and amended from time to time an urban water management plan that, among other things, sets forth the District's drought contingency plan and process to analyze the District's surface water storage levels on April 1 of each year to determine if drought conditions exist and water shortage contingency stages should be enacted; and

WHEREAS, on April 1, 2015, the District duly noticed and conducted a public hearing at a special meeting of its Board of Directors to receive public input and to analyze and consider then-existing water supply conditions of the District which were determined to be 10,449 acre-feet of stored supply, equating to 85% of average and 85% of reservoir storage capacity; and

WHEREAS, in accordance with the District's urban water management plan the aforementioned water supply conditions would have triggered Rationing Stage I, which is the lowest (least restrictive) conservation stage in the District's urban water management plan; and

WHEREAS, during the last eighteen years, the District's storage capacity on April 1 equaled or was less than its levels on April 1, 2015, one time, and the District in the succeeding year, was able to supply adequate water for its customers; and

WHEREAS, since April 1, 2015, the District storage capacity has decreased only 275 acre-feet. WHEREAS, in the absence of any state mandate, the District in accordance with its urban water management plan would be implementing a voluntary 15% reduction in potable water deliveries to all District customers; and

WHEREAS, on April 1, 2015, Governor Brown issued Executive Order B-29-15, which includes in paragraph 2, a mandate that the State Water Resources Control Board impose a 25% reduction in potable urban water usage through February 28, 2016; and

WHEREAS, given the Governor's April 1, 2015, Executive Order, the District at its public hearing on April 1, 2015, amended its proposed Water Conservation Program to require a 25% reduction in deliveries to customers; and

WHEREAS, the District's 2014 Water Conservation Program and April 1, 2015 Water Conservation Program are incorporated herein by this reference; and

WHEREAS, on April 7, 2015, the State Water Resources Control Board (State Water Board) released a Draft Regulatory Framework for implementing paragraph 2 of the Governor's April 1, 2015, Executive Order that, among other requirements, would have mandated the District to achieve a 35% reduction in residential gallons delivered per capita per day (R-GPCD) compared to September, 2013 usage; and

WHEREAS, on April 13, 2015, the District timely submitted written comments to the State Water Board's Draft Regulatory Framework, which are incorporated herein by this reference; and

WHEREAS, on April 20, 2015, the State Water Board released for public comment draft urban conservation regulations that, among other requirements, mandated the District to achieve a 36% reduction in R-GPCD from June 1, 2015, through February, 2016 as compared to certain months in 2013 usage; and

WHEREAS, on April 22, 2015, the District timely submitted written comments to the draft urban conservation regulations, which are incorporated herein by this reference; and

WHEREAS, on April 28, 2015, the State Water Board released for public comment revised draft urban conservation regulations that, among other requirements, continued to mandate that the District achieve a 36% reduction in R-GPCD; and

WHEREAS, on May 4, 2015, the District timely submitted written comments to the revised draft urban conservation regulations, which are incorporated herein by this reference; and

WHEREAS on May 5, 2015, the District, through its Legal Counsel, offered testimony at the State Water Board's meeting at which the urban conservation emergency regulations were ultimately adopted (hereinafter Regulations); and

WHEREAS, the District's written and oral comments were largely ignored by the State Water Board and the Regulations were adopted without substantial amendments; and

WHEREAS, the District's current available water supply does not necessitate a 36% reduction in R-GPCD; and

WHEREAS, the District, as set forth in its comment letters, believes there are substantial procedural and substantive deficiencies in the Regulations and the record does not support the Regulations that the District is now mandated to impose on its customers; and

WHEREAS, nonetheless, the District through this amendment and readoption of its Water Conservation Program, intends to utilize its best efforts to comply with the Regulations' mandates applicable to the District; and

WHEREAS, though the District intends on complying with the mandates in the Regulations, it does so specifically reserving all rights, claims and defenses available to the District; and

WHEREAS, the District is concerned that a 36% across-the-board reduction in R-GPCD to its customers would pose problems maintaining minimum health and safety standards, including without limitation, to District customers that currently use 55 gallons per person per day or less, to customers that utilize outdoor irrigation as part of a defensible space program, and to the community of Paradise as a whole in preventing and mitigating potentially catastrophic damages to life and property from wildfires given the District's geographic location in a Very High Fire Hazard Severity Zone; and

WHEREAS, the District and its customers achieved a 21% reduction in R-GPCD as compared to 2013 by implementing various wise water use practices and programs as set forth in the District's 2014 Water Conservation Program; and

WHEREAS, the District's 2014 Water Conservation Program balanced the District's need and interest in conserving water with the District's customers' need to utilize water for beneficial use and for a variety of health and safety uses; and

WHEREAS, the District's customers are asked to redouble conservation efforts that were successful in 2014 and to immediately implement new and expanded conservation measures to achieve an additional 15% reduction in R-GPCD, so that cumulatively, the District will comply with the 36% reduction in R-GPCD as mandated by the Regulations; and

WHEREAS, in 2014 the District's top 20% of residential customers used 47% of the District's total residential water deliveries (hereinafter "High Residential Users"); and

WHEREAS, in 2014 High Residential Users' R-GPCD value, on average, was 319 gallons per person per day (assuming District average of 2.6 persons per household), which is far in excess of other customers within the District, and far in excess of levels necessary to maintain health and safety standards; and

WHEREAS, in comparison, the District's other customers used, on average, 90 gallons per person per day (with the same 2.6 person per household assumption), and the District's bottom 20% of residential customers used, on average, 40 gallons per person per day (with an assumption of 2 persons per household); and

WHEREAS, the District delivers approximately 5% of its potable water supply to commercial agricultural operations (hereinafter "Agricultural Users"); and

WHEREAS, the District delivers approximately 12.5% of its potable water supply to the Town of Paradise, schools, businesses, Paradise Park & Recreation District and hospitals within its service area (hereinafter "Institutional Users"); and

WHEREAS, the District delivers less than 5% of its potable water supply to customers using less than or equal to 5 units per month, and the District finds that such usage cannot be reduced without unreasonable impacts to health and safety needs for water (hereinafter "Low Residential Users"); and

WHEREAS, the District believes that it can comply with the mandates in the Regulations through a combination of actions, including requiring all District customers to implement mandatory conservation measures (as set forth below); requiring High Residential Users to reduce their usage by 50% compared to 2013; requiring Agricultural Users to reduce their usage by 20% compared to 2013; and requiring Institutional Users to reduce their usage by 25% compared to 2013; and

WHEREAS, the District finds that adherence to this amended Water Conservation Program and the required measures and conservation targets will balance the District's need to conserve water for possible continuation of the drought in 2016 and beyond and the District's customers' need to use water in 2015 for beneficial uses, including health and safety demands; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the amendment and readoption and enforcement of a water conservation program is necessary to comply with the mandated actions set forth in the Regulations; and

WHEREAS, on May 20, 2015, Paradise Irrigation District held a public hearing and demonstrated the necessity for the amendments and re-adoption of its water conservation program to comply with state mandates; and

WHEREAS, water conserved by the District's customers will be carried over in storage for the beneficial use of the District's customers, including possible public health and safety uses of District customers in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby amend and readopt its "Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporates them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting this revised water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately by all District customers and at such other times when, in the opinion of the Board of Directors, such

measures are necessary for the preservation of public health and safety standards. The Board finds that these mandatory conservation measures constitute an equitable distribution of water given the current drought conditions. The Board finds that the mandatory conservation measures will be in place until the earlier of (a) suspension of this Program by the Board of Directors; or (b) when Paradise Reservoir next fills and spills. The mandatory conservation measures may be imposed at a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Program will be considered waste and an unreasonable use of water. The following mandatory conservation measures must be implemented and complied with by all District customers and are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Outdoor irrigation and watering is prohibited between the hours of 10:00 a.m. and 8:00 p.m., and irrigation systems are limited to no more than 15 minutes of watering per day per station. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, an irrigation system that uses stream rotor sprinklers with an application rate of less than one-half inch per hour, very low-flow irrigation systems where no emitter produces more than two gallons of water per hour, or to commercial nurseries and growers. In addition, irrigation for the purpose of installing and germinating new lawns or landscaping is exempt from these restrictions for one period not to exceed three weeks per installation, unless the General Manager gives written permission to a water user for an extension beyond three weeks due to unique circumstances.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, as determined in the sole discretion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited, except when necessary to alleviate safety or sanitary hazards or as surface preparation for the application of any architectural coating or painting. All such permitted washing must be done by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Obligation to Fix Leaks**. Leaks in distribution, irrigation, or plumbing systems on the customer's side of the meter must be promptly repaired after discovery, and in no event more than one week after receiving notice of the leak from the District.

e. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

f. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This provision does not apply to a commercial car washing facility.

g. **Drinking Water Served Upon Request**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

h. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

i. **Restaurants Required to Use Water Conserving Spray Valves**. Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold must utilize water conserving nozzles on pre-rinse spray valves.

j. **Commercial Car Wash Facilities**. Commercial car wash facilities may use or permit the use of any water to wash any car, truck, boat, trailer, bus, recreation vehicle, camper, or any other vehicle, but only with the use of the equipment provided by the facility.

k. **Outdoor Watering Restrictions**. All outdoor irrigation with potable water (excepting golf courses, parks, and other public open space and landscaped areas); including without limitation, ornamental watering, is limited based on the following schedule: Properties whose street address bears a final digit that is an odd number may water or irrigate when the day of the month is an odd number. Properties whose street address bears a final digit that is an even number may water or irrigate when the day of the month is an even number. Outdoor Watering will be prohibited on the 31st day of any month that has 31 days.

This provision does not apply to landscape irrigation zones that exclusively use very low-flow irrigation system in which no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

l. **Rainy Days**. No outdoor irrigation, sprinkling, or outdoor watering shall take place during, or within 48 hours after measureable local rainfall.

m. **Irrigation of Public Street Medians.** In accordance with Regulation section 864(a)(7) no irrigation with potable water of ornamental turf will be allowed on public street medians within the District's service area.

n. **Outdoor Irrigation of New Construction**. In accordance with Regulation section 864(a)(8), irrigation using potable water of landscapes outside of newly constructed homes and buildings in the District's service area will not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.

o. **Reporting Water Waste**. Paradise Irrigation District shall maintain a program for residents to report waste of water throughout the District boundaries. District staff will investigate all reports of water waste. The District will continue its leak detection and notification process for leaks detected on the customer's side of the meter through the District's automated meter reading system.

7. The District's General Manager is directed to initiate and sustain for the duration of the Regulations, a public awareness and education campaign to implement the mandates of the Regulations and the requirements of this Water Conservation Program.

a. The General Manager is directed to write a letter to each owner of property that constitutes a High Residential User advising of the immediate need to reduce their usage by 50% compared to their usage in 2013, and instructing such customers on efficient water use. If necessary, or requested, the General Manager or his designee will meet with High Residential Users to discuss ways to achieve the required 50% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each High Residential Water User that did not achieve their required water conservation in that month.

b. The General Manager is directed to write a letter to each Agricultural User advising of the immediate need to reduce their usage by 20%. If necessary or requested, the General Manager or his designee will meet with Agricultural Users to discuss ways to achieve the required 20% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each Agricultural User showing each such user's progress towards achieving the required water conservation.

c. The General Manager is directed to meet with Institutional Users advising of the immediate need to reduce their usage by 25%. If necessary or requested, the General Manager or his designee will meet with Institutional Users to discuss ways to achieve the required 25% reduction. Beginning in July 2015 for usage in June 2015 and continuing at least monthly thereafter through March 2016, the General Manager will provide a "Water Use Progress Report" to each Institutional User showing each such user's progress towards achieving the required water conservation.

d. The District's Low Residential Users are recognized for previous conservation efforts and, provided such customers continue to not exceed a 5 unit per month usage threshold, will not be asked to reduce under this Water Conservation Program their usage compared to 2013. Low Residential Users will be required to abide by the mandatory conservation measures set forth in section 6 of this Water Conservation Program.

e. All other District customers are required to reduce their usage by 25% compared to their usage in 2013.

f. To determine 2013 water use, all customers are encouraged to sign up for Aquahawk at PID.aquahawk.us. Water saving tips are available at www.paradiseirrigation.com, www.paradisesaveswater.com, or by contacting District staff at 877-4971.

8. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted (i) as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both, as provided in Water Code section 377, and/or (ii) as an infraction punishable by a fine of up to $500 for each day in which the violation occurs, as provided in title 23, California Code of Regulations, section 864(d).

b. Each day that a violation of this resolution occurs is a separate offense.

c. Repeat offenders of this Water Conservation Program may, in the discretion of the District, (i) be placed on the District's highest tiered rate for water usage in lieu of and as a proxy for prosecution as described in section 8(a), above, and/or (ii) have a flow restrictor placed in their meter, and/or (iii) be subject to other administrative penalties pursuant to the District's rules and regulations and applicable law.

9. The District's General Counsel, in coordination with the District's General Manager, is directed to prepare a draft Excess Water Use Ordinance under Government Code section 53069.4 setting forth potential additional remedies available to the District in the event of noncompliance with the terms of this Water Conservation Program. A draft of the Excess Water Use Ordinance shall be provided to the District's Water Conservation Committee for review and input by the Committee and interested members of the public. If the Committee recommends adoption of the Excess Water Use Ordinance, it shall be considered as soon thereafter as possible by the District Board of Directors at a public meeting.

10. The District's General Manager or his designee may modify this Water Conservation Program without further action or approval of the Board of Directors when said modification is required in order to comply with any law, regulation, action by the Governor or state agency, or similar mandate. Such modification shall not constitute an amendment to the Water Conservation Program under section 376(b) of the Water Code. The General Manager shall give notice of any such modification as soon as possible prior to its effective date, by posting notice and the text of the modification on the District's website and in a conspicuous place at the District office. Any action taken under this paragraph 10 will be agendized at the next regularly scheduled board meeting for ratification by the Board of Directors.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a regular meeting of said Board on this 20th day of May, 2015, by the following vote:

AYES: Directors Sep Carola, Larry Duncan, Doug Flesher, Bill Kellogg and Ken Hunt

NOES: None

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

Kenneth G. Hunt, President

ATTEST:

Georgeanna Borrayo, Secretary

RESOLUTION OF THE BOARD OF DIRECTORS

RESOLUTION NO. 2016-13
ADOPTING THE 2016 WATER CONSERVATION PROGRAM

WHEREAS, article X, section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, regulation of the time of certain water use, manner of certain water use, method of application of water for certain uses, and installation and use of water-saving devices provide an effective and immediately available means of conserving water; and

WHEREAS, California Water Code sections 375 et seq. empower any public entity which supplies water at retail or wholesale to adopt and enforce a water conservation program to reduce the quantity of water used by those within its service area after holding a public hearing and making appropriate findings of necessity for the adoption of a water conservation program; and

WHEREAS, on May 9, 2016, the Governor of California executed Executive Order B-37-16 making conservation a way of life; and

WHEREAS, Paradise Irrigation District (District), as an urban retail water supplier, is mandated pursuant to SBx7-7 to, among other requirements, reduce per capita water consumption 20% by 2020; and

WHEREAS, the District has prepared and amended from time to time an urban water management plan that, among other things, sets forth the District's drought contingency plan and process to analyze the District's surface water storage levels on April 1 of each year to determine if drought conditions exist and water shortage contingency stages should be enacted; and

WHEREAS, on April 1, 2016, the District analyzed the water supply conditions of the District which were determined to be 12,297 acre-feet of stored supply, equating to 102% of average and 100% of available reservoir storage capacity; and

WHEREAS, in accordance with the District's urban water management plan the aforementioned water supply conditions require no rationing of supplies during the 2016 water year; and

WHEREAS, the State Water Resources Control Board (SWRCB) intends on modifying its current emergency urban water conservation regulations and has circulated a draft modification to the pending emergency regulations that would include a self-certification process to demonstrate an urban supplier can satisfy treated water demands in the event the drought extends another three years; and

WHEREAS, under this draft approach, the District has more than adequate water supply to provide its customers with three years of supply assuming a continuation of drought conditions and establishes a conservation standard of 0%; and

WHEREAS, given the Governor's May 9, 2016, Executive Order B-37-16 and the anticipated adoption by the SWRCB of draft regulations mandating certain wise water use practices, the District hereby continues water use limitations on end-users to eliminate water waste; and

WHEREAS, the end user limitations and wise water use practices set forth in the District's 2014 Water Conservation Program and 2015 Water Conservation Program are incorporated herein by this reference; and

WHEREAS, though the District intends on complying with the mandates established by the State of California, it does so specifically reserving all rights, claims and defenses available to the District; and

WHEREAS, the District finds that adherence to this Water Conservation Program and the required measures will balance the District's need to conserve water for possible future drought in 2017 and beyond and the District's customers' need to use water in 2016 for beneficial uses, including health and safety demands; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow Paradise Irrigation District to delay or avoid declaring a water shortage emergency pursuant to Water Code section 350; and

WHEREAS, the amendment and readoption and enforcement of a water conservation program is necessary to comply with the mandated actions set forth in the emergency regulations as currently drafted and as the SWRCB may modify the same; and

WHEREAS, on May 18, 2016, Paradise Irrigation District held a public hearing and demonstrated the necessity for the adoption of its water conservation program to comply with state mandates; and

WHEREAS, water conserved by the District's customers will be carried over in storage for the beneficial use of the District's customers, including possible public health and safety uses of District customers in future years;

NOW, THEREFORE, BE IT RESOLVED THAT the Board of Directors of Paradise Irrigation District does hereby adopt its "2016 Water Conservation Program for Paradise Irrigation District" as follows:

1. The Board of Directors finds the above recitals are true and incorporates them by this reference as findings; and

2. This resolution and the conservation measures herein are effective immediately upon adoption pursuant to Water Code section 376; and

3. Pursuant to Water Code section 376 and Government Code section 6061, Paradise Irrigation District shall publish in a newspaper of general circulation this resolution, or a summary, adopting this revised water conservation program within 10 days after its adoption and publicize its enactment on the District's website and in billing correspondence with the District's customers; and

4. This resolution establishes mandatory conservation measures to be implemented immediately by all District customers and at such other times when, in the opinion of the Board of Directors, such measures are necessary for the preservation of public health and safety standards. The Board finds that these mandatory conservation measures constitute equitable rules governing use of water given the state's conservation mandates and the potential for continued drought conditions in 2017 or beyond. The Board finds that the mandatory conservation measures will be in place for the duration of the state's emergency regulations concerning urban conservation. The mandatory conservation measures may be re-imposed at

a future time by majority action of the Board of Directors at a public meeting convened in accordance with the Brown Act (Government Code §§ 54950 et seq.).

5. The provisions of this resolution are not intended to limit uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services; and

6. Violations of this Water Conservation Program will be considered waste and an unreasonable use of water. The following mandatory conservation measures must be implemented and complied with by all District customers and are effective immediately and at such other times as determined by the Board of Directors:

a. **Watering Hours and Duration**. Outdoor irrigation and watering is prohibited between the hours of 12:00 p.m. and 6:00 p.m. These restrictions do not apply to the limited use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, irrigation systems where no emitter produces a spray pattern, or to commercial nurseries and growers.

b. **Excessive Water Flow or Runoff**. Watering in a manner that, as determined in the sole discretion of the District, results in overspray or excessive runoff onto paved or hardscaped areas is prohibited.

c. **Washing Hard or Paved Surfaces**. Washing of hard or paved surfaces, including without limitation sidewalks, walkways, driveways, parking areas, tennis courts, patios, roofs, alleys and other hard surfaces, is prohibited except with a low-volume high-pressure cleaning machine, or a low-volume high-pressure water broom.

d. **Water Fountains and Decorative Water Features**. Water fountains and decorative water features must use a water recirculation system.

e. **Limits on Washing Vehicles**. Washing any automobile, truck, van, bus, motorcycle, boat, or any other vehicle is restricted to the use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This provision does not apply to a commercial car washing facility.

f. **Rainy Days**. No outdoor irrigation, sprinkling, or Outdoor Watering shall take place during, or within 48 hours after measureable local rainfall.

g. **Irrigation of Public Street Medians.** In accordance with Regulation section 864(a)(7) no irrigation with potable water of ornamental turf will be allowed on public street medians within the District's service area.

h. **Outdoor Irrigation of New Construction**. In accordance with Regulation section 864(a)(8) irrigation using potable water of landscapes outside of newly constructed homes and buildings in the District's service area will not be allowed if in a manner inconsistent with the regulations or other requirements established by the California Building Standards Commission.

i. **Drinking Water Served Upon Request.** Eating or drinking establishments, including restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drinks are sold are prohibited from providing drinking water to any customer unless expressly requested.

j. **Commercial Lodging Establishment Daily Linen Services**. Hotels, motels, and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each guest room.

7. The District's General Manager is directed to continue outreach to encourage customers to sign up for Aquahawk at PID.aquahawk.us. Water saving tips are available at www.paradiseirrigation.com, www.paradisesaveswater.com, or by contacting District staff at 877-4971.

8. The District reserves the right to pursue any and all available remedies for violations of the requirements of this Water Conservation Program, including without limitation:

a. Each violation of this resolution may be prosecuted (i) as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days or by a fine not exceeding $1,000, or by both, as provided in Water Code section 377, and/or (ii) as an infraction punishable by a fine of up to $500 for each day in which the violation occurs, as provided in title 23, California Code of Regulations, section 864(d).

b. Each day that a violation of this resolution occurs is a separate offense.

9. The District's General Manager or his designee may modify this Water Conservation Program without further action or approval of the Board of Directors when said modification is required in order to comply with any law, regulation, action by the Governor or state agency, or similar mandate. Such modification shall not constitute an amendment to the Water Conservation Program under section 376(b) of the Water Code. The General Manager shall give notice of any such modification as soon as possible prior to its effective date, by posting notice and the text of the modification on the District's website and in a conspicuous place at the District office. Any action taken under this paragraph 9 will be agendized at the next regularly scheduled board meeting for ratification by the Board of Directors.

Passed and adopted by the Board of Directors of the Paradise Irrigation District at a regular meeting of said Board on this 18th day of May, 2016, by the following vote:

AYES: Directors Ken Hunt, Larry Duncan, Cliff Jacobson, and Sep Carola

NOES: Director Bill Kellogg

ABSTAIN: None

ABSENT: None

PARADISE IRRIGATION DISTRICT

_____

Sep Carola, President

ATTEST:

_____

Georgeanna Borrayo, Secretary

Exhibit C – Ordinance No. 2015-01 An Ordinance Adopting Enforcement Procedures and Fines and Penalties for Water Conservation Measures

PARADISE IRRIGATION DISTRICT
ORDINANCE NO. 2015-01

AN ORDINANCE ADOPTING ENFORCEMENT PROCEDURES AND FINES AND PENALTIES FOR WATER CONSERVATION MEASURES

WHEREAS, Governor Brown on April 1, 2015, issued Executive Order B-29-15 which includes in paragraph 2 a mandate that the State Water Resources Control Board impose a reduction in potable water usage through February 28, 2016, to achieve a statewide 25% water savings; and

WHEREAS, the State Water Resources Control Board on May 5, 2015, adopted emergency regulations setting forth, among other items, mandatory end-user conservation measures and a requirement that the Paradise Irrigation District ("District") reduce its total potable water production by 36% beginning June 1, 2015, through February 2016 as compared to the same months in 2013; and

WHEREAS, in order to implement these mandates, the District adopted Resolution No. 2015-04 Amending and Readopting a Water Conservation Program ("Water Conservation Program") on May 20, 2015, a true and correct copy of which is attached as Exhibit A and incorporated herein by this reference; and

WHEREAS, the District maintains policies and rules and regulations concerning water use within the District and incorporates the current versions of the District's policies and rules and regulations herein by this reference; and

WHEREAS, pursuant to Water Code §§ 375 et seq. and Government Code § 53069.4, the District is empowered to implement conservation measures, to conduct enforcement proceedings, and to impose fines and penalties for violations; and

WHEREAS, the District finds that sanctions, including fines and penalties for excessive water use, are reasonable and are necessary to deter customers from taking excess water from District supplies or engaging in wasteful or prohibited water use practices; and

WHEREAS, the Board of Directors of Paradise Irrigation District finds and determines, as set forth in detail below, that this Ordinance is necessary to comply with state conservation mandates and to strengthen enforcement of the District's Water Conservation Program, the District's policies, and its rules and regulations.

NOW, THEREFORE, the Board of Directors of Paradise Irrigation District does hereby ordain as follows:

1. Applicability.
    a. This ordinance provides for administrative citations which are in addition to all other legal remedies, criminal or civil, which may be pursued by the District.
    b. The administrative citation process set forth in this ordinance applies to all violations of:
        i. The Water Conservation Program;
        ii. The District's policies as currently written or hereafter duly adopted or revised by the Board of Directors; and/or

iii. The District's rules and regulations as currently written or hereafter duly adopted or revised by the Board of Directors.

c. The use of this Ordinance shall be at the sole discretion of the District.

2. Definitions. For purposes of this Ordinance:

a. "Compliance Officer" shall mean any District employee or agent of the District with the authority delegated by the General Manager to enforce any provision of this Ordinance; and

b. "Hearing Officer" shall mean the Chief Financial Officer, or persons appointed by the District's General Manager, including the General Manager himself, that presides over an administrative hearing provided for in this Ordinance.

3. Administrative Citation.

a. Whenever a Compliance Officer determines that a violation of this Ordinance has occurred, the Compliance Officer shall have the authority to issue an administrative citation to any person responsible for the violation.

b. Each administrative citation shall contain the following information:

i. The date of the violation(s);
ii. The address or a specific description of the location where the violation(s) occurred;
iii. The section(s), as applicable, of the Water Conservation Program, policies, and rules and regulations violated and a description of the violation(s);
iv. The amount of the fine for the violation(s);
v. A description of the fine payment process, including a description of the time within which and the place to which the fine shall be paid;
vi. An order prohibiting the continuation or repeated occurrence of the violation(s) described in the administrative citation;
vii. A description of the administrative citation review process, including the time within which the administrative citation may be contested by submitting a request for a hearing form;
viii. The name and signature of the citing Compliance Officer; and
ix. A statement that a failure to appeal shall constitute a failure to exhaust administrative remedies and result in the citation becoming a final administrative enforcement order.

4. Administrative Citation Fines.

a. Except in cases where the violation or violations, in the judgment of the Compliance Officer, pose an immediate threat to health and safety, the District will utilize the

following progressively more stringent enforcement procedure in issuing administrative citations:

i. First administrative citation: written warning. Whenever a Compliance Officer determines that a violation has occurred, the Compliance Officer may issue a warning of administrative citation to any person responsible for the violation. Service of a written warning shall be a prerequisite to the issuance of further administrative citations with attendant financial penalties. In addition to the information set forth in Section 3.b., and if applicable, the warning shall specify a time and date by which the violation shall be corrected, after which a second administrative citation may be issued if the violation is not fully corrected. The Compliance Officer shall provide for a reasonable amount of time to correct the violation after considering the circumstances of the case, except that at least 24 hours shall be allowed for from the time and date of the warning. A warning shall not be required before the issuance of a second or any subsequent administrative citation for a continuing or repeated violation.

ii. Second administrative citation within any twelve (12) month period: one hundred dollars ($100.00) for each violation cited.

iii. Third administrative citation within any twelve (12) month period: two hundred dollars ($200.00) for each violation cited.

iv. Fourth administrative citation within any twelve (12) month period: five hundred dollars ($500.00) for each violation cited.

v. Fifth and succeeding administrative citation within any twelve (12) month period: the District may resort to any and all available legal remedies, including without limitation, suspending or reducing deliveries to the property and referring the matter to the Butte County District Attorney's office.

b. Each day or portion thereof during which a violation is committed, continued, or permitted, is a separate and distinct violation for which an administrative citation may be issued. Each violation constitutes a separate offense for which a separate penalty may be imposed. The fine amounts shall be cumulative where multiple citations are issued and the aggregate amount will be set forth in the administrative citation.

c. Payment of the fine(s) shall not excuse the failure to correct the violation(s), nor shall it bar further enforcement action by the District.

d. Fines imposed on any person under the second administrative citation stage will be reimbursed by the District if the person receiving the citation attends a one (1) hour water conservation course offered by the District. Attendance and receipt of a refund will not relieve the person from any additional administrative citations and fines for subsequent violation(s) of this Ordinance.

5. Payment of the Fine(s).

   a. All fine(s) assessed shall be payable to the District unless otherwise directed on the citation. Payment must be made within thirty (30) days from the date of the administrative citation.

   b. Any fine paid shall be refunded in accordance with Section 7.g.ii., if it is determined after a hearing or appeal, the person charged with the administrative citation was not responsible for the violation, or that there was no violation as charged in the administrative citation.

   c. Payment of fines under this Ordinance shall not excuse or discharge any continuation or repeated occurrence of the violation that is the subject of the administrative citation.

   d. Any person who fails to pay the District any fine imposed pursuant to this Ordinance on or before the date that fine is due, shall also be liable for the payment of a late payment charge of 10% of administrative citation fine quantity. .

6. Hearing Request.

   a. Any recipient of an administrative citation in which fines are imposed may contest that there was a violation of this Ordinance or that the recipient is the responsible party, by completing a request for hearing form and returning it to the District office within thirty (30) days from the date of the administrative citation, together with an advance deposit of the fine(s).

   b. A request for hearing form may be obtained from the District's office, 6332 Clark Road, Paradise CA.

   c. The person requesting the hearing shall be notified of the time and place set for the hearing at least ten (10) days prior to the date of the hearing.

   d. If the Compliance Officer submits an additional written report concerning the administrative citations to the Hearing Officer for consideration at the hearing, then a copy of this report shall also be served on the person requesting the hearing at least five (5) days prior to the date of the hearing.

7. Hearing Procedure.

   a. No hearing to contest an administrative citation before a Hearing Officer shall be held unless the fine(s) has been deposited with the District in advance.

   b. A hearing before the Hearing Officer shall be set for a date that is not less than fifteen (15) days and not more than sixty (60) days from the date that the request for hearing is filed in accordance with the provisions of this Ordinance.

   c. At the hearing, the party contesting the administrative citation shall be given the opportunity to testify and to present evidence concerning the administrative citation.

d. The failure of any party contesting the administrative citation to appear at the hearing shall constitute a forfeiture of the fine and a failure to exhaust administrative remedies.

e. The administrative citation and any additional report submitted by the Compliance Officer, if compliant with Section 3.b., shall constitute prima facie evidence of a violation of this Ordinance.

f. The Hearing Officer shall be a disinterested employee, agent or consultant of the District. The employment, performance evaluation, compensation and benefits of the Hearing Officer shall not be directly or indirectly conditioned upon the amount of administrative citation fines upheld by the Hearing Officer.

g. Decision of the Hearing Officer:

    i. After considering all the testimony and evidence submitted at the hearing, the Hearing Officer shall issue a written decision to uphold or cancel the administrative citation and shall list in the decision, the reasons for that decision.
    ii. If the Hearing Officer decides to cancel the administrative citation, the District shall promptly refund the amount of the deposited fine.
    iii. The person receiving the administrative citation shall be served with a copy of the Hearing Officer's written decision.
    iv. For purposes of the Ordinance, service is accomplished by either personal delivery or deposit in the United States Mail in a sealed envelope sent first class, postage prepaid, addressed to the person to be notified at the mailing address for the person as set forth in the District's files, or such other address as provided by the person receiving notice.

h. Appeal of Hearing Officer's Decision to Board of Directors:

    i. If the Hearing Officer upholds the imposition of the administrative citation, the person aggrieved by the administrative citation may appeal the Hearing Officer's decision to the Board of Directors of the District.
    ii. A request for appeal to the Board of Directors must be made in writing to the District within ten (10) days of service of the Hearing Officer's decision. If an appeal to the Board of Directors is not timely received, the decision of the Hearing Officer shall be final. Timely appeal to the Board of Directors is a prerequisite to seeking judicial review under Section 8; failure to timely appeal to the Board of Directors constitutes a failure to exhaust administrative remedies.
    iii. Timely appeal requests will be considered by the Board at its next regularly scheduled board meeting.
    iv. The failure of any party appealing the Hearing Officer's decision to appear at the appeal shall constitute a denial of the appeal, forfeiture of the fine, and a failure to exhaust administrative remedies.

v. After considering the Hearing Officer's decision, evidence, testimony of the appealing party, and any public comments, the Board of Directors will make a decision, by motion and majority vote, to grant or deny the appeal.

8. Right to Judicial Review. Any person aggrieved by the Board of Directors' decision to uphold the administrative decision of a Hearing Officer on an administrative citation, may obtain review of the decision by filing a petition for review within the Butte County Superior Court in accordance with the timeliness and provisions set forth in Government Code section 53069.4.

9. Recovery of Administrative Citations Fines and Costs. The District may collect any past due administrative citation fines or late payment charges by any or all available legal means.

PASSED AND ADOPTED this 17th day of June, 2015 by the following vote at a regular meeting of the Board of Directors.

AYES:	Directors Sep Carola, Larry Duncan, Doug Flesher and Ken Hunt
NOES:	Director Bill Kellogg
ABSTAINED:	None
ABSENT:	None

PARADISE IRRIGATION DISTRICT

K.G. Hunt

Kenneth G. Hunt, President

ATTEST:

Georgeanna Borrayo

Georgeanna Borrayo, Secretary

Exhibit D – Water Shortage Contingency Plan Adoption Resolution

The adoption resolution will be included in the Final Water Shortage Contingency Plan.